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`.

Contents

[*]This package has version number v1.0, last revised 2011/10/30.

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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 \Declare-FloatingEnvironment 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* htbp⟩
                 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.

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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}[2011/10/30 v1.0 Defining new floating environments (AR)
```

\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`

eclareFloatingEnvironment   \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
```

6

```
30      \newcount\newfloat@ftype
31      \newfloat@ftype=8\relax
32     \fi
33     \expandafter\xdef\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 $\fnum@\langle type\rangle$, a macro to generate the figure number for a caption

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

Define $\langle type\rangle$name used by $\fnum@\langle type\rangle$ as $\langle type\rangle$, 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 $\listof\langle type\rangle$(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\xdef\csname list#2name\endcsname{List of \newfloat@Type s}%
```

Set default parameters

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

Apply given options

```
55    \newfloat@setoptions*{#2}{#1}%
```

Announce the new floating environment to other packages

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

Apply the last two optional arguments for setting names

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

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

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

`\newfloat@listof` `\newfloat@listof{`⟨*float type*⟩`}` typesets the list

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

`\newfloat@setoptions` `\newfloat@setoptions*{`⟨*environment*⟩`}{`⟨*options*⟩`}`

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

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

`\newfloat@within@default` The default 'within' value. This one will be used if no option `within=`⟨*counter*⟩ is given.

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

`\newfloat@setoption` `\newfloat@setoption{`⟨*option name*⟩`}`options

```
98 \newcommand*\newfloat@setoption[1]{%
99   \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*⟩`}`

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

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

`\newfloat@setlistname` `\newfloat@setlistname{`⟨*environment*⟩`}{`⟨*list name*⟩`}`

```
104 \newcommand*\newfloat@setlistname[2]{%
105   \@namedef{list#1name}{#2}}
```

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

`\newfloat@setname` `\newfloat@setname{`⟨*environment*⟩`}{`⟨*name*⟩`}`

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

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

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

`\newfloat@setplacement` `\newfloat@setplacement{`⟨*environment*⟩`}{`⟨*float placement*⟩`}`

```
123 \newcommand*\newfloat@setplacement[2]{%
124   \@namedef{fps@#1}{#2}}
```

```
125 \define@key{@newfloat}{placement}{%
126   \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).

```
127 \newcommand*\newfloat@setwithin[2]{%
128   \ifcsname c@chapter\endcsname
129     \@removefromreset{#1}{chapter}%
130   \fi
131   \@removefromreset{#1}{section}%
```

```
132   \edef\@tempa{#2}%
133   \ifx\@tempa\@empty
134     \def\@tempa{none}%
135   \fi
136   \def\@tempb{none}%
137   \ifx\@tempa\@tempb
138     \ifcsname c@chapter\endcsname
139       \@chapterlistsgap@off{#1}%
140     \fi
141     \newfloat@@setwithin{#1}{}{}%
142   \else
143     \def\@tempb{chapter}%
144     \ifx\@tempa\@tempb
145       \@addtoreset{#1}{chapter}%
```

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```
146        \@chapterlistsgap@on{#1}%
147        \newfloat@@setwithin{#1}{\ifnum\c@chapter>\z@ \thechapter.\fi}{\theHchapter.
148      \else
149        \def\@tempb{section}%
150        \ifx\@tempa\@tempb
151          \@addtoreset{#1}{section}%
152          \ifcsname c@chapter\endcsname
153            \@addtoreset{#1}{chapter}%
154            \@chapterlistsgap@on{#1}%
155            \newfloat@@setwithin{#1}{\thesection.}{\theHsection.}%
156          \else
157            \newfloat@@setwithin{#1}{\ifnum\c@section>\z@ \thesection.\fi}{\theHsect
158          \fi
159        \else
160          \newfloat@Error{Invalid value '#2' for option 'within'}%
161        \fi
162      \fi
163    \fi}
164 \newcommand*\newfloat@@setwithin[3]{%
165    \global\@namedef{the#1}{#2\arabic{#1}}%
166    \global\@namedef{theH#1}{#3\arabic{#1}}}
167 \define@key{@newfloat}{within}{%
168    \def\newfloat@within@value{#1}}
```

\newfloat@setwithout   \newfloat@setwithout{⟨*environment*⟩}

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

float@setchapterlistsgaps   \newfloat@setchapterlistsgaps{⟨*environment*⟩}{⟨*on/off*⟩}

```
173 \newcommand*\newfloat@setchapterlistsgaps[2]{%
174    \edef\@tempa{#2}%
175    \def\@tempb{off}%
176    \ifx\@tempa\@tempb
177      \@chapterlistsgap@off{#1}%
178    \else
179      \def\@tempb{on}%
180      \ifx\@tempa\@tempb
181        \@chapterlistsgap@on{#1}%
182      \else
183        \newfloat@Error{Invalid value '#2' for option 'chapterlistsgaps'}%
184      \fi
185    \fi}
186 \define@key{@newfloat}{chapterlistsgaps}{%
187    \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)

```
188 \providecommand*\@removefromreset[2]{{%
189    \expandafter\let\csname c@#1\endcsname\@removefromreset
190    \def\@elt##1{%
```

10

```
191        \expandafter\ifx\csname c@##1\endcsname\@removefromreset
192        \else
193          \noexpand\@elt{##1}%
194        \fi}%
195      \expandafter\xdef\csname cl@#2\endcsname{%
196        \csname cl@#2\endcsname}}}
```

\newfloat@announce   \newfloat@announce{⟨*environment name*⟩}{⟨*list file extension*⟩}

```
197 \newcommand*\newfloat@announce[2]{%

198   \@cons\newfloat@list{{#1}}%
199   \@cons\newfloat@@list{{#1}}%

200   \@ifundefined{newfloat@ext@#2}{%
201     \@namedef{newfloat@ext@#2}{#1}%
```

Support of memoir document class

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

Support of tocbasic package

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

212   }{}%
```

Support of titletoc package

```
213   \ifcsname contentsuse\endcsname
214     \contentsuse{#1}{#2}%
215   \fi

216   \newfloat@hook{#1}}
217 \@onlypreamble\newfloat@announce
```

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

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


5.4 \SetupFloatingEnvironment

\SetupFloatingEnvironment   \SetupFloatingEnvironment{⟨*environment*⟩}{⟨*options*⟩}

```
219 \newcommand*\SetupFloatingEnvironment[1]{%
220   \newfloat@addtolist{#1}%
221   \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`.

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

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

`\newfloat@addtolist`

`\newfloat@addtolist{`⟨*environment*⟩`}` adds an environment to the list of floating environments.

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

`\newfloat@ifinlist`

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

```
245 \newcommand*\newfloat@ifinlist[1]{%
246   \let\next\@secondoftwo
247   \begingroup
248     \expandafter\let\csname c@#1\endcsname\newfloat@ifinlist
249     \def\@elt##1{%
250       \expandafter\ifx\csname c@##1\endcsname\newfloat@ifinlist
251         \global\let\next\@firstoftwo
252       \fi}%
253     \newfloat@list
254   \endgroup
255   \next}
```

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Add `figure` and `table` to the list of floating environments.

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

5.7   Chapter lists gaps

```
262 \ifcsname @chapter\endcsname
```

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

```
263   \providecommand*\@chapterlistsgap{10\p@}%
```

`\@addchapterlistsgap` `\@addchapterlistsgap{`⟨*float type*⟩`}{`⟨*file extension*⟩`}`
will add the chapter lists gap for the given float type.

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

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

```
275   \providecommand*\@addchapterlistsgaps{%
276     \def\@elt##1{%
277       \@expandtwoargs\@addchapterlistsgap{##1}{\@nameuse{ext@##1}}}%
278     \newfloat@list
279     \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.)

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

`\@chapterlistsgap@on` `\@chapterlistsgap@off{`⟨*float type*⟩`}`
switches the chapter lists gap on for the given float type.

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

290 \fi
```

5.8 Global options

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

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

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

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

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

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

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

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

```
312 \let\@tempc\relax
313 \@expandtwoargs\setkeys{newfloat}{\@ptionlist{\@currname.\@currext}}%
314 \AtEndOfPackage{\let\@unprocessedoptions\relax}
```

\newfloatsetup `\newfloatsetup{⟨options⟩}` sets global options after loading the package.

```
315 \newcommand*\newfloatsetup{\setkeys{newfloat}}
```

14

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.

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

5.9.1 Standard LATEX document classes

```
333 % report.cls [2005/09/16 v1.4f Standard LaTeX document class]
334 \newfloat@replace@chapter{%
335   \ifnum \c@secnumdepth >\m@ne
336     \refstepcounter{chapter}%
337     \typeout{\@chapapp\space\thechapter.}%
338     \addcontentsline{toc}{chapter}%
339       {\protect\numberline{\thechapter}#1}%
340   \else
341     \addcontentsline{toc}{chapter}{#1}%
342   \fi
343   \chaptermark{#1}%
344   \addtocontents{lof}{\protect\addvspace{10\p@}}%
345   \addtocontents{lot}{\protect\addvspace{10\p@}}%
346   \if@twocolumn
347     \@topnewpage[\@makechapterhead{#2}]%
348   \else
349     \@makechapterhead{#2}%
350     \@afterheading
351   \fi
352 }{%
353   \ifnum \c@secnumdepth >\m@ne
354     \refstepcounter{chapter}%
355     \typeout{\@chapapp\space\thechapter.}%
356     \addcontentsline{toc}{chapter}%
357       {\protect\numberline{\thechapter}#1}%
358   \else
359     \addcontentsline{toc}{chapter}{#1}%
```

```
360    \fi
361    \chaptermark{#1}%
362    \@addchapterlistsgaps
363    \if@twocolumn
364      \@topnewpage[\@makechapterhead{#2}]%
365    \else
366      \@makechapterhead{#2}%
367      \@afterheading
368    \fi}

369 % book.cls [2005/09/16 v1.4f Standard LaTeX document class]
370 \newfloat@replace@chapter{%
371    \ifnum \c@secnumdepth >\m@ne
372      \if@mainmatter
373        \refstepcounter{chapter}%
374        \typeout{\@chapapp\space\thechapter.}%
375        \addcontentsline{toc}{chapter}%
376          {\protect\numberline{\thechapter}#1}%
377      \else
378        \addcontentsline{toc}{chapter}{#1}%
379      \fi
380    \else
381      \addcontentsline{toc}{chapter}{#1}%
382    \fi
383    \chaptermark{#1}%
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    \ifnum \c@secnumdepth >\m@ne
394      \if@mainmatter
395        \refstepcounter{chapter}%
396        \typeout{\@chapapp\space\thechapter.}%
397        \addcontentsline{toc}{chapter}%
398          {\protect\numberline{\thechapter}#1}%
399      \else
400        \addcontentsline{toc}{chapter}{#1}%
401      \fi
402    \else
403      \addcontentsline{toc}{chapter}{#1}%
404    \fi
405    \chaptermark{#1}%
406    \@addchapterlistsgaps
407    \if@twocolumn
408      \@topnewpage[\@makechapterhead{#2}]%
409    \else
410      \@makechapterhead{#2}%
411      \@afterheading
412    \fi}
```

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

```
413 % amsbook.cls [2004/08/06 v2.20]
414 % smfbook.cls [1999/11/15 v1.2f Classe LaTeX pour les monographies editees par la
415 \newfloat@replace@chapter{%
416   \refstepcounter{chapter}%
417   \ifnum\c@secnumdepth<\z@ \let\@secnumber\@empty
418   \else \let\@secnumber\thechapter \fi
419   \typeout{\chaptername\space\@secnumber}%
420   \def\@toclevel{0}%
421   \ifx\chaptername\appendixname \@tocwriteb\tocappendix{chapter}{#2}%
422   \else \@tocwriteb\tocchapter{chapter}{#2}\fi
423   \chaptermark{#1}%
424   \addtocontents{lof}{\protect\addvspace{10\p@}}%
425   \addtocontents{lot}{\protect\addvspace{10\p@}}%
426   \@makechapterhead{#2}\@afterheading
427 }{%
428   \refstepcounter{chapter}%
429   \ifnum\c@secnumdepth<\z@ \let\@secnumber\@empty
430   \else \let\@secnumber\thechapter \fi
431   \typeout{\chaptername\space\@secnumber}%
432   \def\@toclevel{0}%
433   \ifx\chaptername\appendixname \@tocwriteb\tocappendix{chapter}{#2}%
434   \else \@tocwriteb\tocchapter{chapter}{#2}\fi
435   \chaptermark{#1}%
436   \@addchapterlistsgaps
437   \@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.

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

5.9.4 memoir document classes

If the memoir document class is used, replacing \insertchapterspace by \@add-chapterlistsgaps is sufficient.

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

5.9.5 NTG document classes

```
444 % rapport1/3.cls [2004/06/07 v2.1a NTG LaTeX document class]
445 \newfloat@replace@chapter{%
446   \ifnum \c@secnumdepth >\m@ne
447     \refstepcounter{chapter}%
448     \typeout{\@chapapp\space\thechapter.}%
449     \addcontentsline{toc}{chapter}%
450       {\protect\numberline{\thechapter}\toc@font0 #1}%
```

```
451   \else
452     \addcontentsline{toc}{chapter}{\toc@font0 #1}%
453   \fi
454   \chaptermark{#1}%
455   \addtocontents{lof}{\protect\addvspace{10\p@}}%
456   \addtocontents{lot}{\protect\addvspace{10\p@}}%
457   \if@twocolumn
458     \@topnewpage[\@makechapterhead{#2}]%
459   \else
460     \@makechapterhead{#2}%
461     \@afterheading
462   \fi
463 }{%
464   \ifnum \c@secnumdepth >\m@ne
465     \refstepcounter{chapter}%
466     \typeout{\@chapapp\space\thechapter.}%
467     \addcontentsline{toc}{chapter}%
468       {\protect\numberline{\thechapter}\toc@font0 #1}%
469   \else
470     \addcontentsline{toc}{chapter}{\toc@font0 #1}%
471   \fi
472   \chaptermark{#1}%
473   \@addchapterlistsgaps
474   \if@twocolumn
475     \@topnewpage[\@makechapterhead{#2}]%
476   \else
477     \@makechapterhead{#2}%
478     \@afterheading
479   \fi}

480   % boek(3).cls [2004/06/07 v2.1a NTG LaTeX document class]
481 \newfloat@replace@chapter{%
482   \ifnum \c@secnumdepth >\m@ne
483     \if@mainmatter
484       \refstepcounter{chapter}%
485       \typeout{\@chapapp\space\thechapter.}%
486       \addcontentsline{toc}{chapter}%
487         {\protect\numberline{\thechapter}\toc@font0 #1}%
488     \else
489       \addcontentsline{toc}{chapter}{\toc@font0 #1}%
490     \fi
491   \else
492     \addcontentsline{toc}{chapter}{\toc@font0 #1}%
493   \fi
494   \chaptermark{#1}%
495   \addtocontents{lof}{\protect\addvspace{10\p@}}%
496   \addtocontents{lot}{\protect\addvspace{10\p@}}%
497   \if@twocolumn
498     \@topnewpage[\@makechapterhead{#2}]%
499   \else
500     \@makechapterhead{#2}%
501     \@afterheading
502   \fi
503 }{%
504   \ifnum \c@secnumdepth >\m@ne
```

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

5.9.6   The thesis document class

```
524 % thesis.cls [1996/25/01 1.0g LaTeX document class (wm).]
525 \newfloat@replace@chapter{%
526   \ifnum \c@secnumdepth >\m@ne
527     \if@mainmatter
528       \refstepcounter{chapter}%
529       \typeout{\chaptername\space\thechapter.}
530       \if@thema
531         \ifx\@shortauthor\@empty
532           \addcontentsline{toc}{chapter}{%
533           \protect\numberline{\thechapter.}#1}%
534         \else
535           \addcontentsline{toc}{chapter}{%
536           \protect\numberline{\thechapter.}%
537           \@shortauthor\hfill\mbox{}\vskip\normallineskip #1}%
538         \fi
539       \else
540         \addcontentsline{toc}{chapter}{%
541         \protect\numberline{\thechapter.}#1}%
542       \fi
543     \else
544       \addcontentsline{toc}{chapter}{#1}
545     \fi
546   \else
547     \addcontentsline{toc}{chapter}{#1}
548   \fi
549   \chaptermark{#1}
550   \addtocontents{lof}{\protect\addvspace{10pt}}
551   \addtocontents{lot}{\protect\addvspace{10pt}}
552   \if@twocolumn
553     \@topnewpage[\@makechapterhead{#2}]
554   \else
555     \@makechapterhead{#2}
556     \@afterheading
```

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

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

```
596 \newcommand\newfloat@ForEachNew[2][newfloat@@list]{%
```

```
597  \AtBeginDocument{%
598    \ifcsname#1\endcsname
599      \def\@elt##1{#2}%
600      \newfloat@@list
601      \let\@elt\relax
602    \fi}}%
603 \@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.

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

5.10.2 fltpage

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

```
610 \newfloat@ForEachNew[FPfigure]{%
611  \newcounter{FP@#1C}%
612  \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.

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

5.10.4 rotating

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

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

5.10.5 sidecap

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

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

```
624 \newfloat@ForEachNew[SCfigure]{%
625     \expandafter\newfloat@For@SC\csname SC@#1@vpos\endcsname{#1}}
```

5.10.6 wrapfig

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

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

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