

Sweave and Stangle setup for TeXworks and TeXnicCenter

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1 Sweave

Sweave is a program (technically it is a R function) that comes with R. R is an open-source statistical programming language/environment that can be run from the command line or graphical user interfaces. It can be downloaded from <http://www.r-project.org/>. A good graphical user interface can be downloaded at <http://rstudio.org>. R is a very flexible and very popular language with an active user group. It can do everything programs such as SPSS can do and much much more. There are some links on my site for if you are not familiar with R.

In the last lecture we will be focusing on **Sweave**. This stands for “weave in S code” and can be used to incorporate R codes in your \LaTeX document (S is somewhat of a predecessor of R). Sweave takes an `.Rnw` document as input and returns a `.tex` document. *The original document is completely erased when Sweave is run for a second time.* This is very important. From now on, only write in `.Rnw` documents and treat `.tex` documents as one of the extra files.

So Sweave uses an `.Rnw` file and creates a `.tex` file. This `.tex` file can then be used to run `pdf\text{\LaTeX}` and `bib\text{\TeX}` on. One way to do this is to use the `Sweave()` function in R and then run `pdf\text{\LaTeX}` and `bib\text{\TeX}` a few times from command line. This might be tedious, and luckily we don’t have to.

From R version 2.14 (this has only been released a few weeks ago) we can use the following command line code to run Sweave on a `.Rnw` file and then `pdf\text{\LaTeX}` and `bib\text{\TeX}` enough times on the resulting `.tex` file until a pdf is made. The code to do this in command line is as follows.

```
R CMD Sweave --pdf file.Rnw
```

Where `file.Rnw` is the input file. This requires that the system `PATH` variable includes the R folder. What this does is that the R program (in windows `R.exe`) is called with several arguments. These arguments are in order `CMD` which includes several functions like building packages, **Sweave** to run Sweave, `--pdf` to create the pdf file afterwards and finally the input file.

With this knowledge we can add the Sweave method to \LaTeX editors. In this document I discuss how to do this with `\text{\TeX}works` and `\text{\TeX}nicCenter`. In all other editors the general idea is the same.

We will also discuss how to setup a shortcut for Stangle, which is somewhat of the opposite of Sweave and extracts all R codes out of an `.Rnw` object to create a `.R` file.

2 T_EXworks

2.1 Sweave

In the menu, go to **Edit** and click **Preferences**. Click on the tab **Typesetting**. Press **+** button at the bottom right corner of the Processing tools window to create a new output profile.

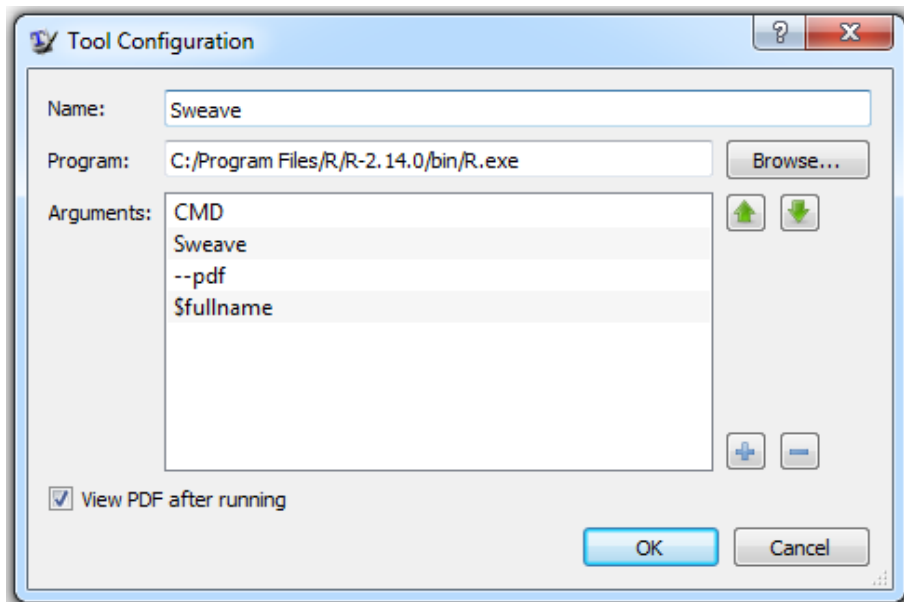
Enter in the “name” field **Sweave**. Next, press browse and search for R (in windows this is called R.exe). Make sure you have the 2.14 version. For windows it is typically in:

`C:/program files/R/R-2.14.0/bin`

Next we add arguments. For each argument press the **+** button and type the name. Add in order the following arguments:

- CMD
- Sweave
- --pdf
- \$fullname

Finally, make sure “View PDF after running” is checked. The result should look as followed:

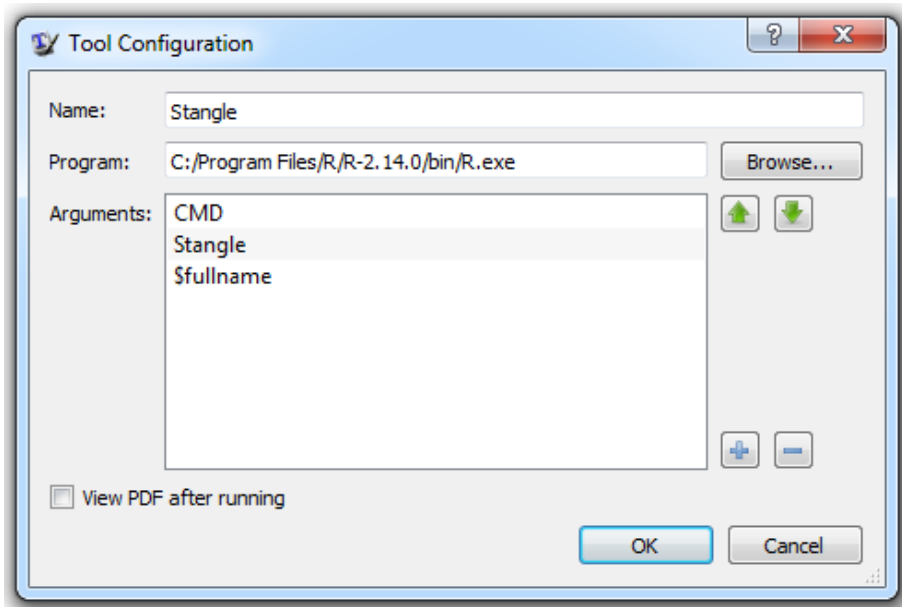


2.2 Stangle

For Stangle, make a new command and use R like above, only now add the following arguments:

- CMD
- Stangle
- \$fullname

Uncheck "View PDF after running". The result should look as follows.



2.3 Using Sweave and Stangle in TeXworks

To run Sweave or Stangle select the newly made option from the drop down menu of compilers and press the play button.

3 T_EXnicCenter

3.1 Sweave

In the menu, go to **Build** and select **Define output profile**. Click **Add** to create a new profile and call it **Sweave**.

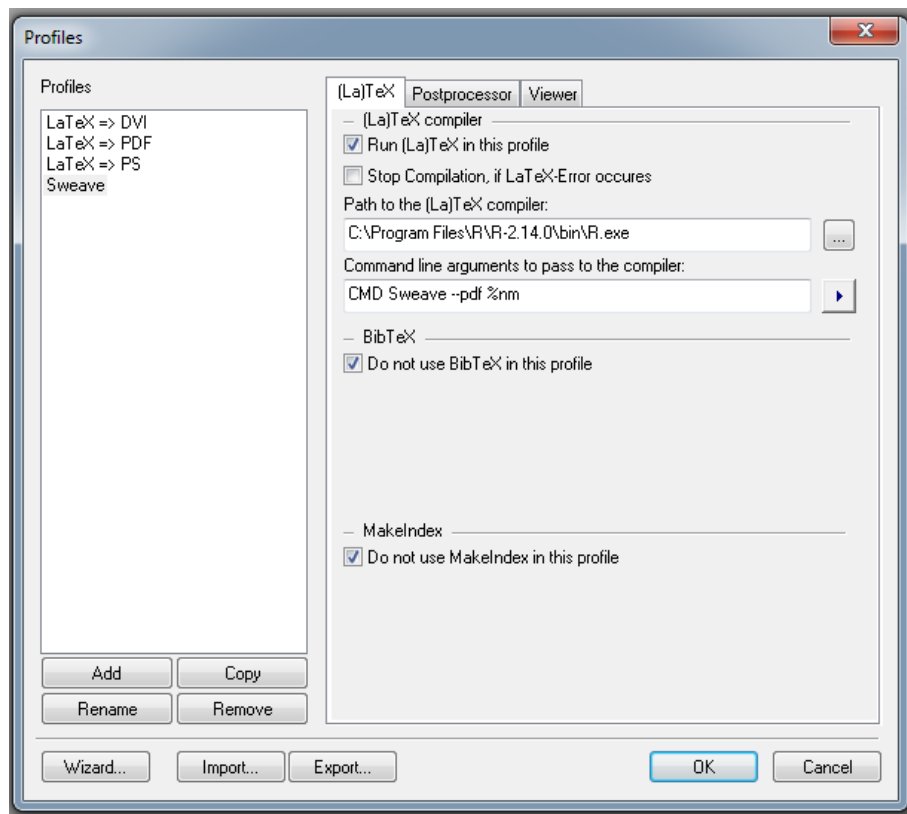
In the tab “(La)TeX” Check “Run (La)TeX in this profile”, and uncheck options to use bibTeX and Makeindex. Click on the button with ... next to “Path to the (La)TeX compiler”. Find and select R (in Windows this is called R.exe). For Windows this is typically installed in:

```
C:/program files/R/R-2.14.0/bin
```

In the next box with “Command line arguments to pass to the compiler” type:

```
CMD Sweave --pdf %nm
```

It should look as followed:



Go to the “viewer” tab. Assuming you have Adobe reader 10¹, in “path of executable” find acroRd32.exe. For me this is:

```
C:\Program Files (x86)\Adobe\Reader 10.0\Reader\AcroRd32.exe
```

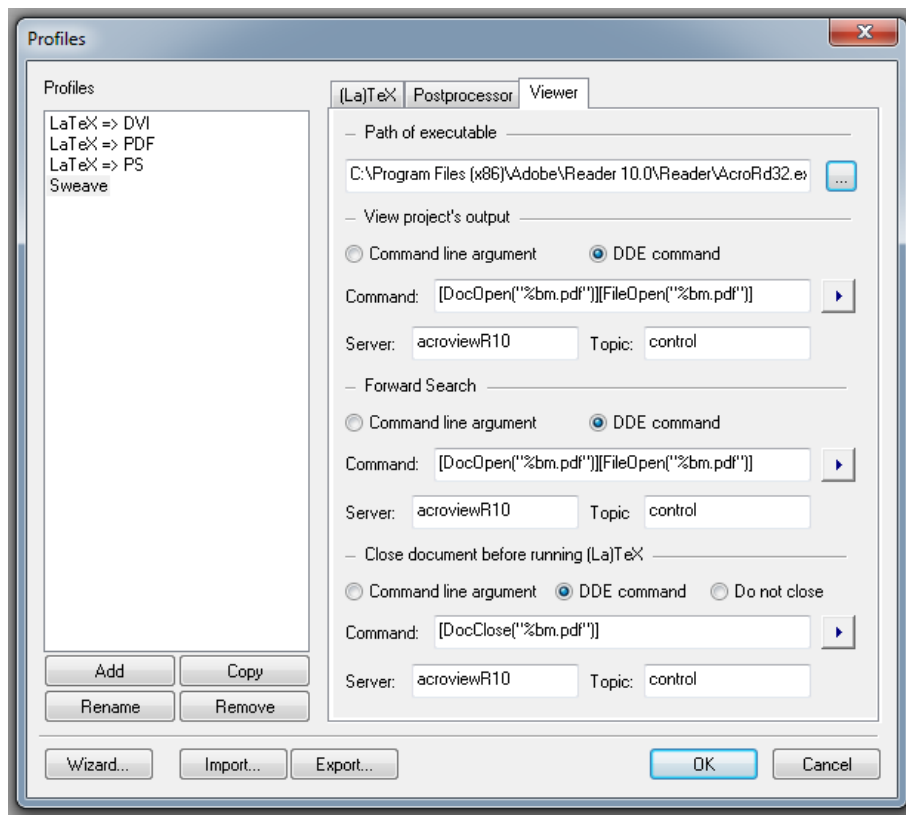
Check in all three underlying boxes DDE command. Enter in every “Server” field `acroviewR10`, and in every “Topic” field `control`. Next fill in in the first two “command” fields:

```
[DocOpen("%bm.pdf")] [FileOpen("%bm.pdf")]
```

and in the last field:

```
[DocClose("%bm.pdf")]
```

It should look as followed.



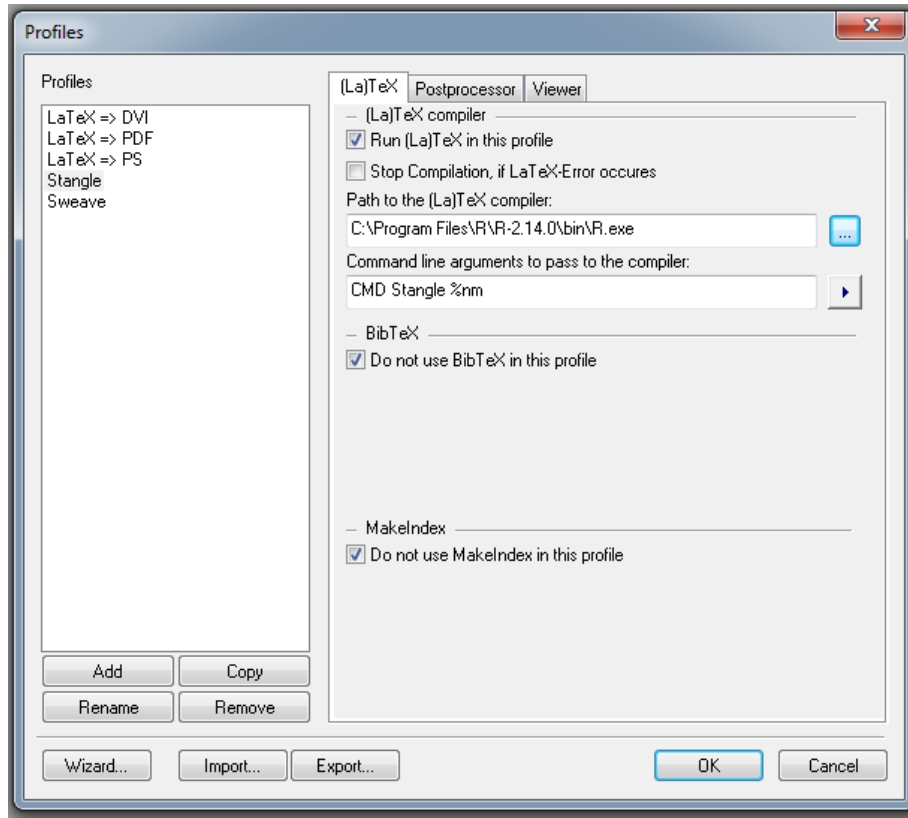
¹if not, copy all information from the existing LaTeX => PDF profile

3.2 Stangle

To create a Stangle profile again click on **add** and name the profile Stangle. Again find R and now fill in in the arguments field:

CMD Stangle %nm

It should look as followed.



3.3 Using Sweave and Stangle in TeX nicCenter

To use Sweave and Stangle now, select the newly made options from the compiled drop down menu (It should now be called LaTeX => PS or something). Use the

On the first run you might get an error, but a second run should work fine. Stangle will give an error because we did not set an output profile, but it will work anyway.