

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

<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</code> [<code>\gridunitname</code>] <code>{\gridunit}{\labelfactor}{\griddelta}</code> <code>{\gridDelta}{\gap}</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` v1.1b, dated 2002/11/16.

2.2 Package options

Option	Value	Comments
pscoord	empty or <i>true, false</i>	The zero point of the coordinate system is the lower left corner of the page (the default).
texcoord	empty or <i>true, false</i>	The zero point of the coordinate system is the upper left corner of the page.
grid	empty or <i>true, false</i>	A grid is drawing; default: false.
gridunit	<i>mm, in, bp, pt</i>	Distance between gridlines are multiples of <code>gridunit</code> . 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	<i>solid</i> or <i>dotted</i>	‘dotted’ is very slow! default: solid.
colorgrid	empty or <i>true, false</i>	Shortcut for ‘grid=true’, ‘gridcolor=red’ and ‘subgridcolor=green’; default: false.
dvips	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 \newcommand\LenToUnit[1]{#1@gobble}

\AtPageUpperLeft

3 \newcommand\AtPageUpperLeft[1]{%
4   \begingroup
5     \@tempdima=Opt\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

```

```

16 \setlength\@tempdima{1in}%
17 \ifodd\c@page%
18 \advance\@tempdima\oddsidemargin%
19 \else%
20 \advance\@tempdima\evensidemargin%
21 \fi%
22 \@tempdimb=\ESO@yoffsetI\relax\advance\@tempdimb-1in\relax%
23 \advance\@tempdimb-\topmargin%
24 \advance\@tempdimb-\headheight\advance\@tempdimb-\headsep%
25 \put(\LenToUnit{\@tempdima},\LenToUnit{\@tempdimb}){#1}%
26 \endgroup
27 }

```

\AtTextLowerLeft

```

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

```

\AtTextCenter

```

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

```

\ESO@HookI

\ESO@HookII

\ESO@HookIII

```

32 \newcommand{\ESO@HookI}{} \newcommand{\ESO@HookII}{}
33 \newcommand{\ESO@HookIII}{}

```

\AddToShipoutPicture

```

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

```

\ClearShipoutPicture

```

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

```

\ESO@isMEMOIR Support for the memoir class.

```

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

```

\@ShipoutPicture

```

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

```

```

55     \advance\@tempdima\stockwidth%
56     \fi\fi%
57     \advance\@tempdimb\trimtop}%
58 \unitlength=1pt%
59 \global\setbox\@cclv\vbox{%
60 \vbox{\let\protect\relax
61 \pictur@(0,0)(\strip@pt\@tempdima,\strip@pt\@tempdimb)%
62 \ESO@HookIII\ESO@HookI\ESO@HookII%
63 \global\let\ESO@HookII\@empty%
64 \endpicture}%
65 \nointerlineskip%
66 \box\@cclv}%
67 \fi
68 \egroup
69 }

70 \EveryShipout{\@ShipoutPicture}

```

3.2 The background grid

```

71 \RequirePackage{keyval}

Initialising some macros
72 \newif\ifESO@dviPS\ESO@dviPSfalse \newif\ifESO@grid\ESO@gridfalse
73 \newif\ifESO@texcoord\ESO@texcoordfalse
74 \newcommand*\ESO@gridunitname{}
75 \newcommand*\ESO@gridunit{}
76 \newcommand*\ESO@labelfactor{}
77 \newcommand*\ESO@griddelta{}\newcommand*\ESO@griddeltaY{}
78 \newcommand*\ESO@gridDelta{}\newcommand*\ESO@gridDeltaY{}
79 \newcommand*\ESO@gridcolor{}
80 \newcommand*\ESO@subgridcolor{}
81 \newcommand*\ESO@subgridstyle{dotted}% ???
82 \newcommand*\ESO@gap{}
83 \newcommand*\ESO@yoffsetI{}\newcommand*\ESO@yoffsetII{}
84 \newcommand*\ESO@gridlines{\thinlines}
85 \newcommand*\ESO@subgridlines{\thinlines}
86 \newcommand*\ESO@hline[1]{\ESO@subgridlines\line(1,0){#1}}
87 \newcommand*\ESO@vline[1]{\ESO@subgridlines\line(0,1){#1}}
88 \newcommand*\ESO@Hline[1]{\ESO@gridlines\line(1,0){#1}}
89 \newcommand*\ESO@Vline[1]{\ESO@gridlines\line(0,1){#1}}
90 \newcommand\ESO@fcolorbox[4][\fbox{#4}]
91 \newcommand\ESO@color[1]{}
92 \newcommand\ESO@colorbox[3][\fbox{#3}]
93 \begingroup
94 \fboxrule=0pt\fbox{#3}%
95 \endgroup
96 }

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

```

All the key-value options

```

101 \define@key{ESO}{texcoord}[true]{\csname ESO@texcoord#1\endcsname}
102 \define@key{ESO}{pscoord}[true]{\csname @tempwa#1\endcsname
103   \if@tempwa\ESO@texcooordfalse\else\ESO@texcooordtrue\fi}
104 \define@key{ESO}{dvips}[true]{\csname ESO@dvips#1\endcsname}
105 \define@key{ESO}{grid}[true]{\csname ESO@grid#1\endcsname
106   \setkeys{ESO}{gridcolor=black,subgridcolor=black}}
107 \define@key{ESO}{colorgrid}[true]{\csname ESO@grid#1\endcsname
108   \setkeys{ESO}{gridcolor=red,subgridcolor=green}}
109 \define@key{ESO}{gridcolor}{\def\ESO@gridcolor{#1}}
110 \define@key{ESO}{subgridcolor}{\def\ESO@subgridcolor{#1}}
111 \define@key{ESO}{subgridstyle}{\def\ESO@subgridstyle{#1}}%
112 \define@key{ESO}{gridunit}{%
113   \def\@tempa{#1}
114   \def\@tempb{bp}
115   \ifx\@tempa\@tempb
116     \gridSetup[\@tempa]{1bp}{1}{10}{50}{2}
117   \else
118     \def\@tempb{pt}
119     \ifx\@tempa\@tempb
120       \gridSetup[\@tempa]{1pt}{1}{10}{50}{2}
121     \else
122       \def\@tempb{in}
123       \ifx\@tempa\@tempb
124         \gridSetup[\@tempa]{.1in}{.1}{2}{10}{.5}
125       \else
126         \gridSetup[mm]{1mm}{1}{5}{20}{1}
127       \fi
128     \fi
129   \fi
130 }
131 \setkeys{ESO}{subgridstyle=solid,pscoord=true,gridunit=mm}

```

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

```

132 \def\ProcessOptionsWithKV#1{%
133   \let\@tempc\@empty
134   \@for\CurrentOption:=\@classoptionslist\do{%
135     \ifundefined{KV#1@\CurrentOption}%
136       {\edef\@tempc{\@tempc,\CurrentOption,}}}%
137   \edef\@tempc{%
138     \noexpand\setkeys{#1}{\@tempc\@ptionlist{\@currname.\@current}}}%
139   \@tempc
140   \AtEndOfPackage{\let\@unprocessedoptions\relax}}%
141 \ProcessOptionsWithKV{ESO}%

```

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

```

142 \newcommand\ESO@div[2]{%
143   \@tempdima=#1\relax\@tempdimb=\ESO@gridunit\relax
144   \@tempdimb=#2\@tempdimb\divide\@tempdima by \@tempdimb%
145   \@tempcnta\@tempdima\advance\@tempcnta\@ne}
146 \AtBeginDocument{%
147   \IfFileExists{color.sty}

```

```

148 {%
149   \RequirePackage{color}
150   \let\ESO@color=\color\let\ESO@colorbox=\colorbox
151   \let\ESO@fcolorbox=\fcolorbox
152 }{}
153 \@ifundefined{Gin@driver}{}%
154 {%
155   \ifx\Gin@driver\empty\else%
156     \filename@parse{\Gin@driver}\def\reserved@a{dvips}%
157     \ifx\filename@base\reserved@a\ESO@dvipstrue\fi%
158     \fi
159   }%
160   \ifx\pdfoutput\undefined\else
161     \ifx\pdfoutput\relax\else
162       \ifcase\pdfoutput\else
163         \ESO@dvipsfalse%
164       \fi
165     \fi
166   \fi
167   \ifESO@dvips\def\@tempb{eepic}\else\def\@tempb{epic}\fi
168   \def\@tempa{dotted}\def\ESO@gap{\LenToUnit{6\@wholewidth}}%
169   \ifx\@tempa\ESO@subgridstyle
170     \IfFileExists{\@tempb.sty}%
171     {%
172       \RequirePackage{\@tempb}
173       \renewcommand*\ESO@hline[1]{\ESO@subgridlines\dottedline{\ESO@gap}%
174         (0,0)(##1,0)}
175       \renewcommand*\ESO@vline[1]{\ESO@subgridlines\dottedline{\ESO@gap}%
176         (0,0)(0,##1)}
177     }{}
178   \else
179     \ifx\ESO@gridcolor\ESO@subgridcolor%
180       \renewcommand*\ESO@gridlines{\thicklines}
181     \fi
182   \fi
183 }
184 \ifESO@texcoord
185   \def\ESO@yoffsetI{0pt}\def\ESO@yoffsetII{-\paperheight}
186   \edef\ESO@griddeltaY{-\ESO@griddelta}\edef\ESO@gridDeltaY{-\ESO@gridDelta}
187 \else
188   \def\ESO@yoffsetI{\paperheight}\def\ESO@yoffsetII{0pt}
189   \edef\ESO@griddeltaY{\ESO@griddelta}\edef\ESO@gridDeltaY{\ESO@gridDelta}
190 \fi

```

\ESO@gridpicture

```

191 \newcommand\ESO@gridpicture{%
192   \begingroup
193   \setlength\unitlength{\ESO@gridunit}%
194   \ESO@color{\ESO@subgridcolor}%
195   — horizontal subgrid lines —
196   \ESO@div{\paperheight}{\ESO@griddelta}%
197   \multiput(0,0)(0,\ESO@griddeltaY){\@tempcnta}%
198     {\ESO@hline{\LenToUnit{\paperwidth}}}%

```

```

— vertical subgrid lines —
198   \ESO@div{\paperwidth}{\ESO@griddelta}%
199   \multiput(0,\LenToUnit{\ESO@yoffsetII})(\ESO@griddelta,0){\@tempcnta}%
200     {\ESO@vline{\LenToUnit{\paperheight}}}%
201   \ESO@color{\ESO@gridcolor}%

— horizontal grid lines —
202   \ESO@div{\paperheight}{\ESO@gridDelta}%
203   \multiput(0,0)(0,\ESO@gridDeltaY){\@tempcnta}%
204     {\ESO@Hline{\LenToUnit{\paperwidth}}}%

— vertical grid lines —
205   \ESO@div{\paperwidth}{\ESO@gridDelta}%
206   \multiput(0,\LenToUnit{\ESO@yoffsetII})(\ESO@gridDelta,0){\@tempcnta}%
207     {\ESO@Vline{\LenToUnit{\paperheight}}}%

— horizontal numbers —
208   \fontsize{10}{12}\normalfont%
209   \ESO@div{\paperwidth}{\ESO@gridDelta}%
210   \multiput(0,\ESO@gridDeltaY)(\ESO@gridDelta,0){\@tempcnta}{%
211     \@tempcntb=\@tempcnta\advance\@tempcntb-\@multicnt%
212     \ifnum\@tempcntb>1\relax
213       \multiply\@tempcntb by \ESO@gridDelta\relax%
214       \@tempdima=\@tempcntb sp\@tempdima=\ESO@labelfactor\@tempdima%
215       \@tempcntb=\@tempdima%
216       \makebox(0,0)[c]{\ESO@colorbox{white}{\the\@tempcntb}}%
217     \fi}%

— vertical numbers —
218   \ifx\ESO@gridunitname\@empty\def\@tempa{0}\else\def\@tempa{1}\fi%
219   \ESO@div{\paperheight}{\ESO@gridDelta}%
220   \multiput(\ESO@gridDelta,0)(0,\ESO@gridDeltaY){\@tempcnta}{%
221     \@tempcntb=\@tempcnta\advance\@tempcntb-\@multicnt%
222     \ifnum\@tempcntb>\@tempa\relax
223       \multiply\@tempcntb by \ESO@gridDelta\relax%
224       \@tempdima=\@tempcntb sp\@tempdima=\ESO@labelfactor\@tempdima%
225       \@tempcntb=\@tempdima%
226       \makebox(0,0)[c]{\ESO@colorbox{white}{\the\@tempcntb}}%
227     \fi
228   }%

— the unit label —
229   \ifx\ESO@gridunitname\@empty\else%
230     \thicklines\fbboxrule=\@wholewidth%
231     \put(\ESO@gridDelta,\ESO@gridDeltaY){\makebox(0,0)[c]{%
232       \ESO@fcolorbox{\ESO@gridcolor}{white}{%
233         \textbf{\ESO@gridunitname}}}}%
234     \fi
235     \normalcolor%
236   \endgroup
237 }

```

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

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

Change History

v0.4	General: Initial version 1	<code>\AtPageCenter</code> , <code>\AtTextUpperLeft</code> , and <code>\AtTextCenter</code> 1
v0.5	General: Some bug corrections . . . 1	v1.0a <code>\ClearShipoutPicture</code> : Changed <code>\let</code> to <code>\global\let</code> (sug- gested by Alberto Lusiani). . . . 3
v0.6	General: Some corrections for com- patibility with the <code>html</code> package suggested by Ross Moore and a licence note 1	v1.0b <code>\@ShipoutPicture</code> : A new hook <code>\ESO@HookIII</code> for special pur- pose (suggested by D. P. Story). 3
v0.7	General: New command <code>\AddToShipoutPicture*</code> 1	v1.0c General: New command <code>\AtTextLowerLeft</code> and correc- tions to <code>\AtTextUpperLeft</code> 1
v0.8	<code>\@ShipoutPicture</code> : Compatibility with the <code>memoir</code> class (sug- gested by Andreas Matthias). . . 3	v1.1 General: New commands and pack- age options for background grids. 1
v0.9	<code>\@ShipoutPicture:\nointerlineskip</code> prevents a small vertical misplacement (suggested by Stephan Lehmké) 3 Compatibility with the <code>crop</code> package (better test of <code>mem- oir</code>). 3	v1.1a <code>\ESO@gridpicture</code> : Font setting added. 7
v1.0	General: New commands <code>\LenToUnit</code> , <code>\AtPageUpperLeft</code> ,	v1.1b General: New command <code>\AtPageLowerLeft</code> 1 New package options "texcoord" and "pscoord" 1

Index

Numbers written in *italic* refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in *roman* refer to the code lines where the entry is used.

Symbols	<code>\@optionlist</code> 138	6, 16, 18, 20, 25, 46, 49–51, 53– 55, 61, 143–145, 214, 215, 224, 225
<code>\@ShipoutPicture</code> <u>39</u> , 70	<code>\@tempa</code> 113, 115, 116, 119, 120, 123, 124, 168, 169, 218, 222	<code>\@tempdimb</code> 5, 6, 22–25, 46, 47, 57, 61, 143, 144
<code>\@ccclv</code> 59, 66	<code>\@tempb</code> . . . 114, 115, 118, 119, 122, 123, 167, 170, 172	<code>\@tempswafalse</code> 41
<code>\@classoptionslist</code> . 134	<code>\@tempc</code> . . . 133, 136–139	<code>\@tempswatrué</code> . . . 42–44
<code>\@curréxt</code> 138	<code>\@tempcnta</code> 145, 196, 199, 203, 206, 210, 211, 220, 221	<code>\@unprocessedoptions</code> 140
<code>\@currname</code> 138	<code>\@tempcntb</code>	<code>\@wholewidth</code> . . 168, 230
<code>\@empty</code> 36, 42–44, 63, 133, 155, 218, 229	. 211–216, 221–226	A
<code>\@for</code> 134	<code>\@tempdima</code> 5,	<code>\AddToShipoutPicture</code> <u>1</u> , <u>34</u>
<code>\@gobble</code> 2		
<code>\@ifclassloaded</code> . . . 38		
<code>\@ifstar</code> 35		
<code>\@ifundefined</code> . 135, 153		
<code>\@multicnt</code> . . . 211, 221		
<code>\@one</code> 145		

<code>\AddToShipoutPicture*</code>	<code>\endpicture</code> 64	<code>\ESO@texcoordfalse</code> 73, 103
. 1	<code>\ESO@color</code> 91, 150, 194, 201	<code>\ESO@texcoordtrue</code> 103
<code>\advance</code> 18, 20, 22–24, 47, 49–51, 53–55, 57, 145, 211, 221	<code>\ESO@colorbox</code> 92, 150, 216, 226	<code>\ESO@Vline</code> 89, 207
<code>\AtBeginDocument</code> 146	<code>\ESO@div</code> 142, 195, 198, 202, 205, 209, 219	<code>\ESO@vline</code> 87, 175, 200
<code>\AtEndOfPackage</code> 140	<code>\ESO@dvinfosfalse</code> 72, 163	<code>\ESO@yoffsetI</code> 5, 22, 47, 83, 185, 188
<code>\AtPageCenter</code> 1, 11	<code>\ESO@dvinfostrue</code> 157	<code>\ESO@yoffsetII</code> 83, 185, 188, 199, 206
<code>\AtPageLowerLeft</code> 1, 9	<code>\ESO@fcolorbox</code> 90, 151, 232	<code>\evensidemargin</code> 20
<code>\AtPageUpperLeft</code> 1, 3, 9, 11	<code>\ESO@gap</code> 82, 100, 168, 173, 175	<code>\EveryShipout</code> 70
<code>\AtTextCenter</code> 1, 30	<code>\ESO@gridcolor</code> 79, 109, 179, 201, 232	
<code>\AtTextLowerLeft</code> 1, 28	<code>\ESO@gridDelta</code> 78, 100, 186, 189, 202, 205, 206, 209, 210, 213, 219, 220, 223, 231	
<code>\AtTextUpperLeft</code> 1, 14, 28, 30	<code>\ESO@griddelta</code> 77, 99, 186, 189, 195, 198, 199	
	<code>\ESO@gridDeltaY</code> 78, 186, 189, 203, 210, 220, 231	
	<code>\ESO@griddeltaY</code> 77, 186, 189, 196	
B	<code>\ESO@gridfalse</code> 72	
<code>\begingroup</code> 4, 15, 93, 192	<code>\ESO@gridlines</code> 84, 88, 89, 180	
<code>\bgroup</code> 40	<code>\ESO@gridpicture</code> 191, 238	
<code>\box</code> 66	<code>\ESO@gridunit</code> 75, 98, 143, 193	
	<code>\ESO@gridunitname</code> 74, 98, 218, 229, 233	
	<code>\ESO@Hline</code> 88, 204	
	<code>\ESO@hline</code> 86, 173, 197	
	<code>\ESO@HookI</code> 3, 32, 35, 36, 42, 62	
	<code>\ESO@HookII</code> 3, 32, 35, 43, 62, 63	
	<code>\ESO@HookIII</code> 3, 33, 44, 62, 238	
	<code>\ESO@isMEMOIR</code> 37, 48	
	<code>\ESO@labelfactor</code> 76, 99, 214, 224	
	<code>\ESO@subgridcolor</code> 80, 110, 179, 194	
	<code>\ESO@subgridlines</code> 85–87, 173, 175	
	<code>\ESO@subgridstyle</code> 81, 111, 169	
		F
		<code>\fbox</code> 90, 94
		<code>\fboxrule</code> 94, 230
		<code>\fcolorbox</code> 151
		<code>\fi</code> 21, 42–44, 56, 67, 103, 127–129, 157, 158, 164–167, 181, 182, 190, 217, 218, 227, 234, 238
		<code>\filename@base</code> 157
		<code>\filename@parse</code> 156
		<code>\fontsize</code> 208
		G
		<code>\g@addto@macro</code> 35, 238
		<code>\Gin@driver</code> 155, 156
		<code>\global</code> 36, 59, 63
		<code>\gridSetup</code> 1, 97, 116, 120, 124, 126
		H
		<code>\headheight</code> 24
		<code>\headsep</code> 24
		I
		<code>\if@tempwa</code> 45, 103
		<code>\if@twoside</code> 52
		<code>\ifcase</code> 162
		<code>\ifESO@dvinfos</code> 72, 167
		<code>\ifESO@grid</code> 72, 238
		<code>\ifESO@texcoord</code> 73, 184
		<code>\IfFileExists</code> 147, 170
		<code>\ifnum</code> 212, 222
		<code>\ifodd</code> 17, 52
		<code>\ifx</code> 42–44, 115, 119, 123, 155, 157, 160, 161, 169, 179, 218, 229
		L
		<code>\LenToUnit</code> 1, 2, 6, 10, 12, 25, 29, 31,
<code>\AddToShipoutPicture*</code>		
. 1		
<code>\advance</code> 18, 20, 22–24, 47, 49–51, 53–55, 57, 145, 211, 221		
<code>\AtBeginDocument</code> 146		
<code>\AtEndOfPackage</code> 140		
<code>\AtPageCenter</code> 1, 11		
<code>\AtPageLowerLeft</code> 1, 9		
<code>\AtPageUpperLeft</code> 1, 3, 9, 11		
<code>\AtTextCenter</code> 1, 30		
<code>\AtTextLowerLeft</code> 1, 28		
<code>\AtTextUpperLeft</code> 1, 14, 28, 30		
B		
<code>\begingroup</code> 4, 15, 93, 192		
<code>\bgroup</code> 40		
<code>\box</code> 66		
C		
<code>\c@page</code> 17, 52		
<code>\ClearShipoutPicture</code> 1, 36		
<code>\color</code> 150		
<code>\colorbox</code> 150		
<code>\csname</code> 101, 102, 104, 105, 107		
<code>\CurrentOption</code> 134–136		
D		
<code>\def</code> 109–111, 113, 114, 118, 122, 132, 156, 167, 168, 185, 188, 218		
<code>\define@key</code> 101, 102, 104, 105, 107, 109–112		
<code>\divide</code> 144		
<code>\do</code> 134		
<code>\dottedline</code> 173, 175		
E		
<code>\edef</code> 98–100, 136, 137, 186, 189		
<code>\egroup</code> 68		
<code>\else</code> 19, 42–44, 52, 103, 117, 121, 125, 155, 160–162, 167, 178, 187, 218, 229		
<code>\endcsname</code> 101, 102, 104, 105, 107		
<code>\endgroup</code> 7, 26, 95, 236		

168, 197, 199, 200, 204, 206, 207	185, 188, 195, 200, 202, 207, 219	<code>\setkeys</code> 106, 108, 131, 138
<code>\let</code> 36, 60, 63, 133, 140, 150, 151	<code>\paperwidth</code> 12, 50, 54, 197, 198, 204, 205, 209	<code>\setlength</code> 16, 193
<code>\line</code> 86–89	<code>\pdfoutput</code> 160–162	<code>\stockwidth</code> 51, 55
M	<code>\pictur@</code> 61	<code>\strip@pt</code> 61
<code>\makebox</code> 216, 226, 231	<code>\ProcessOptionsWithKV</code> <u>132</u> , 141	T
<code>\multiply</code> 213, 223	<code>\protect</code> 60	<code>\textbf</code> 233
<code>\multipt</code> 196, 199, 203, 206, 210, 220	<code>\put</code> 6, 10, 12, 25, 29, 31, 231	<code>\textheight</code> 29, 31
N	R	<code>\textwidth</code> 31
<code>\newif</code> 72, 73	<code>\relax</code> 5, 22, 60, 140, 143, 161, 212, 213, 222, 223	<code>\the</code> 216, 226
<code>\noexpand</code> 138	<code>\renewcommand</code> 38, 173, 175, 180	<code>\thicklines</code> 180, 230
<code>\nointerlineskip</code> 65	<code>\RequirePackage</code> 1, 71, 149, 172	<code>\thinlines</code> 84, 85
<code>\normalcolor</code> 235	<code>\reserved@a</code> 156, 157	<code>\topmargin</code> 23
<code>\normalfont</code> 208		<code>\trimedged</code> 49, 53
O		<code>\trimtop</code> 57
<code>\oddsidemargin</code> 18		U
P	S	<code>\undefined</code> 160
<code>\paperheight</code> 10, 12,	<code>\setbox</code> 59	<code>\unitlength</code> 58, 193
		V
		<code>\vbox</code> 59, 60