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

2.1 Basic commands for adding LaTeX stuff to the page background

`\AddToShipoutPicture` All the picture commands which are parameters of an `\AddToShipoutPicture` command will be added to the internal macro `\ESO@HookI`. 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.

`\ClearShipoutPicture` A call of `\ClearShipoutPicture` clears the contents of `\ESO@HookI`.

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

`\LenToUnit` Allows a length as parameter to a picture command.

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

`\AtPageUpperLeft` `\AtPageLowerLeft` `\AtPageCenter` `\AtTextUpperLeft` `\AtTextLowerLeft` `\AtTextCenter` Helper macros for easier positioning on the page.

*This document corresponds to eso-pic v1.1b, dated 2002/11/16.

2.2 Package options

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

3 Implementation

3.1 The main functionality

```
1 \RequirePackage{everyshi}
```

`\LenToUnit`

```
2 \newcommand\LenToUnit[1]{#1\@gobble}
```

`\AtPageUpperLeft`

```
3 \newcommand\AtPageUpperLeft[1]{%
4   \begingroup
5     \@tempdima=0pt\relax\@tempdimb=\ESO@yoffsetI\relax
6     \put(\LenToUnit{\@tempdima},\LenToUnit{\@tempdimb}){#1}%
7   \endgroup
8 }
```

`\AtPageLowerLeft`

```
9 \newcommand\AtPageLowerLeft[1]{\AtPageUpperLeft{%
10   \put(0,\LenToUnit{-\paperheight}){#1}}}
```

`\AtPageCenter`

```
11 \newcommand\AtPageCenter[1]{\AtPageUpperLeft{%
12   \put(\LenToUnit{.5\paperwidth},\LenToUnit{-.5\paperheight}){#1}}%
13 }
```

`\AtTextUpperLeft`

```
14 \newcommand\AtTextUpperLeft[1]{%
15   \begingroup
```

```
    \setlength\@tempdima{1in}%
    \ifodd\c@page%
      \advance\@tempdima\oddsidemargin%
    \else%
      \advance\@tempdima\evensidemargin%
    \fi%
    \@tempdimb=\ESO@yoffsetI\relax\advance\@tempdimb-1in\relax%
    \advance\@tempdimb-\topmargin%
    \advance\@tempdimb-\headheight\advance\@tempdimb-\headsep%
    \put(\LenToUnit{\@tempdima},\LenToUnit{\@tempdimb}){#1}%
  \endgroup
}
```

`\AtTextLowerLeft`

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

`\AtTextCenter`

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

`\ESO@HookI` `\ESO@HookII` `\ESO@HookIII`

```
\newcommand{\ESO@HookI}{} \newcommand{\ESO@HookII}{}
\newcommand{\ESO@HookIII}{}
```

`\AddToShipoutPicture`

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

`\ClearShipoutPicture`

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

`\ESO@isMEMOIR` Support for the memoir class.

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

`\@ShipoutPicture`

```
\newcommand{\@ShipoutPicture}{%
  \bgroup
    \@tempswafalse%
    \ifx\ESO@HookI\@empty\else\@tempswatrue\fi%
    \ifx\ESO@HookII\@empty\else\@tempswatrue\fi%
    \ifx\ESO@HookIII\@empty\else\@tempswatrue\fi%
    \if@tempswa%
      \@tempdima=1in\@tempdimb=-\@tempdima%
      \advance\@tempdimb\ESO@yoffsetI%
      \ESO@isMEMOIR{%
        \advance\@tempdima\trimedge%
        \advance\@tempdima\paperwidth%
        \advance\@tempdima-\stockwidth%
        \if@twoside\ifodd\c@page\else%
          \advance\@tempdima-2\trimedge%
          \advance\@tempdima-\paperwidth%
```

```
          \advance\@tempdima\stockwidth%
        \fi\fi%
        \advance\@tempdimb\trimtop}%
      \unitlength=1pt%
      \global\setbox\@cclv\vbox{%
        \vbox{\let\protect\relax
          \pictur@(0,0)(\strip@pt\@tempdima,\strip@pt\@tempdimb)%
            \ESO@HookIII\ESO@HookI\ESO@HookII%
            \global\let\ESO@HookII\@empty%
          \endpicture}%
          \nointerlineskip%
        \box\@cclv}%
    \fi
  \egroup
}
\EveryShipout{\@ShipoutPicture}
```

3.2 The background grid

```
\RequirePackage{keyval}
```

Initialising some macros

```
\newif\ifESO@dvips\ESO@dvipsfalse \newif\ifESO@grid\ESO@gridfalse
\newif\ifESO@texcoord\ESO@texcoordfalse
\newcommand*\ESO@gridunitname{}
\newcommand*\ESO@gridunit{}
\newcommand*\ESO@labelfactor{}
\newcommand*\ESO@griddelta{}\newcommand*\ESO@griddeltaY{}
\newcommand*\ESO@gridDelta{}\newcommand*\ESO@gridDeltaY{}
\newcommand*\ESO@gridcolor{}
\newcommand*\ESO@subgridcolor{}
\newcommand*\ESO@subgridstyle{dotted}% ???
\newcommand*\ESO@gap{}
\newcommand*\ESO@yoffsetI{}\newcommand*\ESO@yoffsetII{}
\newcommand*\ESO@gridlines{\thinlines}
\newcommand*\ESO@subgridlines{\thinlines}
\newcommand*\ESO@hline[1]{\ESO@subgridlines\line(1,0){#1}}
\newcommand*\ESO@vline[1]{\ESO@subgridlines\line(0,1){#1}}
\newcommand*\ESO@Hline[1]{\ESO@gridlines\line(1,0){#1}}
\newcommand*\ESO@Vline[1]{\ESO@gridlines\line(0,1){#1}}
\newcommand\ESO@fcolorbox[4][]{\fbox{#4}}
\newcommand\ESO@color[1]{}
\newcommand\ESO@colorbox[3][]{%
  \begingroup
    \fboxrule=0pt\fbox{#3}%
  \endgroup
}
```

\gridSetup

```
\newcommand\gridSetup[6][]{%
  \edef\ESO@gridunitname{#1}\edef\ESO@gridunit{#2}
  \edef\ESO@labelfactor{#3}\edef\ESO@griddelta{#4}
  \edef\ESO@gridDelta{#5}\edef\ESO@gap{#6}}
```

All the key-value options

```
\define@key{ESO}{texcoord}[true]{\csname ESO@texcoord#1\endcsname}
\define@key{ESO}{pscoord}[true]{\csname @tempswa#1\endcsname
  \if@tempswa\ESO@texcoordfalse\else\ESO@texcoordtrue\fi}
\define@key{ESO}{dvips}[true]{\csname ESO@dvips#1\endcsname}
\define@key{ESO}{grid}[true]{\csname ESO@grid#1\endcsname
  \setkeys{ESO}{gridcolor=black,subgridcolor=black}}
\define@key{ESO}{colorgrid}[true]{\csname ESO@grid#1\endcsname
  \setkeys{ESO}{gridcolor=red,subgridcolor=green}}
\define@key{ESO}{gridcolor}{\def\ESO@gridcolor{#1}}
\define@key{ESO}{subgridcolor}{\def\ESO@subgridcolor{#1}}
\define@key{ESO}{subgridstyle}{\def\ESO@subgridstyle{#1}}%
\define@key{ESO}{gridunit}{%
  \def\@tempa{#1}
  \def\@tempb{bp}
  \ifx\@tempa\@tempb
    \gridSetup[\@tempa]{1bp}{1}{10}{50}{2}
  \else
    \def\@tempb{pt}
    \ifx\@tempa\@tempb
      \gridSetup[\@tempa]{1pt}{1}{10}{50}{2}
    \else
      \def\@tempb{in}
      \ifx\@tempa\@tempb
        \gridSetup[\@tempa]{.1in}{.1}{2}{10}{.5}
      \else
        \gridSetup[mm]{1mm}{1}{5}{20}{1}
      \fi
    \fi
  \fi
}
\setkeys{ESO}{subgridstyle=solid,pscoord=true,gridunit=mm}
```

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

```
\def\ProcessOptionsWithKV#1{%
  \let\@tempc\@empty
  \@for\CurrentOption:=\@classoptionslist\do{%
    \@ifundefined{KV@#1@\CurrentOption}%
    {}{\edef\@tempc{\@tempc,\CurrentOption,}}}%
  \edef\@tempc{%
    \noexpand\setkeys{#1}{\@tempc\@ptionlist{\@currname.\@currext}}}%
  \@tempc
  \AtEndOfPackage{\let\@unprocessedoptions\relax}}%

\ProcessOptionsWithKV{ESO}%
```

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

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

\AtBeginDocument{%
  \IfFileExists{color.sty}
```

```
  {%
    \RequirePackage{color}
    \let\ESO@color=\color\let\ESO@colorbox=\colorbox
    \let\ESO@fcolorbox=\fcolorbox
  }{}
  \@ifundefined{Gin@driver}{}%
  {%
    \ifx\Gin@driver\@empty\else%
      \filename@parse{\Gin@driver}\def\reserved@a{dvips}%
      \ifx\filename@base\reserved@a\ESO@dvipstrue\fi%
    \fi
  }%
  \ifx\pdfoutput\undefined\else
    \ifx\pdfoutput\relax\else
      \ifcase\pdfoutput\else
        \ESO@dvipsfalse%
      \fi
    \fi
  \fi
  \ifESO@dvips\def\@tempb{eepic}\else\def\@tempb{epic}\fi
  \def\@tempa{dotted}%\def\ESO@gap{\LenToUnit{6\@wholewidth}}%
  \ifx\@tempa\ESO@subgridstyle
    \IfFileExists{\@tempb.sty}%
    {%
      \RequirePackage{\@tempb}
      \renewcommand*\ESO@hline[1]{\ESO@subgridlines\dottedline{\ESO@gap}%
        (0,0)(##1,0)}
      \renewcommand*\ESO@vline[1]{\ESO@subgridlines\dottedline{\ESO@gap}%
        (0,0)(0,##1)}
    }{}
  \else
    \ifx\ESO@gridcolor\ESO@subgridcolor%
      \renewcommand*\ESO@gridlines{\thicklines}
    \fi
  \fi
}
\ifESO@texcoord
  \def\ESO@yoffsetI{0pt}\def\ESO@yoffsetII{-\paperheight}
  \edef\ESO@griddeltaY{-\ESO@griddelta}\edef\ESO@gridDeltaY{-\ESO@gridDelta}
\else
  \def\ESO@yoffsetI{\paperheight}\def\ESO@yoffsetII{0pt}
  \edef\ESO@griddeltaY{\ESO@griddelta}\edef\ESO@gridDeltaY{\ESO@gridDelta}
\fi
```

`\ESO@gridpicture`

```
\newcommand\ESO@gridpicture{%
  \begingroup
    \setlength\unitlength{\ESO@gridunit}%
    \ESO@color{\ESO@subgridcolor}%
```

— horizontal subgrid lines —

```
    \ESO@div{\paperheight}{\ESO@griddelta}%
    \multiput(0,0)(0,\ESO@griddeltaY){\@tempcnta}%
      {\ESO@hline{\LenToUnit{\paperwidth}}}%
```

```
— vertical subgrid lines —
    \ESO@div{\paperwidth}{\ESO@griddelta}%
   \multiput(0,\LenToUnit{\ESO@yoffsetII})(\ESO@griddelta,0){\@tempcnta}%
     {\ESO@vline{\LenToUnit{\paperheight}}}%
    \ESO@color{\ESO@gridcolor}%
— horizontal grid lines —
    \ESO@div{\paperheight}{\ESO@gridDelta}%
    \multiput(0,0)(0,\ESO@gridDeltaY){\@tempcnta}%
     {\ESO@Hline{\LenToUnit{\paperwidth}}}%
— vertical grid lines —
    \ESO@div{\paperwidth}{\ESO@gridDelta}%
   \multiput(0,\LenToUnit{\ESO@yoffsetII})(\ESO@gridDelta,0){\@tempcnta}%
     {\ESO@Vline{\LenToUnit{\paperheight}}}%
— horizontal numbers —
    \fontsize{10}{12}\normalfont%
    \ESO@div{\paperwidth}{\ESO@gridDelta}%
    \multiput(0,\ESO@gridDeltaY)(\ESO@gridDelta,0){\@tempcnta}{%
      \@tempcntb=\@tempcnta\advance\@tempcntb-\@multicnt%
      \ifnum\@tempcntb>1\relax
        \multiply\@tempcntb by \ESO@gridDelta\relax%
        \@tempdima=\@tempcntb sp\@tempdima=\ESO@labelfactor\@tempdima%
        \@tempcntb=\@tempdima%
        \makebox(0,0)[c]{\ESO@colorbox{white}{\the\@tempcntb}}%
      \fi}%
— vertical numbers —
    \ifx\ESO@gridunitname\@empty\def\@tempa{0}\else\def\@tempa{1}\fi%
    \ESO@div{\paperheight}{\ESO@gridDelta}%
    \multiput(\ESO@gridDelta,0)(0,\ESO@gridDeltaY){\@tempcnta}{%
      \@tempcntb=\@tempcnta\advance\@tempcntb-\@multicnt%
      \ifnum\@tempcntb>\@tempa\relax
        \multiply\@tempcntb by \ESO@gridDelta\relax%
        \@tempdima=\@tempcntb sp\@tempdima=\ESO@labelfactor\@tempdima%
        \@tempcntb=\@tempdima%
        \makebox(0,0)[c]{\ESO@colorbox{white}{\the\@tempcntb}}%
      \fi
    }%
— the unit label —
    \ifx\ESO@gridunitname\@empty\else%
      \thicklines\fboxrule=\@wholewidth%
      \put(\ESO@gridDelta,\ESO@gridDeltaY){\makebox(0,0)[c]{%
        \ESO@fcolorbox{\ESO@gridcolor}{white}{%
          \textbf{\ESO@gridunitname}}}}%
    \fi
    \normalcolor%
  \endgroup
}
```

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

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