Agenda - R Workshop

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In this document you will find the agenda (it might change a bit but not much). You will further find information on how to install R (mirrors etc.) and how to install R-packages.

The first 30 minutes may be skipped or done quickly depending on the knowledge of the group.

Before the Workshop:

- R (https://cran.r-project.org/)
- Install RStudio* (https://www.rstudio.com/)

Table 1: Rough Agenda

Time	Subject	Content
9:00 - 9:30	Introduction to R	Rstudio, Scripts, Variables, Syntax
09:30 - 10:00	Introduction to R	Reading data, manipulating data, descriptive statistics, etc.
10:15 - 11:00	Basic Statistics	t-test, chi-square, correlation, and assumptionstests etc.
11:15 - 12:00	Regression Modeling 1	Regression (linear, logistics, assumptions)
13:00 - 14:15	Regression Modeling 2	e.g., stepwise regression, visualisation, tables
14:15 - 15:00	Regression Modeling 3	Continues (may include multilevel and some ANOVAs)[a]
15:15 - 16:00	Factor Analysis	Confirmatory Factor Analysis and Structural Equation Modeling[a]

[a] Multilevel modeling requires lme4, lmerTest, etc. CFA/SEM will be carried out in lavaan. GitHub for more information.

Some of the material will be available downloaded prior to the Workshop/Course: https://github.com/marsja/R-WorkshopMDU.

If you have any problems contact me at erik.marsja@liu.se (I am available a couple of hours on Sunday afternoon)

A more detailed agenda as well as more instructions will be delivered closer to the Workshop.

*Or your preferred IDE if you already use R

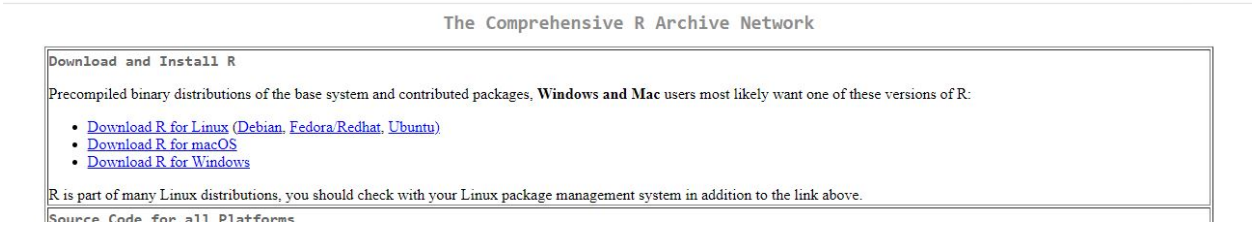

Figure 1: Click on the right operating system.

Downloading and Installing R

If you have not installed R yet, it might be a good time to install it right now.

Step 1: Go to https://cran.r-project.org/

In the first step, got to https://cran.r-project.org/.

Step 2: Click Download R (for your operating system)

In the second step, you choose to click on the link for your operating system. For Windows users see Figure 1.

I am not a Mac user myself but you can have a look at this YouTube video: https://www.youtube.com/watch?v=4_Glm-w_ZWI(You can skip the Quarto part, you don't need that).

Linux users most likely know how to install R but send me an email if you need help (I know Linux as well).

Step 3: Click on base

In this step, we need to click on base (See Figure 2).

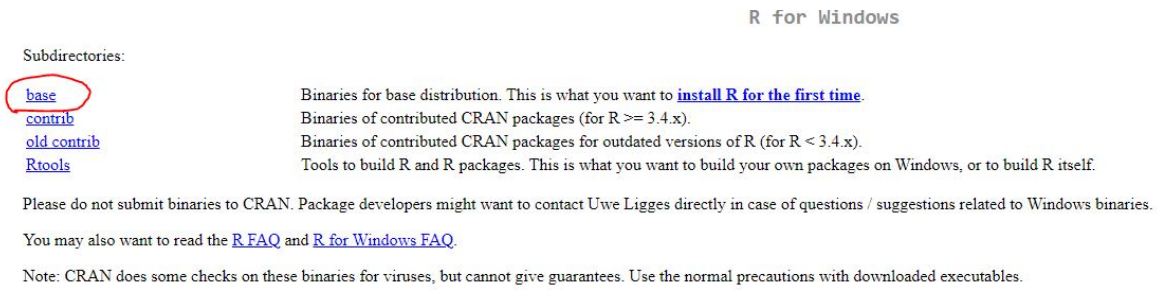

Figure 2: Click on "base"

Step 4: Download R

Finally, we can download R. We want the latest version: click on "Download R-4.2.1 for Windows" (or your operating system). Remember where you put the file. See Figure 3.

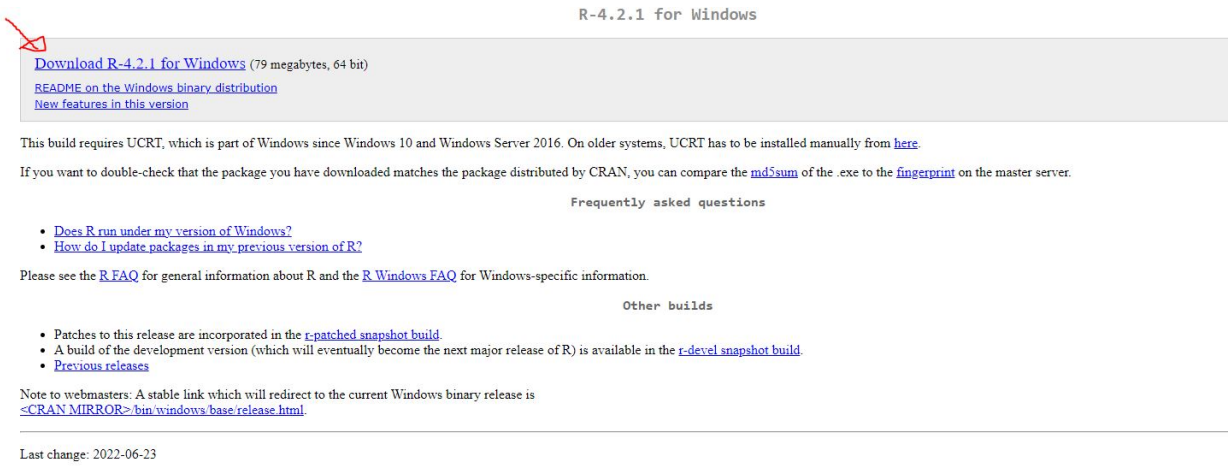

Figure 3: Download the latest version

Step 5: Install R

This is the actual final step. Now you can go to the folder you saved the file and click on it.

Mirrors

I got a question concerning mirrors. You can use mirrors when downloading R but I mainly use it when installing R packages (more on this during the Workshop). Since I did my PhD in Umeå I prefer this mirror: https://ftp.acc.umu.se/mirror/CRAN/

Installing R-packages:

Installing r-packages can be done using the Console in RStudio (see Figure 4).

```
install.packages(c('lavaan', 'semPlot', 'semTools', 'lme4', 'lmerTest'))
```

Tidyverse

We will also most likely use the Tidyverse packages (e.g., ggplot2, readr, readxl)

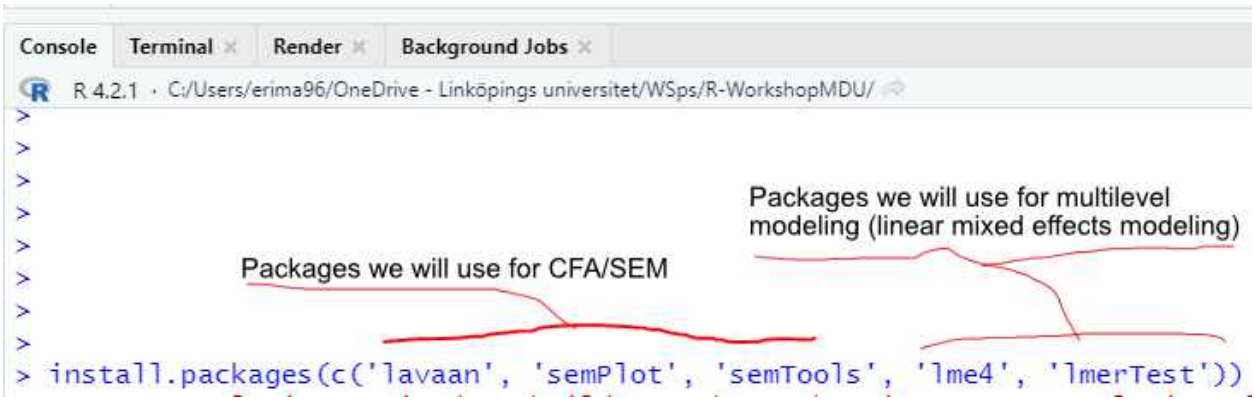

Figure 4: Installing some packages

The packages can also be installed using the GUI of RStudio (see Figure 5)

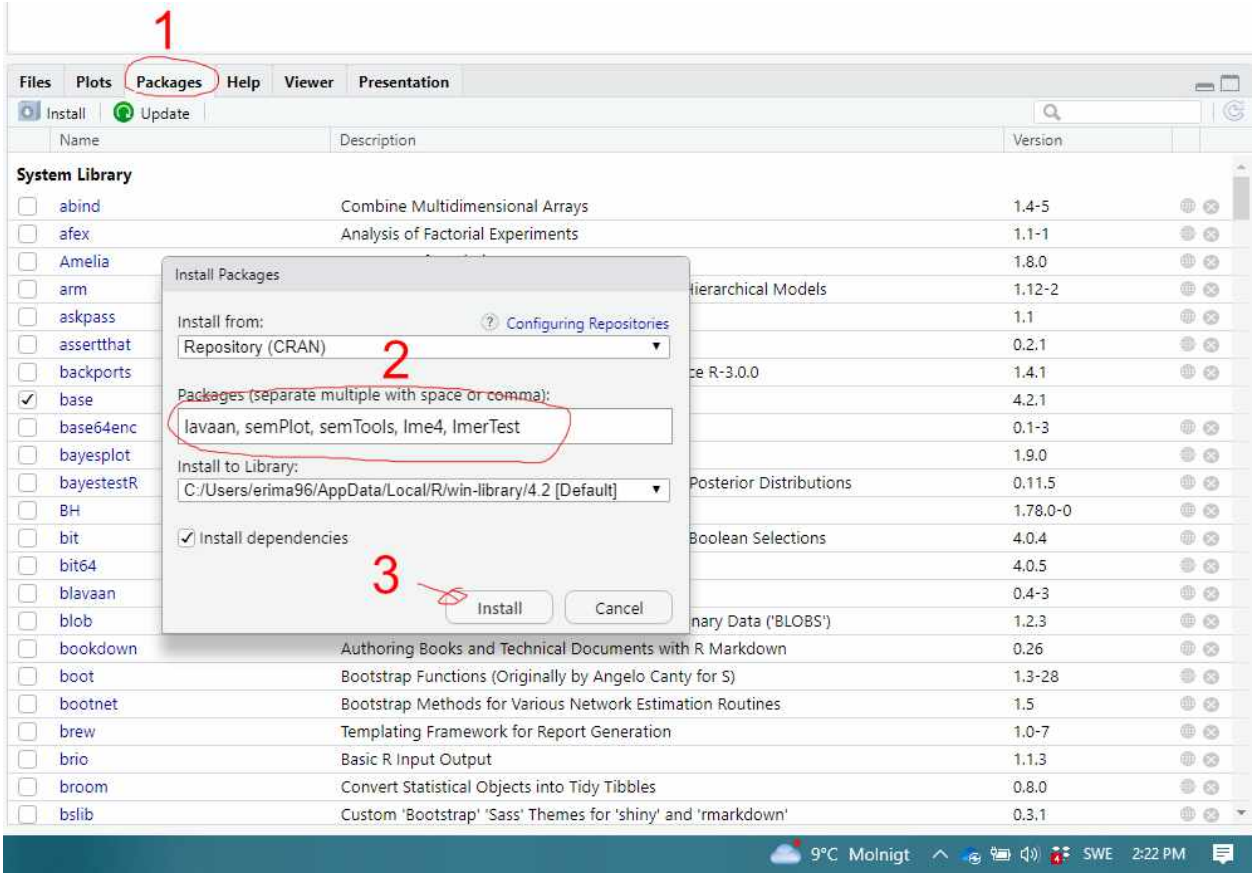

Figure 5: Installing packages with RStudio