

# The endfloat package\*

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## Abstract

The purpose of this package is to put all figures on pages by themselves at the end of an article in a section named Figures. Likewise for tables. Markers, like “[Figure 3 about here]” appear in the text (by default) near where the figure (or table) would normally have occurred. This is usually required when preparing submissions to journals.

A number of package options and other mechanisms are provided to give the user control over various aspects of the package’s behavior.

Loading this package will change the output of  $\LaTeX$ .

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## 1 In many voices

This documentation was put in its current form by Jeff Goldberg, who has tried to indicate when he is (when I am) speaking. See [section 14](#) for more detail. However, both the original author, Darrell McCauley, and a major contributor, Brian Junker, use the first person singular. In this version I no longer work to keep it clear who wrote what portions of the documentation and the code, but have allowed things to blend together a little more, since the constant interpolations were hindering readability. Generally the user documentation was written by Darrell MaCauley (jdm), but anything that refers to  $\LaTeX 2\epsilon$  features was added by me (jpg). Also, where you find spelling and typographical errors, you are likely to be reading my text.

Axel Sommerfeldt has added a section about dealing with other floating environments than `figure` and `table`, and made adaptations to other sections affected by the changes of version 2.5, 2.6, and 2.7. Furthermore he has added paragraphs about his caption package in [section 10.4.1](#) “Removing captions”.

This documentation is long. Most users won’t need to read beyond the first few pages, but there are a number of ways to customize the behavior of `endfloat` and these are detailed as the documentation progresses. The package is unusual in the way it does its job, so it can interact with other packages and other aspects of  $\LaTeX$  in ways that may be surprising. Although the package is flexible in some respects, it is highly limited in others. Tools and hints are provided to help you control these interactions, but these do require some reading. But you only need to take a look at these sections when the need arises.

## 2 Why write this package?

Many journals require tables and figures to be separated from the text when you submit those ugly double spaced copies. They also usually want a list of figures/tables before these sections (capability added in v2.0, control through package options added in v2.2).

I (jdm) am writing a set of styles that look exactly like a journal, but just by adding one style option, I wanted the user to meet the requirements for formatting submissions. I encourage others to do the same.<sup>1</sup>

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<sup>1</sup>Note that jdm, working in old  $\LaTeX 209$  did not have the distinction between class, package and package options available to him at the time he made his comment. The most coherent way to do what is needed is to use a class, let’s say `submit`, which would load `endfloat` and presumably some double spacing packages among other things. Once that class is defined, then other classes which are specific to particular journals can be defined.

## 3 Usage

### 3.1 Loading

Just include the package in your preamble

```
\usepackage[...] {endfloat}
```

Note that versions 2.1 and beyond will no longer work with L<sup>A</sup>T<sub>E</sub>X<sub>209</sub>. Get your administrator to upgrade your site to the new standard, L<sup>A</sup>T<sub>E</sub>X<sub>2 $\epsilon$</sub> . Although version 2.0 (a L<sup>A</sup>T<sub>E</sub>X<sub>209</sub> version) will usually work with L<sup>A</sup>T<sub>E</sub>X<sub>2 $\epsilon$</sub> , it will not do so in combination with certain other packages.

### 3.2 What it does

Merely loading the package will get it working. Loading it will have L<sup>A</sup>T<sub>E</sub>X produce two extra files with `.ttt` and `.fff` extensions (for tables and figures, respectively).

This puts all figures and tables at the end of your document each on a page by itself<sup>2</sup> and creates a List of Figures and/or List of Tables section at the end (when appropriate and controllable by options). The floats are processed using `\baselinestretch{1}` irrespective of what is used in the document as a whole. This can be reset to, say 1.4, by using

```
\AtBeginDelayedFloats{%  
  \renewcommand{\baselinestretch}{1.4}}
```

which is available from version 2.4. See [section 5](#) for more discussion.

It also leaves notes in the text (i.e., “[Figure 4 about here.]”). If you would rather not have these, this can be turned off by using the `nomarkers` options. If you do not like the look of this marker, you can change their text and appearance (see [section 4](#)).

### 3.3 Starred floats

The `figure*` and `table*` versions are supported by the current version.<sup>3</sup>

### 3.4 Options

Under version 2.2 and higher, the `endfloat` package uses package options. The options are summarized in [table 1](#). In addition to these options, see [sections 10](#) and [5](#) for more advanced ways of controlling output.

The list of tables and figures can be suppressed by using the `nofiglist` and `notablist` options. Both can be suppressed with the `nolists` option.<sup>4</sup> The default is `lists`.

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<sup>2</sup>This is the default. See [section 8](#) to see how to have multiple floats per page.

<sup>3</sup>I (jpg) very stupidly introduced a bug in version 2.2 which wrecked `figure*`. It has been brought to my attention and fixed. I offer my thanks and my apologies.

<sup>4</sup>In versions prior to 2.2 the command for turning off the lists turned on the headers (the equivalent of the `heads` option). That is not the case with these options. The `lists` and the `heads` options are entirely orthogonal.

Table 1: Options and defaults

Option	Default	Default implication	Descriptions
<code>nofiglist</code>	off		no list of figures
<code>notablist</code>	off		no list of tables
<code>nolists</code>		<code>nofiglist, notablist</code>	neither list
<code>figlist</code>	on		list of figures
<code>tablist</code>	on		list of tables
<code>lists</code>		<code>figlist, tablist</code>	list of tables and figures
<code>nofighead</code>	on		no ‘Figures’ section header
<code>notabhead</code>	on		no ‘Tables’ section header
<code>noheads</code>		<code>nofighead, notabhead</code>	neither of the headers
<code>fighead</code>	off		‘Figures’ section header
<code>tabhead</code>	off		‘Tables’ section header
<code>heads</code>		<code>fighead, tabhead</code>	Both section headers
<code>markers</code>	on		Place markers in the text
<code>nomarkers</code>	off		no markers in text
<code>tablesfirst</code>	off		Put tables before figures
<code>figuresfirst</code>	on		Put figures before tables
<code>tablesonly</code>	off		Handle tables only
<code>figuresonly</code>	off		Handle figures only
<code>notables</code>	off		Disregard tables
<code>nofigures</code>	off		Disregard figures
<code>disable</code>			Disables the package

A section header for ‘Tables’ and ‘Figures’ can be produced by using the option `tabhead`, `fighead`, respectively, and `heads` for both. The defaults are `notabhead` and `nofighead`.

If you want the headers instead of the lists you would need to use both the `nolists` and the `heads` options.

If you want to suppress the markers in the text, use the option `nomarkers`. The default is `markers`.

Normally the figures at the end appear before the tables. This can be changed by using the option `tablesfirst`. The default is `figuresfirst`.

If nothing else is specified, both figures and tables will be handled by the `endfloat` package. This can be altered by usage of the options `tablesonly` resp. `figuresonly`.

A typical usage might be something like

```
\documentclass[a4paper,12pt]{article}
\usepackage[nolists,tablesfirst]{endfloat}
...
\begin{document}
```

which would suppress the list of tables and figures as well as the corresponding section headers, and would have the tables precede the figures.

### 3.4.1 Contradictions and dilemmas

It is not recommended that one specify conflicting options, but if you insist, here are the rules. In table 1 the third column indicates what other options are implied by default. That is `heads` turns on `fighead` by default, but that implication can be overruled by explicitly stating the `nofighead` option.

1. When one option is more specific than the other the more specific one holds true, and the more general will only partially hold. So specifying `fighead` and `noheads` will be the same as saying `fighead` and `notabhead`.
2. The order in which the options appear is relevant.
3. If some of the obsolete commands for these options are used all bets are off on these interactions.

## 4 Modifying marker text

`\tableplace` Announcements in any language can be generated by using `\renewcommand` to redefine `\figureplace` and `\floatplace`, or by redefining `\floatplace`.  
`\floatplace` The defaults are

```
\newcommand\figureplace{\floatplace{figure}}
\newcommand\tableplace{\floatplace{table}}
```

```

\newcommand\floatplace[1]{%
  \begin{center}
    [\csname #1name\endcsname~%
     \csname thepost#1\endcsname\ about here.]
  \end{center}}

```

These redefinitions may be placed in the `endfloat.cfg` file (see [section 10](#) for more information).

**WARNING!** The name of the counters `posttbl` and `postfig` have been changed to `posttable` and `postfigure` in version 2.5. However, `\theposttbl` and `\thepostfig` are still available for usage inside redefined versions of `\tableplace` and `\figureplace` so old documents (hopefully) will still work.

Hooks for the `babel` package are not (yet) provided, so you will have to do things by hand:

```

\renewcommand{\figurename}{Abra} % if no babel
\renewcommand{\figureplace}{%
  \begin{center}
    [A(z) \thepostfigure.~\figurename itt legyen.]
  \end{center}}

```

If you wish to change the name of the figure or table section heading, you can do that in the usual way (via the `babel` package, or by redefining `\figuresection` and `\tablesection` directly).

`\efloatheading` `Endfloat` uses `\efloatheading` for applying this heading. By default it is defined to use `\markboth` for that purpose:

```

\newcommand\efloatheading[1]{%
  \markboth{\uppercase{#1}}{\uppercase{#1}}}

```

forcing the headings applied in uppercase. You may change this by using `\renewcommand` to redefine `\efloatheading` as you wish:

```

\renewcommand\efloatheading[1]{{code that applies #1 as heading}}

```

It makes most sense to place such a redefinition in the configuration file (see [section 10](#)).

## 5 Commands before processing delayed material

`\AtBeginFigures` `\AtBeginTables` `\AtBeginDelayedFloats` If you wish to have some more control over how the tables and figures are processed, you can make use of the commands `\AtBeginDelayedFloats`, `\AtBeginFigures`, and `\AtBeginTables`. If you wanted to ensure that the tables begin on a recto page, you could for example say something like `\AtBeginTables{\cleardoublepage}` in the preamble of your document.<sup>5</sup> Material in `\AtBeginTables` and `\AtBeginFigures` is processed after the list of tables or list of figures (if those options are

<sup>5</sup>It is difficult for me to imagine a situation where one would be using `endfloat` and the class option `twoside`, without which `\cleardoublepage` is the same as `\clearpage`, together. Another, more realistic example would be to adjust the `\baselinestretch` for table and figure processing.

set) and just before the files with the delayed material in input. These are also processed after the original definitions of the table and figure environments are restored.

These commands can be used either in the preamble of your document, or in the `endfloat.cfg` file (see [section 10](#)).

## 6 Insert own code into the delayed material

`\addtodelayedfloat` `\addtodelayedfloat` will add own code to delayed floats. For example

```
\addtodelayedfloat{figure}{\clearpage}
```

will add `\clearpage` to the delayed figures.

Note: The argument will be stored detokenized to the intermediate file. If this is not what you want, use the starred variant `\addtodelayedfloat*` instead, for example

```
\addtodelayedfloat{figure}{\sometext}
```

will add `\sometext` to the delayed figures while

```
\addtodelayedfloat*{figure}{\sometext}
```

will add the current content of `\sometext` to the delayed figures.

## 7 Processing delayed floats before the end

`\processdelayedfloats` If you wish to process the floats prior to the end of the document, you may do so with the `\processdelayedfloats` command, which has been made available from version 2.4 onward. This will process all of the unprocessed tables and figures up to that point. You may wish to use this command at the end of every chapter for example.

If you do use this, there are several points which should be noted.

1. All outstanding floats will be processed at the end of the document.
2. If you use the `lists` option you will get a list of all tables and figures in the document. Not just the ones for the current chapter. Using lists may have other odd consequences.
3. It is your responsibility to set `\tableplace` and `\figureplace` correctly, as well as to possibly reset the counters `\theposttable` and `\thepostfigure` ([section 4](#)) as you wish. If you do not reset them, they will continue to increase throughout the document.

## 8 Several floats per page

`\efloatpreamble` `Endfloat` applies `\efloatpreamble` before typesetting the very first (delayed) float in their respective files. By default it is defined to do nothing. You may change this by using `\renewcommand` to redefine `\efloatpreamble` as you wish.



`\efloatseparator`      Endfloat places `\efloatseparator` between the floats in their respective files. By default it is defined to be `\clearpage` forcing one float per page. You may change this by using `\renewcommand` to redefine `\efloatseparator` as you wish. One possibility, suggested by a user, is

```
\renewcommand{\efloatseparator}{\mbox{}}
```

`\efloatpostamble`      Endfloat applies `\efloatpostamble` after typesetting the very last (delayed) float in their respective files. By default it is defined to be `\efloatseparator`. You may change this by using `\renewcommand` to redefine `\efloatpostamble` as you wish.

`\efloattype`      If you need to know what floats are actually processed, you could draw on `\efloattype` which is set to the environment type currently processed, for example `figure` or `table`.

## 9 Other customizations

`\efloatbegin`      `\efloatbegin` will be typeset before the processing of each delayed float while  
`\efloatend`      `\efloatend` will be typeset after each processing. By default the first is defined to be `\clearpage`, the second is defined to do nothing.

`\efloatbeginlist`      `\efloatbeginlist` will be typeset before each list of delayed floats while  
`\efloatendlist`      `\efloatendlist` will be typeset after each list. By default the first is defined to be `\normalsize`, the second is defined to be `\clearpage`.

## 10 Configuration file and other end environments

Many users have suggested options to the package which are often journal specific. Many of the suggestion options are also not specific to how endfloat itself works, but to how captions and lists of figures and tables are to appear. Instead of burdening the package with options that, in the end, are specific to particular journals, I have added a configuration file for endfloat which will allow you to make many of these redefinitions without having to further increase the size of endfloat itself.

As of version 2.4 endfloat will look for a file called `endfloat.cfg` in TeX's input path. If it is found, it will be included after endfloat is loaded. The purpose of this configuration file is to allow the user to include additional definitions related to endfloat. For example, any redefinition of `\floatplace` can go in this file, so that the preamble does not need to be filled with material that only makes sense when endfloat is loaded.<sup>6</sup>

The configuration file can also be provided so that the user could specify environments other than `figure` and `table` (and their \*-ed counterparts) which can be delayed until the end of the document.

---

<sup>6</sup>However, if you find yourself placing other material (such as double spacing or modification of title page and abstract) into `endfloat.cfg` to simulate a journal submission class, you should really do the right thing and create a journal submission class. Creating a minor class (one that loads an existing class such as `article`) is not difficult. See the *Class Guide*[3] for instructions. Future versions of the endfloat documentation may include a sample.

## 10.1 Modified figures and tables

As stated in [section 12.3](#), `endfloat` will utterly fail if one does something like

```
\newenvironment{foo}{...\begin{table}...}
{...\end{table}...}
```

because `endfloat` will make `\begin{table}` go into a verbatim like mode and look for the literal string `\end{table}`, which it will not see in `\end{foo}`.

However, inserting the following code into the document preamble may be worth a try:

```
\DeclareDelayedFloatFlavor{foo}{table}
```

This tells the `endfloat` package that `foo` should be treated as `table`, at least from `endfloat`'s point of view. If you keep your fingers crossed this may actually work.

## 10.2 Environments based on figures and tables

The `rotating` package<sup>[7]</sup> contains definitions of environments `sidewaysfigure` and `sidewaystable`<sup>7</sup>, and it would be nice to have these work in documents which also use `endfloat`.

This can be archived with

```
\DeclareDelayedFloatFlavor{sidewaysfigure}{figure}
\DeclareDelayedFloatFlavor{sidewaystable}{table}
```

after loading both, the `endfloat` and `rotating` package.

The general syntax of `\DeclareDelayedFloatFlavor` is

```
\DeclareDelayedFloatFlavo(u)r{environment}{is a variant of}
```

so for example

```
\usepackage{endfloat, threeparttable}
\DeclareDelayedFloatFlavour{threeparttable}{table}
```

makes the `threeparttable` environment known to the `endfloat` package as a variant of the floating environment `table`.

This works with the `longtable` environment as well:

```
\usepackage{endfloat, longtable}
\DeclareDelayedFloatFlavour*{longtable}{table}
```

Note that we use the starred variant `\DeclareDelayedFloatFlavour*` here which only redefines `longtable` to be delayed, but leaves the unnumbered `longtable*` environment (provided by the `caption` resp. `lcaption` package) unchanged.

---

<sup>7</sup>These require support from the dvi driver, such as `dvips`.

### 10.2.1 The ctable package

Since `\ctable` offered by the `ctable` package[8] is a command and not an environment, it cannot be declared as delayed environment straight-ahead, i.e.

```
\DeclareDelayedFloatFlavor{ctable}{table}
```

is not sufficient here since the `endfloat` package is only capable of delaying environments. A dirty (but working) solution is using `ctable` as environment and not as command. An example document:

```
\documentclass{book}
\usepackage{ctable}
\usepackage{endfloat}
\DeclareDelayedFloatFlavor{ctable}{table}
\begin{document}

\begin{ctable}[
  cap=Test,
  caption=Test,
]{cc}{
  \tnote[]{}
}{\FL
A & B \ML
1 & 2 \NN
3 & 4 \LL}
\end{ctable}

\end{document}
```

### 10.3 Other floating environments

By using `\newfloat` offered by the `float` package[4], or `\DeclareNewFloatType` offered by the `floatrow` package[5], or `\DeclareFloatingEnvironment` offered by the `newfloat` package[6] one can define new floating environments. These environments can be made supported by the `endfloat` package, too, e.g.

```
\usepackage{newfloat,endfloat}
\DeclareFloatingEnvironment{map}
\DeclareDelayedFloat{map}{Maps}
```

will define a new floating environment called “map” and set up the `endfloat` package to handle this environment, too.

The trick is using the command

```
\DeclareDelayedFloat{<float>}[<file extension>]{<heading>}
```

which makes the new floating environment known to the `endfloat` package.

The  $\langle file\ extension \rangle$  specifies the file where the floating environments will be stored, like `fff` for figures and `ttt` for tables. If no  $\langle file\ extension \rangle$  is given, `ef $\langle float \rangle$`  will be used, e.g. `efmap` will be used as file extension in the code example above.

The  $\langle heading \rangle$  will be used for the section header, if selected. If `\list $\langle float \rangle$ name` is not defined, it will be used for the list heading, too.

The package options `nolists`, `lists`, `noheads`, and `heads` will be respected for new environments, too. But if you would like to set individual options for them, you can do so by using

```
\SetupDelayedFloat{ $\langle float \rangle$ }{ $\langle options \rangle$ }
```

where options are `nolist`, `list`, `nohead`, and `head` analogous to the package options for figures and tables specified in section 3.4.

By the way, `\SetupDelayedFloat` works for the environments `figure` and `table`, too, so

```
\usepackage[nofiglist,fighead]{endfloat}
```

is identical to

```
\usepackage{endfloat}
\SetupDelayedFloat{figure}{nolist,head}
```

and (if you prefer using key-value options instead)

```
\usepackage{endfloat}
\SetupDelayedFloat{figure}{list=false,head=true}
```

## 10.4 Changing the appearance of “lists of” and captions

When the `lists` option is used, the  $\LaTeX$  commands `\listoftables` and `\listoffigures` are called. These produce lists indicating the page number that each table or figure appear on. With `endfloat` in use this information is usually superfluous, and – rumor has it – undesirable by at least some journals. What seems to be required when using lists is that either the list does not the figure or table number, and/or the caption doesn’t not contain the caption text.

This section provides a few rudimentary samples of what you might put into the configuration file to get these effects. I have chosen not to make these package options, because they are often too journal specific. The availability of the configuration file means that you can put this things there, and the differences between `endfloat` using and non-`endfloat` using  $\LaTeX$  source documents is minimal.

### 10.4.1 Removing captions

`\captionsetup` If you have included the caption package in your document you can omit the caption text by adding

```
\captionsetup{labelsep=none,textformat=empty}
```

to the preamble of your document.<sup>8</sup> If this should be done for figures (or tables) only one can use the optional argument of `\captionsetup`, e.g.:

```
\captionsetup[figure]{labelsep=none,textformat=empty}
```

See `caption` package documentation for details and alternatives.

`\@makecaption` If the `caption` package is not used, the simplest thing is to provide a redefinition of `\@makecaption`. You should model your redefinition after the one used in the document class you actually use instead of blindly following what is here. `\@makecaption` takes two arguments, the first will be something like “figure 3” and the second will be the caption text. We will simply ignore the second argument. Most of the tricky bit of the definition is about testing whether the caption is longer than a line. Since we will only be using the first argument, we can safely assume that the caption will fit on one line.<sup>9</sup> Your redefinition of `\@makecaption` may look like

```
\renewcommand{\@makecaption}[2]{%
  \vskip\abovecaptionskip
  \hbox to \hsize{\hfil #1\hfil}%
  \vskip\belowcaptionskip}
```

`\caption` This still leaves one problem. If you use

```
\caption[short caption text]{full caption text}
```

only the short caption text will ever appear in the list of tables or figures. The following redefinition of `\caption` will take care of that.

Again, first of all a solution for usage with the `caption` package:<sup>10</sup>

```
\captionsetup{list-entry=heading}
```

If the `caption` package is not used, the following code should be used instead:

```
\let\OrigCaption\caption
\renewcommand{\caption}[2][X]{\OrigCaption[#2]{}}
```

### 10.4.2 Eliminating numbers from lists of tables and figures

This is a bit trickier, and I have heard that it doesn’t work with all versions of  $\text{\LaTeX 2}\mathcal{E}$ , but I am unwilling to reinstall an older version for debugging this. A user [get the name] suggested that page numbers be suppressed in the lists of figures and tables.

`\l@figure` All this requires is a redefinition of `\l@figure` and `\l@table` which are defined in `classes.txt`. Also see section 2.4.1 of the *Companion* to see how these macros are called.

The real only trick here is that `\l@figure` is defined to take two arguments, but the second is never used. The way it will be called will give it something like

<sup>8</sup>This needs at least version 3.2 of the `caption` package.

<sup>9</sup>If you have `\figurename` as something absurdly long or a very narrow `\textwidth`, then you will have to use a more complicated version.

<sup>10</sup>This needs at least version 3.3 of the `caption` package.

```
{\numberline {3} Caption of that figure}{85}
```

as arguments, where the second argument is the page number. The `\numberline` command will make use of the L<sup>A</sup>T<sub>E</sub>X register `\@tempdima` for the width of the box containing the table or figure number. So we need to set that. The rest is pretty unsophisticated. You can, of course, modify it at will.

```
\renewcommand*{\l@figure}[2]{%
  \setlength\@tempdima{2.3em}%
  \noindent\hspace*{1.5em}\hfil\newline }
```

And for tables:

```
\let\l@table\l@figure
```

## 11 Obsolete commands

Versions of the package prior to 2.2 had some commands which the user could specify in the preamble to do what *some* of the options do now. Although I would like to eventually remove those commands, they are documented in the *Companion*; so they will remain for quite some time.

## 12 Caveats

Some of the things that are listed here may be considered bugs, design errors, interactions to watch out for, or just the way life is sometimes. They are, at least, a matter of concern, and you should watch out for them.

### 12.1 Literal strings

When floats are being read, L<sup>A</sup>T<sub>E</sub>X is in verbatim mode. Among other things, this means that the lines like

```
\end{figure}
```

or

```
\end{figure}%
```

must appear on lines by themselves without any whitespace before or after them. A complete reimplementaion of the most difficult part of the package is required to fix this limitation, but it is among the distant goals I have.

### 12.2 Extra files

This creates two extra files: `\jobname`.fff and `\jobname`.ttt. Any files by those names in the current directory will be overwritten.

### 12.3 Environment names

Because of how the redefinitions of `figure` and `table` are actually implemented, it is crucial that these environment names be used. That is, you cannot simply define a new environment which calls `figure` or `table` since the former must look for the literal string

```
\end{figure}
```

in the document, while doing no expansion of control sequences. The latter does the same, but wants `table` instead of `figure`. This caution generally applies to all ‘verbatim-like’ environments

Although I haven’t been able to confirm this yet, the  $\text{\LaTeX}$  system ScientificWord<sup>11</sup> may automatically put floats inside a macro called `\FFRAME`. If so, I hope that either someone from ScientificWord or one of its users will create something for `\FFRAME` similarly to what I have done for `\sidewaystable` in the sample configuration file (section 10).

### 12.4 The Environment’s environment

Because no  $\text{\TeX}$  expansion is done while the material in these floats are read in, but is delayed until the floats are processed at the end of the document, it will be the state of  $\text{\TeX}$  at the end which will matter. For example, a document with something like

```
\newcommand{\XXX}{YYY}
...
\begin{table}
...
... \XXX ...
...
\end{table}
...
\renewcommand{\XXX}{ZZZ}
...
\end{document}
```

will process the table with `\XXX` expanding to `ZZZ`.

In any particular instance, the user can use either re-define `\XXX` before the end of document, or can re-define it using one of the hooks, `\AtBeginDelayedFloats`, `\AtBeginTables`, or `\AtBeginFigures`, which are discussed in section 5.

### 12.5 Verbatim in delayed floats

There should be no problem with verbatim text within a float unless that verbatim text contains an `\end{figure}` or `\end{table}` in a figure or table respectively. I don’t see a fix for this. All I can imagine is that you create a new delayed type which behaves exactly like `figure` (or `table`) (even writing `\begin{figure}` and `\end{figure}`)

<sup>11</sup>A registered trademark. Write to [info@tcisoft.com](mailto:info@tcisoft.com) for more information.

to the `.fff` file. [*mutatis mutandis* for `table`]) In future versions, I may create a sample like this in the sample configuration file, but it is a low priority since the only time one would write such a figure or table would be in a document about  $\LaTeX$  and it is difficult to imagine circumstances where a document about  $\LaTeX$  would need to be subject to `endfloat`.

## 12.6 Ordering End Document material

Version 2.1 uses the  $\LaTeX 2\epsilon$  directive `\AtEndDocument`. This makes it  $\LaTeX 2\epsilon$  specific, but it means that it can be used with other packages that use that directive. Previous versions of `endfloat` redefined `\enddocument`. Now several packages or commands can add stuff at the ends of documents and still work together. This does mean that *the order of loading packages can be important!* If you use several packages that may use the `\AtEndDocument` directive and you get funny results, try loading them in a different order. If that doesn't work, complain to the maintainer of the packages so that they will work out a way for the packages to interact correctly.

### 12.6.1 General ordering and wish list

I believe that the output of a  $\LaTeX 2\epsilon$  run should be independent of the order in which package are loaded. It would be possible to set this up, but it would take coordination of all package writers who use `\AtEndDocument`. The actual call to `\AtEndDocument` would not occur during package loading, but some new command, like `\ExecuteAtEndDocument` would be called by the user after all such packages are loaded, with tags for each thing in the packages, so something like

```
\usepackage{lastpage}
\usepackage{endfloat,xyzzy}
\ExecuteAtEndDocument{endfloat,xyzzy,lastpage}
```

and the order of End Document material would be the `endfloat` material, followed by `xyzzy`, and finally by `lastpage`. The package `xyzzy` is fictitious, while the package `lastpage`[1] exists, it doesn't really matter what these do.

I will have to wait until someone else develops such a system, but I will gladly modify the packages I am responsible for maintaining to comply with it. Until then I will include a message which begins with `AED` in every usage of `\AtEndDocument`, and try to minimize any side effects my usage may have.

## 12.7 What are packages for?

One option is to not have packages like `endfloat` actually call `\AtEndDocument`, but merely define a user level command which would make the call itself. This way, the order of those particular commands would matter, but not the ordering of the package loading.

Another advantage of this is that packages could easily be things which make commands available, but do not actually entail a change in `.dvi` output themselves. It is classes, and options to classes which do that. That is, the actual loading of packages should have no visible effects, other than making new commands available. (Typeface



changing packages, such as times, are obvious, and principled, exceptions.) The disadvantage is that it leads to two-step modifications (loading and calling) to change a document.

I would propose any package (other than typeface changing packages) which changes output instead of merely providing additional commands, should be clearly labeled as doing such in the documentation and in a message.

## 12.8 Float position specifiers

Float position specifiers are passed to the temporary files and are used when those floats are processed. This may lead to funny results, especially if the first figure or first table uses [p] while the heads option is being used. This can lead to that float, floating to the page after the header. Most other float specifiers will not lead to any problems, because the package mucks about the various float specification parameters.

## 12.9 Misplaced headers

Version 2.2c contains a partial fix to a problem with the placement of floats around the section headers produced by the heads option. There were two variants of the problem. In one the first float after the header would float above the header. This has been fixed by using the L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> command `\suppressfloats`. The other problem is that the first float may float to a page float after the page with the header on it.

This has been partially fixed, but if users use the [p] specification on their first floats or if there are large floats, the problem can still show up. It is recommended that whenever the user wants a [p] that an [hp] be used instead. In normal running (without endfloat), this should only rarely effect the document, but it will help avoid the problem with the floating end float. An [h] may also be needed for large floats. There is only need to be concerned about the first figure and first table.

The natural solution to this problem will require that the bug in described in [section 12.8](#) be resolved.

## 12.10 Known incompatibilities

Above I have outlined sources of potential conflicts and incompatibilities with other packages. Those sections contain a discussion of potential work-arounds. Here I list where I know of specific incompatibilities with distributed packages. This list is not complete. If you know on an addition, please let me know.

### 12.10.1 Environment names

The packages listed here all have the problem described in [section 12.3](#). The work-arounds are also described there. rotating, *Scientific Word*.

### 12.10.2 Ordering end material

The following packages put things at the end of the document, and peculiar results are possible if you don't pay attention to the order in which packages are loaded. This is described in [section 12.6.1](#). The package `lastpage` is among these, as are recent versions of the package `harvard`.

### 12.10.3 Conflicting `\enddocument`

Prior to  $\LaTeX 2\epsilon$ 's provision of the hook `\AtEndDocument`, package writers were forced to redefine `\enddocument`. Some did so in ways that overwrote any other package's redefinition of the same. When you encounter such a package you should try to get its author to release a modified version. Version 2.0 of `endfloat` was such a package. So was the winter 1993 version of `harvard` (which has been fixed). But for those using an old version of `harvard` you will encounter problems.

### 12.10.4 Miscellaneous

There are several other potential conflicts that don't fall into the broader categories.

- `\listoftables` and `\listoffigures` are left undefined in class `elsart`. But this is because Elsevier does not want those lists. Elsevier, bless them, does not want floats at the end for submissions to its journals. So there is no reason to use `endfloat` (with or without lists) with class `elsart`. Let's hope that other publishers will follow Elsevier's lead in understanding that the submission rules which were created were created for a reason, and when those reasons no longer apply, the rules should be changed.

I look forward to the day when `endfloat` will serve no purpose.

- The `float` package appears to work in my limited tests.
- The `floatrow` package appears to work in my limited tests. But please note that the `endfloat` package needs to be loaded *after* the `floatrow` package.
- The `newfloat` package appears to work in my limited tests, too.

## 13 Support

As is usual, this package is provided with no warranty whatsoever. However, it is my desire to make it useful and usable, although I may very well fail at that. If you need a feature added, see whether the hooks will allow you to do what you want. If something goes wrong look over [section 12](#).

## 14 History

### 14.1 The burden of history

By version 2.2 the file was getting so that most of the bytes were things that had been commented out of previous versions, and changelog messages. Instead of this making things clearer to the maintainer, it turns out to be clutter. I (jpg) have started to throw out some of history (it is not really useful to see who corrected what typo or cleaned up what extraneous space with a % in 1991. Although my purge of history is far from complete, it should be noted that I do want to preserve the spirit of the history. I have already been miscredited with original authorship. I have made extensive modifications and extensions, but the basic core (even if only a small amount of version 2.0 code remains) and concept are JDM's.

### 14.2 Author

The file was written by Darrell McCauley (jdm5548@diamond.tamu.edu) in February and March 1992. He acknowledges that much of the guts are adapted from `comment.sty` by Victor Eijkhout (eijkhout@csrd.uiuc.edu). So, although Jeff Goldberg (jeffrey@goldmark.org) has maintained this afterwards, he should not be credited with writing the package, but only with extending and maintaining it. He has contributed enough so that by version 2.4 he claimed co-authorship. The same applies to Axel Sommerfeldt (axel.sommerfeldt@f-m.fm) who build version 2.5 with permission of Jeff Goldberg and has maintained this package from version 2.6 to version 2.7.

### 14.3 Version 2.7

Version 2.7 was build by Axel Sommerfeldt (axel.sommerfeldt@f-m.fm), and introduces the following changes:

- A new package option `disable` has been added which disables the functionality of the `endfloat` package (section 3.4).
- A new command `\addtodelayedfloat` has been added which adds code to a specific delayed float type (section 6).
- More customization was introduced with the new macros `\efloatbegin`, `\efloatend`, `\efloatbeginlist`, and `\efloatendlist`. They can be re-defined by the user to influence the process of delayed floats and the typesetting of lists of delayed floats (section 9).
- Unfortunately the bugfix regarding the usage of UTF-8 characters in floating environments introduced in version 2.6 was flawed, this has been fixed.

### 14.4 Version 2.6

Version 2.6 was build by Axel Sommerfeldt (axel.sommerfeldt@f-m.fm), and introduces the following changes:

- New package options `notables` and `nofigures` have been added to allow better control over which floating environments will be handled by the `endfloat` package (section 3.4).
- New macros called `\efloattype`, `\efloatheading`, `\efloatpreamble`, and `\efloatpostamble` have been added which allow the user more control over how the delayed floats are typeset (section 8).
- A percent sign (%) is now allowed at the end of `\end{environment}`, too, e.g.:

```
\begin{figure}
...
\end{figure}%
```

- Two bugs have been fixed regarding the usage of UTF-8 characters in floating environments.

## 14.5 Version 2.5

Version 2.5 was build by Axel Sommerfeldt (axel.sommerfeldt@f-m.fm) with permission of Jeff Goldberg, and introduces the following changes:

- New commands `\DeclareDelayedFloat` and `\DeclareDelayedFloat-Flavor` for handling floating environments other than `figure` and `table`, and `\SetupDelayedFloat` for setting options (section 10.2 and section 10.3). To make this possible a lot of internal code had to be reorganized, but by trying to keep original versions of macros and trying to leave the operational sequence itself as original as possible this hopefully won't break compatibility with existing documents or extensions written for the `endfloat` package.
- New package options `tablesonly` and `figuresonly` have been added to allow better control over which floating environments will be handled by the `endfloat` package (section 3.4).
- The `endfloat` package should cooperate with the `floatrow` package now, at least if you load it *after* the `floatrow` package.
- Older versions of the `endfloat` package used to process `figure` and `table` as starred variant always, but at least version 2.4 did not. It had stored all of them as starred variant into the temporary files, but had processed them as non-starred always. To make this more consistent the version 2.5 does store the environments as they are now, and processes them the same way, i.e. non-starred variants will be stored and processed as non-starred, and starred variants will be stored and processed as starred.

If you notice a change in behaviour after updating the `endfloat` package to version 2.5, please contact me (Axel) and I'll try to fix this.

## 14.6 Version 2.4

Version 2.4 involves the largest set of additional features since at least version 2.2 (which added all the options). Some of these are

- This version adds various user hooks, both as commands: `\AtBeginFigures`, `\AtBeginTables`, and `\AtBeginDelayedFloats` (section 5), and `\efloatseparator` (section 8).
- Most importantly, there is the addition of a configuration file (section 10). An example configuration file contains code which allows `endfloat` to work properly with the `sidewaystable` environment of the rotating package.
- Additionally, all figures and tables are written as `figure*` and `table*` in the temporary files, eliminating the need to force single column mode when table and figures are processed.
- There are a fair number of internal changes to the code (which make it easier for the various hooks to work).
- Also changed some internal command names, such as `\xtable`, which did not include `@` to names that to include `@` such as `\ef@xtable`. Also renamed all commands `\end...` to something else so as to not use up valuable environment name space.
- Removed dead code. It was making this too hard to read.
- Documentation changes to reflect user level changes. Also added more to the Caveats section (section 12).

During the past few months I have received a wonderful level of feedback from users. Many made very useful suggestions. Even those queries which resulted from a misunderstanding of how to use the package have been lead me to modify the documentation. I had intended to acknowledge all of you, but the list has grown too long. You know who you are. Thanks, and good luck with your journal submissions!

## 14.7 Version 2.3

Very minor changes in the organization of some parts of the code, but I fixed a bug I introduced while “cleaning up” for for version 2.2: I had misunderstood part of the original code and commented out a necessary trick to allow for `figure*`. The bug was very real, so I am releasing this version 2.3 as soon as I can document it, and am not waiting to include other planned improvements.

## 14.8 Version 2.2

A user (Kate Hedstrom) pointed out a number of bugs and shortcomings, which led me (jpg) to finally sit down and make some of the changes I had been planning on making. The effect of the `tablesfirst` option was specifically requested, and also work on the bug discussed in section 12.9. Although my bug fix is partial, version 2.2 includes the means to suppress the headers altogether.

### 14.8.1 Package options

I, jpg, have used the package option facility of  $\LaTeX 2_{\epsilon}$  to get other options (described in [section 3.4](#)). I also made some cosmetic changes (breaking up lines to reduce the number of overfull boxes when printing the documentation, line breaks and indentation to make the code more readable. I also replaced some `\defs` with `\newcommands` and `\providecommands`. This are not logged, because I actually found that all of the logging information was hampering my ability to read and modify the code.

### 14.8.2 Internal commands

In version 2.2, I also replaced some code internal to `\xfigure` and `\xtable` with `\efloat@foundendfig` and `\efloat@foundendtab`. This was merely a stylistic change.

I also deleted some some definitions which are not used. These had had probably been left as hooks, but with not enough for them to be useful hooks. There are some cases where I have left these in when I could see what they could be used for. I have tried to add a note as to their potential use.

### 14.8.3 Documentation

Massive changes to user documentation, and some to the code documentation.

## 14.9 Version 2.1

I, Jeffrey Goldberg, in June 1994 wanted to use Darrell McCauley's `endfloat.sty` with  $\LaTeX 2_{\epsilon}$ . It worked fine until I needed to use the  $\LaTeX 2_{\epsilon}$  directive `\AtEndDocument` for some other function, and discovered that it was not functioning and that it was because version 2.0 (and earlier) of `endnotes.sty` redefined `\enddocument`. The fix that I needed was trivial, but it made the file no longer compatible with  $\LaTeX 2_{09}$ . As a consequence, it seemed that the only way I could make up for this crime was to make it fully compatible with  $\LaTeX 2_{\epsilon}$ .

### 14.10 Minor changes (version 2.0)

A series of changes and fixes were made in March 1992. Many by the original author others by Ronald Kappert (R.Kappert@urc.kun.nl) who replaced literal strings with `\figurename`, and so on; and by schultz@unixg.ubc.ca who pointed out gobbling bug with `\nomarkersintext`.

### 14.11 Brian Junker's modifications (version 2.0)

Brian Junker (brian@stat.cmu.edu) made a number of fixes. Here are his change comments:

1. Changed “comment” to “figure” and “komment” to “table” throughout, to avoid collisions with other style files’ definitions of “comment”. Also fixes `\begin{table}` ends with `\end{komment}` error generated by my (older) version of PCT<sub>E</sub>X.
2. Fixed gobble of float position specifiers. There are two ways to do this:
  - (a) `\write\ifnextchar[{\gobbleuntilnext}{}` into every environment written to `\jobname.fff`, etc.;
  - (b) save L<sub>A</sub>T<sub>E</sub>X’s old def’s of `\figure` and `\table` and re-use them when processing fig’s and tables. I chose the latter approach, for maximum consistency with L<sub>A</sub>T<sub>E</sub>X, other style files, etc.
3. Added def’s of `\tablename` and `\figurename`, which my version of PC-T<sub>E</sub>X seemed to need. [backward compatibility for earlier versions —jdm]
4. Moved formatting of figure and table markers to `\figureplace` and `\tableplace`.
5. Style change: in-text markers are now centered reminders like “[Figure 4 about here.]”.
6. Style change: added list of tables and figures to the table and figure sections. Change back to old format with `\nofiglist` and `\notablist`.
7. Changed default to `\markersintext`.
8. Fixed trivial typo in `\@openposttbls`

All changes marked % bj at end of line. —Brian Junker (brian@stat.cmu.edu)

## 15 Wish list

I doubt that I will really work on this wish list in the near future but in addition to solving the know bugs, there is one major sort of change that I (jpg) would like to see:

- Updating the verbatim writing by using the tools in the `verbatim` standard packages, and the `moreverb` package. Since they provide more generalized and cleaner verbatim code then this which dates back to the earliest days of L<sub>A</sub>T<sub>E</sub>X.

## References

- [1] Jeffrey Goldberg. The `lastpage` package. Electronic documentation
- [2] Michel Goossens, Frank Mittelbach, and Alexander Samarin. *The L<sub>A</sub>T<sub>E</sub>X Companion* Addison-Wesley, Reading, Massachusetts, 1994.
- [3] The L<sub>A</sub>T<sub>E</sub>X3 Project. *L<sub>A</sub>T<sub>E</sub>X 2<sub>ε</sub> for class and package writers* (Preliminary draft) June 1994 Electronic Documentation

- [4] Anselm Lingnau. An Improved Environment for Floats August 2001 (version 1.3) Electronic Documentation
- [5] Olga Lapko. The floatrow package August 2009 (version 0.3) Electronic Documentation
- [6] Axel Sommerfeldt. The newfloat package November 2011 (version 1.0) Electronic Documentation
- [7] Sebastian Rahtz and Leonor Barroca. A style option for rotated objects in  $\LaTeX$  April 1994 (version 2) Electronic Documentation
- [8] Wybo Dekker. The ctable package October 2015 (version 1.31) Electronic Documentation