Tutorial 1: Installing (or not!) LaTeX 2ε, TeXstudio and the `cmpreport` class file*

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A journey of a thousand miles must begin with a single step.

Lao Tse

In this first tutorial you will

1. be told how not to install LaTeX and use an internet site instead to produce documents with LaTeX,
2. get step by step information on how to install LaTeX 2ε and TeXstudio on your computer,
3. install the `cmpreport.cls` class file that will be used for the production of third year reports,
4. test your installation by producing a very simple LaTeX document.

1 Working with an internet site or on your computer

Many of my colleagues process their LaTeX document using `Overleaf`. This tool is particularly useful for the writing of papers with multiple authors. If you want to use it I suggest that you watch the video at *https://www.overleaf.com/tutorial* and then explore further. As your project reports will have to be produced by using the specific class file and template I provide you'll have to create an account with `Overleaf`.

*This document was not produced with Microsoft Word!

The advantage of using the `Overleaf` site are:

- You do not have to install LaTeX on your computer (The LaTeX full installation takes 7.34 GB of disk space.),
- Documents may be processed more rapidly than with your computer,
- You can share documents with your supervisor who can then annotate them.
- You can process your documents from any computer provided you have an internet connection.

However, as the `Overleaf` site does not belong to the University, there are some potential disadvantages and issues:

- If your internet connection or the `Overleaf` site is down shortly before a submission deadline the University won't treat your predicament sympathetically, in particular as LaTeX is installed in our labs.
- If your project involves a confidentiality agreement and sensitive information is included in your reports would it be appropriate to use a third party site?
- If you want your work to be treated sensitively as you plan to exploit it after graduation (the IP normally belongs to you) would you trust a third party site?

I cannot possibly comment on the last two points as I have only used `Overleaf` to check that it correctly produces a 3rd year project report from the template I provide you with.

If you want to use `Overleaf` try to process the example given in section 2.4 with it. You'll need to upload the class file `cmpreport.cls` included in the zipped file `InstallCMPreport.zip` provided on Blackboard.

Note that in all my subsequent tutorials I will assume you are using LaTeX on your computer with the TeXstudio GUI. This is, however, not much of a problem if you use `Overleaf` as the only specificities concern the use of TeXstudio, not of LaTeX.

Accordingly, I will also provide support on LaTeX and TeXstudio, but not on `Overleaf`.

2 Installing LaTeX 2ε

I uninstalled some packages and GUI that were on my computer and reinstalled them from scratch (on 30 July 2021). I wanted to go through the process students have to follow to set up their machine to use LaTeX 2ε and associated tools, so that I could make sure I did not tell porkies in this tutorial. Well, that is not quite true. I do that every year to make sure that I use the latest version of LaTeX 2ε. If you have an old version

of LaTeX 2ε on your machine please do like me. I will only provide assistance with the latest version.

My laptop runs Windows 10; so I'll give details about installing on this system. I'll also give you a few clues about installation on MacOSX. However, If you want more detailed information I suggest that you have a little collection to buy me this cheap computer they call a MacBook Pro (please ☺).

You'll need to install TeXLive and TeXstudio. TeXLive contains the actual LaTeX 2ε distribution and TeXstudio is a GUI for it. This distribution and GUI are installed in our labs.

2.1 Installing TeXLive

This is not difficult if a bit time-consuming as the TeXLive distribution is quite large.

TeXLive is installed under the directory `C:\texlive` by default [1].

The size of the installation is 7.34 GB with 213,428 files and 15,249 folders! The installation time, with an ethernet cable connection at home, was about 8 hours (perhaps I should have installed at night). I installed the full distribution. This is the best way to be sure nothing is forgotten! So, here is what to do [2]:

1. Click on the following link:
   http://www.tug.org/texlive/acquire-netinstall.html.
2. In the page that comes up click on `install-tl-windows.exe` to download the installation in some working directory.
3. Right click on the downloaded installer and select "Run as administrator".
4. A window appears; just press "Next" then press "Install".
5. When the window "Tex Live 2020 Installer" appears press "Install" in that window.
6. Go for a walk, feed the cat, Domestos the loo and have a little nap.

The installation window indicates how many packages have been installed out of the total number of packages that the installation comprises. After all packages have been installed a number of utilities are launched. When you see the message "Welcome to TeX Live!" you can press "Close".

If you have an Apple computer then you'll need to go to *http://www.tug.org/mactex/downloading.html* to download MacTeX. MacTeX is a distribution of TeXLive with an installer for MacOSX and some extra specific Mac tools.

[1] Please, do not change the default path.

[2] On my UEA computer Microsoft Defender SmartScreen prevented me from installing when I clicked on the installer, because the publisher is unknown. To get around it, I ran the Command Prompt desktop app as administrator, changed directory and ran the installer from the command prompt.

2.2 Installing TEXstudio

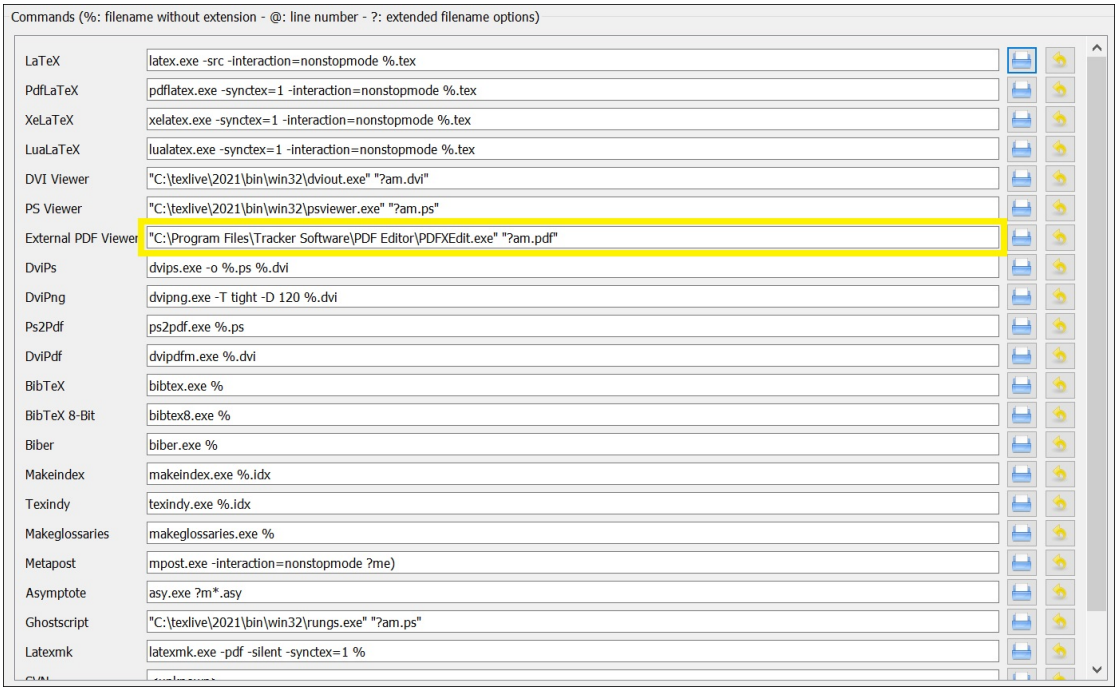
The good news is that installing TEXstudio does not take any time at all as this is not a very big program.

To install TEXstudio proceed as follows:

1. Click on the following link:
   http:// texstudio.sourceforge.net/

2. Click `download` in the left-hand menu.

3. In the page that comes up click the `installer` link for Windows or the `zip` that corresponds to your Mac-OS platform and proceed as mentioned in the column `How to install`.



The box framed in yellow may have to be different on your computer.

Figure 1: Configuring commands in TEXstudio.

Once you have installed TEXstudio you may need to configure it. First, if it has started itself then close it and start it again by clicking on the icon that must have been created on your desktop. In the menu select `Options>Configure TeXstudio...` Click the `Commands` icon in the left panel. In the right window you should get the commands with their paths. There is very little to do as the default setting should work, except for

the external PDF viewer path that depends on your particular computer configuration and the particular software you use (see figure 1). Note that if you do not proceed by making a clean installation of TEXstudio *after* installing LATEX you may have to give the full paths of utilities when configuring TEXstudio commands, for example:

```
"C:\texlive\2021\bin\win32\pdflatex.exe"
```

I prefer the TEXstudio internal PDF previewer to be *windowed* rather than *embedded*. To change the default behaviour select `Options>Configure TeXstudio...`, click the `Build` icon in the left panel and un-tick the `Show advanced options` if ticked. In the right window select the `PDF Viewer` option you prefer using the drop-down menu[3].

2.3 Installing the cmpreport class file

The `cmpreport.cls` class file is used in the project to write reports. You are now going to add this class file to your TEXLive installation. This involves copying some files and re-indexing the TEXLive database. This is done automatically using a batch file: Download the `InstallCMPreport.zip` file from Blackboard in a working directory of your choice and unzip it to create the `InstallCMPreport` folder. Go to this folder. Then right click the `install.bat` Windows Batch File icon and select `Run as administrator`. Wait for a message asking you to press a key to appear in the command window that opens.

The above applies to Windows users. If you have an Apple/Linux machine you'll need to install the content of `InstallCMPreport` by using a procedure appropriate to these machines and their operating systems. If you are a Mac user, please have a look at http://tex.stackexchange.com/questions/10252/how-do-i-add-a-sty-file-to-my-mactex-texshop-installation.

If you fail to install the class using the above then simply make sure all the files provided in `InstallCMPreport` are in the same folder as the `tex` file you are working on.

2.4 Having a trial

At the moment you have a basic (empty) interface. This is comprised of three sub-windows: 1) a document structure window, allowing you to more easily navigate your documents, 2) a document window, in which you will edit your LATEX documents, and 3) a message window, where you will be provided with feedback, in particular regarding compilation. You can reveal/hide some of these windows by clicking the icons on the left of the bottom band.

[3] Please do *not* select the *external* viewer.

Create a new document using the menu `File>New`. In this document type the following [4]

```
\documentclass[tutorial]{cmpreport}
\title{test document}
\begin{document}
My first \LaTeX{} document!
\end{document}
```

Save your file in a directory of your choice using the `File>Save as`. Click the `Compile` icon (the green triangle before the magnifier in the top left tool bar. When you hover over the buttons you get their names). You should have a message that appear in the bottom window. If everything went well you should get the message `Process exited normally`.

Now click on the icon `View`, the magnifier glass to the right of the `Compile` icon, and maximize the window. You are using the internal PDF previewer. You may have to scroll to see the content of the PDF or zoom out.

Notice that the previewer has another icon that looks like a little red book. This icon is used to launch the *external* viewer. In general the external viewer gives a better quality view of the PDF than the internal previewer. However, I would advise to use the external viewer sporadically as it will block changes to the PDF file. If you use the external viewer, forget to close it and try to reprocess your file you'll get the error message `I can't write on file...`.

Now, as you are looking at the PDF in the previewer, position the mouse over the word *document*, right click and select `Go to Source`. You go back to the place in the LaTeX source where the word was input. You could also simply close the previewer.

You may congratulate yourself for a job well done.

[4] Most books on LaTeX will use the document class `article`. However we shall use the *cmpreport* class file as this is the class you have to use for your project reports.