

The newfloat package*

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Abstract

This package offers the command `\DeclareFloatingEnvironment` for defining new floating environments which behave like `figure` and `table`.

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1 Loading the package

First of all you need to include this package into your document with

```
\usepackage[<options>]{newfloat}
```

where *<options>* are one or more of

```
within=<"within" counter> or none  
chapterlistsgap=<value>
```

The “within” counter specifies the counter which will be used to reset the counter of the floating environments `figure` and `table`. (Furthermore this setting will be used as default setting for `\DeclareFloatingEnvironment`.)

So for example `within=chapter` will give you a numbering scheme *<chapter>.<x>* for floating environments, while `within=section` will give you a numbering scheme *<chapter>.<section>.<x>*, or *<section>.<x>* if the document class does not offer `\chapter`. `within=none` will result in a continuous numbering throughout the document, i.e. the numbering scheme will be simply *<x>*.

The option `chapterlistsgap=<value>` sets the amount of the vertical gap inserted into the “List of Figure”, “List of Tables”, and all lists created with `\DeclareFloatingEnvironment` when a new chapter will be started. The default value is 10pt. (This option will only be available if the document class used offer the usage of chapters, e.g. the book or report document class.)

Both options can be changed later on, too, by using the command

```
\newfloatsetup<options> ,
```

2 \DeclareFloatingEnvironment

After loading the `newfloat` package you can define your own floating environments with

```
\DeclareFloatingEnvironment[<options>]{<type>}
```

where *<options>* are one or more of

```
fileext=<file extension>  
listname=<list name>  
name=<prosa name>  
placement=<combination of htbtp>  
within=<"within" counter> or none  
chapterlistsgaps=on or off
```

If no *<options>* are given, “lo*<type>*” will be used as *<file extension>* for the list, “List of *<name>*s” as *<list name>*. “*<name>*” as *<name>* (but with the first letter capitalized), “`tbp`” as *<placement>* specifier, and “chapter” resp. “none” as *<"within" counter>*, i.e., the counter which resets the numbering.

The default value of the `chapterlistsgaps=` option depends on the “within” setting, it is set to `on` if `chapter` or `section` is selected, otherwise it is set to `off`. (This option will only be available if the document class used offer the usage of chapters, e.g. the `book` or `report` document class.)

The list will be typeset using the command `\listof<type>s` resp. `\listof<type>es`, analogous to `\listoffigures` and `\listoftables`.

If the `fltpage` package is loaded, an environment called `FP<type>` will be defined additionally, same for `sideways<type>` (rotating package), `SC<type>` (sidecap package), and `wrap<type>` (wrapfig package).

So for example

```
\DeclareFloatingEnvironment{diagram}
```

will define a new floating environment called `diagram`, the list will be stored in a file with the extension `lodiagram`, the name (used for the caption) will be “Diagram” and the list name “List of Diagrams”. The list could be typeset with `\listofdiagrams`. Dependent on which packages are loaded, the environments `FPdiagram`, `sideways-diagram`, `SCdiagram`, and `wrapdiagram` will be defined additionally.

Another example:

```
\DeclareFloatingEnvironment[
  fileext=lox,
  listname={List of Matrixes},
  name=Matrix,
  placement=p,
  within=section,
  chapterlistsgaps=off,
]{matrix}
```

will define a new floating environment called `matrix` with the given settings. Please note that names which contain spaces needs to be enclosed in curly braces.

3 \SetupFloatingEnvironment

While `\DeclareFloatingEnvironment` will create new floating environments,

```
\SetupFloatingEnvironment{<floating environment>}{<options>}
```

will change the settings of existing ones, i.e. either `figure` or `table`, or a one created with `\DeclareFloatingEnvironment`, or a one created with `\newfloat` offered by the `float` package, or a one created with `\newfloat` offered by the `memoir` document class, or a one created with `\DeclareNewFloatType` offered by the `floatrow` package, or ...

The `<options>` are the same as the options for `\DeclareFloatingEnvironment`, but one should avoid changing the file extension of existing floating environments, i.e. using the `fileext=` option within `\SetupFloatingEnvironment` is usually a very bad idea.

An example:

```
\SetupFloatingEnvironment{lstlisting}{chapterlistsgaps=off}
```

will switch off the chapter lists gaps for `lstlisting` environments offered by the `listings` package.

4 `\ForEachFloatingEnvironment`

```
\ForEachFloatingEnvironment<code with #1>
```

will execute the given *<code>* for all known floating environments, and for ones defined with `\DeclareFloatingEnvironment` later on.

So for example the `subcaption` packages uses

```
\ForEachFloatingEnvironment{\DeclareCaptionSubType{#1}}
```

for initializing itself for all floating environments which are known to the `newfloat` package.

There is also a starred variant `\ForEachFloatingEnvironment*` which will execute the given code for already existing floating environments only, i.e. no hook will be placed inside `\DeclareFloatingEnvironment`.

An example:

```
\ForEachFloatingEnvironment*{\typeout{#1}}
```

will `typeout` the names of all already known floating environments to the terminal and log file.

5 The Implementation

5.1 Identification

```
1 \NeedsTeXFormat{LaTeX2e}[1994/12/01]
2 \ProvidesPackage{newfloat}[2011/11/16 v1.0a Defining new floating environments (AF
\newfloat@Info \newfloat@Info{<message>}
3 \newcommand*\newfloat@Info[1]{%
4   \PackageInfo{newfloat}{#1}}
\newfloat@Error \newfloat@Error{<message>}
5 \newcommand*\newfloat@Error[1]{%
6   \PackageError{newfloat}{#1}\newfloat@eh}
7 \newcommand*\newfloat@eh{%
8   If you do not understand this error, please take a closer look\MessageBreak
9   at the documentation of the 'newfloat' package.\MessageBreak\@ehc}
```

5.2 Using the keyval package

We need the `keyval` package for option handling, so we load it here.

```
10 \RequirePackage{keyval}[1997/11/10]
```

5.3 \DeclareFloatingEnvironment

```
\DeclareFloatingEnvironment \DeclareFloatingEnvironment[<options>]{<environment>}[<name>][<list name>]
11 \newcommand*\DeclareFloatingEnvironment{%
12   \@testopt\@DeclareFloatingEnvironment{}
13 \@onlypreamble\DeclareFloatingEnvironment
14 \def\@DeclareFloatingEnvironment[#1]#2{%
```

First of all, we set `\newfloat@Type` to the type name

```
15 \newfloat@Info{New float '#2' with options '#1'}%
16 \edef\newfloat@Type{\def\noexpand\newfloat@Type{\@car#2\@nil}}%
17 \uppercase\expandafter{\newfloat@Type}%
18 \edef\@tempa{%
19   \noexpand\g@addto@macro\noexpand\newfloat@Type{\@cdr#2\@nil}}%
20 \@tempa
```

Define a counter with the same name as the floating environment

```
21 \newcounter{#2}%
```

Set `\ftype@<type>` which contains the type number for floats of type `<type>`

(See also <http://tex.stackexchange.com/q/32359/2574>)

```
22 \ifdefined\c@float@type % from float package
23   \expandafter\edef\csname ftype@#2\endcsname{\the\value{float@type}}%
24   \addtocounter{float@type}{\value{float@type}}%
25 \else\ifdefined\c@newflo@tctr % from memoir document class
26   \expandafter\edef\csname ftype@#2\endcsname{\the\c@newflo@tctr}%
27   \advance\c@newflo@tctr \c@newflo@tctr
28 \else
29   \ifdefined\newfloat@ftype \else
```

```

30      \newcount\newfloat@ftype
31      \newfloat@ftype=8\relax
32      \fi
33      \expandafter\edef\csname ftype@#2\endcsname{\the\newfloat@ftype}%
34      \advance\newfloat@ftype\newfloat@ftype
35      \fi\fi
36      \newfloat@Info{float type `#2'=\@nameuse{ftype@#2}}%

```

Define `\fnum@<type>`, a macro to generate the figure number for a caption

```

37      \@namedef{fnum@#2}{\@nameuse{#2name}\nobreakspace\@nameuse{the#2}}%

```

Define `\<type>name` used by `\fnum@<type>` as `<type>`, but with first letter capitalized

```

38      \expandafter\newcommand\csname #2name\endcsname{}%
39      \expandafter\let\csname #2name\endcsname\newfloat@Type
40      \@namedef{fleg#2}{\@nameuse{#2name}}% legend naming (memoir)

```

Legend name in ToC (memoir document class)

```

41      \@namedef{flegtoc#2}##1{}%

```

Define the floating environment

```

42      \newenvironment{#2}{\@float{#2}}{\end@float}%
43      \newenvironment{#2*}{\@dblfloat{#2}}{\end@dblfloat}%

```

Define the listing command `\listof<type>(e)s`

```

44      \expandafter\newcommand\csname listof#2s\endcsname{\newfloat@listof{#2}}%
45      \expandafter\newcommand\csname listof#2es\endcsname{\newfloat@listof{#2}}%
46      \ifdefined\l@figure
47          \expandafter\let\csname l@#2\endcsname\l@figure
48      \else
49          \@namedef{l@#2}{\@dottedtocline{1}{1.5em}{2.3em}}%
50      \fi
51      \expandafter\newcommand\csname list#2name\endcsname{}%
52      \expandafter\edef\csname list#2name\endcsname{List of \newfloat@Type s}%

```

We undefine `\fst@<environment>` so the new environment will not be recognized as defined by the float package. (`\fst@<type>` use to hold the float style, see float package implementation for details.)

```

53      \expandafter\let\csname fst@#2\endcsname\@undefined

```

Set default parameters

```

54      \newfloat@setplacement{#2}{tbp}%
55      \newfloat@setfileext{#2}{lo#2}%

```

Apply given options

```

56      \newfloat@setoptions*{#2}{#1}%

```

Announce the new floating environment to other packages

```

57      \@expandtwoargs\newfloat@announce{#2}{\@nameuse{ext@#2}}%

```

Apply the last two optional arguments for setting names

```

58      \@ifnextchar[\newfloat@DFE@setname\relax}
59      \@onlypreamble\@DeclareFloatingEnvironment

60      \def\newfloat@DFE@setname[#1]{%
61          \KV@newfloat@name{#1}%
62          \@ifnextchar[\newfloat@DFE@setlistname\relax}
63      \@onlypreamble\newfloat@DFE@setname

```

```

64 \def\newfloat@DFE@setlistname[#1]{%
65   \KV@newfloat@listname{#1}}
66 \@onlypreamble\newfloat@DFE@setlistname

```

\newfloat@listof \newfloat@listof{*<float type>*} typesets the list

```

67 \newcommand*\newfloat@listof[1]{%
68   \ifcsname listoftoc\endcsname
69     \expandafter\listoftoc\expandafter{\@nameuse{ext@#1}}}%
70   \else
71     \begingroup
72       \expandafter\let\expandafter\listfigurename\csname list#1name\endcsname
73       \expandafter\let\expandafter\ext@figure\csname ext@#1\endcsname
74       \let\newfloat@ORI@starttoc\@starttoc
75       \renewcommand*\@starttoc[1]{%
76         \expandafter\newfloat@ORI@starttoc\expandafter{\ext@figure}}}%
77       \listoffigures
78     \endgroup
79   \fi}

```

\newfloat@setoptions \newfloat@setoptions*{*<environment>*}{*<options>*}

```

80 \newcommand*\newfloat@setoptions{%
81   \@ifstar
82     {\newfloat@@setoptions\@firstofone}%
83     {\newfloat@@setoptions\@gobble}}

84 \newcommand*\newfloat@@setoptions[3]{%
85   \let\newfloat@within@value\@undefined
86   \let\newfloat@chapterlistsgaps@value\@undefined
87   #1{\KV@newfloat@within\newfloat@within@default}% set default value for new float
88   \def\newfloat@type{#2}%
89   \setkeys{@newfloat}{#3}%
90   \ifx\newfloat@within@value\@undefined \else
91     \newfloat@setoption{within}\newfloat@within@value
92   \fi
93   \ifx\newfloat@chapterlistsgaps@value\@undefined \else
94     \newfloat@setoption{chapterlistsgaps}\newfloat@chapterlistsgaps@value
95   \fi}

```

\newfloat@within@default The default ‘within’ value. This one will be used if no option within=*<counter>* is given.

```

96 \newcommand*\newfloat@within@default{%
97   \ifcsname c@chapter\endcsname chapter\else none\fi}
98 \@onlypreamble\newfloat@within@default

```

\newfloat@setoption \newfloat@setoption{*<option name>*} options

```

99 \newcommand*\newfloat@setoption[1]{%
100   \expandafter\@expandtwoargs\csname newfloat@set#1\endcsname\newfloat@type}

```

The available *<options>* are: fileext=*<file extension>*, listname=*<list name>*, name=*<prosa name>*, placement=*<htbp>*, within=*<none,chapter,section>*, and without.

\newfloat@setfileext \newfloat@setfileext{*<environment>*}{*<file extension>*}

```

101 \newcommand*\newfloat@setfileext[2]{%
102   \@namedef{ext@#1}{#2}}

```



```

103 \define@key{@newfloat}{fileext}{%
104   \newfloat@setoption{fileext}{#1}}

\newfloat@setlistname \newfloat@setlistname{<environment>}{<list name>}
105 \newcommand*\newfloat@setlistname[2]{%
106   \@namedef{list#1name}{#2}}

107 \define@key{@newfloat}{listname}{%
108   \newfloat@setoption{listname}{#1}}

\newfloat@setname \newfloat@setname{<environment>}{<name>}
109 \newcommand*\newfloat@setname[2]{%
110   \newfloat@@setname{#1}{#2}%
111   \begingroup
112     \ifcsname languagename\endcsname
113       \ifcsname captions\languagename\endcsname
114         \expandafter\g@addto@macro\csname captions\languagename\endcsname
115           {\newfloat@@setname{#1}{#2}}%
116       \fi
117   \fi
118   \endgroup}
119 %%\AtBeginDocument{\let\newfloat@setname\newfloat@@setname}

120 \newcommand*\newfloat@@setname[2]{%
121   \@namedef{#1name}{#2}}

122 \define@key{@newfloat}{name}{%
123   \newfloat@setoption{name}{#1}}

\newfloat@setplacement \newfloat@setplacement{<environment>}{<float placement>}
124 \newcommand*\newfloat@setplacement[2]{%
125   \@namedef{fps@#1}{#2}}

126 \define@key{@newfloat}{placement}{%
127   \newfloat@setoption{placement}{#1}}

\newfloat@setwithin \newfloat@setwithin{<environment>}{<counter>}
setup the counter for working “within” a given counter. Furthermore the chapters lists
gap will be switched on (if counter = chapter) or off (otherwise).
128 \newcommand*\newfloat@setwithin[2]{%
129   \ifcsname c@chapter\endcsname
130     \@removefromreset{#1}{chapter}%
131   \fi
132   \@removefromreset{#1}{section}%
133   \edef\@tempa{#2}%
134   \ifx\@tempa\@empty
135     \def\@tempa{none}%
136   \fi
137   \def\@tempb{none}%
138   \ifx\@tempa\@tempb
139     \ifcsname c@chapter\endcsname
140       \@chapterlistsgap@off{#1}%
141     \fi
142     \newfloat@@setwithin{#1}{}{}%
143   \else

```

```

144 \def\@tempb{chapter}%
145 \ifx\@tempa\@tempb
146 \addtoreset{#1}{chapter}%
147 \chapterlistsgap@on{#1}%
148 \newfloat@@setwithin{#1}{\ifnum\c@chapter>\z@ \thechapter.\fi}{\theHchapter}
149 \else
150 \def\@tempb{section}%
151 \ifx\@tempa\@tempb
152 \addtoreset{#1}{section}%
153 \ifcsname c@chapter\endcsname
154 \addtoreset{#1}{chapter}%
155 \chapterlistsgap@on{#1}%
156 \newfloat@@setwithin{#1}{\thesection.}{\theHsection.}%
157 \else
158 \newfloat@@setwithin{#1}{\ifnum\c@section>\z@ \thesection.\fi}{\theHsection}
159 \fi
160 \else
161 \newfloat@Error{Invalid value '#2' for option 'within'}%
162 \fi
163 \fi
164 \fi}

```

Note: Since the hyperref package with version < 6.82k defines \theHfigure and \theHtable with \newcommand, \newfloat@@setwithin will yield to an error message when using with an old version of hyperref, e.g. “LaTeX Error: Command \theHfigure already defined”.

```

165 \newcommand*\newfloat@@setwithin[3]{%
166 \global\@namedef{the#1}{#2\arabic{#1}}%
167 \global\@namedef{theH#1}{#3\arabic{#1}}%
168 \define@key{@newfloat}{within}{%
169 \def\newfloat@within@value{#1}}

```

```

\newfloat@setwithout \newfloat@setwithout{<environment>}

```

```

170 \newcommand*\newfloat@setwithout[1]{%
171 \newfloat@setwithin{#1}{none}}
172 \define@key{@newfloat}{without}[]{%
173 \def\newfloat@within@value{none}}

```

```

float@setchapterlistsgaps \newfloat@setchapterlistsgaps{<environment>}{<on/off>}

```

```

174 \newcommand*\newfloat@setchapterlistsgaps[2]{%
175 \edef\@tempa{#2}%
176 \def\@tempb{off}%
177 \ifx\@tempa\@tempb
178 \chapterlistsgap@off{#1}%
179 \else
180 \def\@tempb{on}%
181 \ifx\@tempa\@tempb
182 \chapterlistsgap@on{#1}%
183 \else
184 \newfloat@Error{Invalid value '#2' for option 'chapterlistsgaps'}%
185 \fi
186 \fi}

```

```

187 \define@key{@newfloat}{chapterlistsgaps}{%
188   \def\newfloat@chapterlistsgaps@value{#1}}

```

\@removefromreset This code was taken from the `remreset` package which is part of the ‘`carlisle`’ package bundle. (Copyright 1997 David Carlisle)

```

189 \providecommand*\@removefromreset[2]{%
190   \expandafter\let\csname c@#1\endcsname\@removefromreset
191   \def\@elt##1{%
192     \expandafter\ifx\csname c@##1\endcsname\@removefromreset
193     \else
194       \noexpand\@elt{##1}%
195     \fi}%
196   \expandafter\xdef\csname cl@#2\endcsname{%
197     \csname cl@#2\endcsname}}

```

\newfloat@announce \newfloat@announce{*<environment name>*}{*<list file extension>*}

```

198 \newcommand*\newfloat@announce[2]{%
199   \@cons\newfloat@list{{#1}}%
200   \@cons\newfloat@@list{{#1}}%
201   \@ifundefined{newfloat@ext@#2}{%
202     \namedef{newfloat@ext@#2}{#1}%

```

Support of memoir document class

```

203   \ifcsname c@lofdepth\endcsname
204     \@ifundefined{c@#2depth}{%
205       \newcounter{#2depth}%
206       \setcounter{#2depth}{1}%
207     }{}%
208   \fi

```

Support of tocbasic package

```

209   \ifcsname addtotoclist\endcsname
210     \addtotoclist[float]{#2}%
211     \namedef{listof#2name}{\@nameuse{list#1name}}%
212   \fi
213 }{}%

```

Support of titletoc package

```

214   \ifcsname contentsuse\endcsname
215     \contentsuse{#1}{#2}%
216   \fi
217   \newfloat@hook{#1}}
218 \@onlypreamble\newfloat@announce

```

\newfloat@@list \newfloat@@list is an \@elt-list containing the floating environments defined with `\DeclareFloatingEnvironment` only.

```

219 \newcommand*\newfloat@@list{}

```

5.4 \SetupFloatingEnvironment

```
\SetupFloatingEnvironment \SetupFloatingEnvironment{<environment>}{<options>}
220 \newcommand*\SetupFloatingEnvironment[1]{%
221   \newfloat@addtolist{#1}%
222   \newfloat@setoptions{#1}}
```

5.5 \ForEachFloatingEnvironment

`\ForEachFloatingEnvironment` `\ForEachFloatingEnvironment{<code>}` will execute the given code for each floating environment. The starred variant will only work for already existing environment, i.e. no hook will be placed inside `\DeclareFloatingEnvironment`.

```
223 \newcommand\ForEachFloatingEnvironment{%
224   \@ifstar
225   {\@ForEachFloatingEnvironment\@gobble}%
226   {\@ForEachFloatingEnvironment\@iden}}
227 \newcommand\@ForEachFloatingEnvironment[2]{%
228   \def\@elt##1{#2}%
229   \newfloat@list
230   \let\@elt\relax
231   #1{\newfloat@addtohook{#2}}}
232 \providecommand\newfloat@addtohook[1]{%
233   \toks@=\expandafter{\newfloat@hook{##1}#1}%
234   \edef\@tempa{\def\noexpand\newfloat@hook###1{\the\toks@}}%
235   \@tempa}
236 \providecommand*\newfloat@hook[1]{}
```

5.6 The list of floating environments

`\newfloat@list` `\newfloat@list` is an `\@elt`-list containing the already existising floating environments as well the ones defined with `\DeclareFloatingEnvironment`.

```
237 \newcommand*\newfloat@list{}
```

`\newfloat@addtolist` `\newfloat@addtolist{<environment>}` adds an environment to the list of floating environments.

```
238 \newcommand*\newfloat@addtolist[1]{%
239   \newfloat@ifinlist{#1}{}{%
240     \ifcsname ext@#1\endcsname
241     \@cons\newfloat@list{#1}%
242     \@namedef{newfloat@ext@\@nameuse{ext@#1}}{#1}%
243   }
244   \newfloat@Error{'#1' does not seem to be a floating environment}%
245   \fi}}
```

`\newfloat@ifinlist` `\newfloat@ifinlist{<environment>}{<yes code>}{<no code>}` tests if an environment is an element of the list of floating environments.

```
246 \newcommand*\newfloat@ifinlist[1]{%
247   \let\next\@secondoftwo
248   \begingroup
```

```

249 \expandafter\let\csname c@#1\endcsname\newfloat@ifinlist
250 \def\elt##1{%
251 \expandafter\ifx\csname c@##1\endcsname\newfloat@ifinlist
252 \global\let\next\@firstoftwo
253 \fi}%
254 \newfloat@list
255 \endgroup
256 \next}

```

Add figure and table to the list of floating environments.

```

257\ifcsname ext@figure\endcsname
258 \newfloat@addtolist{figure}
259\fi
260\ifcsname ext@table\endcsname
261 \newfloat@addtolist{table}
262\fi

```

5.7 Chapter lists gaps

```

263\ifcsname @chapter\endcsname

```

`\@chapterlistsgap` The amount of the chapter lists gap, the default one is 10pt. (This command is already defined in KOMA-Script.)

```

264 \providecommand*\@chapterlistsgap{10\p@}%

```

`\@addchapterlistsgap` `\@addchapterlistsgap{<float type>}{<file extension>}`
will add the chapter lists gap for the given float type.

```

265 \providecommand*\@addchapterlistsgap[2]{%
266 \@nameuse{@ifchapterlistsgap@#1}{% if switched on
267 \@addchapterlistsgap{#1}{#2}}}%
268 \providecommand*\@@addchapterlistsgap[2]{%
269 \@ifundefined{@addchapterlistsgap@#2}{% only once per extension
270 \@namedef{@addchapterlistsgap@#2}{}%
271 \@@@addchapterlistsgap{#2}}{}}%
272 \providecommand*\@@@addchapterlistsgap[1]{%
273 \ifdim \@chapterlistsgap>\z@
274 \addtocontents{#1}{\protect\addvspace{\@chapterlistsgap}}%
275 \fi}

```

`\@addchapterlistsgaps` `\@addchapterlistsgaps`
will add the chapter lists gaps for all floating environments in `\newfloat@list`.

```

276 \providecommand*\@addchapterlistsgaps{%
277 \def\elt##1{%
278 \expandtwoargs\@addchapterlistsgap{##1}{\@nameuse{ext@##1}}}%
279 \newfloat@list
280 \let\elt\relax}

```

`\@chapterlistsgap@off` `\@chapterlistsgap@off{<float type>}`
switches the chapter lists gap off for the given float type. Since KOMA-Script (still) supports `\float@exts` we need to handle this locally, too, even if `\unsettoc` is offered by the `tocbasic` package. (Otherwise our handling could be moved into the `\else` branch.)

```

281 \providecommand*\@chapterlistsgap@off[1]{%
282 \expandafter\let\csname @ifchapterlistsgap@#1\endcsname\@gobble
283 \ifcsname unsettoc\endcsname
284 \expandtwoargs\unsettoc{\@nameuse{ext@#1}}{chapteratlist}%
285 \fi}

```

\@chapterlistsgap@on \@chapterlistsgap@off{<float type>}

switches the chapter lists gap on for the given float type.

```

286 \providecommand*\@chapterlistsgap@on[1]{%
287 \expandafter\let\csname @ifchapterlistsgap@#1\endcsname\@iden
288 \ifcsname setuptoc\endcsname
289 \expandtwoargs\setuptoc{\@nameuse{ext@#1}}{chapteratlist}%
290 \fi}

```

```
291 \fi
```

5.8 Global options

chapterlistsgap= The chapterlistsgap= option sets the vertical skip added to each list when starting a new chapter.

```

292 \define@key{newfloat}{chapterlistsgap}{%
293 \renewcommand*\@chapterlistsgap{#1}}

```

within= The within= option redefines the default value and modifies all existing floating environments.

```

294 \define@key{newfloat}{within}{%
295 \def\newfloat@within@default{#1}% set new default value
296 \def\@elt##1{\newfloat@setwithin{##1}{#1}}%
297 \newfloat@list
298 \let\@elt\relax}

299 \define@key{newfloat}{without}[]{%
300 \KV@newfloat@within{none}}

```

figurename= We define these options not only for figure but for all existing floating environments.

```

listfigurename= 301 \def\@elt#1{%
figurewithin= 302 \define@key{newfloat}{#1name}{%
303 \newfloat@setname{#1}{##1}}%
304 \define@key{newfloat}{list#1name}{%
305 \newfloat@setname{list#1}{##1}}%
306 \define@key{newfloat}{#1within}{%
307 \newfloat@setwithin{#1}{##1}}%
308 \define@key{newfloat}{#1without}[]{%
309 \newfloat@setwithout{#1}}%
310}%
311 \newfloat@list
312 \let\@elt\relax

```

Process the package options: We use \setkeys here instead of \ProcessOptions.

```

313 \let\@tempc\relax
314 \@expandtwoargs\setkeys{newfloat}{\@optionlist{\@currname.\@currentext}}%
315 \AtEndOfPackage{\let\@unprocessedoptions\relax}

```

```
\newfloatsetup \newfloatsetup{<options>} sets global options after loading the package.
316 \newcommand*\newfloatsetup{\setkeys{newfloat}}
```

5.9 Patching \chapter

```
\newfloat@replace@chapter \newfloat@replace@chapter{<original code>}{<replacement code>}
tries to patch \@chapter so \@addchapterlistsgaps will be supported. It
checks for \Hy@org@chapter, too, since the original code will be stored here if the
hyperref package was loaded.
```

```
317 \newcommand\newfloat@replace@chapter[2]{%
318   \begingroup
319     \let\if@twocolumn\iffalse
320     \let\if@mainmatter\iffalse
321     \let\if@thema\iffalse
322     \def\@tempa[##1]##2{#1}%
323     \ifx\@tempa\@chapter
324       \gdef\@chapter[##1]##2{#2}%
325       \global\let\newfloat@replace@chapter\@gobbletwo
326     \else\ifx\@tempa\Hy@org@chapter
327       \gdef\Hy@org@chapter[##1]##2{#2}%
328       \global\let\newfloat@replace@chapter\@gobbletwo
329     \fi\fi
330   \endgroup

331 \ifcsname @chapter\endcsname \else
332   \let\newfloat@replace@chapter\@gobbletwo
333 \fi
```

5.9.1 Standard L^AT_EX document classes

```
334 % report.cls [2005/09/16 v1.4f Standard LaTeX document class]
335 \newfloat@replace@chapter{%
336   \ifnum \c@secnumdepth > \m@ne
337     \refstepcounter{chapter}%
338     \typeout{\@chapapp\space\thechapter.}%
339     \addcontentsline{toc}{chapter}%
340     {\protect\numberline{\thechapter}#1}%
341   \else
342     \addcontentsline{toc}{chapter}{#1}%
343   \fi
344   \chaptermark{#1}%
345   \addtocontents{lof}{\protect\addvspace{10\p@}}%
346   \addtocontents{lot}{\protect\addvspace{10\p@}}%
347   \if@twocolumn
348     \@topnewpage[\@makechapterhead{#2}]%
349   \else
350     \@makechapterhead{#2}%
351     \@afterheading
352   \fi
353 }{%
354   \ifnum \c@secnumdepth > \m@ne
355     \refstepcounter{chapter}%
```

```

356 \typeout{\@chapapp\space\thechapter.}%
357 \addcontentsline{toc}{chapter}%
358   {\protect\numberline{\thechapter}\#1}%
359 \else
360   \addcontentsline{toc}{chapter}{\#1}%
361 \fi
362 \chaptermark{\#1}%
363 \@addchapterlistsgaps
364 \if@twocolumn
365   \@topnewpage[\@makechapterhead{\#2}]%
366 \else
367   \@makechapterhead{\#2}%
368   \@afterheading
369 \fi}

370% book.cls [2005/09/16 v1.4f Standard LaTeX document class]
371\newfloat@replace@chapter{%
372 \ifnum \c@secnumdepth >\m@ne
373   \if@mainmatter
374     \refstepcounter{chapter}%
375     \typeout{\@chapapp\space\thechapter.}%
376     \addcontentsline{toc}{chapter}%
377       {\protect\numberline{\thechapter}\#1}%
378   \else
379     \addcontentsline{toc}{chapter}{\#1}%
380   \fi
381 \else
382   \addcontentsline{toc}{chapter}{\#1}%
383 \fi
384 \addtocontents{lof}{\protect\addvspace{10\p@}}%
385 \addtocontents{lot}{\protect\addvspace{10\p@}}%
386 \if@twocolumn
387   \@topnewpage[\@makechapterhead{\#2}]%
388 \else
389   \@makechapterhead{\#2}%
390   \@afterheading
391 \fi
392 }{%
393 }{%
394 \ifnum \c@secnumdepth >\m@ne
395   \if@mainmatter
396     \refstepcounter{chapter}%
397     \typeout{\@chapapp\space\thechapter.}%
398     \addcontentsline{toc}{chapter}%
399       {\protect\numberline{\thechapter}\#1}%
400   \else
401     \addcontentsline{toc}{chapter}{\#1}%
402   \fi
403 \else
404   \addcontentsline{toc}{chapter}{\#1}%
405 \fi
406 \chaptermark{\#1}%
407 \@addchapterlistsgaps
408 \if@twocolumn
409   \@topnewpage[\@makechapterhead{\#2}]%

```



```

410 \else
411   \@makechapterhead{#2}%
412   \@afterheading
413 \fi}

```

5.9.2 $\mathcal{A}\mathcal{M}\mathcal{S}$ & SMF document classes

```

414 % amsbook.cls [2004/08/06 v2.20]
415 % smfbook.cls [1999/11/15 v1.2f Classe LaTeX pour les monographies editees par la
416 \newfloat@replace@chapter{%
417   \refstepcounter{chapter}%
418   \ifnum\c@secnumdepth<\z@ \let\@secnumber\@empty
419   \else \let\@secnumber\thechapter \fi
420   \typeout{\chaptername\space\@secnumber}%
421   \def\@toclevel{0}%
422   \ifx\chaptername\appendixname \@tocwriteb\tocappendix{chapter}{#2}%
423   \else \@tocwriteb\tocchapter{chapter}{#2}\fi
424   \chaptermark{#1}%
425   \addtocontents{lof}{\protect\addvspace{10\p@}}%
426   \addtocontents{lot}{\protect\addvspace{10\p@}}%
427   \@makechapterhead{#2}\@afterheading
428 }{%
429   \refstepcounter{chapter}%
430   \ifnum\c@secnumdepth<\z@ \let\@secnumber\@empty
431   \else \let\@secnumber\thechapter \fi
432   \typeout{\chaptername\space\@secnumber}%
433   \def\@toclevel{0}%
434   \ifx\chaptername\appendixname \@tocwriteb\tocappendix{chapter}{#2}%
435   \else \@tocwriteb\tocchapter{chapter}{#2}\fi
436   \chaptermark{#1}%
437   \@addchapterlistsgaps
438   \@makechapterhead{#2}\@afterheading}

```

5.9.3 KOMA-Script document classes

If a KOMA-Script document class or the tocbasic package is used we don't need to patch anything. Instead we use `\setuptoc` and `\unsettoc` to setup the chapters gap in `\@chapterlistsgap@on` and `\@chapterlistsgap@off`.

```

439 \@ifpackageloaded{tocbasic}{%
440   \let\newfloat@replace@chapter\@gobbletwo}{%

```

5.9.4 memoir document classes

If the memoir document class is used, replacing `\insertchapterspace` by `\@addchapterlistsgaps` is sufficient.

```

441 \ifcsname insertchapterspace\endcsname
442   \renewcommand*\insertchapterspace{\@addchapterlistsgaps}
443   \let\newfloat@replace@chapter\@gobbletwo
444 \fi

```

5.9.5 NTG document classes

```

445 % rapport1/3.cls [2004/06/07 v2.1a NTG LaTeX document class]
446 \newfloat@replace@chapter{%

```

```

447 \ifnum \c@secnumdepth >\m@ne
448   \refstepcounter{chapter}%
449   \typeout{\@chapapp\space\thechapter.}%
450   \addcontentsline{toc}{chapter}%
451     {\protect\numberline{\thechapter}\toc@font0 #1}%
452 \else
453   \addcontentsline{toc}{chapter}{\toc@font0 #1}%
454 \fi
455 \chaptermark{#1}%
456 \addtocontents{lof}{\protect\addvspace{10\p@}}%
457 \addtocontents{lot}{\protect\addvspace{10\p@}}%
458 \if@twocolumn
459   \@topnewpage[\@makechapterhead{#2}]%
460 \else
461   \@makechapterhead{#2}%
462   \@afterheading
463 \fi
464 }{%
465 \ifnum \c@secnumdepth >\m@ne
466   \refstepcounter{chapter}%
467   \typeout{\@chapapp\space\thechapter.}%
468   \addcontentsline{toc}{chapter}%
469     {\protect\numberline{\thechapter}\toc@font0 #1}%
470 \else
471   \addcontentsline{toc}{chapter}{\toc@font0 #1}%
472 \fi
473 \chaptermark{#1}%
474 \@addchapterlistsgaps
475 \if@twocolumn
476   \@topnewpage[\@makechapterhead{#2}]%
477 \else
478   \@makechapterhead{#2}%
479   \@afterheading
480 \fi}
481 % boek(3).cls [2004/06/07 v2.1a NTG LaTeX document class]
482 \newfloat@replace@chapter{%
483 \ifnum \c@secnumdepth >\m@ne
484   \if@mainmatter
485     \refstepcounter{chapter}%
486     \typeout{\@chapapp\space\thechapter.}%
487     \addcontentsline{toc}{chapter}%
488       {\protect\numberline{\thechapter}\toc@font0 #1}%
489   \else
490     \addcontentsline{toc}{chapter}{\toc@font0 #1}%
491   \fi
492 \else
493   \addcontentsline{toc}{chapter}{\toc@font0 #1}%
494 \fi
495 \chaptermark{#1}%
496 \addtocontents{lof}{\protect\addvspace{10\p@}}%
497 \addtocontents{lot}{\protect\addvspace{10\p@}}%
498 \if@twocolumn
499   \@topnewpage[\@makechapterhead{#2}]%
500 \else

```

```

501     \@makechapterhead{#2}%
502     \@afterheading
503   \fi
504 }{%
505   \ifnum \c@secnumdepth >\m@ne
506     \if@mainmatter
507       \refstepcounter{chapter}%
508       \typeout{\@chapapp\space\thechapter.}%
509       \addcontentsline{toc}{chapter}%
510         {\protect\numberline{\thechapter}\toc@font0 #1}%
511     \else
512       \addcontentsline{toc}{chapter}{\toc@font0 #1}%
513     \fi
514   \else
515     \addcontentsline{toc}{chapter}{\toc@font0 #1}%
516   \fi
517   \chaptermark{#1}%
518   \@addchapterlistsgaps
519   \if@twocolumn
520     \@topnewpage[\@makechapterhead{#2}]%
521   \else
522     \@makechapterhead{#2}%
523     \@afterheading
524   \fi}

```

5.9.6 The thesis document class

```

525 % thesis.cls [1996/25/01 1.0g LaTeX document class (wm).]
526 \newfloat@replace@chapter{%
527   \ifnum \c@secnumdepth >\m@ne
528     \if@mainmatter
529       \refstepcounter{chapter}%
530       \typeout{\chaptername\space\thechapter.}
531       \if@thema
532         \ifx\@shortauthor\@empty
533           \addcontentsline{toc}{chapter}{%
534             \protect\numberline{\thechapter.}#1}%
535         \else
536           \addcontentsline{toc}{chapter}{%
537             \protect\numberline{\thechapter.}%
538             \@shortauthor\hfill\mbox{}\vskip\normallineskip #1}%
539         \fi
540       \else
541         \addcontentsline{toc}{chapter}{%
542           \protect\numberline{\thechapter.}#1}%
543       \fi
544     \else
545       \addcontentsline{toc}{chapter}{#1}
546     \fi
547   \else
548     \addcontentsline{toc}{chapter}{#1}
549   \fi
550   \chaptermark{#1}
551   \addtocontents{lof}{\protect\addvspace{10pt}}
552   \addtocontents{lot}{\protect\addvspace{10pt}}

```

```

553 \if@twocolumn
554   \@topnewpage[\@makechapterhead{#2}]
555 \else
556   \@makechapterhead{#2}
557   \@afterheading
558 \fi
559 }{%
560 \ifnum \c@secnumdepth >\m@ne
561   \if@mainmatter
562     \refstepcounter{chapter}%
563     \typeout{\chaptername\space\thechapter.}%
564     \if@thema
565       \ifx\@shortauthor\@empty
566         \addcontentsline{toc}{chapter}{%
567           \protect\numberline{\thechapter.}#1}%
568       \else
569         \addcontentsline{toc}{chapter}{%
570           \protect\numberline{\thechapter.}%
571           \@shortauthor\hfill\mbox{}}\vskip\normallineskip #1}%
572       \fi
573     \else
574       \addcontentsline{toc}{chapter}{%
575         \protect\numberline{\thechapter.}#1}%
576     \fi
577   \else
578     \addcontentsline{toc}{chapter}{#1}%
579   \fi
580 \else
581   \addcontentsline{toc}{chapter}{#1}%
582 \fi
583 \chaptermark{#1}%
584 \@addchapterlistsgaps
585 \if@twocolumn
586   \@topnewpage[\@makechapterhead{#2}]%
587 \else
588   \@makechapterhead{#2}%
589   \@afterheading
590 \fi}

```

5.9.7 Compatibility warning

If we were not able to patch `\@chapter` a warning message is issued since we are not able to support chapter lists gaps then.

```

591 \ifx\newfloat@replace@chapter\@gobbletwo \else
592   \PackageWarningNoLine{newfloat}{%
593     Unsupported document class, or\MessageBreak
594     \noexpand\@chapter was already redefined by another package}
595   \newfloat@Info{\string\@chapter\space=\space\meaning\@chapter}
596 \fi

```

5.10 Support of other packages

`\newfloat@ForEachNew` `\newfloat@ForEachNew[<command>]{<code>}` will execute the given code for every floating environment defined with `\DeclareFloatingEnvironment`. This

will be done `\AtBeginDocument` so the affected package could be loaded after the `newfloat` package. (If a `<command>` is given this will only be done if `<command>` is defined.)

```
597 \newcommand\newfloat@ForEachNew[2][newfloat@@list]{%
598   \AtBeginDocument{%
599     \ifcsname#1\endcsname
600       \def\@elt##1{#2}%
601       \newfloat@@list
602       \let\@elt\relax
603     \fi}%
604 \@onlypreamble\newfloat@ForEachNew
```

5.10.1 float

If the `float` package is used we fill up `\float@exts` with our file extensions, too. Since this list will be used for inserting chapters gaps we only add the ones which are configured for chapters gaps on.

```
605 \newfloat@ForEachNew[float@exts]{%
606   \@nameuse{@ifchapterlistsgap@#1}{% if switched on
607     \let\float@do=\relax
608     \edef\@tempa{%
609       \noexpand\float@exts{\the\float@exts\float@do{\@nameuse{ext@#1}}}%
610     \@tempa}}
```

5.10.2 fltpage

We define a FP-variant of new floating environments here.

```
611 \newfloat@ForEachNew[FP@floatBegin]{%
612   \newcounter{FP@#1C}%
613   \newenvironment{FP#1}{\FP@floatBegin{#1}}{\FP@floatEnd}}
```

5.10.3 listings

`\ext@lstlisting` Since the `listings` package do not define `\ext@lstlisting` but we needed it when `SetupFloatingEnvironment{lstlisting}{...}` will be done by the end user, we define it here.

```
614 \providecommand*\ext@lstlisting{lol}%
```

5.10.4 rotating

We define a sideways-variant of new floating environments here.

```
615 \newfloat@ForEachNew[@rotfloat]{%
616   \newenvironment{sideways#1}{\@rotfloat{#1}}{\end@rotfloat}%
617   \newenvironment{sideways#1*}{\@rotdblfloat{#1}}{\end@rotdblfloat}}
```

5.10.5 sidecap

We define a SC-variant of new floating environments here.

```
618 \newcommand*\newfloat@For@SC[2]{%
619   \def#1{b}% = \sidecaptionvpos{#2}{b} (v1.6)
620   \newenvironment{SC#2}%
621     {\SC@float[#1]{#2}}{\endSC@float}%
622   \newenvironment{SC#2*}%
623     {\SC@dblfloat[#1]{#2}}{\endSC@dblfloat}}
624 \@onlypreamble\newfloat@For@SC
625 \newfloat@ForEachNew[SC@float]{%
626   \expandafter\newfloat@For@SC\csname SC@#1@vpos\endcsname{#1}}
```

5.10.6 wrapfig

We define a wrap-variant of new floating environments here.

```
627 \newfloat@ForEachNew[wrapfloat]{%
628   \newenvironment{wrap#1}{\wrapfloat{#1}}{\endwrapfloat}}
```

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