Programming \LaTeX —
A survey of documentation and packages

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January 9, 2021

Abstract
A survey of documentation for \LaTeX. Included are references to printed and electronic books and man-
uals, symbol lists, FAQs, the \LaTeX source code, CTAN and distributions, programming-related packages,
users groups and online communities, and information on creating packages and documentation.

Contents

Introduction 2
Printed books 2

Books and documentation by category 4
\TeX 4
\LATEX 5
\LuaLaTeX 7
\XeLaTeX 7
\LTX3 and expl3 8
Bibliography 8
Math 9
Page headings 9
Tables 9
Graphics 10
Music 10
Presentations 11
Fonts 11
FAQs, symbol references, cheat sheets 12
Source code 14

International languages 14
Multiple languages 14
Brazilian Portuguese 15
Chinese 15
French 16
German 18
Indian 19
Italian 19
Japanese 19
Korean 20

∗This work may be distributed and/or modified under the conditions of the \LaTeX Project Public License, either version 1.3 of
this license or (at your option) any later version. The latest version of this license is in http://www.latex-project.org/lppl.txt
and version 1.3 or later is part of all distributions of \LaTeX version 2005/12/01 or later.
Programming \LaTeX — A survey of documentation and packages

Introduction

Reinventing the wheel may be useful if you think that you can do it better. Worse, though, is not even
being aware that the wheel has already been invented in the first place, which can be an embarrassing
waste of time. Such can be the case both for a new \LaTeX programmer who isn't aware of the many ways
things may be done, but also for someone, this author included, who learned \LaTeX many years ago but
may have missed some of the recent advancements in package code and documentation.

A wealth of information is available, not only in print and online, but also directly embedded in the
typical \LaTeX distribution. The following is meant to be a broad overview of some of today's resources for
\LaTeX programmers.

In some cases the same document may be listed in several categories. For example, a graphics FAQ
also available in French may be listed under graphics, FAQs, and also French documents.

Many older documents are not included.

(The latest version of this document is available as the \LaTeX docsurvey package.)

Printed books

Even in an electronic/online era, printed books still have the advantage of being able to be opened for
reference without taking up space on the screen. Printed books also provide extended discussion of
useful topics, have extensive human-edited indexes which are more useful than a simple document-wide
search function, and some are also available in electronic format.
**TEX FAQ**

**TEX FAQ.** [URL: https://texfaq.org/](https://texfaq.org/).

An online resource, which includes a detailed list of printed books.

**More Math Into \LaTeX**


Updated edition.

**Guide to \LaTeX**


An introduction and more advanced material, including an extensive reference guide.

**\LaTeX Beginner's Guide**


An overview with numerous examples.

**\LaTeX Cookbook**


More examples.

**\LaTeX: A Document Preparation System**


The classic introduction to \LaTeX, in continuous reprint for decades.

**The \LaTeX Companion**


Provides extended discussion and examples of the inner workings of \LaTeX and numerous useful packages.
Books about \TeX, typography, and friends

\TeX Users Group. *Books about \TeX, typography, and friends*. [url: http://tug.org/books/].

\TeX Users Group book store, with reviews. Includes more than 75 books. Categories: published by TUG, by Donald E. Knuth, about \TeX and its applications, about typography and fonts, and about other related topics. Discounts for TUG members.

Presentations with \LaTeX


\pstricks: Graphics and PostScript for \TeX\ and \LaTeX


Typesetting Mathematics with \LaTeX


Typesetting Tables with \LaTeX


Books and documentation by category

Most of these are provided with the \TeX\ distribution, and may be updated with each release. Access the embedded documentation from a command line using the `texdoc` program.

\TeX

For a list of older books, see [https://www.texfaq.org/FAQ-tex-books](https://www.texfaq.org/FAQ-tex-books).

\TeX for the Impatient


A tutorial and reference for \TeX, plain \TeX, and \eplain. Also available in French and Chinese. (texdoc impatient).

A Gentle Introduction to \TeX


A comprehensive tutorial on plain \TeX. (texdoc gentle).
**TPX by Topic**


A reference for \TeX. This may be useful for understanding the source code of L\(\times\)\TeX packages, many of which are quite old and written in low-level \TeX. (texdoc texbytopic).

**Wikibooks**

Wikibooks. *\TeX*. URL: https://en.wikibooks.org/wiki/\TeX.

An online book about low-level \TeX.

**Getting Started with Plain \TeX**


**\LaTeX**

**L\(\LaTeX\)2\(\varepsilon\) for authors**

L\(\LaTeX\)3 Project Team. *L\(\LaTeX\)2\(\varepsilon\) for authors*. 2020. 31 pp. URL: https://ctan.org/pkg/usrguide.

An overview of the new features of L\(\LaTeX\)2\(\varepsilon\) compared to L\(\LaTeX\)2.09. (texdoc usrguide).

**Writing Scientific Documents Using \LaTeX**


An introduction to typesetting scientific documents.

**Formatting Information, A beginners introduction to typesetting with L\(\LaTeX\)**


A beginners introduction to typesetting with L\(\LaTeX\).

**The very short guide to typesetting with L\(\LaTeX\)**


A four-page introduction.
**LATEX: An unofficial reference manual**


A thorough but concise reference manual for LATEX 2ε, available in several languages. (texdoc -l latex2e-help).

**Getting something out of LATEX**


Create your first document in LATEX.

**Guide to LATEX**


An introduction and more advanced material, including an extensive reference guide.

**LATEX Beginner's Guide**


An overview with numerous examples.

**LATEX Cookbook**


More examples.

**LATEX: A Document Preparation System**


The classic introduction to LATEX, in continuous reprint for decades.

**Getting Started with LATEX 2ε**


A beginner's bare-bones overview. (texdoc startlatex2e).
<table>
<thead>
<tr>
<th><strong>The Not So Short Introduction to \LaTeX,ε</strong></th>
<th>Oetiker</th>
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<tbody>
<tr>
<td>Covers introductory material, customizations, and a simple package. (texdoc -l lshort).</td>
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<tr>
<th><strong>\LaTeX\ for Complete Novices</strong></th>
<th>Talbot</th>
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<tbody>
<tr>
<td>An extensive introduction for a non-technical person. (texdoc dickimaw-novices).</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th><strong>Using \LaTeX\ to Write a PhD Thesis</strong></th>
<th>Talbot</th>
</tr>
</thead>
<tbody>
<tr>
<td>A followup to <em>\LaTeX\ for Complete Novices</em>, including extensive discussion about bibliographies, indexes, and glossaries. (texdoc dickimaw-thesis).</td>
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<tr>
<th><strong>Wikibooks</strong></th>
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<tr>
<td>An online book, includes information about creating \LaTeX\ packages and classes.</td>
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<tr>
<th><strong>\Lua\LaTeX</strong></th>
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<tbody>
<tr>
<td>\Lua\LaTeX\ Reference Manual</td>
<td>Lua\LaTeX\ development team</td>
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<tr>
<td>The complete reference. (texdoc luatex).</td>
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<tr>
<th><strong>A guide to \Lua\LaTeX</strong></th>
<th>Pégourié-Gonnard</th>
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<tbody>
<tr>
<td>An overview, and references to related packages. (texdoc lualatex-doc).</td>
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<tr>
<th><strong>Xe\LaTeX</strong></th>
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<tr>
<td>font-change-xetex</td>
<td>Dhawan</td>
</tr>
<tr>
<td>For plain Xe\LaTeX. (texdoc font-change-xetex).</td>
<td></td>
</tr>
</tbody>
</table>
The *Xe*\TeX Companion

Michel Goossens et al. *The Xe\TeX Companion. \TeX meets OpenType and Unicode*. 2010. 112 pp. url: [https://ctan.org/pkg/xetex](https://ctan.org/pkg/xetex).

Introduction to OpenType and Unicode, using OpenType fonts, handling Unicode-encoded sources.

The *Xe*\TeX reference guide


A summary of additional features over \TeX. (texdoc xetex-reference).

\LaTeX3 and expl3

*The \LaTeX3 Interfaces* \LaTeX3 Project Team

\LaTeX3 Project Team. *The \LaTeX3 Interfaces*. 2020. 310 pp. url: [https://ctan.org/pkg/l3kernel](https://ctan.org/pkg/l3kernel).

Reference documentation for the expl3 programming environment. (texdoc interface3).

*The \LaTeX3 kernel: style guide for code authors* \LaTeX3 Project Team

\LaTeX3 Project Team. *The \LaTeX3 kernel: style guide for code authors*. 2020. 5 pp. url: [https://ctan.org/pkg/l3kernel](https://ctan.org/pkg/l3kernel).

Style guide for authors using expl3. (texdoc l3styleguide).

*The expl3 package and \LaTeX3 programming* \LaTeX3 Project Team

\LaTeX3 Project Team. *The expl3 package and \LaTeX3 programming*. 2020. 16 pp. url: [https://ctan.org/pkg/l3kernel](https://ctan.org/pkg/l3kernel).

Introduction to expl3. (texdoc expl3).

Bibliography

*Tame the BeaST* Nicolas Markey


About bibliographies and Bib\TeX. (texdoc tamethebeast).

*Biblatex Cheat Sheet* Clea F. Rees


A tri-fold quick reference. (texdoc biblatex-cheatsheet).
### Math

<table>
<thead>
<tr>
<th>Users Guide for the amsmath Package</th>
<th>American Mathematical Society et al.</th>
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</thead>
<tbody>
<tr>
<td>How to use amsmath. Also see International languages for the Italian, Japanese, and Vietnamese translations. (texdoc amsmath).</td>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Short Math Guide for \LaTeX{}</th>
<th>Downes et al.</th>
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<tr>
<td>A summary of features in \LaTeX{} and packages for writing math formulas. (texdoc short-math-guide).</td>
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<thead>
<tr>
<th>More Math Into \LaTeX{}</th>
<th>Grätzer</th>
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<tr>
<td>Updated edition.</td>
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<tr>
<th>Farbige Mathematik</th>
<th>VoSS</th>
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<tbody>
<tr>
<td>Math in color. In German, but with easy-to-use examples. (texdoc voss-mathcol).</td>
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</table>

<table>
<thead>
<tr>
<th>Typesetting Mathematics with \LaTeX{}</th>
<th>VoSS</th>
</tr>
</thead>
</table>

### Page headings

<table>
<thead>
<tr>
<th>The fancyhdr and extramarks packages</th>
<th>Oostrum</th>
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</thead>
<tbody>
<tr>
<td>Documents the fancyhdr and extramarks packages. Also includes an overview of the \LaTeX{} page mark system. (texdoc fancyhdr).</td>
<td></td>
</tr>
</tbody>
</table>

### Tables

Also see the \TeX{} FAQ Floats section: [URL](https://www.texfaq.org/#floats)

<table>
<thead>
<tr>
<th>Publication-quality tables in \LaTeX{}</th>
<th>Fear</th>
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</thead>
</table>
Documents the booktabs package, and also includes thoughts on the design of tabular layouts in general. (texdoc booktabs).

**Typesetting Tables with \LaTeX**


**Graphics**

Also see the \TeX FAQ Graphics section: https://www.texfaq.org/#graphics

**Visual PSTricks**


A visual FAQ consisting of a small example for each effect. (texdoc -l visualpstricks).

**Visual TikZ**


A visual FAQ consisting of a small example for each effect. (texdoc -l visualtikz).

**Using Imported Graphics in \LaTeX and pdf\LaTeX**


**The TikZ and PGF Packages**


As well as documenting the packages, this manual also includes “General guidelines and principles concerning the creation of graphics for scientific presentations, papers, and books”.

(texdoc pgfmanual).

**PSTricks: Graphics and PostScript for \TeX and \LaTeX**


**Music**


Packages and programs for music symbols, lyrics, chord sheets, sheet music, and guitar tablature. (texdoc latex4musicians).
**Presentations**

**Beamer by Example**


Graduated examples of the beamer package.

**Examples from the book Presentations with L\TeX**

Herbert VoSS. *Examples from the book Presentations with L\TeX*. German. 2009. URL: [https://ctan.org/pkg/presentations](https://ctan.org/pkg/presentations).

Source for examples from the book.

**Examples from the book Presentations with L\TeX**


Source for examples from the book.

**Presentations with L\TeX**


**Fonts**

Also see the \TeX\ FAQ Fonts section: [https://www.texfaq.org/#fonts](https://www.texfaq.org/#fonts)

**The \TeX\ Font Catalogue**

Palle Jørgensen. *The \TeX\ Font Catalogue*. URL: [https://www.tug.org/FontCatalogue/](https://www.tug.org/FontCatalogue/).

A detailed list of fonts for \TeX, each with samples and setup information.

**\TeX\ font encodings**


About T1 encoding, OT1, etc. (texdoc encguide).

**Essential NFSS2, version 2**


A user's view of the New Font Selection Scheme, version 2.
Using TrueType fonts with \TeX{} (\LaTeX{}X) and \pdfTeX{} (\pdfLaTeX{})

Rakityansky

Damir Rakityansky. *Using TrueType fonts with \TeX{} (\LaTeX{}X) and \pdfTeX{} (\pdfLaTeX{})*. URL: \url{http://www.radamir.com/tex/ttf-tex.htm}.

Font selection in \LaTeX{}: The most frequently asked questions

Schmidt


Covers basic commands, default fonts, available font families, fonts for certain parts of the document.

\LaTeX{} 2\epsilon\ font selection

Team

\LaTeX{}3 Project Team. *\LaTeX{} 2\epsilon\ font selection*. 2020. 35 pp. URL: \url{https://ctan.org/pkg/fntguide}.

Documentation of commands for selecting fonts, as well as those for defining the data-structures used by the selection commands. (\texttt{texdoc fntguide}).

Fonts and \TeX{}

\TeX{} User's Group

\TeX{} User's Group. *Fonts and \TeX{}*. URL: \url{http://tug.org/fonts/}.

A collection of links related to \TeX{} and fonts.

Cyrillic languages support in \LaTeX{}

Volovich et al.

Vladimir Volovich, Werner Lemberg, and \LaTeX{}3 Project Team. *Cyrillic languages support in \LaTeX{}*. 1999. 7 pp. URL: \url{https://ctan.org/pkg/cyrguide}.

Installation, usage, encodings. (\texttt{texdoc cyrguide}).

FAQs, symbol references, cheat sheets

Visual PSTricks

Casteleyn


A visual FAQ consisting of a small example for each effect. (\texttt{texdoc -l visualpstricks}).

Visual TikZ

Casteleyn


A visual FAQ consisting of a small example for each effect. (\texttt{texdoc -l visualtikz}).

\LaTeX{} 2\epsilon\ Cheat Sheet

Chang

Winston Chang. *\LaTeX{} 2\epsilon\ Cheat Sheet*. 2006. 2 pp. URL: \url{https://ctan.org/pkg/latexcheat}. 
A quick-reference guide for \LaTeX{} and \BibTeX{}. Also in Brazilian Portuguese, German, Japanese, and Spanish. (\texttt{texdoc/latexcheat}).

**Detexify**


Draw a symbol, and the website tells you which macros might make that symbol.

**\TeX{} FAQ**

*\TeX{} FAQ.* URL: https://texfaq.org/.

An online resource, which includes a detailed list of printed books.

**Online tutorials on \LaTeX{}**

Indian \TeX{} Users Group. *Online tutorials on \LaTeX{}.* 2000. URL: http://tug.org/tutorials/tugindia/.

An extensive tutorial covering many aspects of \LaTeX{}.

**\LaTeX{} Cheat Sheet**

Marion Lammarsch. *\LaTeX{} Cheat Sheet.* 2017. 4 pp. URL: https://ctan.org/pkg/latex-refsheet.

A reference for \LaTeX{} with KOMA-Script. (\texttt{texdoc/latex-refsheet}).

**The Comprehensive \LaTeX{} Symbol List**


More than 14,000 symbols and \LaTeX{} commands. (\texttt{texdoc/comprehensive}).

**The Visual \LaTeX{} FAQ**


Click on a visual element to learn how it is programmed. (\texttt{texdoc/visualFAQ}).

**Biblatex Cheat Sheet**


A tri-fold quick reference. (\texttt{texdoc/biblatex-cheatsheet}).

**Every symbol (most symbols) defined by unicode-math**

Unicode math symbols.  

**\TeX font errors: Cheatsheet**  


How \TeX integrates fonts, and related error messages.  

**shapecatcher**

*shapecatcher*. [url: http://shapecatcher.com/].

Draw a symbol, and the website tells you which Unicode symbols it might be.

**\TeX Resources on the Web**  

\TeX Users Group. *\TeX Resources on the Web*. [url: http://tug.org/interest.html].

A large collection of links to numerous resources.

**Source code**

The source code for \LaTeX is also included in the distribution.

**The \LaTeX Sources**  


Occasionally useful for figuring out how something really works.  

**List of internal \LaTeX Macros useful to Package Authors**  

Martin Scharrer. *List of internal \LaTeX Macros useful to Package Authors*. 14 pp. [url: https://ctan.org/pkg/macros2e].

A list of the core \LaTeX macros, each of which is linked to the source code.

**International languages**

**Multiple languages**

The following are available in several languages. Also see CTAN’s topic for each language for additional translations of package and other documentation.

**Free Programming Books**  


A variety of \TeX-related and other programming books and documents.
<table>
<thead>
<tr>
<th>Document Title</th>
<th>Author(s)</th>
<th>Language(s)</th>
<th>Pages</th>
<th>URL (where applicable)</th>
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<tbody>
<tr>
<td>A thorough but concise reference manual for LATEX 2ε, available in several languages.</td>
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<td>(texdoc <code>l latex2e-help</code>).</td>
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<tr>
<td><em>The Not So Short Introduction to LATEX 2ε</em></td>
<td>Oetiker</td>
<td>Numerous languages</td>
<td>153</td>
<td><a href="https://ctan.org/pkg/lshort">https://ctan.org/pkg/lshort</a></td>
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<tr>
<td>Covers introductory material, customizations, and a simple package.</td>
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<td>(texdoc <code>-l lshort</code>).</td>
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<tr>
<td><em>Brazilian Portuguese</em></td>
<td>Chang</td>
<td>Brazilian</td>
<td>2</td>
<td><a href="https://ctan.org/pkg/latexcheat-ptbr">https://ctan.org/pkg/latexcheat-ptbr</a></td>
</tr>
<tr>
<td>A quick-reference guide for LATEX and BibTEX.</td>
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<td></td>
<td>(texdoc <code>latexcheat-ptbr</code>).</td>
</tr>
<tr>
<td><em>LATEX 2ε Via Exemplos</em></td>
<td>Massago</td>
<td>Brazilian</td>
<td>264</td>
<td><a href="https://ctan.org/pkg/latex-via-exemplos">https://ctan.org/pkg/latex-via-exemplos</a></td>
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<tr>
<td>A study course.</td>
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<tr>
<td><em>Chinese</em></td>
<td>Abrahams et al.</td>
<td>Chinese</td>
<td>429</td>
<td><a href="https://ctan.org/pkg/impatient">https://ctan.org/pkg/impatient</a></td>
</tr>
<tr>
<td>A tutorial and reference for TeX, plainTEX, and Eplain.</td>
<td></td>
<td></td>
<td></td>
<td>(texdoc <code>impatient-cn</code>).</td>
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<tr>
<td>A tutorial for asymptote in the form of a graphical FAQ.</td>
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<td></td>
<td>(texdoc <code>asymptote-by-example-zh-cn</code>).</td>
</tr>
<tr>
<td>FAQ from the Chinese TeX Society.</td>
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<td></td>
<td>(texdoc <code>ctex-faq</code>).</td>
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</tbody>
</table>
Installing \LaTeX\ and compiling documents, using various operating systems.  
(texdoc install-latex-guide-zh-cn).

**Asymptote** 中的常见问题 (FAQ)  

A translation of the Asymptote FAQ.  
(texdoc asymptote-faq-zh-cn).

**\LaTeX** Notes v 1.20


An introduction to \TeX\ and \LaTeX, including the use of Chinese fonts. 
(texdoc latex-notes).

**French**

Also see Online communities.

**TEX pour Illpatient**

(url: https://ctan.org/pkg/impatient).

A tutorial and reference for \TeX, plain \TeX, and \LaTeX.  
(texdoc impatient-fr).

**Apprends \LaTeX!**

(url: http://www.babafou.eu.org/Apprends_LaTeX).

A full textbook written for École Nationale Supérieure de Techniques Avancées.

**Initiation à \LaTeX**


A guide on \LaTeX\ for beginners or advanced users.

**Visual PSTricks**

(url: https://ctan.org/pkg/visualpstricks).
A visual FAQ consisting of a small example for each effect.  
	(texdoc -l visualpstricks).

**Visual TikZ**


A visual FAQ consisting of a small example for each effect.  
	(texdoc -l visualtikz).

**French FAQ of the Gutenberg TeX user group**


**Rédaction avec LATEX**


An introductory course prepared for Université Laval, Québec, Canada.  
	(texdoc formation-latex-ul),  
	(texdoc formation-latex-ul-diapos).

**LATEX 2ε: An unofficial reference manual**


A thorough but concise reference manual for LATEX 2ε, available in several languages.  
	(texdoc -l latex2e-help).

**Tout Ce Que Vous Avez Toujours Voulu Savoir Sur LATEX Sans Jamais Oser Le Demander**


A book for beginners.

**The Not So Short Introduction to LATEX 2ε**


Covers introductory material, customizations, and a simple package.  
	(texdoc -l lshort).

**Utilisation de Graphiques Importés dans LATEX2ε**


How to import graphics in LATEX2ε.  
	(texdoc fepslatex).
**XeLaTeX Appliqué Aux Sciences Humaines**


**Apprendre à programmer en TeX**


Basic programming of TeX, with examples. (texdoc apprendre).

**TeXniques**

*TeXniques. Groupe francophone des Utilisateurs de TeX, \LaTeX{} et logiciels compagnons*. French. [URL: https://www.gutenberg.eu.org/TeXniques].

A collection of resources.

**German**

Also see Users groups, and Online communities.

**\LaTeX{} 2ε Befehlsübersicht**


A quick-reference guide for \LaTeX{} and Bib\LaTeX{}. (texdoc latexcheat-de).

**The Not So Short Introduction to \LaTeX{} 2ε**


Covers introductory material, customizations, and a simple package. (texdoc -l lshort).

**The DANTE TeX Users Group Frequently Asked Questions**

*The DANTE TeX Users Group Frequently Asked Questions*. German. [URL: https://ctan.org/pkg/faq-de].

**Farbige Mathematik**


Math in color. In German, but with easy-to-use examples. (texdoc voss-mathcol).
<table>
<thead>
<tr>
<th><strong>Anleitung</strong></th>
<th>Weissenburger et al.</th>
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</thead>
<tbody>
<tr>
<td>Using \LaTeX, MikTeX, and TrueType fonts.</td>
<td></td>
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</table>

**Indian**

<table>
<thead>
<tr>
<th><strong>A practical guide to \LaTeX and polyglossia for Indian Languages</strong></th>
<th>Holkar</th>
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</thead>
<tbody>
<tr>
<td>Discusses Marathi, but also relevant to other Indian languages.</td>
<td></td>
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</table>

**Italian**

<table>
<thead>
<tr>
<th><strong>Manuale utente per il pacchetto amsmath</strong></th>
<th>American Mathematical Society et al.</th>
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**The Not So Short Introduction to \LaTeX 2ε**

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**Japanese**

(Also see the Japanese category of the package list: p. 26)

<table>
<thead>
<tr>
<th>\LaTeX2ε for authors</th>
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<tr>
<td>An overview of the new features of \LaTeX2ε compared to \LaTeX2.09.</td>
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<td>Manual for amsmath.</td>
<td></td>
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</tbody>
</table>
pL\TeX\ 2ε チートシート


A quick-reference guide for L\TeX and BibT\TeX.

Short Math Guide for L\TeX


The Not So Short Introduction to L\TeX\ 2ε


Covers introductory material, customizations, and a simple package.

Korean

(See the Korean category of the package list: p. 26)

Portuguese

Introdução ao Uso do Preparador de Documentos \LaTeX


A tutorial as PDF slides.

The Not So Short Introduction to L\TeX\ 2ε


Covers introductory material, customizations, and a simple package.

Spanish

CervanTeX (Spanish TeX Group) FAQ

CervanTeX (Spanish TeX Group) FAQ. Spanish. URL: https://ctan.org/pkg/es-tex-faq.

Acordeón para \LaTeX\ 2ε

A quick-reference guide for \LaTeX{} and Bib\LaTeX{}.

\LaTeX{} 2ε: An unofficial reference manual


A thorough but concise reference manual for \LaTeX{} 2ε, available in several languages.

\texttt{(texdoc \-l \LaTeX{}2ε-help)}.

The Not So Short Introduction to \LaTeX{} 2ε

Tobias Oetiker. \textit{The Not So Short Introduction to \LaTeX{} 2ε}. Numerous languages. 2015. 153 pp. URL: \url{https://ctan.org/pkg/lshort}.

Covers introductory material, customizations, and a simple package.

\texttt{(texdoc \-l lshort)}.

Vietnamese

\textit{Hướng dẫn sử dụng gói amsmath}

American Mathematical Society et al.


Manual for amsmath.

\texttt{(texdoc amsldoc-vn)}.

Journals

The \PracTeX{} Journal

\TeX{} Users Group.

\textit{The \PracTeX{} Journal}. URL: \url{http://tug.org/pracjourn/}.

The online journal of the \TeX{} Users Group. Twenty issues, from 2005–2012.

TUGBoat

\TeX{} Users Group.

\textit{TUGBoat}. URL: \url{http://tug.org/TUGboat/}.

The Communications of the \TeX{} Users Group. Published since 1980. Articles covering every aspect of \TeX{}.

Interviews

TUG Interview Corner

\TeX{} Users Group.

\textit{TUG Interview Corner}. URL: \url{http://tug.org/interviews/}.
A large collection of interviews and articles about people related to \TeX. Includes links to more than 250 lectures and other recordings by Donald Knuth, and various historical information.

**Typesetting examples**
- A large collection of examples: [https://texample.net/](https://texample.net/)
- A collection of small examples: [http://tug.org/texshowcase/](http://tug.org/texshowcase/)

**General typesetting theory**
Discussion about general typesetting theory, presented by various \TeX-related authors.
For a list of non-\LaTeX-specific books, see [https://www.texfaq.org/FAQ-type-books](https://www.texfaq.org/FAQ-type-books).

**Package canoniclayout**
Documentation for the canoniclayout package. Also includes ideas regarding text-block proportions. ([texdoc canoniclayout](https://www.ctan.org/texdoc/canoniclayout)).

**Publication-quality tables in \LaTeX**
Documents the booktabs package, and also includes thoughts on the design of tabular layouts in general. ([texdoc booktabs](https://www.ctan.org/texdoc/booktabs)).

**KOMA-Script The Guide**
Documentation for the KOMA-Script package. Also includes discussion about the page layout of a book. ([texdoc typearea](https://www.ctan.org/texdoc/typearea)).

**The Octavo Package**
Design principles and guidelines emulating books from the Renaissance. ([texdoc octavo](https://www.ctan.org/texdoc/octavo)).

**The TikZ and PGF Packages**
As well as documenting the packages, this manual also includes “General guidelines and principles concerning the creation of graphics for scientific presentations, papers, and books”.

(texdoc pgfmanual).

**A TUFTE-STYLE BOOK**


Documentation for the Tufte-LaTeX document classes. Also includes layout ideas from the books of Edward R. Tufte. (texdoc tufte-latex).

**A Few Notes on Book Design**


More than 100 pages of discussion about book design and typography. (texdoc memdesign).

### Accessing embedded information

**texdoc and mthelp**

A large amount of documentation is included in a TeX distribution. For TeXLive distributions, package documentation can be accessed with the texdoc program. Enter “texdoc -l <name>” to search for matching package, file, or program names. In some cases the same document is available in both letter or A4 paper sizes, or in several languages. texdoc is also available online, with popular packages sorted by category. (http://www.texdoc.net/)

For MikTeX, the mthelp program accesses package documentation. Enter “mthelp <name>”.

**kpsewhich**

The program kpsewhich may be used to find out where a file is located. kpsewhich filename searches for and returns the path to the given filename.

kpsewhich can also return directories, such as:

```
kpsewhich -var-value TEXMFROOT
kpsewhich -var-value TEXMFDIST
kpsewhich -var-value TEXMFLOCAL
```

Some package authors choose not to include the source code in the package documentation. To view the source code:

1. To locate and read a package's .sty file:
   ```
   kpsewhich package.sty
   ```
   Usually these files have their comments removed, so it is better to use the .dtx file instead.

2. The .dtx file is usually available, and will have the package's source code.
   ```
   kpsewhich package.dtx
   ```
   If it is not installed on your local system, it will be necessary to download the .dtx file from CTAN (see the next section).

   The comments are not yet typeset and so will not be as easily read.
3. To typeset the documentation with the source code, copy the `.dtx` file and any associated image files somewhere local and then look for `\OnlyDescription` in the source. This command tells the `ltxdoc` package not to print the source code.

4. Remove `\OnlyDescription`, then process the `.dtx` file with `pdflatex package.dtx`

Barring unusual circumstances, this will create a new documentation `.pdf` file with the package source code included.

**Obtaining packages — Comprehensive TeX Archive Network (CTAN)**

TeXLive installations use the `tlmgr` program to obtain packages. MiKTeX installations automatically install packages as needed. Where TeX is installed by an operating-system package manager, that manager should be used to install additional packages.

For custom installations, it may be necessary to manually install packages downloaded from the Comprehensive TeX Archive Network (CTAN), which provides a master collection of packages. A search function is available, which is useful when you know the name of a package or its author, and a list of topics is also provided. There are so many topics, however, that finding the right topic can be a problem in itself. One useful method to find what you are looking for is to search for a related package you may already know about, then look at its description on CTAN to see what topics are shown for it. Selecting these topics then shows you related packages.

(https://ctan.org/)

**Useful classes, packages, and programs**

Use `texdoc` or `\help` to access information about each of the following.

**General-use packages and classes**

**Classes:**
- memoir, koma-script

**Page layout and headings:**
- fancyhdr, geometry, microtype, nowidow, titlesp

**Fonts:**
- font-change-xetex, fontspec, mathtools, unicode-math

**Sectioning:**
- epigraph, fncychap, quotchap, sectionbreak, sectsty, titlesec, tocvcsec2

**Table of contents:**
- etoc, minitoc, multitoc, shorttoc, titletoc, tocbibind, tocdata, tocloft, tocvcsec2

**Title page:**
- authblk, titling

**Front and back matter:**
- abstract, appendix

**Indexing:**
- makeindex, xindy, xindex, gindex, hvindex, idxlayout, imakeidx, index, makeidx, splitidx, varindex, xindex

**Glossary:**
- glossaries, nomencl

**Bibliography:**
- bibtex, biblatex, custom-bib

**Cross-referencing:**
- cleveref, hyperref, url, xr-hyper, xurl, zref

**Foot notes, margin notes, page notes:**
- bigfoot, endheads, endnotes, footmisc, manyfoot, marginfit, marginfix, marginnote, pagernote, parnotes, sidenotes

**Math:**
- amsmath, amssymb, breqn, mathtools, resizegather, nicematrix, scalerel, stackrel
Theorems:
  amsthm, appxproof, ntheorem, shadethm, theorem, thmbox, thmtools

Units and fractions:
  nicefrac, siunitx, xfrac

Floats:
  caption, dblfloatfix, endfloat, fewerfloatpages, float, floatrow, hypcap,
  keyfloat, newfloat, placeins, rotfloat, stfloats, subcaption, subfig, subfloat, wrapfig

Tabular:
  array, booktabs, colortbl, ltxtable, multirow, supertabular, tabularx, tabulary,
  threeparttable, threeparttablex, xltabular, xtab

Graphics:
  asymptote, curves, fitbox, graphicx, pict2e, pstricks, tikz, xy

Color:
  normalcolor, xcolor

Lists:
  enumerate, enumitem, paralist

Minipages:
  eqparbox, minibox, pbox, shapepar

Quotations and verse:
  csquotes, epigraph, quoting, verse

Verbatim:
  fancyverb, fextra, moreverb, shortverb, upquote, verbatim

Frames:
  boxedminipage2e, fancybox, fbox, framed, mdframed, niceframe, shadow, tcolorbox

Embellishments:
  fancypar, fancytabs, fourier-orns, lettrine, pgfornament, pst-vectorian, sectionbreak

Multi-column:
  adjmulticol, multicol, multicolrule, vwcol

Margins:
  fullwidth, hanging, midpage

Line numbering:
  lineno

Algorithms and listings:
  algorithm2e, algorithmicx, listings, listingsutf8, minted

Acronyms:
  acro, acronym

Ordinals:
  engord, fmtcount, nth

Direct formatting:
  cancel, ellipsis, embrac, enparen, hyphenat, lips, lua-check-hyphen, luacolor, pdfcol,
  pdfcolmk, pdfrender, realscripts, relsize, seqsplit, soul, soulpos, soulutf8, stackengine,
  textfit, thinspace, trimclip, truncate, ulem, umoline, underscore, uspace, xellipsis

Symbols:
  academicons, amssymb, bbding, chemgreek, dingbat, euro, eurosym, fontawesome,
  fontawesome5, fourier-orns, gensymb, latexsym, marvosym, metalogox, metalogox,
  pifont, textalpha, texcomp, textgreek, typicons, xunicode

Files:
  attachfile, attachfile2, hyperxmp, intopdf, pdfpages, pdfx, xmpincl

Admonitions:
  awesomebox, notes

Editorial:
  changebar, changelog, changes, easy-todo, easyReview, ed, errata, fixme,
  fixmetodonotes, pdfcomment, pdfmarginpar, todo, todonotes, tram, xexchangebar

Accessibility:
  accessibility, accsupp, axessibility, pdfcomment, repltext, tagpdf

Presentations:
  beamer, powerdot

Multi-language:
  babel, beamer-rl, bidi, polyglossia

Chinese / Japanese / Korean (CJK):
  cjkpunct, xeCJK

Chinese:
  ctext, upzhkinsoku, xpinyin, zhlineskip, zhspacing
Japanese:
 - bxjscls, luatexja, platex, plautoupacht, tascmac, uplatex, zxjatype

Korean:
 - kotex, luatexko, xetexko.

**Automatic compiling**

The programs *arara* and *latexmk* automatically recompile as necessary to resolve all dependencies.

**Converting to HTML and other document formats**

**Using TEX to generate the HTML:**

The lwarp package and the tex4ht program each use native L\(\text{T}\)E\(\text{X}\) to interpret the document and generate HTML. More of L\(\text{T}\)E\(\text{X}\) is supported compared to the translators listed below.

**lwarp package:**
- Supports hundreds of packages. Generates HTML, and provides indirect assistance for EPUB conversion and copy/paste into a word-processor. [https://ctan.org/pkg/lwarp](https://ctan.org/pkg/lwarp)

**tex4ht program:**
- Generates HTML, EPUB, ODT, and Docbook. [http://tug.org/tex4ht/](http://tug.org/tex4ht/)

**Translators:**

These systems use external programs to translate a subset of L\(\text{T}\)E\(\text{X}\) syntax into HTML. Search for each on CTAN ([http:\ctan.org](http:\ctan.org)).

- **HT\(\text{E}\)va:**
  - [http://hevea.inria.fr/](http://hevea.inria.fr/)

- **T\(\text{T}\)H:**
  - [http://hutchinson.belmont.ma.us/tth/](http://hutchinson.belmont.ma.us/tth/)

- **GELLMU:**
  - [http://www.albany.edu/~hammond/gellmu/](http://www.albany.edu/~hammond/gellmu/)

- **L\(\text{T}\)E\(\text{XML}\):**
  - [http://dlmf.nist.gov/LaTeXML/](http://dlmf.nist.gov/LaTeXML/)

- **PlasTeX:**
  - [https://github.com/tiarno/plastex](https://github.com/tiarno/plastex)

- **L\(\text{T}\)E\(\text{X}\)2HTML:**

- **T\(\text{E}\)X2page:**

**L\(\text{T}\)E\(\text{X}\) math to HTML:**

Glad\(\text{T}\)EX takes a L\(\text{T}\)E\(\text{X}\) math expression and generates the corresponding HTML.

**Glad\(\text{T}\)EX:**
- [http://humenda.github.io/GladTeX/](http://humenda.github.io/GladTeX/)

**Programming L\(\text{T}\)E\(\text{X}\)**

A number of packages are especially useful for L\(\text{T}\)E\(\text{X}\) programmers:

(texdoc <packagename>)}
**xifthen**: Conditionals.

**etoolbox**: A wide range of programming tools, often avoiding the need to resort to low-level \TeX.

**etextools**: Adds to etoolbox. Strings, lists, and more.

**xparse**: Define macros and environments with flexible argument types.

**environ**: Process environment contents.

**arrayjobx, fifo-stack, forarray, forloop, xfor**: Programming arrays, stacks, and loops.

**ifTeX**: Detect \TeX engine.

**ifplatform**: Detect operating system.

**xstring**: String manipulation.

**keyval, xkeyval, kvsetkeys**: Key/value arguments.

**pgfkeys, pgfkeyx**: Another form of key/value arguments.

**kvoptions**: Key/value package options.

**expl3**: \LaTeX3 programming.

**l3keys, l3keys2e**: Key/value for \LaTeX3.

**chktex**: Locates typographic errors.

**CTAN topic macro-supp**: An entire topic of useful programming macros.

---

### Creating and documenting new packages

Documentation for those interested in creating their own package or class:

<table>
<thead>
<tr>
<th>\LaTeX2ε for class and package writers</th>
<th>\LaTeX3 Project Team</th>
</tr>
</thead>
<tbody>
<tr>
<td>\LaTeX3 Project Team. \LaTeX2ε for class and package writers. 33 pp. URL: <a href="https://ctan.org/pkg/clsguide">https://ctan.org/pkg/clsguide</a>.</td>
<td>\LaTeX3 Project Team.</td>
</tr>
</tbody>
</table>

Programming a package or class. (texdoc clsguide).

---

**Rolling your own Document Class: Using \LaTeX to keep away from the Dark Side**


An overview of the article class.

---

**How to develop your own document class — our experience**


A comparison of developing class vs. package files.

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**The doc and shortvrb packages**


Packages for documenting packages. (texdoc doc).

---

**The DocStrip program**

The program which processes .dtx and .ins files to generate documentation and .sty files.
(texdoc docstrip).

**Good things come in little packages: An introduction to writing .ins and .dtx files**


How and why to create your own .dtx and .ins files.

**How to Package Your \LaTeX{} Package**


A tutorial. (texdoc dtxtut).

**Users groups**

\TeX{} Users Group: http://tug.org

Lists of international users groups:

- http://tug.org/usergroups.html
- https://ctan.org/lugs
- http://www.ntg.nl/lugs/

**Online communities**

English forums:

\TeX{} — \LaTeX{} Stack Exchange: Almost any question has already been asked, and a quick web search will find answers, ranked by vote. http://tex.stackexchange.com

\LaTeX{} Community: A traditional forum with quick replies to your questions
http://www.latex-community.org

German forums:

TeXwelt: http://texwelt.de/wissen/
goLaTeX: http://golatex.de

French forums:


Mailing lists: Several dozen, spanning a wide range of \TeX{}-related topics.
http://tug.org/mailman/listinfo

Newsgroup: comp.text.tex

**Online editing and collaboration**

Overleaf: Collaborative editing of \LaTeX{} documents online. https://www.overleaf.com/
Distributions — \LaTeX{} for various operating systems

TeXLive: http://tug.org/texlive  
Unix and Windows

MiKTeX: https://miktex.org  
Windows and Mac

proTeXt: http://tug.org/protext/  
Windows

MacTeX: http://tug.org/mactex/  
Mac

Change log

2017/03/06: Initial version.

2017/10/04: Added users groups, mailing lists, distributions, Lua\TeX{}, \XeTeX{}, chktex. Organization and formatting improvements.

2017/10/14: More information about accessing embedded documentation.

2018/01/18: Added \texttt{texdoc.net}.

2018/01/21: Added \texttt{latex-veryshortguide, first-latex-doc, beginlatex, intro-scientific, guide-latex-fr}.

2018/03/24: Added \texttt{interface3, dickimaw-novices, dickimaw-thesis}.

2018/04/01: Added TeXnique.fr.

2018/06/28: Added sections for non-English documents and general typesetting theory. Updated host and name for \TeX{} FAQ. Added \texttt{latex-via-exemplos} and Ebook Foundation free programming books.

2018/10/18: Updated URL for \LaTeX{}\texttt{2\epsilon: An unofficial reference manual}.

2020/12/14: Improved bibliography. Added categories for math and music; \texttt{startlatex2e}; items written in French, German, Indian, Italian, Japanese, Portuguese, Vietnamese; Dante users group.

2021/01/02: Now uses biblatex. Added \texttt{mthelp}, many international documents, and categories for FAQs and cheat sheets, graphics, tables, and fonts. Added lists of packages by category. Added Overleaf.

2021/01/09: Added several resources from TUG including journals and interviews, and more for the list of packages.