

TeXstudio and R in Debian Mint

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... some preliminaries

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Since a little while, I have tested knitr in LaTeX and found the explanations provided by the author Yihui Xie as something rather inaccessible to beginners.

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This opinion is solely mine. If you can pick all the necessary informations on Yihui's webpage from the scratch, then feel free to click on the link below and skip all this presentation.

`http://yihui.name/knitr/demo/editors/`

Please mind the fact that all of the following applies to TeXstudio editor only!

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- ▶ TeXstudio compilation command

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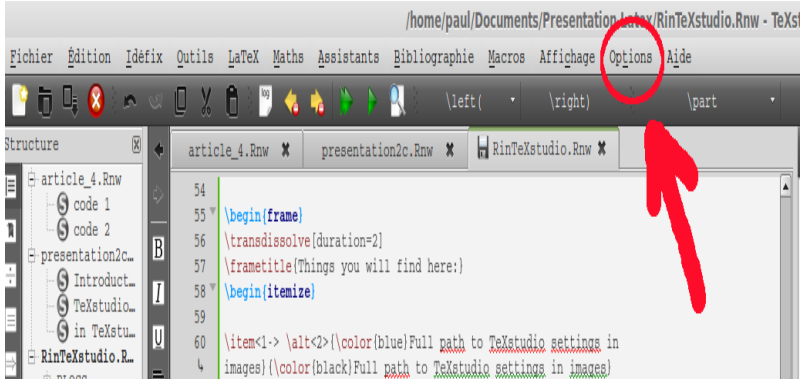
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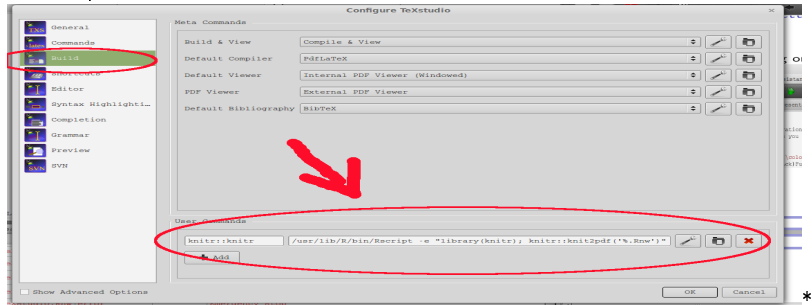
Full path to TeXstudio settings in images

Find the options by clicking on the "Options" menu :



Full path to TeXstudio settings in images

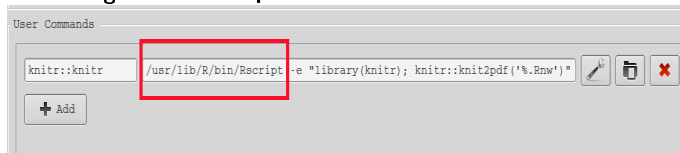
Click on the "Options" menu and then click on "Configure TeXstudio" and "Build" to end up with this menu :



There will be no settings yet entered in the "User Commands" window, of course ...

TeXstudio settings explanations

Now you should pay a very close attention to this part of the line, when entering the setting for knitr compilation :

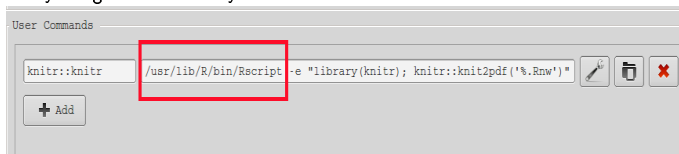


Beware! The whole thing will not work if you make a mistake here :

- ▶ Enter the full path to your Rscript file. You can find **Rscript** in the `"/bin"` folder of R , even under Windows or MacOS.
- ▶ Please make sure, that you have sufficient user's rights to execute Rscript.

TeXstudio settings explanations

The Rscript path excepted (... a computer OS specific setting), you can enter everything else as it stays below :



Obviously, the Rscript shell will launch knitr library in R and compile .Rnw file written in LaTeX to a .pdf file of the same name in the same folder.

Last, but not least : ensure the other prerequisites, such as you have the "knitr" library installed in R.

TeXstudio compilation command

Once you are done with the line in TeXstudio " Options",
you can find the command to launch .Rnw file conversion here :

Tools -> User -> knitr::knitr

... let's talk about .Rnw

- ▶ As you have certainly understood, the whole mashup through knitr uses .Rnw file as a primary source, instead of a .tex file normally generated by TeXstudio. Beware ! Your filename should not contain spaces! eg: " **Myfile.Rnw**" is just fine, but " *My file.Rnw*" will generate a compilation error !

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- ▶ So you should create an empty file " somename.Rnw ". The point here is, that you will write in this file exactly as you write in a .tex file. In clear, you will write in normal and ordinary LaTeX to your .Rnw , obtaining a .pdf which will integrate all of your LaTeX finicky page settings with an R output!
The compilation process will automatically generate a corresponding .tex file and transform .tex in .pdf.

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- ▶ There is also one setting, just a line, you should add to your .Rnw (... treated as .tex) preamble to ensure the "bona fide" result of your compilation :

```
\usepackage[T1]{fontenc}
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- ▶ Sometimes, for a reason I ignore, you should declare the frame containing your R code as fragile : `\begin{frame}[fragile]`

How to put your R code in .Rnw

- In fact, the latex embedded code block commands are the same as in an ordinary knitr. Just one thing differ, regarding to the syntax for R Markdown that a lot of people use for their .html outputs : the "framing" of the code do not use ````{r}` to start and ````` to end the block .
So, you can see the detail below and make your test.
Just in case, do not forget to uncomment...

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```
#«foo2, fig.height=3,echo=F,message=F»=  
#library(ggplot2)  
#data(cars)  
#qplot(speed,dist,main="Speed to Distance",data=cars)  
#0
```

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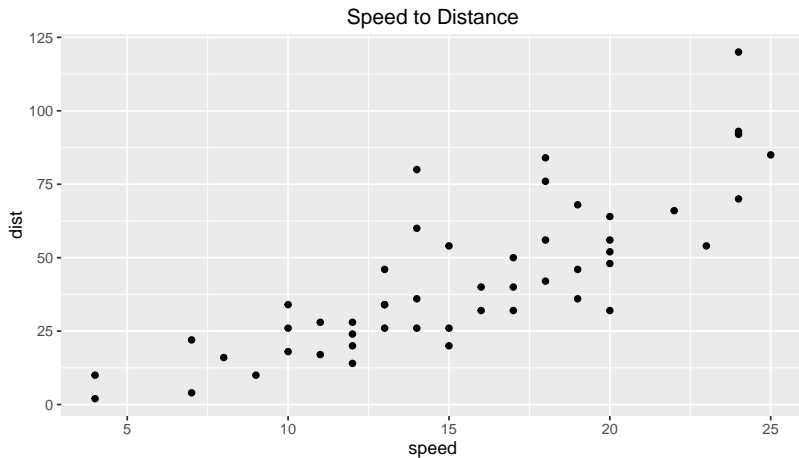
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#<foo2, fig.height=3,echo=F,message=F>=  
#library(ggplot2)  
#data(cars)  
#qplot(speed,dist,main="Speed to Distance",data=cars)  
#@
```

- ▶ I invite you to browse here and see some interesting R Markdown tutorial, if needed :

http://kbroman.org/knitr_knutshell/pages/Rmarkdown.html

A fully integrated code output

... from the previous slide



... the End !

A major advantage coming from the use of this technique is that you can integrate and successfully generate R outputs in every document you need: presentations, papers and reports, with local or distant change tracking through GIT.

No WYSIWYG editor , such as " MS Word " or " OO/LO Writer ", can help you to track changes in your files efficiently as they do not use plain text files, but compiled and locked file formats. When you choose a writing tool, be always aware of this issue and of the backward compatibility holes between MS and OO/LO versions !

Learning the LaTeX editing is not more complicated, in comparison with the learning curve you will experience in Markdown. LaTeX language with hundreds of specialized packages makes documents in more varieties and in truly highest quality, set against to his far more rudimentary Markdown counterparts.

I'm ending right here, wishing you good luck with your work !