

The `eso-pic` package*

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1 Introduction

This package makes it easy to add some picture commands to every page at absolute positions.

2 Usage

See also the example L^AT_EX documents (`eso-*.tex`).

2.1 Basic commands for adding L^AT_EX stuff to the page background

`\AddToShipoutPictureBG`

All the picture commands which are parameters of an `\AddToShipoutPictureBG` command will be added to the internal macro `\ESO@HookIBG`. This macro is part of a zero-length `picture` environment with basepoint at the lower left corner of the page (default) or at the upper left corner (package option "texcoord"). The `picture` environment will be shipped out at every new page.

`\AddToShipoutPictureBG*` works like `\AddToShipoutPictureBG` but only for the current page. It used the internal macro `\ESO@HookIIBG` which contents will be removed automatically.

For compatibility the macros `\AddToShipoutPicture` and `\AddToShipoutPicture*` are aliases for `\AddToShipoutPictureBG` and `\AddToShipoutPictureBG*`.

Works like `\AddToShipoutPictureBG` but the picture commands are on the top oft the normal document content.

A call of `\ClearShipoutPictureBG` clears the contents of `\ESO@HookIBG`.

For compatibility the macro `\ClearShipoutPicture` is an alias for `\ClearShipoutPictureBG`.

A call of `\ClearShipoutPictureFG` clears the contents of `\ESO@HookIFG`.

Allows a length as parameter to a picture command. Note that this macro is no more necessary when using `\usepackage{picture}`.

`\gridSetup[gridunitname]{gridunit}{{labelfactor}}{griddelta}{{gridDelta}}{gap}`. For details see the implementation section.

*This document corresponds to `eso-pic` v2.0d, dated 2013/10/06.

```
\AtPageUpperLeft Helper macros for easier positioning on the page.
```

```
\AtPageLowerLeft  
  \AtPageCenter  
\AtTextUpperLeft  
\AtTextLowerLeft  
  \AtTextCenter  
\AtStockUpperLeft  
\AtStockLowerLeft  
  \AtStockCenter
```

2.2 Package options

Option	Value	Comments
<code>pscoord</code>	empty or <code>true, false</code>	The zero point of the coordinate system is the lower left corner of the page (the default).
<code>texcoord</code>	empty or <code>true, false</code>	The zero point of the coordinate system is the upper left corner of the page.
<code>grid</code>	empty or <code>true, false</code>	A grid is drawing; default: false.
<code>gridunit</code>	<code>mm, in, bp, pt</code>	Distance between gridlines are multiples of <code>gridunit</code> . default: mm.
<code>gridcolor</code>	a valid color name	Color of the main gridlines; default: black
<code>subgridcolor</code>	a valid color name	Color of the subgridlines; default: black.
<code>subgridstyle</code>	<code>solid</code> or <code>dotted</code>	'dotted' is very slow! default: solid.
<code>colorgrid</code>	empty or <code>true, false</code>	Shortcut for 'grid=true', 'gridcolor=red' and 'subgridcolor=green'; default: false.
<code>dvips</code>	empty or <code>true, false</code>	Is also true if the package option <code>dvips</code> is used by <code>color</code> or <code>graphics</code> . If true package <code>eepic</code> is loaded for better performance of dotted lines.

3 Implementation

3.1 The main functionality

```
1 \RequirePackage{atbegshi}  
  
\LenToUnit  
2 \providecommand*\LenToUnit[1]{#1\@gobble}  
  
\ESO@isMEMOIR Support for the memoir class.  
3 \newcommand\ESO@isMEMOIR[2]{#2}  
4 \@ifclassloaded{memoir}{\renewcommand\ESO@isMEMOIR[2]{#1}}{}  
  
\AtPageUpperLeft  
5 \newcommand\AtPageUpperLeft[1]{%  
6   \put(0,\LenToUnit{-\ESO@yoffsetI}){#1} %  
7 }  
  
\AtPageLowerLeft  
8 \newcommand\AtPageLowerLeft[1]{\AtPageUpperLeft{ %  
9   \put(0,\LenToUnit{-\paperheight}){#1}}}  
  
\AtPageCenter  
10 \newcommand\AtPageCenter[1]{\AtPageUpperLeft{ %  
11   \put(\LenToUnit{.5\paperwidth},\LenToUnit{-.5\paperheight}){#1}} %  
12 }
```

```

\AtStockLowerLeft
13 \newcommand{\AtStockLowerLeft}{}
14 \ESO@isMEMOIR{%
15   \renewcommand{\AtStockLowerLeft[1]}{%
16     \begingroup
17       \tempdima=-\stockwidth
18       \advance\tempdima\trimedge
19       \advance\tempdima\paperwidth
20       \if@twoside\ifodd\c@page\else
21         \tempdima=-\trimedge
22       \fi\fi
23       \tempdimb=-\stockheight
24       \advance\tempdimb\paperheight
25       \advance\tempdimb\trimtop
26       \AtPageLowerLeft{%
27         \put(\LenToUnit{\tempdima},\LenToUnit{\tempdimb}){#1}%
28       }%
29     \endgroup
30   }%
31 }{%
32   \let\AtStockLowerLeft=\AtPageLowerLeft
33 }

\AtStockUpperLeft
34 \newcommand{\AtStockUpperLeft}{}
35 \ESO@isMEMOIR{%
36   \renewcommand{\AtStockUpperLeft[1]}{%
37     \AtStockLowerLeft{%
38       \put(0,\LenToUnit{\stockheight}){#1}%
39     }%
40   }%
41 }{%
42   \let\AtStockUpperLeft=\AtPageUpperLeft
43 }

\AtStockCenter
44 \newcommand{\AtStockCenter}{}
45 \ESO@isMEMOIR{%
46   \renewcommand{\AtStockCenter[1]}{%
47     \AtStockLowerLeft{%
48       \put(\LenToUnit{.5\stockwidth},\LenToUnit{.5\stockheight}){#1}%
49     }%
50   }%
51 }{%
52   \let\AtStockCenter=\AtPageCenter
53 }

\AtTextUpperLeft
54 \ESO@isMEMOIR{%
55   \newcommand{\AtTextUpperLeft[1]}{%
56     \begingroup
57       \ifodd\c@page
58         \tempdima=\spinemargin
59       \else

```

```

60      \@tempdima=\paperwidth
61      \advance\@tempdima-\textwidth
62      \advance\@tempdima-\spinemargin
63  \fi
64  \@tempdimb=-\uppermargin
65  \AtPageUpperLeft{%
66      \put(\LenToUnit{\@tempdima},\LenToUnit{\@tempdimb}){#1}%
67  }%
68  \endgroup
69 }
70 }{%
71  \newcommand\AtTextUpperLeft[1]{%
72  \begingroup
73      \@tempdima=1in\relax
74      \ifodd\c@page
75          \advance\@tempdima\oddsidemargin
76      \else
77          \advance\@tempdima\evensidemargin
78      \fi
79      \@tempdimb=-1in\relax
80      \advance\@tempdimb-\topmargin
81      \advance\@tempdimb-\headheight
82      \advance\@tempdimb-\headsep
83  \AtPageUpperLeft{%
84      \put(\LenToUnit{\@tempdima},\LenToUnit{\@tempdimb}){#1}%
85  }%
86  \endgroup
87 }
88 }

\AtTextLowerLeft
89 \newcommand\AtTextLowerLeft[1]{\AtTextUpperLeft{%
90   \put(0,\LenToUnit{-\textheight}){#1}}}

\AtTextCenter
91 \newcommand\AtTextCenter[1]{\AtTextUpperLeft{%
92   \put(\LenToUnit{.5\textwidth},\LenToUnit{-.5\textheight}){#1}}}

\ESO@HookIBG
\ESO@HookIIBG
\ESO@HookIIIBG
\ESO@HookIFG
\ESO@HookIIFG
93 \newcommand{\ESO@HookIBG}{}
94 \newcommand{\ESO@HookIIBG}{}
95 \newcommand{\ESO@HookIIIBG}{}
96 \newcommand{\ESO@HookIFG}{}
97 \newcommand{\ESO@HookIIFG}{}
98 \newcommand{\ESO@HookI}{}
99 \newcommand{\ESO@HookII}{}
100 \newcommand{\ESO@HookIII}{}
101 \let\ESO@HookI=\ESO@HookIBG
102 \let\ESO@HookII=\ESO@HookIIBG
103 \let\ESO@HookIII=\ESO@HookIIIBG

\AddToShipoutPictureBG
\AddToShipoutPictureFG
104 \newcommand{\AddToShipoutPictureBG}{%
105   \@ifstar{\g@addto@macro\ESO@HookIIBG}{\g@addto@macro\ESO@HookIBG}{}

```

```

106 \newcommand{\AddToShipoutPicture}{}%
107 \let\AddToShipoutPicture=\AddToShipoutPictureBG

\AddToShipoutPictureFG
108 \newcommand{\AddToShipoutPictureFG}{%
109   \@ifstar{\g@addto@macro\ESO@HookIIFG}{\g@addto@macro\ESO@HookIFG}{}

\ClearShipoutPictureBG
\ClearShipoutPicture 110 \newcommand{\ClearShipoutPictureBG}{\global\let\ESO@HookIBG\@empty}
\ClearShipoutPictureFG 111 \newcommand{\ClearShipoutPicture}{}%
112 \let\ClearShipoutPicture=\ClearShipoutPictureBG
113 \newcommand{\ClearShipoutPictureFG}{\global\let\ESO@HookIFG\@empty}

\AtBeginShipout (see package atbegshi)
\AtBeginShipoutUpperLeft 114 \ESO@isMEMOIR{%
\inShipoutUpperLeftForeground 115 \AtBeginShipout{%
116   \tempdima=-\trimedge
117   \advance\tempdima-\paperwidth
118   \advance\tempdima\stockwidth
119   \if@twoside\ifodd\c@page\else
120     \advance\tempdima2\trimedge
121     \advance\tempdima\paperwidth
122     \advance\tempdima-\stockwidth
123   \fi\fi
124   \tempdimb=\ESO@yoffsetI
125   \advance\tempdimb-\trimtop
126   \nointerlineskip
127   \AtBeginShipoutUpperLeft{%
128     \put(\LenToUnit{\tempdima},\LenToUnit{\tempdimb}){%
129       \ESO@HookIIIBG\ESO@HookIBG\ESO@HookIIBG
130       \global\let\ESO@HookIIBG\@empty
131     }%
132   }%
133   \AtBeginShipoutUpperLeftForeground{%
134     \put(\LenToUnit{\tempdima},\LenToUnit{\tempdimb}){%
135       \ESO@HookIFG\ESO@HookIIFG
136       \global\let\ESO@HookIIFG\@empty
137     }%
138   }%
139 }
140 }%
141 \AtBeginShipout{%
142   \nointerlineskip
143   \AtBeginShipoutUpperLeft{%
144     \put(0,\LenToUnit{\ESO@yoffsetI}){%
145       \ESO@HookIIIBG\ESO@HookIBG\ESO@HookIIBG
146       \global\let\ESO@HookIIBG\@empty
147     }%
148   }%
149   \AtBeginShipoutUpperLeftForeground{%
150     \put(0,\LenToUnit{\ESO@yoffsetI}){%
151       \ESO@HookIFG\ESO@HookIIFG
152       \global\let\ESO@HookIIFG\@empty
153     }%

```

```

154      }%
155  }
156 }

157 \RequirePackage{keyval}

Initialising some macros
158 \newif\ifESO@dvips\ESO@dvipsfalse \newif\ifESO@grid\ESO@gridfalse
159 \newif\ifESO@texcoord\ESO@texcoordfalse
160 \newcommand*\ESO@gridunitname{}
161 \newcommand*\ESO@gridunit{}
162 \newcommand*\ESO@labelfactor{}
163 \newcommand*\ESO@greddelta{} \newcommand*\ESO@griddeltaY{}
164 \newcommand*\ESO@gridDelta{} \newcommand*\ESO@gridDeltaY{}
165 \newcommand*\ESO@gridcolor{}
166 \newcommand*\ESO@subgridcolor{}
167 \newcommand*\ESO@subgridstyle{dotted}%
168 \newcommand*\ESO@gap{}
169 \newcommand*\ESO@yoffsetI{} \newcommand*\ESO@yoffsetII{}
170 \newcommand*\ESO@gridlines{\thinlines}
171 \newcommand*\ESO@subgridlines{\thinlines}
172 \newcommand*\ESO@hline[1]{\ESO@subgridlines\line(1,0){#1}}
173 \newcommand*\ESO@vline[1]{\ESO@subgridlines\line(0,1){#1}}
174 \newcommand*\ESO@Hline[1]{\ESO@gridlines\line(1,0){#1}}
175 \newcommand*\ESO@Vline[1]{\ESO@gridlines\line(0,1){#1}}
176 \newcommand\ESO@fcolorbox[3]{\fbox{#3}}
177 \newcommand\ESO@color[1]{}
178 \newcommand\ESO@colorbox[2]{%
179   \begingroup
180     \fboxrule=\z@\fbox{#2}%
181   \endgroup
182 }

\gridSetup
183 \newcommand\gridSetup[6][]{%
184   \edef\ESO@gridunitname{\#1}\edef\ESO@gridunit{\#2}
185   \edef\ESO@labelfactor{\#3}\edef\ESO@greddelta{\#4}
186   \edef\ESO@gridDelta{\#5}\edef\ESO@gap{\#6}

```

All the key-value options

```

187 \define@key{ESO}{texcoord}[true]{\csname ESO@texcoord#1\endcsname}
188 \define@key{ESO}{pscoord}[true]{\csname @tempswa#1\endcsname
189   \if@tempswa\ESO@texcoordfalse\else\ESO@texcoordtrue\fi}
190 \define@key{ESO}{dvips}[true]{\csname ESO@dvips#1\endcsname}
191 \define@key{ESO}{grid}[true]{\csname ESO@grid#1\endcsname
192   \setkeys{ESO}{gridcolor=black,subgridcolor=black}}
193 \define@key{ESO}{colorgrid}[true]{\csname ESO@grid#1\endcsname
194   \setkeys{ESO}{gridcolor=red,subgridcolor=green}}
195 \define@key{ESO}{gridcolor}{\def\ESO@gridcolor{\#1}}
196 \define@key{ESO}{subgridcolor}{\def\ESO@subgridcolor{\#1}}
197 \define@key{ESO}{subgridstyle}{\def\ESO@subgridstyle{\#1}}%
198 \define@key{ESO}{gridunit}{%
199   \def\@tempa{\#1}

```

```

200 \def\@tempb{bp}
201 \ifx\@tempa\@tempb
202   \gridSetup[\@tempa]{1bp}{1}{10}{50}{2}
203 \else
204   \def\@tempb{pt}
205   \ifx\@tempa\@tempb
206     \gridSetup[\@tempa]{\p@}{1}{10}{50}{2}
207   \else
208     \def\@tempb{in}
209     \ifx\@tempa\@tempb
210       \gridSetup[\@tempa]{.1in}{.1}{2}{10}{.5}
211     \else
212       \gridSetup[mm]{1mm}{1}{5}{20}{1}
213     \fi
214   \fi
215 \fi
216 }
217 \setkeys{ESO}{subgridstyle=solid,pscoord=true,gridunit=mm}

```

\ProcessOptionsWithKV This macro can process package options using ‘key=value’ syntax.

```

218 \def\ProcessOptionsWithKV#1{%
219   \let\@tempc\@empty
220   \@for\CurrentOption:=\@classoptionslist\do{%
221     \ifundefined{KV@#1@\CurrentOption}%
222       {}{\edef\@tempc{\@tempc,\CurrentOption,}}%
223   \edef\@tempc{%
224     \noexpand\setkeys{#1}{\@tempc\@optionlist{\@currname.\@currext}}}%
225   \atEndOfPackage{\let\@unprocessedoptions\relax}%
226 }
227 \ProcessOptionsWithKV{ESO}%

```

\ESO@div Divides length #1 by #2 \times \ESO@gridunit and adds one. Result is in \@tempc_{nta}.

```

228 \newcommand\ESO@div[2]{%
229   \tempdima=#1\relax\tempdimb=\ESO@gridunit\relax
230   \tempdimb=#2\tempdimb\divide\tempdima by \tempdimb
231   \tempcnta\tempdima\advance\tempcnta\one}

232 \ifundefined{colorbox}{%
233   \IfFileExists{xcolor.sty}{\RequirePackage{xcolor}}{%
234     {\RequirePackage{color}}{}}%
235 }{}%
236 \let\ESO@color=\color
237 \renewcommand\ESO@colorbox[2]{%
238   \begingroup
239     \fboxsep=.4ex %
240     \colorbox{#1}{#2}%
241   \endgroup
242 }
243 \renewcommand\ESO@fcolorbox[3]{%
244   \begingroup
245     \fboxsep=.5ex %
246     \fcolorbox{#1}{#2}{#3}%
247   \endgroup

```

```

248 }
249 \AtBeginDocument{%
250   \ESO@dvipsfalse
251   \@ifundefined{Gin@driver}{}{%
252     {%
253       \ifx\Gin@driver\empty\else%
254         \filename@parse{\Gin@driver}\def\reserved@a{dvips}%
255         \ifx\filename@base\reserved@a\ESO@dvipstrue\fi
256         \fi
257     }%
258     \ifESO@dvips\def\@tempb{epic}\else\def\@tempb{epic}\fi
259     \def\@tempa{dotted}%
260     \def\ESO@gap{\LenToUnit{6\@wholewidth}}%
261     \ifx\@tempa\ESO@subgridstyle
262       \IfFileExists{\@tempb.sty}%
263       {%
264         \RequirePackage{\@tempb}
265         \renewcommand*\ESO@hline[1]{\ESO@subgridlines\dottedline{\ESO@gap}%
266           (0,0)(##1,0)}
267         \renewcommand*\ESO@vline[1]{\ESO@subgridlines\dottedline{\ESO@gap}%
268           (0,0)(0,##1)}
269       }{%
270         \else
271           \ifx\ESO@gridcolor\ESO@subgridcolor
272             \renewcommand*\ESO@gridlines{\thicklines}
273           \fi
274       }%
275     \ifESO@texcoord
276       \def\ESO@yoffsetI{\z@}\def\ESO@yoffsetII{-\paperheight}
277       \edef\ESO@griddeltaY{-\ESO@griddelta}\edef\ESO@gridDeltaY{-\ESO@gridDelta}
278     \else
279       \def\ESO@yoffsetI{-\paperheight}\def\ESO@yoffsetII{\z@}
280       \edef\ESO@griddeltaY{\ESO@griddelta}\edef\ESO@gridDeltaY{\ESO@gridDelta}
281     \fi
282   }%
283   \newcommand\ESO@gridpicture{%
284     \begingroup
285       \setlength\unitlength{\ESO@gridunit}%
286       \ESO@color{\ESO@subgridcolor}%
287       — horizontal subgrid lines —
288       \ESO@div{\paperheight}{\ESO@griddelta}%
289       \multiput(0,0)(0,\ESO@griddeltaY){\@tempcpta}%
290       {\ESO@hline{\LenToUnit{\paperwidth}}}%
291       — vertical subgrid lines —
292       \ESO@div{\paperwidth}{\ESO@griddelta}%
293       \multiput(0,\LenToUnit{\ESO@yoffsetII})(\ESO@griddelta,0){\@tempcpta}%
294       {\ESO@vline{\LenToUnit{\paperheight}}}%
295       — horizontal grid lines —
296       \ESO@div{\paperheight}{\ESO@gridDelta}%
297       \multiput(0,0)(0,\ESO@gridDeltaY){\@tempcpta}%
298       {\ESO@Hline{\LenToUnit{\paperwidth}}}%
299   }%
300 }
```

```

— vertical grid lines —
296   \ESO@div{\paperwidth}{\ESO@gridDelta}%
297   \multiput(0,\LenToUnit{\ESO@yoffsetII})(\ESO@gridDelta,0){\@tempcnta}%
298     {\ESO@Vline{\LenToUnit{\paperheight}}}%
— horizontal numbers —
299   \fontsize{10}{12}\normalfont%
300   \ESO@div{\paperwidth}{\ESO@gridDelta}%
301   \multiput(0,\ESO@gridDeltaY)(\ESO@gridDelta,0){\@tempcnta}{%
302     \tempcntb=\@tempcnta\advance\tempcntb-\multicnt
303     \ifnum\tempcntb>1\relax
304       \multiply\tempcntb by \ESO@gridDelta\relax
305       \tempdima=\tempcntb sp\tempdima=\ESO@labelfactor\tempdima
306       \tempcntb=\tempdima%
307       \makebox(0,0)[c]{\colorbox{white}{\the\tempcntb}}%
308     \fi}%
— vertical numbers —
309   \ifx\ESO@gridunitname\empty\def\tempa{0}\else\def\tempa{1}\fi
310   \ESO@div{\paperheight}{\ESO@gridDelta}%
311   \multiput(\ESO@gridDelta,0)(0,\ESO@gridDeltaY){\@tempcnta}{%
312     \tempcntb=\@tempcnta\advance\tempcntb-\multicnt%
313     \ifnum\tempcntb>0\relax
314       \multiply\tempcntb by \ESO@gridDelta\relax%
315       \tempdima=\tempcntb sp\tempdima=\ESO@labelfactor\tempdima
316       \tempcntb=\tempdima%
317       \makebox(0,0)[c]{\colorbox{white}{\the\tempcntb}}%
318     \fi
319   }%
— the unit label —
320   \ifx\ESO@gridunitname\empty\else
321     \thicklines\fboxrule=\wholewidth
322     \put(\ESO@gridDelta,\ESO@gridDeltaY){\makebox(0,0)[c]{%
323       \colorbox{\ESO@gridcolor}{\textbf{\ESO@gridunitname}}}}%
324   \fi
325   \normalcolor%
326 \endgroup
328 }

```

Add the grid to the shipout picture (\ESO@HookIIBG is independent from the user commands \AddToShipoutPictureBG and \AddToShipoutPictureBG*).

```
329 \ifESO@grid\g@addto@macro\ESO@HookIFG{\ESO@gridpicture}\fi
```

Change History

v0.4

General: Initial version 1

v0.5

General: Some bug corrections . . . 1

v0.6

General: Some corrections for com-

patibility with the `html` package
suggested by Ross Moore and a
licence note 1

v0.7		\AtPageLowerLeft 1
General:	New command	
	\AddToShipoutPicture* 1	
v1.0		New package options "texcoord" and "pscoord" 1
General:	New commands	
	\LenToUnit, \AtPageUpperLeft,	
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	and \AtTextCenter. 1	
v1.0a		v1.1c
\ClearShipoutPictureFG: Changed		General: Remove the disadvantageous check of 'pdfTeX'. Now using with Xe ^L A _T E _X should be possible. 7
\let to \global\let (suggested by Alberto Lusiani). 5		
v1.0c		v2.0a
General:	New command	General: Better test of color/xcolor 7
	\AtTextLowerLeft and corrections to \AtTextUpperLeft. 1	\AtStockCenter: New 3
v1.0d		\AtStockLowerLeft: New 3
\LenToUnit: Using \providecommand instead of \newcommand for \LenToUnit 2		\AtStockUpperLeft: New 3
v1.1		\AtTextUpperLeft: Works now for class memoir 3
General: New commands and package options for background grids. 1		v2.0b
v1.1a		\AddToShipoutPictureFG: New command \AddToShipoutPictureFG 4
\ESO@gridpicture: Font setting added. 9		v2.0c
v1.1b		\AtBeginShipoutUpperLeftForeground: bugfix for memoir class (reported by YI Hoze) 5
General: New command		v2.0d
		General: grid should be in foreground 9
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