

# L<sup>A</sup>T<sub>E</sub>X

L<sup>A</sup>T<sub>E</sub>X is the most popular macro package for T<sub>E</sub>X. (A macro package is a set of commands that an author typically uses to write documents.)

This page does not try to answer all questions about L<sup>A</sup>T<sub>E</sub>X; rather we suggest some documentation, add-on components, and resources that a L<sup>A</sup>T<sub>E</sub>X user can start with. We limit our recommendations to freely-available materials, and you can click on the text to see the documentation on the Internet. (In case the Internet is not convenient, when the documentation is also available in a typical T<sub>E</sub>X installation we provide its name in a footnote; to view it locally using *texdoc*,<sup>1</sup> run “texdoc *name*” at a command prompt.)

## Starting out

The article `\begin{here} % getting started` gives a thorough description aimed at a complete beginner. In particular, to use L<sup>A</sup>T<sub>E</sub>X, users must install a T<sub>E</sub>X distribution, such as MiK<sub>T</sub><sub>E</sub>X on Windows, or T<sub>E</sub>X Live on a Unix system such as GNU/Linux or on Windows, or MacT<sub>E</sub>X on Macintosh OS X.

Online tutorials have been created by *Andy Roberts* and the *TUGIndia user group*.

## Documentation

**ESSENTIALS** The most widely-recommended introduction is *The Not-So Short Guide to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>*.<sup>2</sup> For typesetting mathematics, use the the American Mathematical Society’s AMS-L<sup>A</sup>T<sub>E</sub>X package, introduced in the primer, *Getting up and running with AMS-L<sup>A</sup>T<sub>E</sub>X*.<sup>3</sup>

**REFERENCES** The official L<sup>A</sup>T<sub>E</sub>X documentation from the development team is *L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> for Authors*;<sup>4</sup> this focuses on changes made in recent versions of L<sup>A</sup>T<sub>E</sub>X. The nearest thing to a general reference manual for L<sup>A</sup>T<sub>E</sub>X is the unofficial *L<sup>A</sup>T<sub>E</sub>X: Structured documents for T<sub>E</sub>X*.<sup>5</sup> Look for symbols in the *Comprehensive List of Symbols*.<sup>6</sup> A two-page *L<sup>A</sup>T<sub>E</sub>X Cheat Sheet*<sup>7</sup> is available. The document *l2tabu*<sup>8</sup> can help you to acquire sound habits by suggesting what you should consider taboo.

**FAQ’s** Many web pages offer help with T<sub>E</sub>X and L<sup>A</sup>T<sub>E</sub>X. Particularly useful is the *English FAQ*<sup>9</sup> and the *TUG web resources page*. The *PracT<sub>E</sub>X Journal* is an online magazine aimed at beginning and intermediate users, and *TUGboat* has published many articles at all levels nearly since the inception of T<sub>E</sub>X.

**Books** There are many books about L<sup>A</sup>T<sub>E</sub>X; visit the *T<sub>E</sub>X Users Group Bookstore* for discounts.

## Selected L<sup>A</sup>T<sub>E</sub>X packages

**PAGE SIZE AND SHAPE** Adjust the page dimensions and orientation with *geometry*.<sup>10</sup> Control headers and footers with *fancyhdr*.<sup>11</sup>

**GRAPHICS** Import graphics into a L<sup>A</sup>T<sub>E</sub>X document with the L<sup>A</sup>T<sub>E</sub>X team’s *graphicx* package, and the related *graphics*. The official documentation is *Packages in the ‘graphics’ bundle*.<sup>12</sup> Another package in the same bundle is *color*.<sup>13</sup> For even more color capability use *xcolor*.<sup>14</sup> An excellent introduction to using these is the article *Strategies for including graphics in L<sup>A</sup>T<sub>E</sub>X documents*.

**INDEX AND BIBLIOGRAPHY** Make an index with *makeidx*.<sup>15</sup> For bibliographies, people use *BIB<sub>T</sub><sub>E</sub>X*.<sup>16</sup> Two powerful tools based on it are: produce your bibliography in a natural science styles with *natbib*,<sup>17</sup> and generate your own style by answering a sequence of questions with *custom-bib*.<sup>18</sup>

<sup>1</sup>texdoc <sup>2</sup>lshort <sup>3</sup>amshelp <sup>4</sup>usrguide <sup>5</sup>latex2e <sup>6</sup>comprehensive <sup>7</sup>latexcheat <sup>8</sup>l2tabuen <sup>9</sup>faq <sup>10</sup>geometry  
<sup>11</sup>fancyhdr <sup>12</sup>grfguide <sup>13</sup>color <sup>14</sup>xcolor <sup>15</sup>makeindex <sup>16</sup>bibtex <sup>17</sup>natbib <sup>18</sup>custom-bib

COMPUTER CODE AND COMMENTING OUT For computer code, look at [listings](#).<sup>19</sup> The [verbatim](#)<sup>20</sup> package is also useful for computer code, and includes a `comment` environment to suppress parts of the document.

HYPERTEXT The [hyperref](#)<sup>21</sup> package gives you hyper-document features, such as making table of contents entries link to the corresponding document part. If you don't need active links, typeset web addresses with [url](#),<sup>22</sup> which also does computer file names.

PRESENTATIONS You can get presentation slides by adjusting the page geometry and writing a regular document. For more sophisticated effects use [beamer](#).<sup>23</sup> The article [Beamer by example](#) will get you started.

## Output and fonts

OUTPUT The [pdfTeX](#)<sup>24</sup> program extends T<sub>E</sub>X: it can directly produce web-friendly PDF files, as well as the traditional DVI format. For instance, this document was generated under T<sub>E</sub>X Live with `pdflatex latex_doc_ptr.tex`. A further extension to that, [XeTeX](#),<sup>25</sup> can use fonts from your underlying computer platform, in addition to the fonts from your T<sub>E</sub>X distribution. (Mathematics requires much special tuning, though, so most system fonts cannot be used for math.)

FONTS The font system documentation from the L<sup>A</sup>T<sub>E</sub>X developers is [L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub> font selection](#).<sup>26</sup> To move beyond T<sub>E</sub>X's default fonts, these two documents describe some reasonable and free alternatives: [A Survey of Free Math Fonts for T<sub>E</sub>X and L<sup>A</sup>T<sub>E</sub>X](#) and [The L<sup>A</sup>T<sub>E</sub>X Font Catalogue](#). More is on the [T<sub>E</sub>X Users Group's font page](#).

## Tools for composing L<sup>A</sup>T<sub>E</sub>X

There are many environments to make writing L<sup>A</sup>T<sub>E</sub>X source easier. For instance, many people use a text editor of some sort, such as Emacs with the add-on mode [AUC-T<sub>E</sub>X](#). A new environment that is free, runs on all major computer platforms, and combines the best ideas from available environments while retaining simplicity, is [T<sub>E</sub>Xworks](#).

## Community

There are many [user groups](#) for T<sub>E</sub>X. The [Comprehensive T<sub>E</sub>X Archive Network](#) contains many more packages than any distribution. In addition, if you are stuck on an issue, the Usenet group [comp.text.tex](#) and [texhax@tug.org](#) are the most popular mailing lists. You can search more than a decade of L<sup>A</sup>T<sub>E</sub>X discussions, or post a question yourself.

## Miscellaneous

HISTORY L<sup>A</sup>T<sub>E</sub>X was first written in 1985 by Leslie Lamport, building on Donald Knuth's T<sub>E</sub>X. It is now maintained and developed by the [L<sup>A</sup>T<sub>E</sub>X3 Project](#)<sup>27</sup> group.

PRONUNCIATION L<sup>A</sup>T<sub>E</sub>X can be pronounced as “la-tech” or “lay-tech,” with emphasis on either syllable. (We prefer the first, with emphasis on the first syllable.)

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<sup>19</sup>[listings](#)   <sup>20</sup>[verbatim](#)   <sup>21</sup>[hyperref](#)   <sup>22</sup>[url](#)   <sup>23</sup>[beamer](#)   <sup>24</sup>[pdftex](#)   <sup>25</sup>[xetex](#)   <sup>26</sup>[fntguide](#)   <sup>27</sup>[latex3](#)