

## TeXstudio: Especially for L<sup>A</sup>T<sub>E</sub>X newbies

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### Abstract

TeXstudio is the default editor of the T<sub>E</sub>X Live installation at the Rijksuniversiteit Groningen. This article tries to show how TeXstudio can help new users come to grips with L<sup>A</sup>T<sub>E</sub>X and what makes it a good choice for a L<sup>A</sup>T<sub>E</sub>X introduction.

### Introduction

The T<sub>E</sub>X installation at our university, the Rijksuniversiteit Groningen in the Netherlands, includes TeXstudio as one of three (L<sup>A</sup>)T<sub>E</sub>X editors. TeXstudio, the subject of this article, is the initial default editor. Its features make it especially suitable for first-time L<sup>A</sup>T<sub>E</sub>X users: there are many GUI elements for entering mathematics and L<sup>A</sup>T<sub>E</sub>X code, there are buttons for one-click compiling and previewing L<sup>A</sup>T<sub>E</sub>X documents, and the editor gives a lot of useful feedback.

TeXstudio is open source and cross-platform, and is actively being developed. This article refers to version 2.10.4.

### The main window

In the TeXstudio window, as shown in figure 1, the editing area is surrounded by various panels and toolbars: on the left a ‘structure view’ of the document which can be used for navigation, below a message area and on the right a preview window. The previewer has been adopted from TeXworks and supports source–pdf synchronization.

For illustration purposes, a document of some complexity has been loaded. The section ‘Historical remarks’ is in view in both the editor and the previewer, and is highlighted in the structure view at the left. The message panel shows the command-line used for the latest compilation.

### Help and documentation

TeXstudio help consists of two HTML documents. The first is a manual for TeXstudio itself, with sections on configuration, editing, compiling and more. The other one is a copy of the third-party document ‘L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>: An unofficial reference manual’, but linked to a custom stylesheet. This file is also used for popup help.

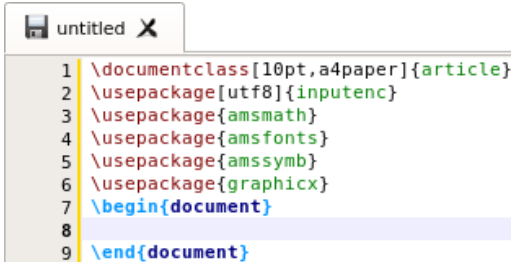
For an introduction to L<sup>A</sup>T<sub>E</sub>X you need to look elsewhere, such as ‘The Not So Short Introduction to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>’, or my own tutorial-style ‘RUG L<sup>A</sup>T<sub>E</sub>X Course’ which specifically refers to TeXstudio. Both introductions, and the original version of the reference mentioned above, are available from CTAN. Our

local T<sub>E</sub>X installation has menu entries for all three documents.

### Starting out

We have a few choices for starting a new document. The File menu has items ‘New’, which starts with a blank document, and ‘New from Template’, which creates a new document and adds templates for a title and abstract.

But in this article we start a new document with the ‘Quick Start’ entry from the Wizards menu; see figure 2. If we just click the OK button, we see the following in the edit panel:



```

1 \documentclass[10pt,a4paper]{article}
2 \usepackage[utf8]{inputenc}
3 \usepackage{amsmath}
4 \usepackage{amsfonts}
5 \usepackage{amssymb}
6 \usepackage{graphicx}
7 \begin{document}
8
9 \end{document}

```

Subsequently we can start entering text between `\begin{document}` and `\end{document}`.

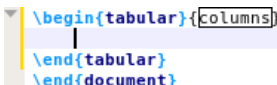
**Previewing** Now that we have some text, it is a good moment to save the file and get acquainted with the edit–compile–preview cycle. After saving the file, we click first the Compile button (▶) and then the View button (🔍) or, more efficiently, just the The Build & View button (▶🔍) which does everything in one go. Either way, the on-screen result is a much emptier version of figure 1.

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

Our next undertaking is adding text with markup.

**Bold and italic.** This is to assure new users that they are not on completely alien soil. The inner vertical toolbar, *i.e.* at the left of the editing area, contains buttons for these: **B** and *I*. Of course, these text styles will be applied to any text which happens to be selected at the time: `\textit{Hello}, \textbf{world}`.

**The LaTeX menu.** These and other styles are also available via the LaTeX / Font Styles menu, but this menu contains many more items and sub-menus, *e.g.* clicking LaTeX / Tabular Environment / `\begin{tabular}` gets us:



```

\begin{tabular}{columns}
|
\end{tabular}
\end{document}

```

**Autocompletion and tooltip help.** To see these features at work, we start typing: `\tabl...`

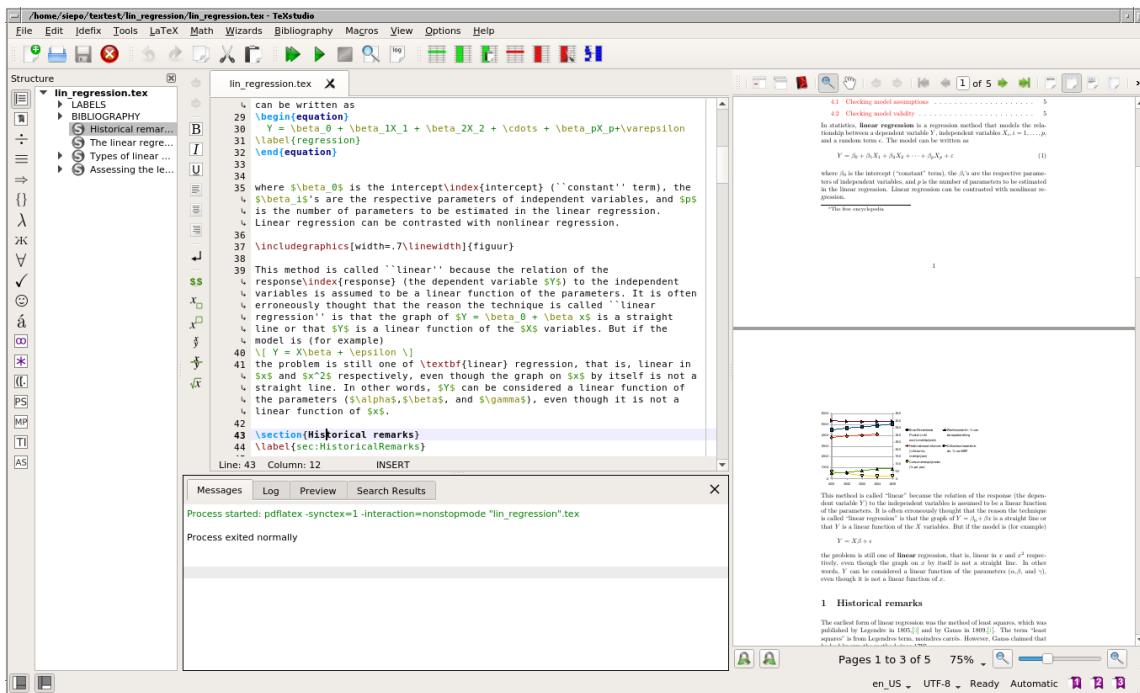


Figure 1: Main TeXstudio window

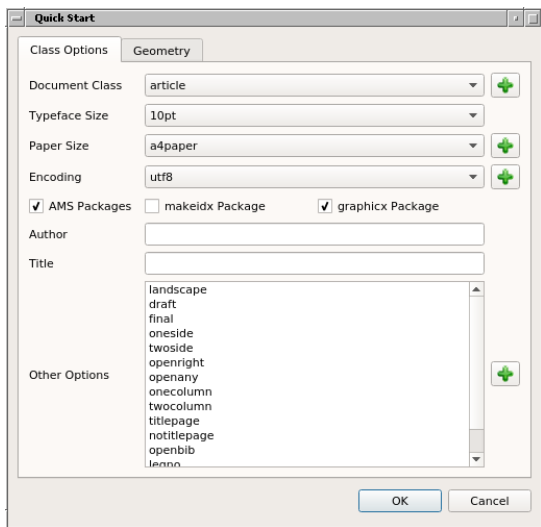
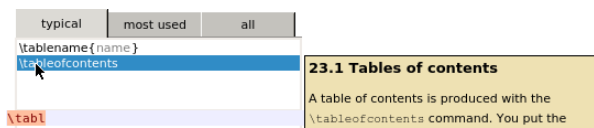


Figure 2: The Quick Start wizard

TeXstudio offers a list of completions, including `\tableofcontents`, and adds a tooltip with information about the highlighted command.

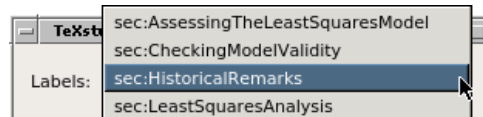


The tooltip text is taken from the L<sup>A</sup>T<sub>E</sub>X reference mentioned earlier. However, in my tests TeXstudio

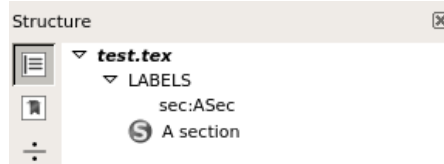
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occasionally did not manage to extract useful information. The control sequence remains pink/orange until it has become a valid L<sup>A</sup>T<sub>E</sub>X command.

**Cross-references.** Also of note is the handling of cross-references. If we enter `\ref`, we are presented with a list of existing labels. This is how such a list looks when we entered `\ref` via the GUI:

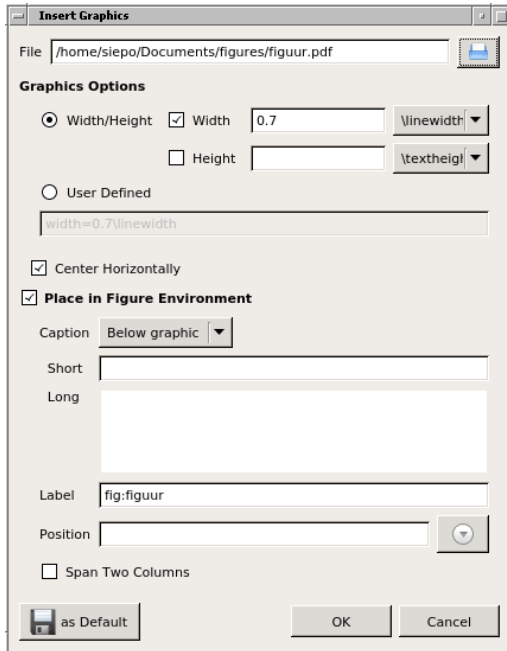


With one section and one cross-reference label in the document, the Structure panel might look as follows:



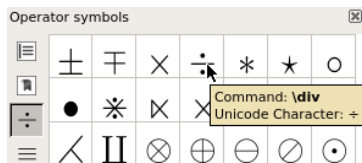
**Math.** TeXstudio has an extensive Math menu, including inline and display math and constructs such as `\frac` and `\begin{array}`. Selecting *e.g.* the `\frac` item results in the following: `\frac{num}{den}`. `\frac` and various other common constructs are also represented in the inner vertical toolbar (§).

The Structure panel can turn into one of several palettes of mathematical symbols. These can be invoked with the buttons of the outer vertical toolbar,



**Figure 3:** Include Graphic wizard. The graphic path will show up in the source as ‘figures/figuur’.

at the far left of the TeXstudio window. Here is a fragment of the Operators palette:



**Arrays and tabulars.** There are fairly basic array- and tabular wizards, but the LaTeX menu also contains a ‘Manipulate Tables’ submenu, with items for removing and adding rows and columns, and for pasting columns (it is best first to apply the item ‘Align Columns’ [§11](#)). This submenu handles both math mode arrays and text mode tabulars. These operations are also accessible via a section of the toolbar at the top:

**Insert Graphic wizard.** Another wizard to mention here is the Insert Graphic wizard; see figure 3. It uses a file browser, and creates a relative path for the graphic file if at all possible.

**Previewing a selection.** When we right-click with some text selected we can choose an option Preview Selection/Parentheses. Depending on the configuration, this produces a preview of the selection either in the Preview tab of the message area, or inline in the text, like this:

The term  $\epsilon$  is the model’s ‘error term’ (a mis

The term  $\epsilon$  is the model’s “error term”

In addition, if the mouse cursor hovers for a while inside a display math environment, a preview of the equation will pop up:

$$\sum_{i=0}^{\infty} \alpha_i$$

**Outline mode.** TeXstudio has an outline mode, which can be accessed via the Collapse- and Expand submenus of the View menu:

```

51
52 ▶ \section{The linear regression model}
74 ▶ \section{Types of linear regression}
149 ▶ \section{Assessing the least-squares model}
211 \end{document}

```

## Bibliography support

During compilation, TeXstudio automatically runs BibTeX if necessary, or biber if that has been configured as the default.

In addition, TeXstudio has some support for editing BibTeX databases, although it does not pretend to be a full-blown bibliography manager.

The Bibliography menu contains a long list of publication types. If we select *e.g.* ‘Article in Conference Proceedings’ then the following code is generated:

```

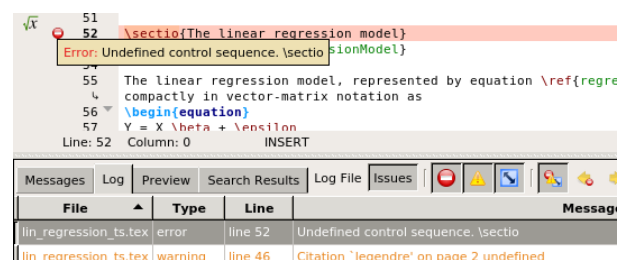
@InProceedings{ID,
author = {author},
title = {title},
booktitle = {booktitle},
OPTcrossref = {crossref},
...
OPTannotate = {annotate},
}

```

The idea is to remove OPT from those fields which we actually use. When we are done with the entry, the menu item Bibliography / Clean will remove all remaining OPT fields.

## Error handling

TeXstudio is rather emphatic about error reporting, *e.g.*



In the editing area, the cursor has jumped to the error, and the message area now shows the Log tab, with the first error highlighted. There are also previous/next error buttons: 🏠 🏠

### Configuration

TeXstudio has extensive options for configuration under Options / Configure TeXstudio; here are a few highlights.

For finding L<sup>A</sup>T<sub>E</sub>X and friends (Options / Commands), it relies on the search path and, by default, does not explicitly store their locations, but on Windows there are exceptions, particularly the various viewers.

On the Build tab, there are options for setting the default engine (Compiler) and bibliography processor.

The editor is also very configurable: font and font size, various aspects of spell-checking, grammar checking, encoding detection, tooltips, syntax highlighting, *etc.* Turning off some of these options can help to make the editor less noisy.

More advanced configuration includes customization of the menus, of keyboard shortcuts, and of the set of autocompletion files.

Users can add templates via File / Make Template, and macros via Macros / Edit Macros. Users can add options to the Quick Start wizard; see the 🌱 symbols in the Quick Start screenshot (figure 2).

Under Windows, TeXstudio does not use the registry, but stores configuration information in a series of text files in a subdirectory `texstudio` of `%appdata%`, analogous to what it does under Linux.

### TeXstudio, Texmaker and Kile

TeXstudio is a fork of Texmaker, which is also cross-platform. If you find TeXstudio a bit over the top you may want to try Texmaker. Pascal Brachet, the author of Texmaker, is also the original author of Kile, a L<sup>A</sup>T<sub>E</sub>X editor running under KDE. Not unexpectedly, there is a family resemblance between the three editors.

### Summary

I have given some examples of how the TeXstudio interface helps new users on their way and saves the instructor a lot of explaining. Many users seem to like it well enough, even for the long haul.

### Notes

This article is based on a Dutch-language article ‘TeXstudio, speciaal voor L<sup>A</sup>T<sub>E</sub>X starters’, pp. 16–22, MAPS 46, 2015 (<http://ntg.nl/maps>). It describes a slightly earlier version of TeXstudio.

The document loaded in figure 1 consists of a Wikipedia page on linear regression manually converted to L<sup>A</sup>T<sub>E</sub>X.

Screenshots for this article have been newly created from TeXstudio 2.10.x, running on Ubuntu 15.10.

### URLs

Kile home page:

<http://kile.sourceforge.net/>

L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>: An unofficial reference manual:

<http://ctan.org/pkg/latex2e-help-texinfo>

Texmaker home page:

<http://www.xmlmath.net/texmaker/>

TeXstudio home page:

<http://texstudio.org/>

TeXstudio repository:

<http://sourceforge.net/p/texstudio/hg/ci/default/tree/>

The Not So Short Introduction to L<sup>A</sup>T<sub>E</sub>X 2<sub>ε</sub>:

<http://ctan.org/pkg/lshort>

RUG L<sup>A</sup>T<sub>E</sub>X Course:

<http://ctan.org/pkg/latexcourse-rug>

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