

WAT-E2090

Water and People in a Changing World – Spring 2020

Pre-assignment

1. Introduction

There are two ways to complete the course exercises remotely;

- either you can install the required environment in your own computer or
- use the Aalto-provided virtual desktop infrastructure (VDI) that has everything pre-installed already.

The benefit of using your own computer is that it may have more computing power, but some additional work is required to set up the environment. In the demo sessions, the Aalto VDI is used because it serves as the backup option that is equally available to everyone.

This instruction outlines the steps to be taken in order to set up the environment and get started with the pre-assignment. **The goal of the pre-assignment is to get everyone's computing environment up and running already before the first exercise;** this way, we can concentrate on the topic instead of solving technical issues.

2. Setting up the environment in your own computer (optional)

We need three/four main components to be installed for the exercises:

- R language itself
- Git version control software to distribute exercises, and
- RStudio IDE for writing and running the code neatly.
- For Windows users: Rtools is also needed for certain toolchains that are used in installing packages that are required in our exercises. The preferred version is Rtools35. OS X/Linux users should have those toolchains already installed with the operating system.

If you already have an R installation on your computer, it is highly **recommended to update it to 3.6.3** since this is the version with which the exercises have been tested on. See links below. Older versions of R might work but it is not 100% certain. There's plenty of guides available on how to install R & RStudio, see for example [here](#) if you want a more graphical instruction.

In installing Git, you will need to adjust your PATH environment so that RStudio can communicate with Git. This is prompted in installation; make sure that the default option "*Git from the command line and also from 3rd-party software*" is selected. All other options should work with the defaults as well.

The defaults for all installation options should work fine.

After you've installed all the necessary tools, proceed with these instructions to the pre-assignment. During the pre-assignment, we will check the installation status of required packages and test if the environment is working properly. If you run into issues at any point of the installation process, please contact the course personnel and we'll set up a time to fix it via Zoom.

2.1. Quick links to downloads

Windows:

- a) Install **R 3.6.3**: <https://cran.r-project.org/bin/windows/base/>
- b) Install **Git**: <https://git-scm.com/downloads>
- c) Install **Rtools35**: <https://cran.r-project.org/bin/windows/Rtools/>
- d) Install **RStudio**: <https://rstudio.com/products/rstudio/download/>

Mac OS X:

- a) Install **R 3.6.3** (R-3.6.3.pkg for Catalina OS and R-3.6.3.nn.pkg for other versions):
<https://cran.r-project.org/bin/macosx/>
- b) Install **Git**: <https://git-scm.com/downloads>
- c) Install **RStudio**: <https://rstudio.com/products/rstudio/download/>

If you're running a Linux distribution, installing R, Git, and RStudio should be enough. In case of troubles, please contact course personnel and we'll help you.

3. Completing the pre-assignment

To get started with the pre-assignment, please see the videos below on how to get going.

The first video demonstrates how to connect to Aalto VDI (Aalto virtual desktop infrastructure). Even if you are planning to use your own computer, it's good to watch through since it provides an easily accessible graphical way of accessing your Aalto filesystem and software.

There are two addresses to connect to VDI:

<https://vdi.aalto.fi/> and
<https://mfavdi.aalto.fi/>

The difference between these is that vdi.aalto.fi connects to virtual computers and mfavdi.aalto.fi connects to physical classroom computers. There's more computing power available on mfavdi.aalto.fi, so it's the recommended service to use. However, it requires a two-step authentication process from the user with Aalto credentials and your choice of the second authentication step (either Microsoft Authenticator app or text message).

[Video: Connecting to VDI](#)

The second video demonstrates how to set up a project from Aalto version control system that is used in distributing the exercise code. This step is equal in VDI and your own computer (requires Git to be installed). The repository address is given below:

<https://version.aalto.fi/gitlab/wdrg/wp-course-2020/>

[Video: Setting up the project](#)

The third video demonstrates how to write and run code in rmd (R-markdown) files that will be used throughout the course. Instructions on what to do in the pre-assignment are attached to the code. Please read and run the code chunk by chunk and compose the plots to be returned. In addition, there's a video on customizing RStudio; you should watch it and

disable console hiding when running chunks, at least. After doing that, return to these instructions and watch the remaining videos.

[Video: Getting started with the pre-assignment](#)

[Video: Customizing RStudio](#)

Next, there's a **short introduction video on doing the package check on your own computer**. If you're missing some packages, this video will guide how to install those. It is recommended to have a new version of RStudio to enable a handy feature in it. In addition, if you already have an environment set up in your computer, it is advisable to update packages as instructed in the video.

[Video: Doing package check and update on home computer](#)

The sixth and final video demonstrates how to create a *commit* after a working session in RStudio. The commit can be considered as a "checkpoint" that is required to be saved each week before a new exercise is released.

[Video: Finishing up the pre-assignment with a commit](#)

4. Additional instructions

Here are some additional videos that can be helpful when working with the pre-assignment. First, there's a **short video on working with VDI and on how the connection is maintained**.

[Video: Working with the VDI](#)

Finally, **there are a couple of practical ways of moving files between the Aalto file system and your local machine**. This can be useful if you want to do some parts of your work in the VDI but some others with your own computer.

[Video: Moving files between VDI and your local machine](#)

5. Getting help

As mentioned, **the goal of the pre-assignment is to set up the computing environment ready for everyone before the first exercise** – be it in Aalto VDI or on your own computers. If you get stuck with the instructions and can't get something to work, we'll help you. We will host two timeslots during which we can set up individual meetings with you via Zoom and resolve issues.

It is expected that Aalto VDI should be easier to set up and get running than your own computers. However, the benefits of using your own computers are obvious and therefore we can provide assistance also in setting up the environment in your own devices.

Help session timeslots:

Thursday, April 9th from 14:00 to 16:30

Tuesday, April 14th from 9:00 to 11:00

To set up an individual meeting to resolve installation and startup issues, please send an e-mail to Vili Virkki: vili.virkki@aalto.fi.

We will organize the one-to-one call with everyone that would need help and time taken to resolve them. You can propose your preferred time of call within these timeslots, if needed.