

# The `stfloats` package

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## 1 Introduction

The package improves `dblfloat(s)` and footnotes placements mechanism and `baselineskip` glue settings.

## 2 Usage

To place `dblfloat(s)` on top or bottom of the page just use optional `[t]` or `[b]`.  
Example (to place figure at the page bottom):

```
\begin{figure*}[b]  
...  
\end{figure*}
```

<code>\fnbelowfloat</code>	Puts footnotes below the bottom floats
<code>\fnunderfloat</code>	(default and standard) Puts footnotes under the bottom floats.
<code>\setbaselinefloat</code>	Allows <code>\baselineskip</code> to stretch and shrink if the <code>\baselineskip</code> is set internally with command <code>\@setfontsize</code> ( <code>\linespread</code> and <code>\fontsize</code> at user level). The settings are calculated and activated with command <code>\selectfont</code> ( <code>\size@update</code> ).

Example:

<code>\setbaselinefixed</code>	<pre>\@setfontsize\normalsize\@xpt{12pt plus .1pt minus .1pt}\normalsize</pre> (default and standard) Disables <code>baselineskip</code> to stretch and shrink even if the <code>\baselineskip</code> is set with command <code>\@setfontsize</code> as in the previous example in case that <code>\baselinestretch</code> is not empty.
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Then line spreading is not used `\baselineskip` glue can be controlled by ordinary `\baselinestretch` definition:

- `\def\baselinestretch{1}` - removes `\baselineskip` glue.
- `\def\baselinestretch{}` - keeps `\baselineskip` glue.

### 3 Implementation

`\@dblbotlist` Used for dblfloat(s) to be placed at the page bottom.

```
1 \gdef\@dblbotlist{}
```

Additional counters for dblfloat(s) support at the page bottom.

```
2 \newcount\@dblbotnum
```

```
3 \newcount\c@dblbotnumber
```

```
4 \setcounter{dblbotnumber}{2}
```

`\@dbflt` With extended set of default args: [tp] -> [tbp]

```
5 \def\@dbflt#1{\@ifnextchar[{\@xdblfloat{#1}}{\@xdblfloat{#1}[tbp]}}
```

`\@dblfloatplacement` With adds to support dblfloat(s) placement at the page bottom.

```
6 \def \@dblfloatplacement {%
7   \global \@dbltopnum \c@dbltopnumber
8   \global \@dblbotnum \c@dblbotnumber
9   \global \@dbltoproom \dbltopfraction\@colht
10  \textmin \@colht
11  \advance \@textmin -\@dbltoproom
12  \@fpmin \dblfloatpagefraction\textheight
13  \@fptop \@dblftop
14  \@fpsep \@dblfpsep
15  \@fpbot \@dblfpbot
16 }
```

`\@addtodblcol` With adds to support dblfloat(s) placement at the page bottom.

```
17 \def\@addtodblcol{%
18   \begingroup
19   \@insertfalse
20   \@setfloattypecounts
21   \@getfpsbit \tw@
22   \ifodd\@tempcnta
23     \@flsetnum \@dbltopnum
24     \ifnum \@dbltopnum>\z@
25       \@tempwafalse
26       \ifdim \@dbltoproom>\ht\@currbox
27         \@tempwatrue
28     \else
29       \ifnum \@fpstype<\sist@n
30         \advance \@dbltoproom \@textmin
31         \ifdim \@dbltoproom>\ht\@currbox
32           \@tempwatrue
33       \fi
34       \advance \@dbltoproom -\@textmin
35     \fi
36   \fi
37   \if@tempswa
38     \@bitor \@currtype \@dbldeferlist
```

```

39     \if@test
40     \else
41         \@bitor \@currtype \@dblbotlist
42         \if@test
43         \else
44             \@tempdima -\ht\@currbox
45             \advance\@tempdima
46             -\ifx \@dbltoplist\@empty \dbltextfloatsep \else
47                 \dblfloatsep \fi
48             \global \advance \@dbltoproom \@tempdima
49             \global \advance \@colht \@tempdima
50             \global \advance \@dbltopnum \m@ne
51             \@cons \@dbltoplist \@currbox
52             \@inserttrue
53         \fi
54     \fi
55 \fi
56 \fi
57 \fi
58 \if@insert
59 \else
60     \@getfpsbit 4\relax
61     \ifodd\@tempcnta
62         \@flsetnum \@dblbotnum
63         \ifnum \@dblbotnum>\z@
64             \@tempswafalse
65             \ifdim \@dbltoproom>\ht\@currbox
66                 \@tempwattrue
67             \else
68                 \ifnum \@fpstype<\sist@n
69                     \advance \@dbltoproom \@textmin
70                     \ifdim \@dbltoproom>\ht\@currbox
71                         \@tempwattrue
72                     \fi
73                     \advance \@dbltoproom -\@textmin
74                 \fi
75             \fi
76         \if@tempswa
77             \@bitor \@currtype \@dbldeferlist
78             \if@test
79             \else
80                 \@tempdima -\ht\@currbox
81                 \advance\@tempdima
82                 -\ifx \@dblbotlist\@empty \dbltextfloatsep \else
83                     \dblfloatsep \fi
84                 \global \advance \@dbltoproom \@tempdima
85                 \global \advance \@colht \@tempdima
86                 \global \advance \@dblbotnum \m@ne
87                 \@cons \@dblbotlist \@currbox
88                 \@inserttrue

```

```

89         \fi
90     \fi
91     \fi
92     \fi
93     \if@insert
94     \else
95         \@cons\@dbldeferlist\@currbox
96     \fi
97 \fi
98 \endgroup
99 }

```

`\@combineddblfloats` Combines outputbox with top and bottom placed dblfloat(s).

```

100 \def\@combineddblfloats{%
101     \ifx \@dbltoplist\@empty \else \@cdblflt \fi
102     \ifx \@dblbotlist\@empty \else \@cdblflb \fi
103 }

```

`\@cdblflt` Combines outputbox with top placed dblfloat(s).

```

104 \def\@cdblflt{%
105     \setbox\@tempboxa \vbox{}%
106     \let \@elt \@comdblflflt
107     \@dbltoplist
108     \let \@elt \relax
109     \xdef \@freelist {\@freelist\@dbltoplist}%
110     \global\let \@dbltoplist \@empty
111     \setbox\@outputbox \vbox% to\textheight
112         {%\boxmaxdepth\maxdepth %% probably not needed, CAR
113         \unvbox\@tempboxa\vskip-\dblfloatsep
114         \ifnum \@dbltopnum>\m@ne
115             \dblfigrule
116         \fi
117         \vskip \dbltextfloatsep
118         \unvbox \@outputbox
119     }%
120 }

```

`\@cdblflb` Combines outputbox with bottom placed dblfloat(s).

```

121 \def\@cdblflb{%
122     \setbox\@tempboxa \vbox{}%
123     \let \@elt \@comdblflflt
124     \@dblbotlist
125     \let \@elt \relax
126     \xdef \@freelist {\@freelist\@dblbotlist}%
127     \global\let \@dblbotlist \@empty
128     \setbox\@outputbox \vbox% to\textheight
129         {%\boxmaxdepth\maxdepth %% probably not needed, CAR
130         \unvbox\@outputbox
131         \vskip \dbltextfloatsep

```

```

132     \ifnum \@dblbotnum>\m@ne
133         \dblfigrule
134     \fi
135     \unvbox\@tempboxa
136     \vskip -\dblfloatsep
137     }%
138 }

```

`\@docclearpage` With adds to support dblfloat(s) placement at the page bottom.

```

139 \def \@docclearpage {%
140     \ifvoid\footins
141         \ifvbox\@kludgeins
142             {\setbox \@tempboxa \box \@kludgeins}%
143         \fi
144         \setbox\@tempboxa\vsplit\@cclv to\z@ \unvbox\@tempboxa
145         \setbox\@tempboxa\box\@cclv
146         \xdef\@deferlist{\@toplist\@botlist\@deferlist}%
147         \global \let \@toplist \@empty
148         \global \let \@botlist \@empty
149         \global \@colroom \@colht
150         \ifx \@currlist\@empty
151         \else
152             \@latexerr{Float(s) lost}\@ehb
153             \global \let \@currlist \@empty
154         \fi
155         \@makefcolumn\@deferlist
156         \@whilesw\if@colmade \fi{\@opcol\@makefcolumn\@deferlist}%
157         \if@twocolumn
158             \if@firstcolumn
159                 \xdef\@dbldeferlist{\@dbltoplist\@dblbotlist\@dbldeferlist}%
160                 \global \let \@dbltoplist \@empty
161                 \global \let \@dblbotlist \@empty
162                 \global \@colht \textheight
163                 \begingroup
164                     \@dblfloatplacement
165                     \@makefcolumn\@dbldeferlist
166                     \@whilesw\if@colmade \fi{\@outputpage
167                         \@makefcolumn\@dbldeferlist}%
168                 \endgroup
169             \else
170                 \vbox{}\clearpage
171             \fi
172         \fi
173     \else
174         \setbox\@cclv\vbox{\box\@cclv\vfil}%
175         \@makecol\@opcol
176         \clearpage
177     \fi
178 }

```

Makes \@makecol current definition copy to \org@makecol.

```
179 \global\let\org@makecol\@makecol
```

\fn@makecol Redefined macro \@makecol which puts footnotes below the bottom floats.

```
180 \gdef \fn@makecol {%
181   \setbox\@outputbox \box\@cclv
182   \let\@elt\relax
183   \xdef\@freelist{\@freelist\@midlist}%
184   \global \let \@midlist \@empty
185   \@combinefloats
186   \ifvoid\footins
187   \else
188     \setbox\@outputbox \vbox {%
189       \boxmaxdepth \@maxdepth
190       \unvbox \@outputbox
191       \vskip \skip\footins
192       \color@begingroup
193         \normalcolor
194         \footnoterule
195         \unvbox \footins
196       \color@endgroup
197     }%
198   \fi
199   \ifvbox\@kludgeins
200     \@makespecialcolbox
201   \else
202     \setbox\@outputbox \vbox to\@colht {%
203       \@texttop
204       \dimen@ \dp\@outputbox
205       \unvbox \@outputbox
206       \vskip -\dimen@
207       \@textbottom
208     }%
209   \fi
210   \global \maxdepth \@maxdepth
211 }
```

\fnbelowfloat Switch to put footnotes below the bottom floats.

```
212 \def\fnbelowfloat{\global\let\@makecol\fn@makecol}
```

\fnunderfloat Switch to put footnotes under the bottom floats.

```
213 \def\fnunderfloat{\global\let\@makecol\org@makecol}
```

\set@floatfontsize Such definition \baselineskip\f@linespread\baselineskip removes any glue from the \baselineskip in the case \f@linespread is not empty. To prevent this \size@update is redefined.

```
214 \def\set@floatfontsize#1#2#3{%
215   \@defaultunits\@tempdimb#2pt\relax\@nnil
216   \edef\f@size{\strip@pt\@tempdimb}%
```

```

217 \@defaultunits\@tempskipa#3pt\relax\@nnil
218 \edef\fbaselineskip{\the\@tempskipa}%
219 \edef\flinespread{#1}%
220 \let\baselinestretch\flinespread
221 \def\size@update{%
Saving of the \baselineskip glue.
222 \baselineskip\fbaselineskip
223 \@tempskipa\baselineskip\relax\baselineskip=1\baselineskip
224 \advance\@tempskipa by-\baselineskip\baselineskip\fbaselineskip
Removes the \baselineskip glue in case \flinespread not empty.
225 \baselineskip\flinespread\baselineskip
Restoring of the \baselineskip glue.
226 \advance\@tempskipa by\baselineskip\baselineskip\@tempskipa
227 \normalbaselineskip\baselineskip
228 \setbox\strutbox\hbox{%
229 \vrule\@height.7\baselineskip
230 \@depth.3\baselineskip
231 \@width\z@}%
232 \let\size@update\relax
233 }%
234 }

```

Simple copy of the previous original `\set@fontsize` definition in `\set@@@fontsize`.

```
235 \let\set@@@fontsize\set@fontsize
```

`\setbaselinefloat` It allows `\baselineskip` to be set to the value with glue.

```
236 \def\setbaselinefloat{\let\set@fontsize\set@floatfontsize}
```

`\setbaselinefixed` It is used to restore macro definition `\set@fontsize` to the original one. It means that `\baselineskip` is set to the value without glue in the case `\baselinestretch` is not empty.

```

237 \def\setbaselinefixed{%
238 \@tempdima=\baselinestretch\p@
239 \edef\baselinestretch{\strip@pt\@tempdima}%
240 \let\set@fontsize\set@@@fontsize
241 }

```

`\output` It is removed from this package as the duplicate of the same definition in kernel since the macro definition change v.1.2c at 1997/11/09 in `loutput`.

```
242 \endinput
```