

RStudio

John Muschelli

January 4, 2016

RStudio

- ▶ “RStudio is an integrated development environment (IDE) for R.”
- ▶ It helps the user use R.
- ▶ R, in essence is just the a console that takes commands from you typing into it
- ▶ Is NOT dropdown statistical tools (such as Stata)
- ▶ Snapshots taken from
<http://ayeimanol-r.net/2013/04/21/289/>

RStudio/R Console

The screenshot shows the RStudio interface with the R Console window active. The console displays the R startup message, which is circled by a large black oval. The message includes the R version (3.0.0), copyright information, and instructions on how to use R. The RStudio window also shows the Workspace and History panes on the right, and the Files, Plots, Packages, and Help panes at the bottom right.

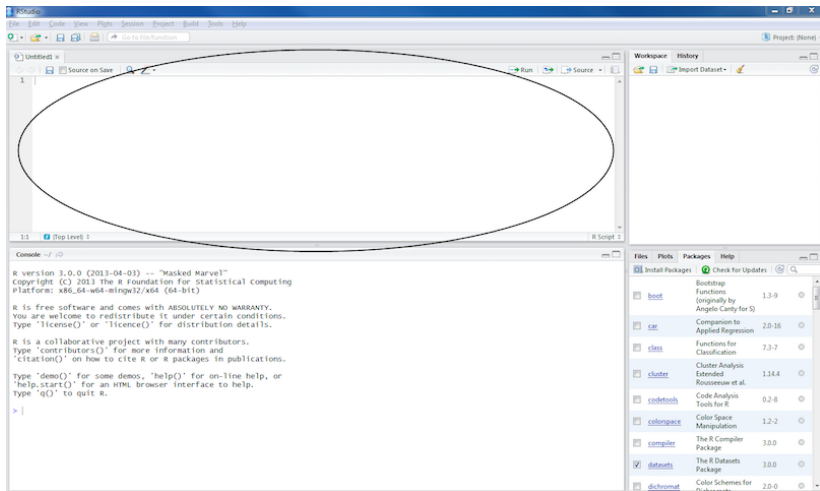
```
R version 3.0.0 (2015-04-03) -- "Masked Marvel"  
Copyright (C) 2015 The R Foundation for Statistical Computing  
Platform: x86_64-w64-mingw32/x64 (64-bit)  
  
R is free software and comes with ABSOLUTELY NO WARRANTY.  
You are welcome to redistribute it under certain conditions.  
Type 'license()' or 'licence()' for distribution details.  
  
R is a collaborative project with many contributors.  
Type 'contributors()' for more information and  
'citation()' on how to cite R or R packages in publications.  
  
Type 'demo()' for some demos, 'help()' for on-line help, or  
'help.start()' for an HTML browser interface to help.  
Type 'q()' to quit R.  
  
> |
```

Files	Plots	Packages	Help
<input type="checkbox"/> install.packages()	<input type="checkbox"/> checkForUpdates()	<input type="checkbox"/> install.packages()	<input type="checkbox"/> checkForUpdates()
<input type="checkbox"/> boot	<input type="checkbox"/> boot	<input type="checkbox"/> boot	<input type="checkbox"/> boot
<input type="checkbox"/> car	<input type="checkbox"/> car	<input type="checkbox"/> car	<input type="checkbox"/> car
<input type="checkbox"/> class	<input type="checkbox"/> class	<input type="checkbox"/> class	<input type="checkbox"/> class
<input type="checkbox"/> cluster	<input type="checkbox"/> cluster	<input type="checkbox"/> cluster	<input type="checkbox"/> cluster
<input type="checkbox"/> codetools	<input type="checkbox"/> codetools	<input type="checkbox"/> codetools	<input type="checkbox"/> codetools
<input type="checkbox"/> colorspace	<input type="checkbox"/> colorspace	<input type="checkbox"/> colorspace	<input type="checkbox"/> colorspace
<input type="checkbox"/> compiler	<input type="checkbox"/> compiler	<input type="checkbox"/> compiler	<input type="checkbox"/> compiler
<input checked="" type="checkbox"/> datasets	<input checked="" type="checkbox"/> datasets	<input checked="" type="checkbox"/> datasets	<input checked="" type="checkbox"/> datasets
<input type="checkbox"/> dichromat	<input type="checkbox"/> dichromat	<input type="checkbox"/> dichromat	<input type="checkbox"/> dichromat

RStudio/R Console

- ▶ Where code is executed (where things happen)
- ▶ You can type here for things interactively
- ▶ Code is **not saved** on your disk

Script/Editor



R version 3.0.0 (2013-04-03) -- "Masked Marvel"
Copyright (c) 2013 The R Foundation for Statistical Computing
Platform: x86_64-w64-mingw32/x64 (64-bit)

R is free software and comes with ABSOLUTELY NO WARRANTY.
You are welcome to redistribute it under certain conditions.
Type 'license()' or 'licence()' for distribution details.

R is a collaborative project with many contributors.
Type 'contributors()' for more information and
'citation()' on how to cite R or R packages in publications.

Type 'demo()' for some demos, 'help()' for on-line help, or
'help.start()' for an HTML browser interface to help.
Type 'q()' to quit R.

> |

Workspace History

Files Plots Packages Help

Install Packages Check for Updates

Package	Version	Update
boot	1.3-9	⊙
car	2.0-16	⊙
class	7.3-7	⊙
cluster	1.14.4	⊙
codetools	0.2-8	⊙
colspace	1.2-2	⊙
compiler	3.0.0	⊙
datasets	3.0.0	⊙
dichromat	2.0-0	⊙

RStudio/R Script/Rmarkdown files

- ▶ Where files open to
- ▶ Have R code and comments in them
- ▶ Can highlight and press (CMD+Enter (Mac) or Ctrl+Enter (Windows)) to run the code
- ▶ Code is saved on your disk

Workspace/Environment

The screenshot displays the RStudio interface with three main panels:

- Source Editor:** Contains R code for loading packages and creating a plot. Lines 19 and 20 are highlighted:

```
p <- ggplot(mtcars, aes(wt, mpg))  
p + geom_point()
```
- Console:** Shows the execution of the code, including package attachment messages and the final plot command:

```
> p <- ggplot(mtcars, aes(wt, mpg))  
> p + geom_point()  
>
```
- Workspace/History:** A panel on the right showing the current environment. It contains a table with one row:

Values
gg[9]

. This panel is circled in the image.
- Plots:** A scatter plot titled 'mpg' vs 'wt' is shown in the bottom right. The x-axis is labeled 'wt' and ranges from 2 to 5. The y-axis is labeled 'mpg' and ranges from 10 to 35. The plot shows a negative correlation between weight and miles per gallon.

Workspace/Environment

Workspace/Environment

- ▶ Tells you what **objects** are in R
- ▶ What exists in memory

History

- ▶ Shows previous commands. Good to look at for debugging, but **don't rely** on it as a script. Make a script!

Other Panes

- ▶ **Files** - shows the files on your computer of the directory you are working in
- ▶ **Viewer** - can view data or R objects
- ▶ **Help** - shows help of R commands
- ▶ **Plots** - pretty pictures

Other Panes - packages

- ▶ **Packages** - list of R packages that are loaded in memory
 - ▶ Packages are a set of functions written by R users
 - ▶ We write packages - some are good, some are not so good
- ▶ Think of them as “R Extensions”
- ▶ If they extend R, when you download R from CRAN, we (and others) refer to things as “base R”
 - ▶ We will show you how to do some things in base R, but also show you some newer (and more intuitive) ways to do things
 - ▶ You need base R, however, because when you Google for answers, they are commonly answered without any additional packages.

Hadey Wickham

- ▶ Previous Assistant Professor of Statistics at Rice University
- ▶ Writes many R packages
- ▶ One authority on all things R
- ▶ Employee and Developer at RStudio
- ▶ I (John) trust almost all his packages
 - ▶ How to trust an R package:
<http://simplystatistics.org/2015/11/06/how-i-decide-when-to-trust-an-r-package/>