

The **eso-pic** package*

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Abstract

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

1 Introduction

This package is an extension to Martin Schröder's `everyshi` package. Using `everyshi`'s `\EveryShipout` command **eso-pic** adds one or more userdefined `picture` commands to \LaTeX 's shipout routine.

2 Usage

See also the example \LaTeX documents `eso-ex?.tex`.

2.1 Basic commands for adding \LaTeX stuff to the page background

<code>\AddToShipoutPicture</code>	All the picture commands which are parameters of an <code>\AddToShipoutPicture</code> command will be added to the internal macro <code>\ESO@HookI</code> . This macro is part of a zero-length <code>picture</code> environment with basepoint at the lower left corner of the page (default) or at the upper left corner (package option "texcoord"). The <code>picture</code> environment will be shipped out at every new page.
<code>\ClearShipoutPicture</code>	A call of <code>\ClearShipoutPicture</code> clears the contents of <code>\ESO@HookI</code> .
<code>\AddToShipoutPicture*</code>	<code>\AddToShipoutPicture*</code> works like <code>\AddToShipoutPicture</code> but only for the current page. It used the internal macro <code>\ESO@HookII</code> which contents will be removed automatically.
<code>\LenToUnit</code>	Allows a length as parameter to a picture command.
<code>\gridSetup</code>	<code>\gridSetup[$\langle gridunitname \rangle$]{$\langle gridunit \rangle$}{$\langle labelfactor \rangle$}{$\langle griddelta \rangle$}{$\langle gridDelta \rangle$}{$\langle gap \rangle$}</code> . For details see the implementation section.
<code>\AtPageUpperLeft</code>	Helper macros for easier positioning on the page.
<code>\AtPageLowerLeft</code>	
<code>\AtPageCenter</code>	
<code>\AtTextUpperLeft</code>	
<code>\AtTextLowerLeft</code>	
<code>\AtTextCenter</code>	

*This document corresponds to `eso-pic` v1.1d, dated 2006/07/14.

2.2 Package options

Option	Value	Comments
<code>pscoord</code>	empty or <i>true, false</i>	The zero point of the coordinate system is the lower left corner of the page (the default).
<code>texcoord</code>	empty or <i>true, false</i>	The zero point of the coordinate system is the upper left corner of the page.
<code>grid</code>	empty or <i>true, false</i>	A grid is drawing; default: false.
<code>gridunit</code>	<i>mm, in, bp, pt</i>	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>	<i>solid</i> or <i>dotted</i>	‘dotted’ is very slow! default: solid.
<code>colorgrid</code>	empty or <i>true, false</i>	Shortcut for ‘grid=true’, ‘gridcolor=red’ and ‘subgridcolor=green’; default: false.
<code>dvips</code>	empty or <i>true, false</i>	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{everyshi}

\LenToUnit

2 \providecommand*\LenToUnit[1]{#1\@gobble}

\AtPageUpperLeft

3 \newcommand\AtPageUpperLeft[1]{%
4   \put(0,\LenToUnit{\ESO@yoffsetI}){#1}%
5 }

\AtPageLowerLeft

6 \newcommand\AtPageLowerLeft[1]{\AtPageUpperLeft{%
7   \put(0,\LenToUnit{-\paperheight}){#1}}}

\AtPageCenter

8 \newcommand\AtPageCenter[1]{\AtPageUpperLeft{%
9   \put(\LenToUnit{.5\paperwidth},\LenToUnit{-.5\paperheight}){#1}}%
10 }

\AtTextUpperLeft

11 \newcommand\AtTextUpperLeft[1]{%
12   \begin{group}
13     \setlength\@tempdima{1in}%
14     \ifodd\c@page%
15       \advance\@tempdima\oddsidemargin%
```

```

16     \else%
17         \advance\@tempdima\evensidemargin%
18     \fi%
19     \@tempdimb=\ESO@yoffsetI\relax\advance\@tempdimb-1in\relax%
20     \advance\@tempdimb-\topmargin%
21     \advance\@tempdimb-\headheight\advance\@tempdimb-\headsep%
22     \put(\LenToUnit{\@tempdima},\LenToUnit{\@tempdimb}){#1}%
23 \endgroup
24 }

\AtTextLowerLeft

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

\AtTextCenter

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

\ESO@HookI
\ESO@HookII 29 \newcommand{\ESO@HookI}{\ } \newcommand{\ESO@HookII}{\ }
\ESO@HookIII 30 \newcommand{\ESO@HookIII}{\ }

\AddToShipoutPicture

31 \newcommand{\AddToShipoutPicture}{\%
32     \@ifstar{\g@addto@macro\ESO@HookII}{\g@addto@macro\ESO@HookI}}

\ClearShipoutPicture

33 \newcommand{\ClearShipoutPicture}{\global\let\ESO@HookI\@empty}

\ESO@isMEMOIR Support for the memoir class.

34 \newcommand\ESO@isMEMOIR[1]{\ }
35 \@ifclassloaded{memoir}{\renewcommand\ESO@isMEMOIR[1]{#1}}{\ }

\@ShipoutPicture

36 \newcommand{\@ShipoutPicture}{\%
37     \bgroup
38     \@tempswafalse%
39     \ifx\ESO@HookI\@empty\else\@tempswatrue\fi%
40     \ifx\ESO@HookII\@empty\else\@tempswatrue\fi%
41     \ifx\ESO@HookIII\@empty\else\@tempswatrue\fi%
42     \if@tempswa%
43         \@tempdima=1in\@tempdimb=-\@tempdima%
44         \advance\@tempdimb\ESO@yoffsetI%
45         \ESO@isMEMOIR{%
46             \advance\@tempdima\trimedge%
47             \advance\@tempdima\paperwidth%
48             \advance\@tempdima-\stockwidth%
49             \if@twoside\ifodd\c@page\else%
50                 \advance\@tempdima-2\trimedge%
51                 \advance\@tempdima-\paperwidth%
52                 \advance\@tempdima\stockwidth%
53             \fi\fi%
54             \advance\@tempdimb\trimtop}%

```

```

55     \unitlength=\p@%
56     \global\setbox\@ccclv\vbox{%
57         \vbox{\let\protect\relax
58             \pictur@(0,0)(\strip@pt\@tempdima,\strip@pt\@tempdimb)%
59             \ESO@HookIII\ESO@HookI\ESO@HookII%
60             \global\let\ESO@HookII\@empty%
61             \endpicture}%
62             \nointerlineskip%
63         \box\@ccclv}%
64     \fi
65 \egroup
66 }

67 \EveryShipout{\@ShipoutPicture}

```

3.2 The background grid

```

68 \RequirePackage{keyval}

Initialising some macros
69 \newif\ifESO@dvips\ESO@dvipsfalse \newif\ifESO@grid\ESO@gridfalse
70 \newif\ifESO@texcoord\ESO@texcoordfalse
71 \newcommand*\ESO@gridunitname{}
72 \newcommand*\ESO@gridunit{}
73 \newcommand*\ESO@labelfactor{}
74 \newcommand*\ESO@griddelta{}\newcommand*\ESO@griddeltaY{}
75 \newcommand*\ESO@gridDelta{}\newcommand*\ESO@gridDeltaY{}
76 \newcommand*\ESO@gridcolor{}
77 \newcommand*\ESO@subgridcolor{}
78 \newcommand*\ESO@subgridstyle{dotted}% ???
79 \newcommand*\ESO@gap{}
80 \newcommand*\ESO@yoffsetI{}\newcommand*\ESO@yoffsetII{}
81 \newcommand*\ESO@gridlines{\thinlines}
82 \newcommand*\ESO@subgridlines{\thinlines}
83 \newcommand*\ESO@hline[1]{\ESO@subgridlines\line(1,0){#1}}
84 \newcommand*\ESO@vline[1]{\ESO@subgridlines\line(0,1){#1}}
85 \newcommand*\ESO@Hline[1]{\ESO@gridlines\line(1,0){#1}}
86 \newcommand*\ESO@Vline[1]{\ESO@gridlines\line(0,1){#1}}
87 \newcommand\ESO@fcolorbox[4][\fbox{#4}]{}
88 \newcommand\ESO@color[1]{}
89 \newcommand\ESO@colorbox[3][\fbox{#3}]{}
90 \begingroup
91     \fboxrule=\z@\fbox{#3}%
92 \endgroup
93 }

\gridSetup

94 \newcommand\gridSetup[6][\fbox{#4}]{}
95 \edef\ESO@gridunitname{#1}\edef\ESO@gridunit{#2}
96 \edef\ESO@labelfactor{#3}\edef\ESO@griddelta{#4}
97 \edef\ESO@gridDelta{#5}\edef\ESO@gap{#6}

```

All the key-value options

```

98 \define@key{ESO}{texcoord}[true]{\csname ESO@texcoord#1\endcsname}
99 \define@key{ESO}{pscoord}[true]{\csname @tempswa#1\endcsname}

```

```

100 \if@tempswa\ESO@texcoordfalse\else\ESO@texcoordtrue\fi
101 \define@key{ESO}{dvips}[true]{\csname ESO@dvips#1\endcsname}
102 \define@key{ESO}{grid}[true]{\csname ESO@grid#1\endcsname}
103 \setkeys{ESO}{gridcolor=black,subgridcolor=black}}
104 \define@key{ESO}{colorgrid}[true]{\csname ESO@grid#1\endcsname}
105 \setkeys{ESO}{gridcolor=red,subgridcolor=green}}
106 \define@key{ESO}{gridcolor}{\def\ESO@gridcolor{#1}}
107 \define@key{ESO}{subgridcolor}{\def\ESO@subgridcolor{#1}}
108 \define@key{ESO}{subgridstyle}{\def\ESO@subgridstyle{#1}}%
109 \define@key{ESO}{gridunit}{%
110 \def\@tempa{#1}
111 \def\@tempb{bp}
112 \ifx\@tempa\@tempb
113 \gridSetup[\@tempa]{1bp}{1}{10}{50}{2}
114 \else
115 \def\@tempb{pt}
116 \ifx\@tempa\@tempb
117 \gridSetup[\@tempa]{\p@}{1}{10}{50}{2}
118 \else
119 \def\@tempb{in}
120 \ifx\@tempa\@tempb
121 \gridSetup[\@tempa]{.1in}{.1}{2}{10}{.5}
122 \else
123 \gridSetup[mm]{1mm}{1}{5}{20}{1}
124 \fi
125 \fi
126 \fi
127 }
128 \setkeys{ESO}{subgridstyle=solid,pscoord=true,gridunit=mm}

```

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

```

129 \def\ProcessOptionsWithKV#1{%
130 \let\@tempc\@empty
131 \@for\CurrentOption:=\@classoptionslist\do{%
132 \ifundefined{KV@#1\CurrentOption}%
133 {}{\edef\@tempc{\@tempc,\CurrentOption,}}}%
134 \edef\@tempc{%
135 \noexpand\setkeys{#1}{\@tempc\@optionlist{\@currname.\@currentt}}}%
136 \@tempc
137 \AtEndOfPackage{\let\@unprocessedoptions\relax}}%
138 \ProcessOptionsWithKV{ESO}%

```

`\ESO@div` Divides length #1 by #2 \times `\ESO@gridunit` and adds one. Result is in `\@tempcnta`.

```

139 \newcommand\ESO@div[2]{%
140 \@tempdima=#1\relax\@tempdimb=\ESO@gridunit\relax
141 \@tempdimb=#2\@tempdimb\divide\@tempdima by \@tempdimb%
142 \@tempcnta\@tempdima\advance\@tempcnta\@ne}

143 \AtBeginDocument{%
144 \IfFileExists{color.sty}
145 {%
146 \RequirePackage{color}
147 \let\ESO@color=\color\let\ESO@colorbox=\colorbox

```

```

148 \let\ESO@fcolorbox=\fcolorbox
149 }{}
150 \ESO@dviupsfalse
151 \@ifundefined{Gin@driver}{}%
152 {%
153 \ifx\Gin@driver\@empty\else%
154 \filename@parse{\Gin@driver}\def\reserved@a{dvips}%
155 \ifx\filename@base\reserved@a\ESO@dviupstrue\fi%
156 \fi
157 }%
158 \ifESO@dviups\def\@tempb{eepic}\else\def\@tempb{epic}\fi
159 \def\@tempa{dotted}%\def\ESO@gap{\LenToUnit{6\@wholewidth}}%
160 \ifx\@tempa\ESO@subgridstyle
161 \IfFileExists{\@tempb.sty}%
162 {%
163 \RequirePackage{\@tempb}
164 \renewcommand*\ESO@hline[1]{\ESO@subgridlines\dottedline{\ESO@gap}%
165 (0,0)(##1,0)}
166 \renewcommand*\ESO@vline[1]{\ESO@subgridlines\dottedline{\ESO@gap}%
167 (0,0)(0,##1)}
168 }{}
169 \else
170 \ifx\ESO@gridcolor\ESO@subgridcolor%
171 \renewcommand*\ESO@gridlines{\thicklines}
172 \fi
173 \fi
174 }
175 \ifESO@texcoord
176 \def\ESO@yoffsetI{\z@}\def\ESO@yoffsetII{-\paperheight}
177 \edef\ESO@griddeltaY{-\ESO@griddelta}\edef\ESO@gridDeltaY{-\ESO@gridDelta}
178 \else
179 \def\ESO@yoffsetI{\paperheight}\def\ESO@yoffsetII{\z@}
180 \edef\ESO@griddeltaY{\ESO@griddelta}\edef\ESO@gridDeltaY{\ESO@gridDelta}
181 \fi

```

\ESO@gridpicture

```

182 \newcommand\ESO@gridpicture{%
183 \begingroup
184 \setlength\unitlength{\ESO@gridunit}%
185 \ESO@color{\ESO@subgridcolor}%
186 — horizontal subgrid lines —
187 \ESO@div{\paperheight}{\ESO@griddelta}%
188 \multiput(0,0)(0,\ESO@griddeltaY){\@tempcnta}%
189 {\ESO@hline{\LenToUnit{\paperwidth}}}%
190 — vertical subgrid lines —
191 \ESO@div{\paperwidth}{\ESO@griddelta}%
192 \multiput(0,\LenToUnit{\ESO@yoffsetII})(\ESO@griddelta,0){\@tempcnta}%
193 {\ESO@vline{\LenToUnit{\paperheight}}}%
194 \ESO@color{\ESO@gridcolor}%
195 — horizontal grid lines —
196 \ESO@div{\paperheight}{\ESO@gridDelta}%
197 \multiput(0,0)(0,\ESO@gridDeltaY){\@tempcnta}%
198 {\ESO@Hline{\LenToUnit{\paperwidth}}}%

```

```

— vertical grid lines —
196 \ESO@div{\paperwidth}{\ESO@gridDelta}%
197 \multiput(0,\LenToUnit{\ESO@yoffsetII})(\ESO@gridDelta,0){\@tempcnta}%
198 {\ESO@Vline{\LenToUnit{\paperheight}}}%

— horizontal numbers —
199 \fontsize{10}{12}\normalfont%
200 \ESO@div{\paperwidth}{\ESO@gridDelta}%
201 \multiput(0,\ESO@gridDeltaY)(\ESO@gridDelta,0){\@tempcnta}{%
202 \@tempcntb=\@tempcnta\advance\@tempcntb-\@multicnt%
203 \ifnum\@tempcntb>1\relax
204 \multiply\@tempcntb by \ESO@gridDelta\relax%
205 \@tempdima=\@tempcntb sp\@tempdima=\ESO@labelfactor\@tempdima%
206 \@tempcntb=\@tempdima%
207 \makebox(0,0)[c]{\ESO@colorbox{white}{\the\@tempcntb}}}%
208 \fi}%

— vertical numbers —
209 \ifx\ESO@gridunitname\@empty\def\@tempa{0}\else\def\@tempa{1}\fi%
210 \ESO@div{\paperheight}{\ESO@gridDelta}%
211 \multiput(\ESO@gridDelta,0)(0,\ESO@gridDeltaY){\@tempcnta}{%
212 \@tempcntb=\@tempcnta\advance\@tempcntb-\@multicnt%
213 \ifnum\@tempcntb>\@tempa\relax
214 \multiply\@tempcntb by \ESO@gridDelta\relax%
215 \@tempdima=\@tempcntb sp\@tempdima=\ESO@labelfactor\@tempdima%
216 \@tempcntb=\@tempdima%
217 \makebox(0,0)[c]{\ESO@colorbox{white}{\the\@tempcntb}}}%
218 \fi
219 }%

— the unit label —
220 \ifx\ESO@gridunitname\@empty\else%
221 \thicklines\fbboxrule=\@wholewidth%
222 \put(\ESO@gridDelta,\ESO@gridDeltaY){\makebox(0,0)[c]{%
223 \ESO@fcolorbox{\ESO@gridcolor}{white}{%
224 \textbf{\ESO@gridunitname}}}}}%
225 \fi
226 \normalcolor%
227 \endgroup
228 }

```

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

```
229 \ifESO@grid\g@addto@macro\ESO@HookIII{\ESO@gridpicture}\fi
```

Change History

v0.4		v0.6
General: Initial version	1	General: Some corrections for compatibility with the html package suggested by Ross Moore and a licence note
v0.5		
General: Some bug corrections	1	

v0.7	General: New command	pose (suggested by D. P. Story).	3
	<code>\AddToShipoutPicture*</code>	v1.0c	
v0.8	<code>\@ShipoutPicture</code> : Compatibility with the memoir class (suggested by Andreas Matthias).	General: New command <code>\AtTextLowerLeft</code> and corrections to <code>\AtTextUpperLeft</code>	1
		v1.0d	
v0.9	<code>\@ShipoutPicture</code> : <code>\nointerlineskip</code> prevents a small vertical misplacement (suggested by Stephan Lehmknecht).	<code>\LenToUnit</code> : Using <code>\providecommand</code> instead of <code>\newcommand</code> for <code>\LenToUnit</code>	2
	Compatibility with the crop package (better test of memoir).	v1.1	
		General: New commands and package options for background grids.	1
		v1.1a	
v1.0	General: New commands <code>\LenToUnit</code> , <code>\AtPageUpperLeft</code> , <code>\AtPageCenter</code> , <code>\AtTextUpperLeft</code> , and <code>\AtTextCenter</code>	<code>\ESO@gridpicture</code> : Font setting added.	7
		v1.1b	
		General: New command <code>\AtPageLowerLeft</code>	1
v1.0a	<code>\ClearShipoutPicture</code> : Changed <code>\let</code> to <code>\global\let</code> (suggested by Alberto Lusiani).	New package options "texcoord" and "pscoord"	1
		v1.1c	
v1.0b	<code>\@ShipoutPicture</code> : A new hook <code>\ESO@HookIII</code> for special pur-	General: Remove the disadvantageous check of 'pdfTeX'. Now using with XeLaTeX should be possible.	5

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