

The `algorithmlite` package

A lightweight algorithm float without the float package

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<https://github.com/munepi/algorithmlite>

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1 Introduction

The `algorithm` package defines the `algorithm` float with `\newfloat` of the `float` package. The `float` package redefines `\caption` as a whole, for every float of the document, and it is often in the way of the class and of other packages that format captions.

The `algorithmlite` package defines the environments `algorithm` and `algorithm*` in the same way as the standard classes define `figure` and `table`: with `\@float` and `\@dblfloat` of the L^AT_EX kernel, so that the captions of algorithms are set by the `\@makecaption` of the class, as those of figures and tables. The `float` package is not loaded. If no other package gives the placement `[H]`, `algorithmlite` gives a minimal one.

The content of an algorithm is not the business of this package: load `algorithmic`, `algpseudocode` (`algorithmicx`) or any other package for it.

Algorithm 1: Euclid's algorithm

Require: $a \geq 0, b \geq 0$
1: **while** $b \neq 0$ **do**
2: $(a, b) \leftarrow (b, a \bmod b)$
3: **end while**
4: **return** a

Supported formats/engines pdfL^AT_EX, XeL^AT_EX, LuaL^AT_EX (with or without LuaT_EX-ja), pL^AT_EX and upL^AT_EX (with dvipdfmx). L^AT_EX 2e 2020-10-01 or later is required.

2 Usage

```
\usepackage{algorithmlite}
\usepackage{algorithmic} % or algpseudocode, ...

\begin{algorithm}[tbp] % or [H]
\caption{Euclid's algorithm}\label{alg:euclid}
\begin{algorithmic}[1]
...
\end{algorithmic}
\end{algorithm}

\listofalgorithms
```

Algorithm 1 above is set with `[H]`. The package has no options.

3 What is defined

`algorithm`, `algorithm*` The float and its two-column variant, as `figure` and `figure*`. The default placement (`\fps@algorithm`) is `tbp`.

The counter `algorithm` With `\chapter`, it is reset at every chapter, and `\thealgorithm` is the chapter number, a period and $\langle n \rangle$ (just $\langle n \rangle$ before the first chapter), as `\thefigure` of the book classes; otherwise it is $\langle n \rangle$. Redefine `\thealgorithm` for another numbering.

`\algorithmname` `Algorithm`; in Japanese (the word “algorithm” in katakana) with `pTeX`, `upTeX` and `LuaTeX-j`, unless the class option `english` of `jsclasses` or the `LuaTeX-j` classes is given. `LuaTeX-j` may also be loaded after `algorithm`.

`\listalgorithmname` `List of Algorithms`; in Japanese, “algorithm” followed by the word for “list” (as “List of Figures” is in `jsclasses`).

`\fnum@algorithm` `\algorithmname` $\langle sep \rangle$ `\thealgorithm`, where $\langle sep \rangle$ is taken from `\fnum@figure` of the class if it is `\figurename` $\langle sep \rangle$ `\thefigure`: `\nobreakspace` in the standard classes, `\nobreak` in `jsclasses` and the `LuaTeX-j` classes, `~` in the `pLaTeX` standard classes, nothing in `jlreq`. Otherwise $\langle sep \rangle$ is `\nobreak` for the Japanese name and `\nobreakspace` for the English one.

`\listofalgorithms` The list of algorithms, from the file `.loa`. It is `\listoffigures` of the class with `\listalgorithmname` and `.loa`, so that it looks like the list of figures (a `\chapter*` or a `\section*`, the running heads, ...). The entries are set with `\l@algorithm`, which is `\l@figure` of the class.

The float type The float type `\ftype@algorithm` is a bit, as are `\ftype@figure` = 1 and `\ftype@table` = 2. It is the next free bit, 4 in most documents. The counter of the float package (also used by `floatrow` and `newfloat`) and that of `memoir` are shared: if one of them is already there, its value is taken and the counter is moved on; if the float or `floatrow` package is loaded later (e.g. by `minted`), its counter is moved past 4. The `newfloat` package alone starts at 8.

4 The placement [H]

At `\begin{document}`, if neither the float package nor the `floatrow` package is loaded and `\@float@HH` is not defined, `algorithm` defines the placement [H]: the float is put in a box “here”, in the text, with `\intextsep` above and below it, and `\caption` works in it as in a float. As with the float package, [H] is then available for every float type: `figure`, `table`, `algorithm`, ...

In the box, `\@capytype` is the float type and `\@fps` is H, as `\@xfloat` of the kernel sets them for the other placements: code that runs in the float, such as a hook in `\@floatboxreset` or the caption, can tell an [H] float from the others by `\@fps`. The [H] of the float package sets `\@capytype` but not `\@fps`, which is then undefined (or has the value from outside the float).

If the float package is loaded (before or after `algorithm`), its [H] is used.

5 Tagged PDF

With `\DocumentMetadata{tagging=on}`, `algorithm` sets up the structure names of the float type `algorithm` with `\tagpdfsetup{float/new=algorithm}` at `\begin{document}`, so that algorithms are tagged as figures and tables are. A document that already does it in the preamble (as a workaround for v1.0) needs no change: it is not done twice.

The [H] of `algorithm` is tagged as that of the float package is by the `LATEX` kernel: the float is a structure in the text flow, with its caption. The tagging is done by the sockets `algorithm/H/begin` and `algorithm/H/end`.

6 Errors

Package ‘algorithm’ cannot be used with algorithmlite The algorithm or algorithm2e package is loaded before or after algorithmlite. Both define the algorithm environment; load only one of them.

The algorithm environment or counter is already defined algorithmlite does not redefine them.

7 Limitations

- `algorithm*[H]` in two-column mode is not supported (as with the float package). In one-column mode it works.
- Vertical writing (tate) is outside the scope of this version.

8 Tests

`make test` compiles every test twice (with tagging, three times) with pdfL^AT_EX, XeL^AT_EX, LuaL^AT_EX, pL^AT_EX and upL^AT_EX (+ dvipdfmx) and checks the log. `test-common.tex` checks the numbers, names, float types and `\ref` immediately, and the pages of `[H]` and `[p]` floats from records written to the `.aux` file at shipout (ALGL-RESULT OK).

Test	What it covers
<code>test-basic.tex</code>	numbering with and without chapters, names (English/Japanese), <code>\fnum@algorithm</code> , <code>[H]</code> , <code>[p]</code> , <code>figure[H]</code> , <code>algorithm*</code> , <code>\ref</code> , <code>\listofalgorithms</code> ; article, book, jsclasses, LuaL ^A T _E X-ja classes, jreq, pL ^A T _E X standard classes
<code>test-hyperref.tex</code>	<code>test-basic.tex</code> with hyperref: no duplicate destinations
<code>test-twocolumn.tex</code>	<code>algorithm*</code> and <code>[H]</code> in two-column mode
<code>test-compat.tex</code>	float before/after, <code>newfloat</code> , <code>caption</code> , <code>memoir</code>
<code>test-tagging.tex</code>	<code>test-basic.tex</code> (also with hyperref) and <code>test-twocolumn.tex</code> with <code>\DocumentMetadata{tagging=on}</code> : no tagpdf warning
<code>test-errors.tex</code>	the error messages

9 History

v1.0 (2026/10/26) First public release.

v1.1 (2026/10/28) Support for Tagged PDF: the structure names of `algorithm`, and the tagging of `[H]` (issue #1).

10 License

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