Setting up R and RStudio

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Table of contents

This document outlines the steps required to set up our reproducible workflow. Section provides an overview of installing R, RStudio, and required packages. These steps are required. Section describes how to install TinyTex, which is required to render LaTeX-style documents (i.e., PDFs) in R.

Section provides tips on installing Zotero and related addins for integrations with R and RStudio. This is optional, and slightly more advanced.

R and RStudio

Download R here.

Download RStudio here.

You must first download R, then RStudio.

Packages

R packages available on the Comprehensive R Archive Network, commonly known as CRAN repository, can be easily installed using the command `isntall.packages("packageName")`. Some packages we will be needing are:

- `here` package
- `tidyverse` family of packages

  - will automatically include packages we need, like `dplyr` and `ggplot2`

To download multiple packages at once, use the 'concatenate' function in r (`c()`) inside `install.packages()`:

```r
install.packages(c("here", "tidyverse"))
```

Developer packages (optional)

Not all packages are available on CRAN. You will need to install them directly through the developer. Two packages that are commonly used to do this are `remotes` and `devools`. Let's try installing `remotes` and then installing the `rbbt`, an addin for Zotero (discussed below).

```r
if(!requireNamespace("remotes", quietly = TRUE)) install.packages("remotes")
```

```r
remotes::install_github("paleolimbot/rbbt")
```

RStudio Global options (optional)

Here are my preferred global options (RStudio > Tools > Global options). I highly recommend following the settings for 'workspace' and 'R Sessions' to ensure reproducibility. The other settings you can play around with to find what you like.

- General > Basic

  - **Workspace** (for reproducibile workflow!!!)
    - * uncheck 'Restore .RData into workshapce at startup'
    - * Save workspace to .RData on exit: ***Never***
  - **R Sessions**
    - * uncheck 'Restore previously open source documents at startup'

- Code > Display

- General
  - * Show white space characters
  - * Allow scroll past end of document
  - * highlight selected line
- Appearance
  - Editor theme: Cobalt

tinyTex

To render PDF documents with LaTeX under the hood, we need to install tinytex. There are different ways to do this:

- run the following in the *terminal*: `quarto install tinytex`
- or in the console: `tinytex::install_tinytex()`

Zotero (optional)

Zotero is a very useful PDF reader/annotator tool that is helpful even if not integrated with R/RStudio. I suggest downloading it and reading all your PDFs in Zotero in the future. You can download Zotero here: https://www.zotero.org/download/

`rbbts:` Citations with Zotero

There is a Zotero addin for RStudio that allows you to directly read-in your citations. To use the `rbbt` package installed above, we need to have Zotero installed (and Better BibTex).

```
# Install rbbt Addin from GitHub to use Zotero
remotes::install_github("paleolimbot/rbbt")
```

To set-up a citation entry shortcut: RStudio > Tools > Modify Keyboard Shortcuts > enter 'Zotero' in the search > choose 'Insert Zotero Citations' > add a shortcut (I like Ctrl+K)

Better BibTex

Install from the website.

- then in Zotero: Tools > Add-ins > Settings wheel > choose downloaded file > Restart Zotero

- set your citation keys: Zotero > Settings > Better BibTex > Citation key formula > (I like "zotero.clean")

    - if you need to update the BibTex key in your docs:
        * highlight all your files in the Zotero Library, right-click > Better BibTex > Refresh BibTex key