

R installation

Data Management
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Osaka U

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Outline

- What is R?
- Install R
- Install RStudio
- How to use RStudio
- Update R
- Update RStudio

What is R?

- R is an implementation of the S programming language
- Good for statistical computation. It's free!
- Many packages are available at Comprehensive R Archive Network ([CRAN](#))

Install R



CRAN

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The Comprehensive R Archive Network

Download and Install R

Precompiled binary distributions of the base system and contributed packages, **Windows and Mac** users most likely want one of these versions of R:

- [Download R for Linux](#)
- [Download R for \(Mac\) OS X](#)
- [Download R for Windows](#)

R is part of many Linux distributions, you should check with your Linux package management system in addition to the link above.

Source Code for all Platforms

Windows and Mac users most likely want to download the precompiled binaries listed in the upper box, not the source code. The sources have to be compiled before you can use them. If you do not know what this means, you probably do not want to do it!

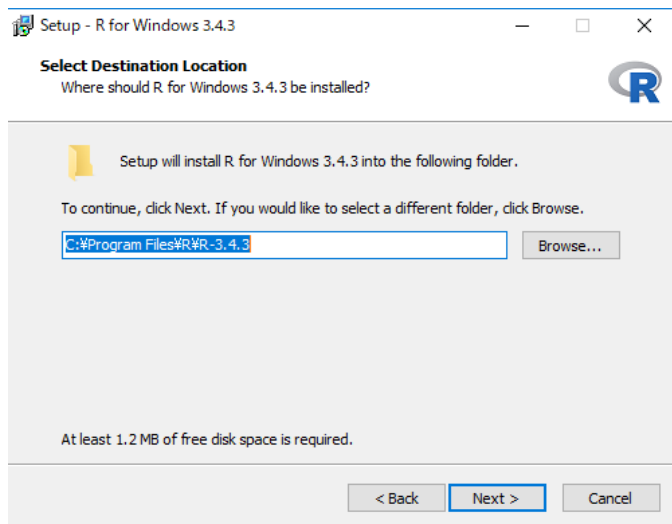
- The latest release (2017-11-30, Kite-Eating Tree) [R-3.4.3.tar.gz](#), read [what's new](#) in the latest version.
- Sources of [R alpha and beta releases](#) (daily snapshots, created only in time periods before a planned release).
- Daily snapshots of current patched and development versions are [available here](#). Please read about [new features and bug fixes](#) before filing corresponding feature requests or bug reports.
- Source code of older versions of R is [available here](#).
- Contributed extension [packages](#)

Questions About R

- If you have questions about R like how to download and install the software, or what the license terms are, please read our [answers to frequently asked questions](#) before you send an email.

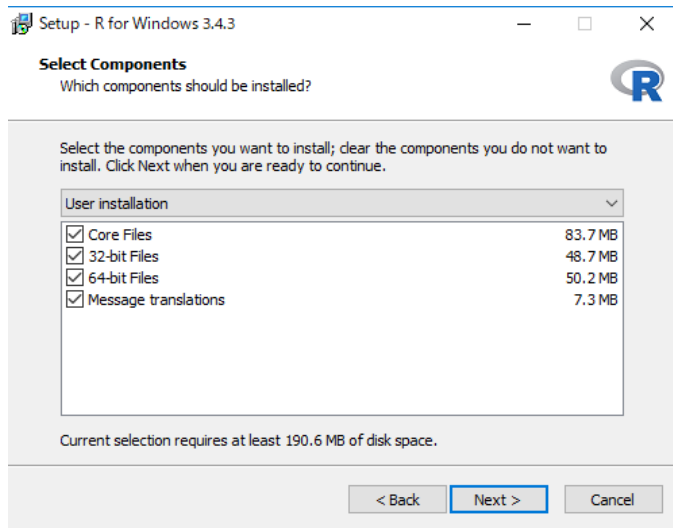
Go to [CRAN](#) → Download & Install

Install R (cont)



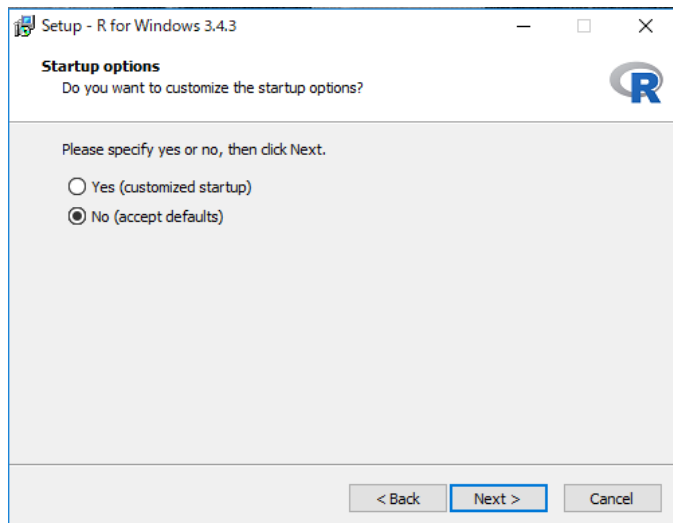
Click Next. Please remember the location where you install R

Install R (cont)



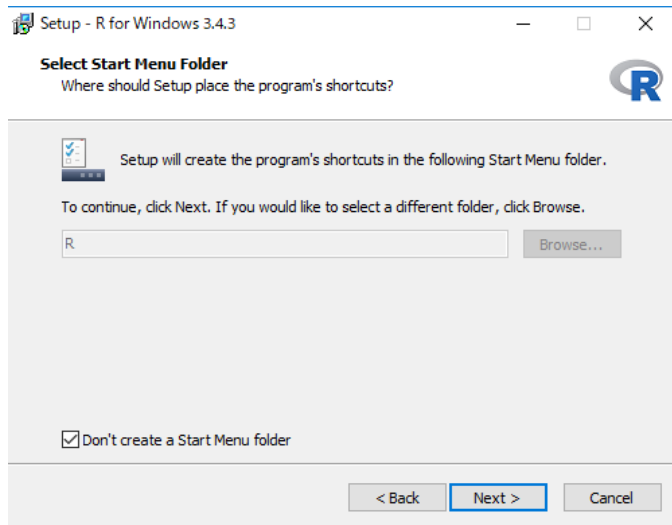
Click Next

Install R (cont)



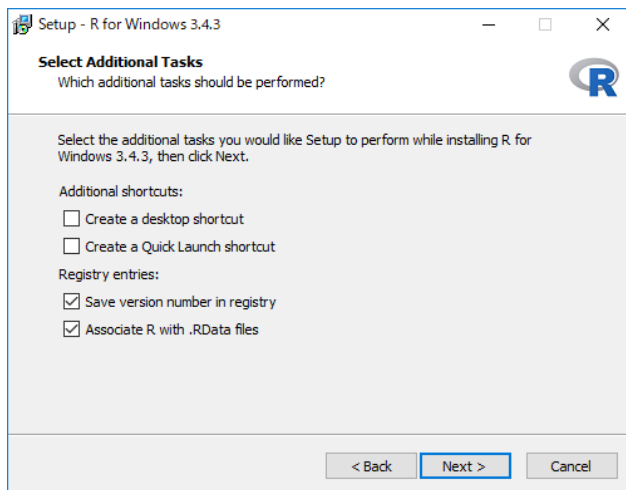
Click Next

Install R (cont)



Create a Start Menu folder? → It's up to you

Install R (cont)

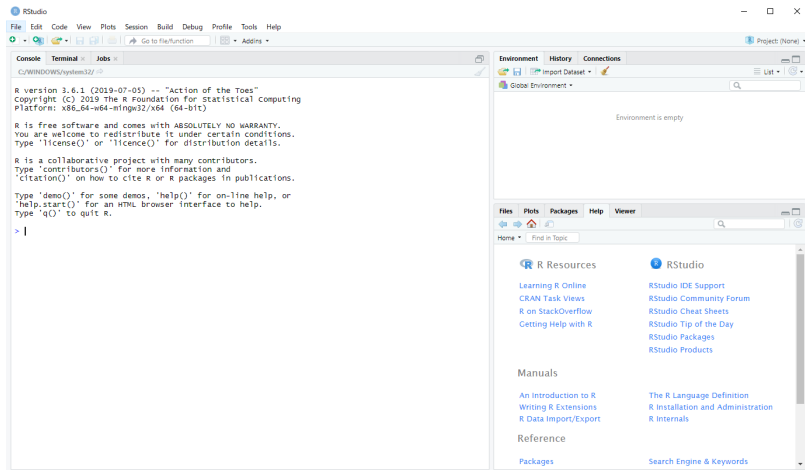


Make sure that both entries at the bottom are checked. Create a shortcut? →
It's up to you

Install RStudio

- RStudio is open software for using R on your computer
- It allows you to easily plot figures, browse data, etc.
- Download a relevant installer from [RStudio Desktop](#) and install it

How to use RStudio



- Write your code directly in Console or write an R script and run it
- Data, help files, and outputs (e.g., figures) show up on the right-hand side of the screen

How to use RStudio (cont)

- Let's run an R script in RStudio
- Click the plus sign at the top of the screen (left one). Choose "R Script". This creates a new R script
- In the script, type:

```
hp <- mtcars$hp  
mpg <- mtcars$mpg  
plot(hp, mpg)
```

- To run the entire script, press "Ctrl + Shift + Enter" or press the "Source" or "Source with Echo" button
 - "Source with Echo" shows outputs in console while "Source" does not
- To run part of the script, select only lines that you want to execute, then press "Ctrl + Enter" or press the "Run" button

Import Packages

- To import a package (e.g. `ggplot2`), run the code like this:

```
install.packages("ggplot2", repos="https://cran.ism.ac.jp/")
```

- If you encounter a warning message like: "Warning in install.packages : cannot remove prior installation of package xxx"
 1. Close all R-related software
 2. Go to Document → R → win-library → the newest version (e.g. 4.0)
 3. Delete the old version of `ggplot2` manually
 4. Open R again and try installing the same package

Update R

- Go to the folder where you have installed R (e.g., C:/Program Files/R/R-3.6.1)
- Go to bin/x64 (for Win 64bit version)
- Double-click Rgui.exe
- Type the following lines one-by-one:

```
install.packages("installr", repos="https://cran.ism.ac.jp/")  
library(installr)  
updateR()
```

Update RStudio

- To update RStudio, you have to download an installer and go through the same install process again!
- Launch RStudio
- Click “Help”, then “Check for Updates”
- If there is an updated version, download a relevant installer and install RStudio again

References: R

Online sources:

- The R Graph gallery ([web](#))
- #rstat community on Twitter
- R-Ladies ([English](#))
- Online tutorial services (most of them are not free)
 - E.g. DataCamp

Books:

- *R for Data Science* ([web](#))
- *Hands-On Machine Learning with R* ([web](#))