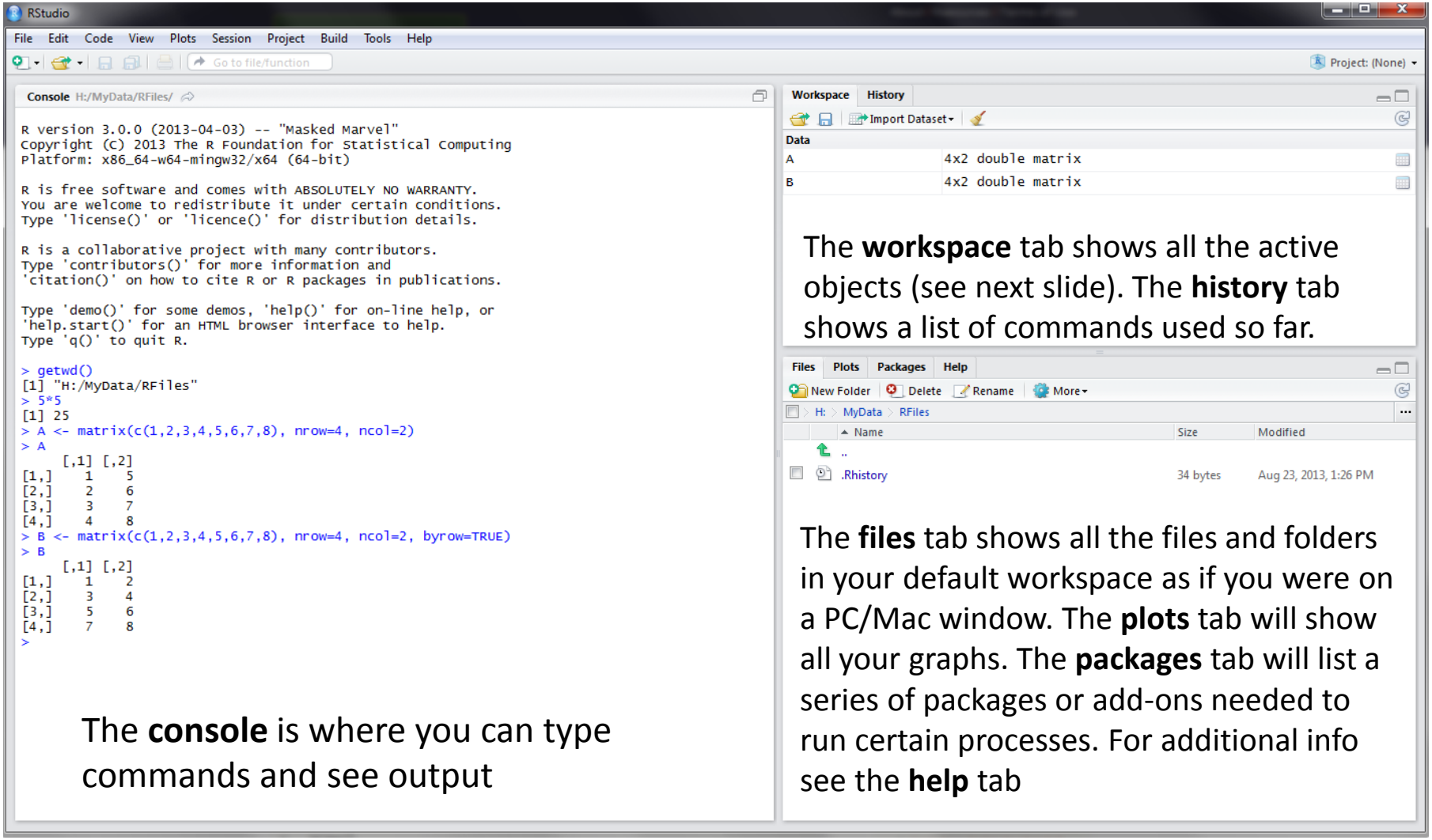
RStudio screen



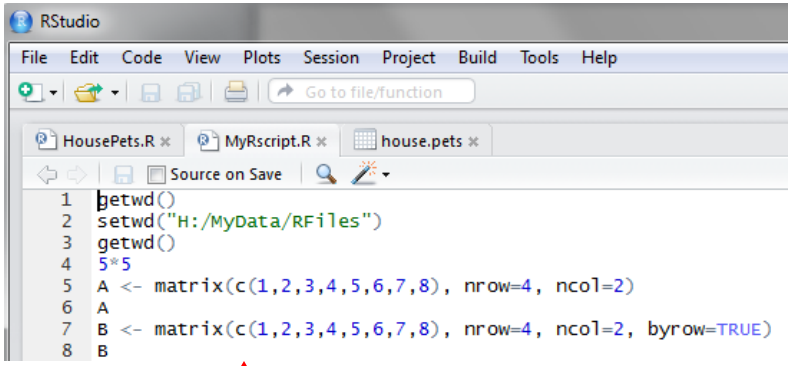
The **workspace** tab shows all the active objects (see next slide). The **history** tab shows a list of commands used so far.

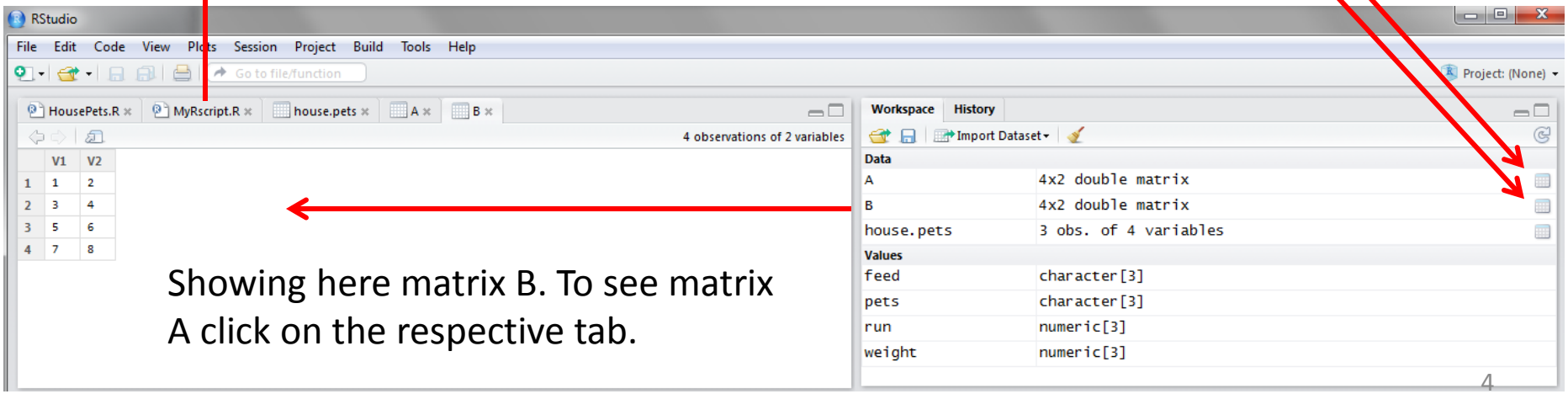
The **files** tab shows all the files and folders in your default workspace as if you were on a PC/Mac window. The **plots** tab will show all your graphs. The **packages** tab will list a series of packages or add-ons needed to run certain processes. For additional info see the **help** tab

The **console** is where you can type commands and see output

Workspace tab (1)

The workspace tab stores any object, value, function or anything you create during your R session. In the example below, if you click on the dotted squares you can see the data on a screen to the left.

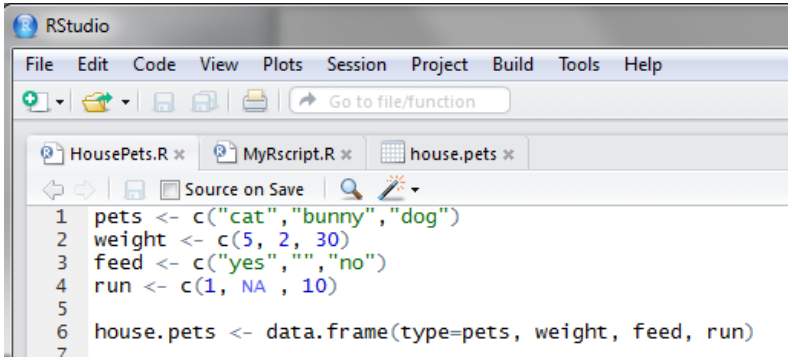




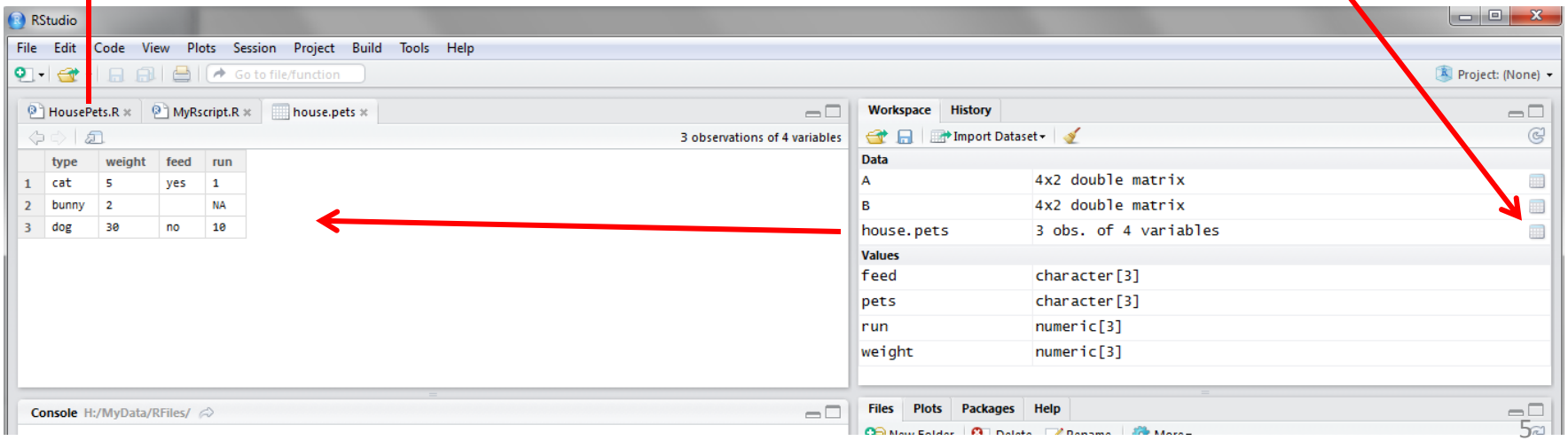
Showing here matrix B. To see matrix A click on the respective tab.

Workspace tab (2)

Here is another example on how the workspace looks like when more objects are added. Notice that the data frame `house.pets` is formed from different individual values or vectors.

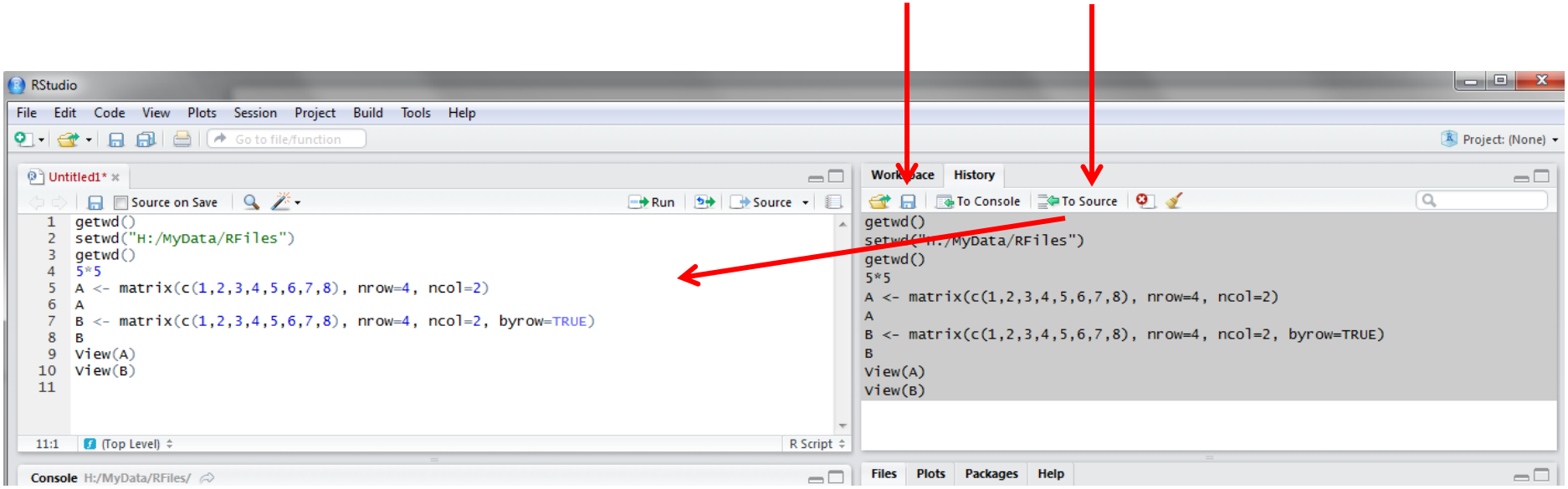


Click on the dotted square to look at the dataset in a spreadsheet form.

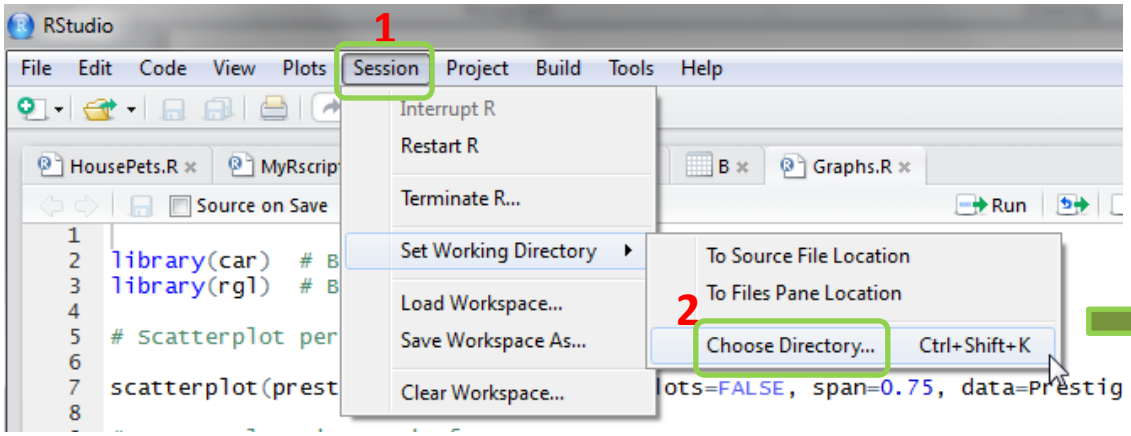


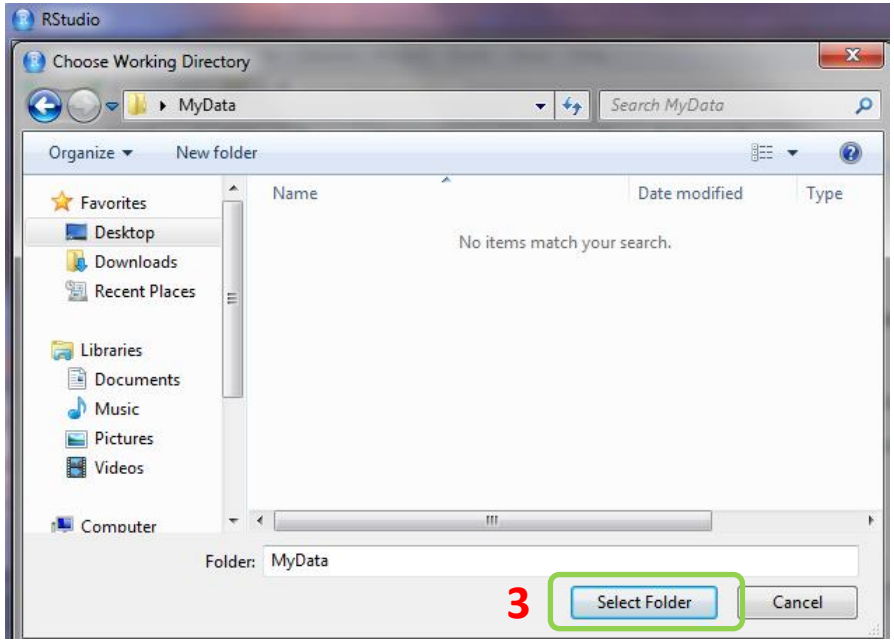
History tab

The history tab keeps a record of all previous commands. It helps when testing and running processes. Here you can either **save** the whole list or you can **select** the commands you want and send them to an R script to keep track of your work.
In this example, we select all and click on the "`To Source`" icon, a window on the left will open with the list of commands. Make sure to save the 'untitled1' file as an *.R script.



Changing the working directory



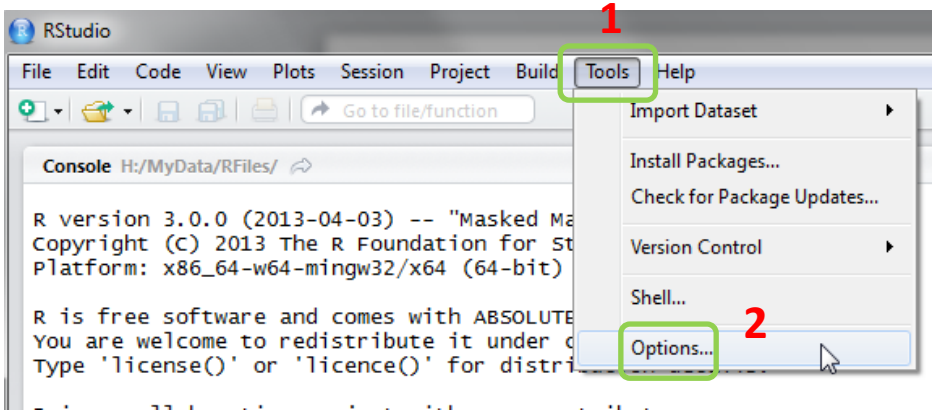


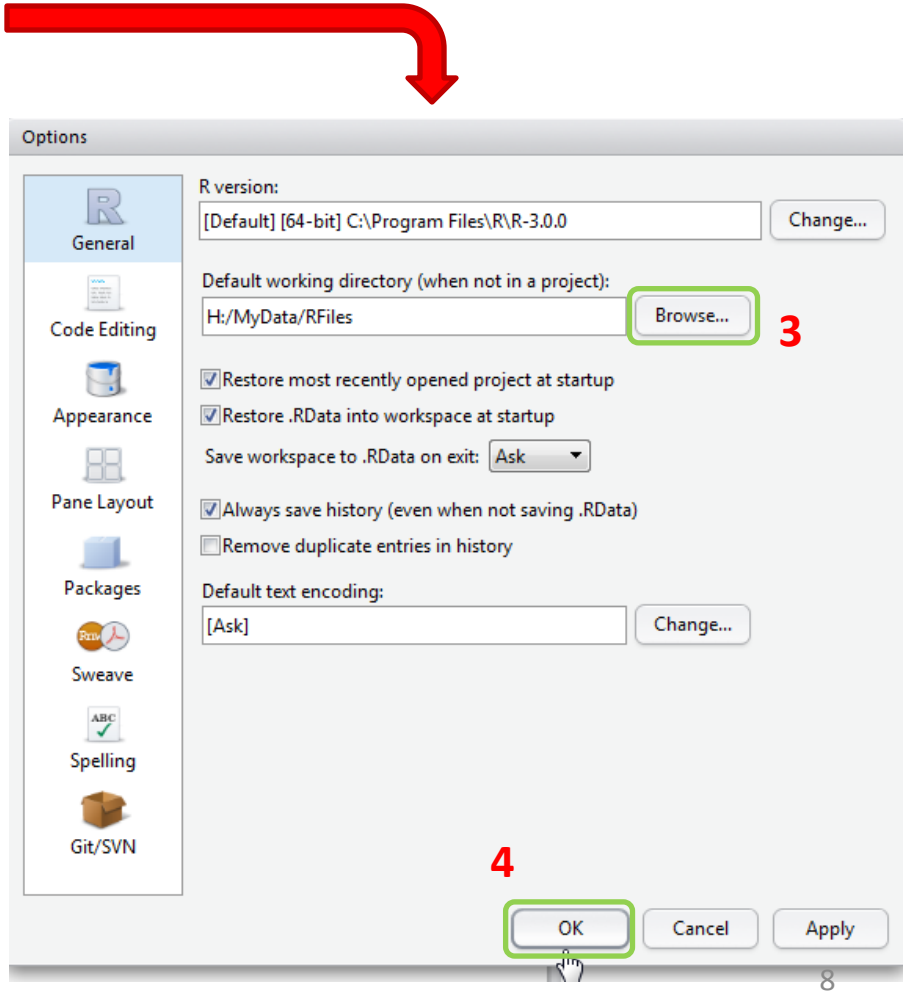
If you have different projects you can change the working directory for that session, see above. Or you can type:

```
# Shows the working directory (wd)

getwd()

# Changes the wd

setwd("C:/myfolder/data")
```

More info see the following document:
http://dss.princeton.edu/training/RStata.pdf

Setting a default working directory





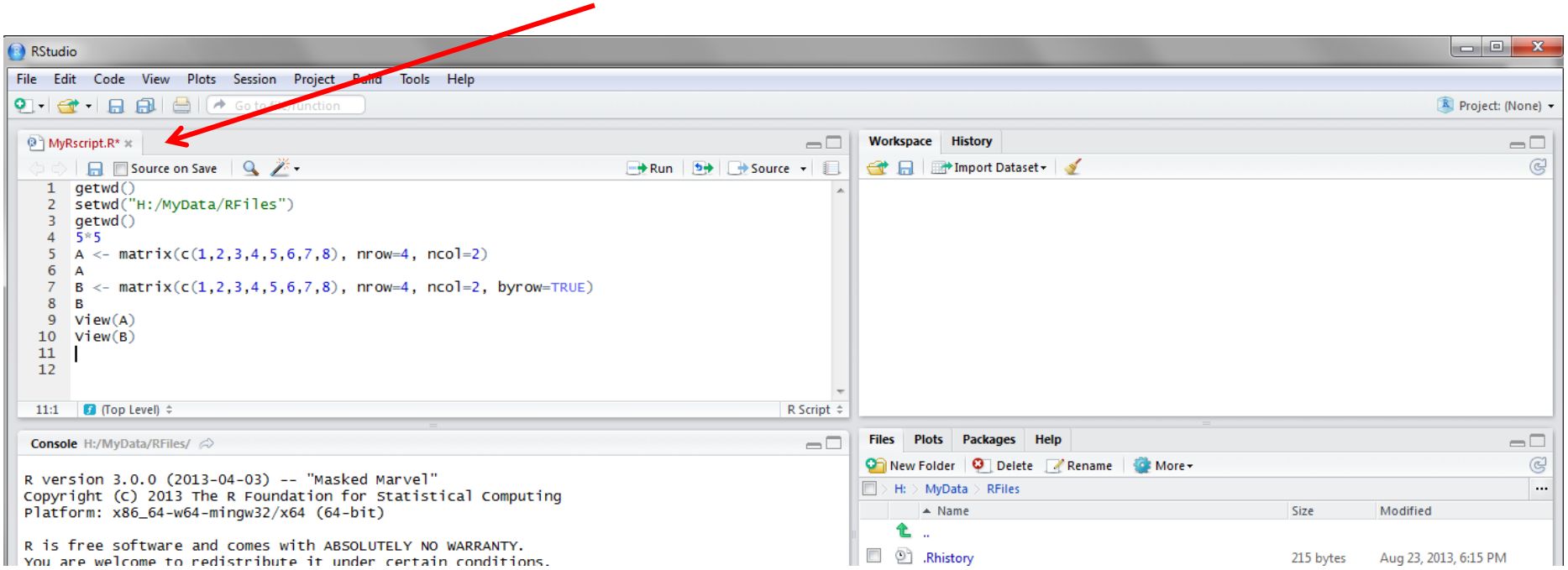
Every time you open RStudio, it goes to a default directory. You can change the default to a folder where you have your datafiles so you do not have to do it every time. In the menu go to Tools->Options

R script (1)

The usual Rstudio screen has four windows:

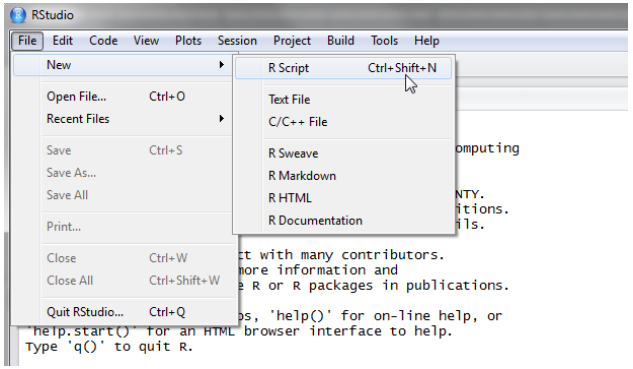
1. Console.
2. Workspace and history.
3. Files, plots, packages and help.
4. The R script(s) and data view.

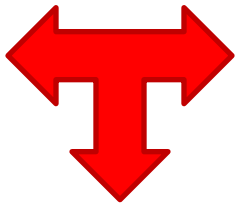
The R script is where you keep a record of your work. For Stata users this would be like the do-file, for SPSS users is like the syntax and for SAS users the SAS program.

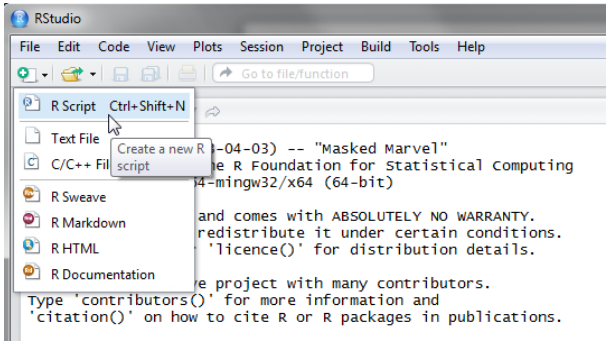


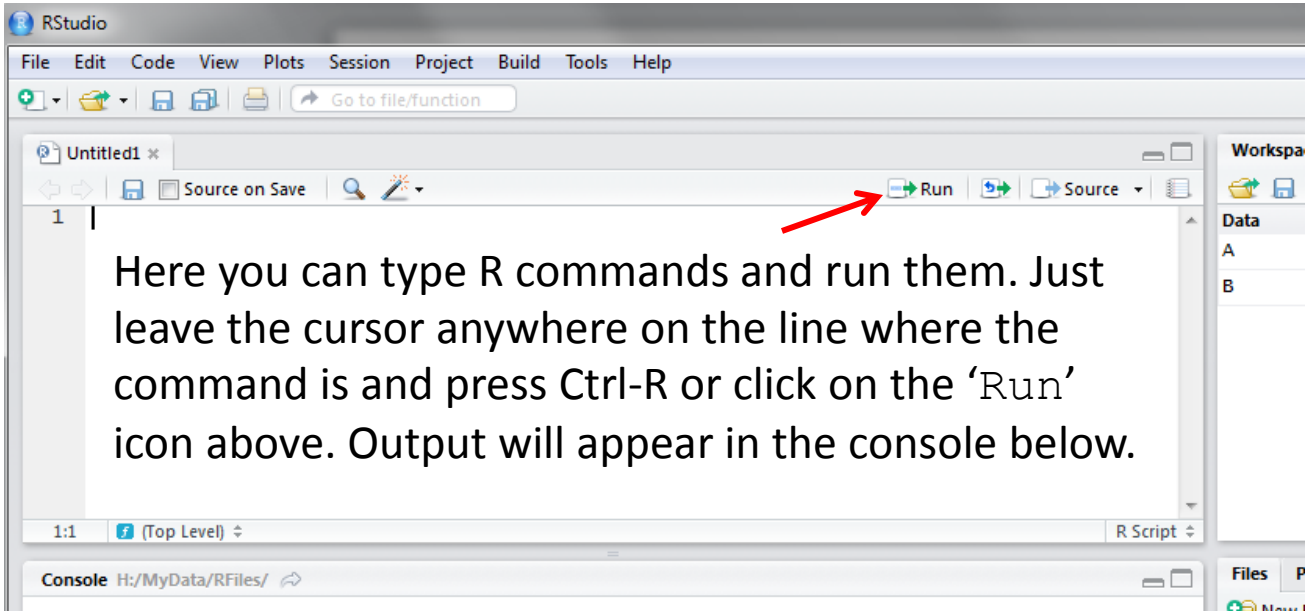
R script (2)

To create a new R script you can either go to `File -> New -> R Script`, or click on the icon with the “+” sign and select “R Script”, or simply press Ctrl+Shift+N. Make sure to save the script.



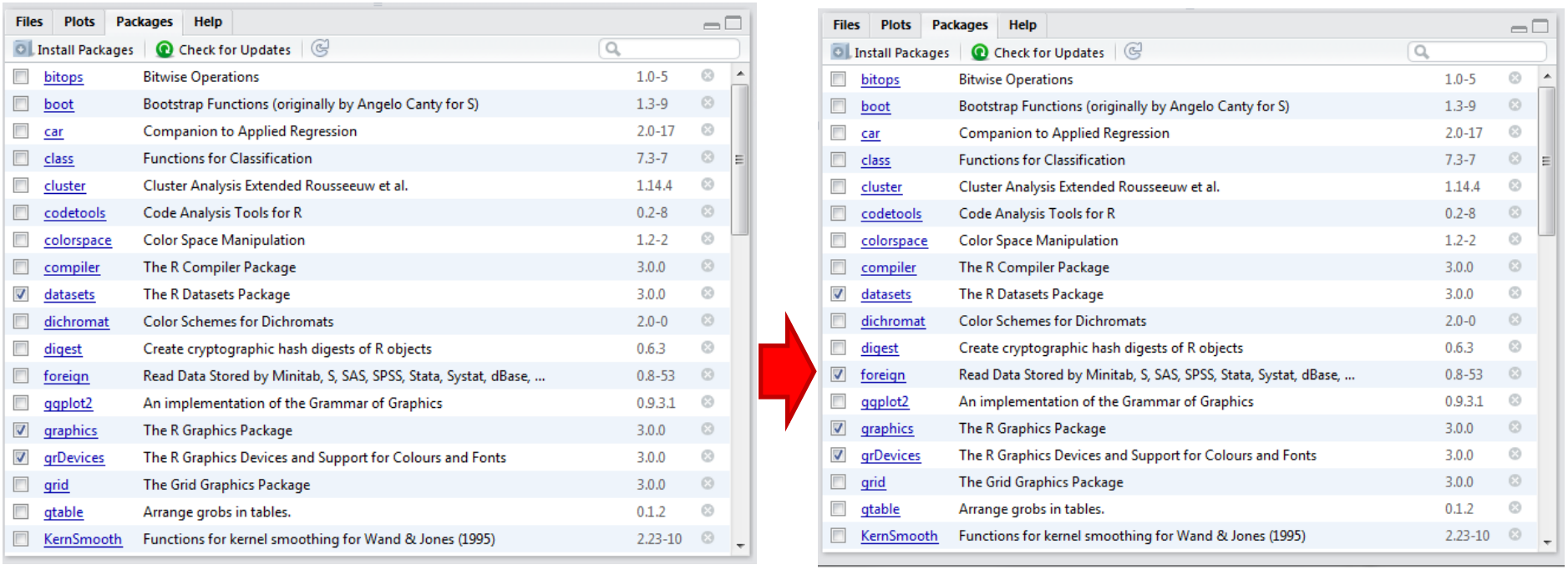




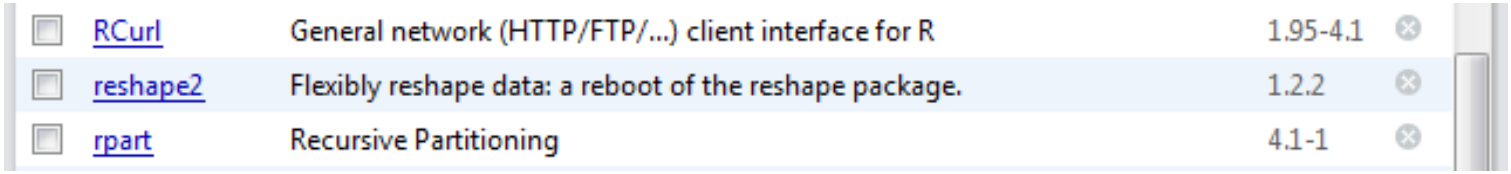


Packages tab

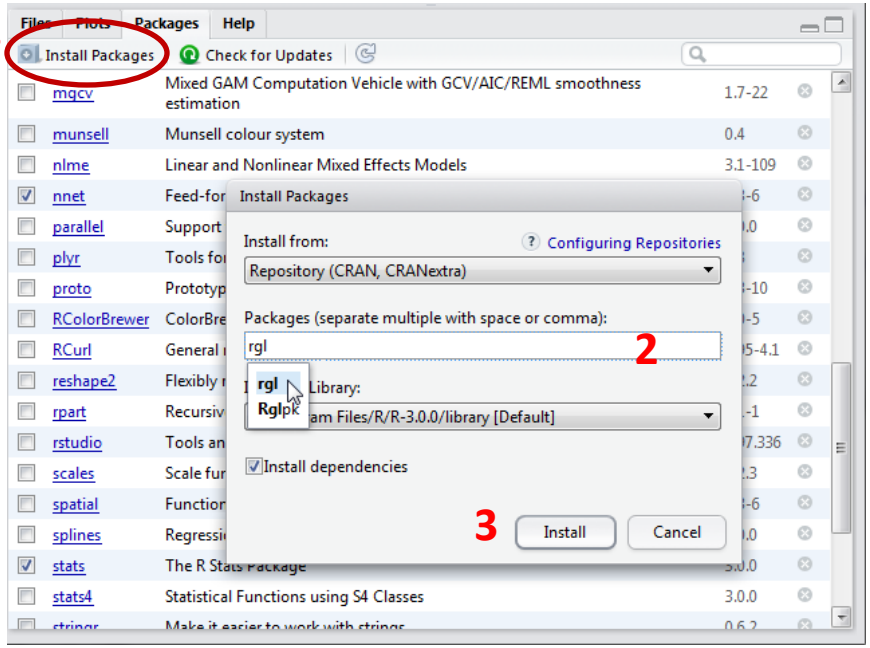
The package tab shows the list of add-ons included in the installation of RStudio. If checked, the package is loaded into R, if not, any command related to that package won't work, you will need select it. You can also install other add-ons by clicking on the 'Install Packages' icon. Another way to activate a package is by typing, for example, `library(foreign)`. This will automatically check the `--foreign` package (it helps bring data from proprietary formats like Stata, SAS or SPSS).



Installing a package

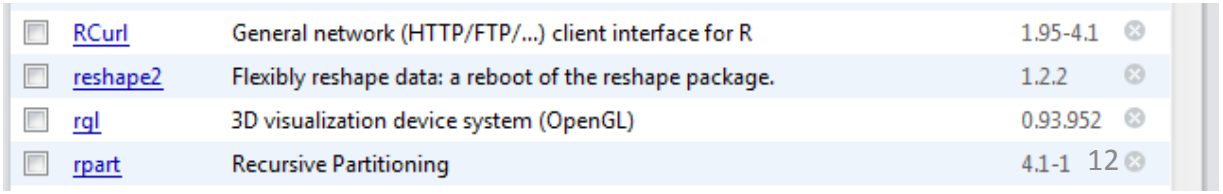


Before



We are going to install the package – `rgl` (useful to plot 3D images). It does not come with the original R install.
Click on "`Install Packages`", write the name in the pop-up window and click on "`Install`".

After



Plots tab (1)

RStudio

File Edit Code View Plots Session Project Build Tools Help

HousePets.R | MyRscript.R | house.pets | A | B | Graphs.R*

Source on Save | Run | Source

```
1
2  library(car)  # By John Fox and Sanford Weisberg
3  library(rgl)  # By Daniel Adler and Duncan Murdoch
4
5  # Scatterplot per group
6
7  scatterplot(prestige ~ income|type, boxplots=FALSE, span=0.75, data=Prestige)
8
9  # Scatterplots in matrix form
10
11 scatterplotMatrix(~ prestige + income + education, span=0.7,data=Prestige)
12
13 # 3D graph, scatter3d is from the --car package. It will open in a separate window.
14
15 scatter3d(prestige ~ income + education, id.n=3, data=Duncan)
```

11:7 (Top Level) R Script

Console H:/MyData/RFiles/

```
> scatterplot(prestige~income|type, boxplots=FALSE, span=0.75, data=Prestige)
>
```

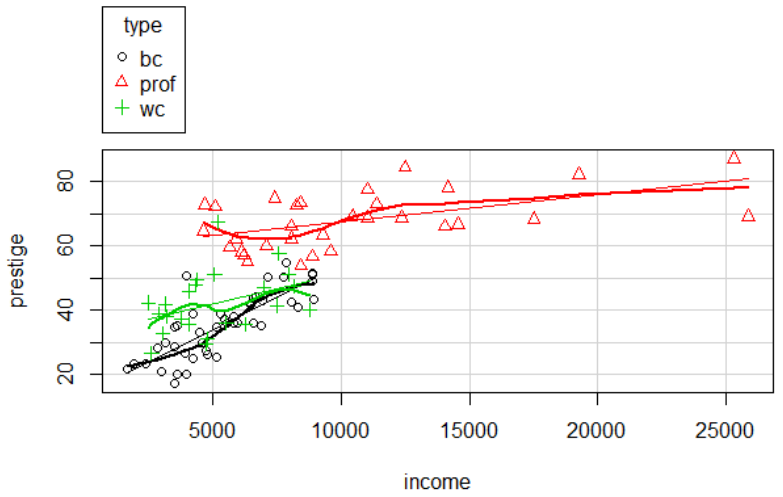
Workspace | History

Import Dataset

Data	
A	4x2 double matrix
B	4x2 double matrix
house.pets	3 obs. of 4 variables
Values	
feed	character[3]
pets	character[3]
run	numeric[3]
weight	numeric[3]

Files | Plots | Packages | Help

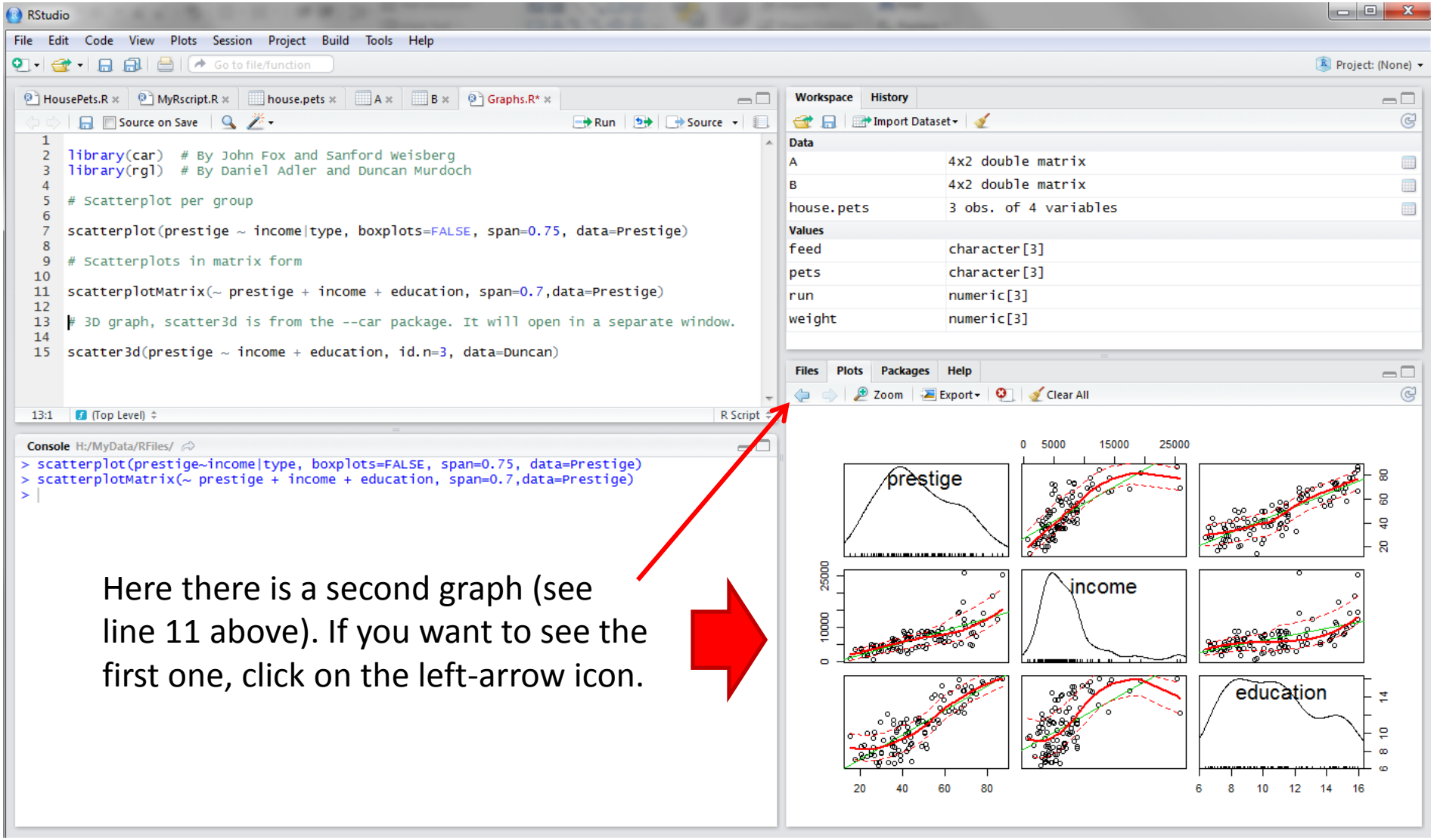
Zoom | Export | Clear All



The **plots** tab will display the graphs. The one shown here is created by the command on line 7 in the script above.

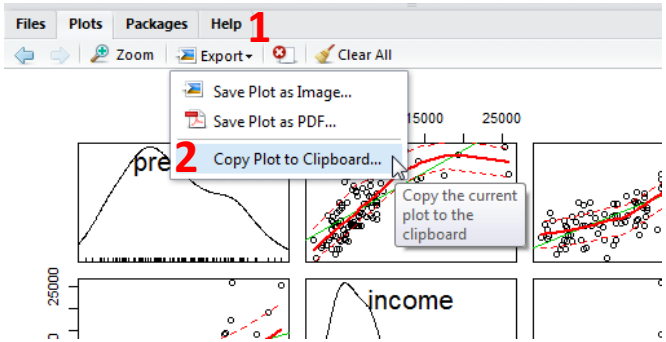
See next slide to see what happens when you have more than one graph

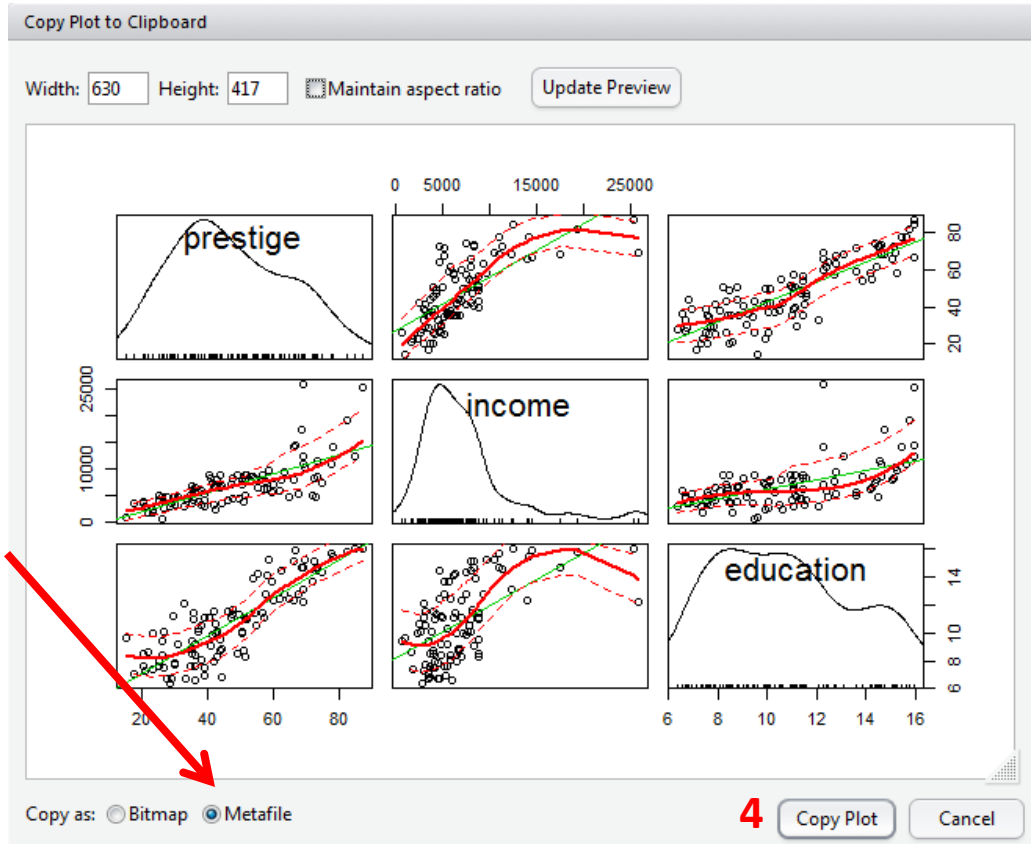
Plots tab (2)


RStudio
File Edit Code View Plots Session Project Build Tools Help
HousePets.R
MyRscript.R
house.pets
A
B
Graphs.R*
Source on Save
Run
Source
1 library(car) # By John Fox and Sanford Weisberg
2 library(rgl) # By Daniel Adler and Duncan Murdoch
3
4 # Scatterplot per group
5
6 scatterplot(prestige ~ income|type, boxplots=FALSE, span=0.75, data=Prestige)
7
8 # Scatterplots in matrix form
9
10 scatterplotMatrix(~ prestige + income + education, span=0.7,data=Prestige)
11
12 # 3D graph, scatter3d is from the --car package. It will open in a separate window.
13
14 scatter3d(prestige ~ income + education, id.n=3, data=Duncan)
13:1 (Top Level) R Script
Console H:/MyData/RFiles/
> scatterplot(prestige~income|type, boxplots=FALSE, span=0.75, data=Prestige)
> scatterplotMatrix(~ prestige + income + education, span=0.7,data=Prestige)
Workspace History
Import Dataset
Data
A 4x2 double matrix
B 4x2 double matrix
house.pets 3 obs. of 4 variables
Values
feed character[3]
pets character[3]
run numeric[3]
weight numeric[3]
Files Plots Packages Help
Zoom Export Clear All
prestige
income
education
Here there is a second graph (see line 11 above). If you want to see the first one, click on the left-arrow icon.

Plots tab (3) – Graphs export

To extract the graph, click on "`Export`" where you can save the file as an image (PNG, JPG, etc.) or as PDF, these options are useful when you only want to share the graph or use it in a LaTeX document. Probably, the easiest way to export a graph is by copying it to the clipboard and then paste it directly into your Word document.





3 Make sure to select '`Metafile`'

5 Paste it into your Word document

3D graphs

RStudio

File Edit Code View Plots Session Project Build Tools Help

HousePets.R | MyRscript.R | house.pets | A | B | Graphs.R

Source on Save | Run | Source

```
1
2  library(car)  # By John Fox and Sanford Weisberg
3  library(rgl)  # By Daniel Adler and Duncan Murdoch
4
5  # Scatterplot per group
6
7  scatterplot(prestige ~ income|type, boxplots=FALSE, span=0.75, data=Prestige)
8
9  # Scatterplots in matrix form
10
11 scatterplotMatrix(~ prestige + income + education, span=0.7,data=Prestige)
12
13 # 3D graph, scatter3d is from the --car package. It will open in a separate window.
14
15 scatter3d(prestige ~ income + education, id.n=3, data=Duncan)
```

15:1 (Top Level)

Console H:/MyData/RFiles/

```
> scatterplot(prestige~income|type, boxplots=FALSE, span=0.75, data=Prestige)
> scatterplotMatrix(~ prestige + income + education, span=0.7,data=Prestige)
> scatter3d(prestige ~ income + education, id.n=3, data=Duncan)
>
```

3D graphs will display on a separate screen (see line 15 above). You won't be able to save it, but after moving it around, once you find the angle you want, you can screenshot it and paste it to you Word document.