

# Data Output

While its nice to be able to read in a variety of data formats, it's equally important to be able to output data somewhere.

The `readr` package in the tidyverse provides data exporting functions which have the pattern `write_*` :

- `write_csv()` ,
- `write_delim()` , others.

From `write_csv()` documentation:

```
write_csv(x, file,
  na = "NA", append = FALSE,
  col_names = !append, quote_escape = "double",
  eol = "\n", path = deprecated()
)
```

# Data Output

`x` : data frame you want to write

`file` : file path where you want to R object written; it can be:

- an absolute path,
- a relative path (relative to your working directory),
- a file name only (which writes the file to your working directory)
- remember to include the file extension ( `.csv` , `.txt` , or `.tsv` )

*# Examples*

```
write_csv(dat, file = "YouthTobacco_newNames.csv")
```

```
write_delim(dat, file = "YouthTobacco_newNames.csv", delim =
",")
```

# GUT CHECK!

What does `write_csv()` do? Saves data to:

- A. R's memory
- B. A file on your hard drive
- C. A ggplot

# R binary file

`.rds` is an extension for R native file format.

`write_rds()` and `read_rds()` from `readr` package can be used to write/read a single R object to/from file.

Saving datasets in `.rds` format can save time if you have to read it back in later.

```
# write an object: a data frame "dat"
write_rds(dat, file = "yts_dataset.rds")

# write an object: vector "x"
x <- c(1, 3, 3)
write_rds(x, file = "my_vector.rds")

# read an object from file and assign to a new object named "y"
x2 <- read_rds(file = "my_vector.rds")
x2
```

```
[1] 1 3 3
```

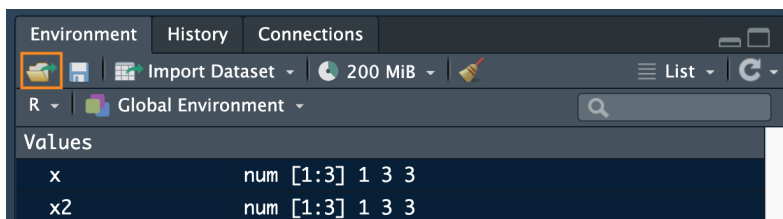
## Saving multiple objects

You may want to export a set of objects from R for later use, either to save time or to use in another R script. You can output these to an `.RData` file individually, or save your entire Environment with `save.image()`.

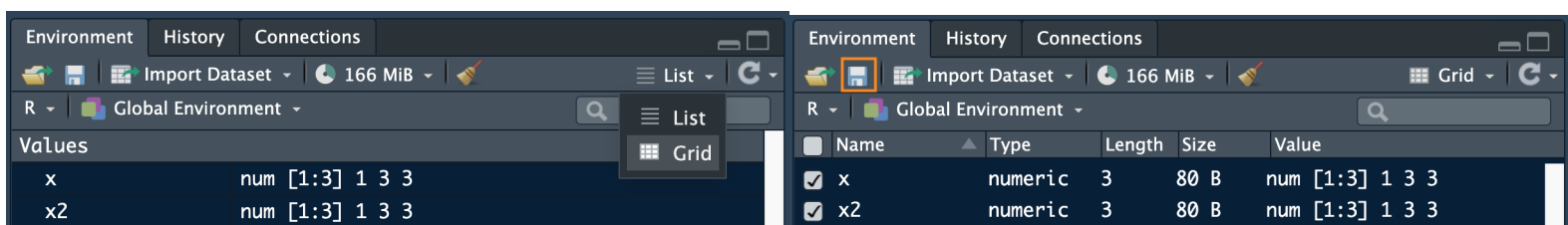
```
save(x, x2, file = "x_x2_output.RData")
save.image(file = "my_environment.RData")
```

## Using RStudio for importing/exporting data

If there is an `.rds` or `.RData` file that you want to work with, you can open it into your environment using the file icon.



Can also save your entire environment or a subset of objects in your environment to a new `.RData` file with the save icon. Click the “List” button and switch to “Grid” to select which objects to delete or keep before saving the Environment.



## REMINDER: Saving a ggplot to file

A few options:

- RStudio > Plots > Export > Save as image / Save as PDF
- RStudio > Plots > Zoom > [right mouse click on the plot] > Save image as
- In the code

```
ggsave(filename = "saved_plot.png",  # will save in working directory
        plot = rp_fac_plot,
        width = 6, height = 3.5)      # by default in inches
```

## Summary

- Use `write_csv()` and `write_delim()` from the `readr` package to write your (modified) data
- `.rds` files can be handy for saving intermediate work
- Can save environment (or subset) using `save()` and `save.image()`

## Resources & Lab

- ▢ Class Website ([https://jhudatascience.org/intro\\_to\\_r/](https://jhudatascience.org/intro_to_r/))
- ▢ Data Output Lab ([https://jhudatascience.org/intro\\_to\\_r/modules/Data\\_Output/lab/Data\\_Output\\_Lab.Rmd](https://jhudatascience.org/intro_to_r/modules/Data_Output/lab/Data_Output_Lab.Rmd))
- ▢ Posit's Data Import Cheatsheet (<https://rstudio.github.io/cheatsheets/data-import.pdf>)
- ▢ Day 2 Cheatsheet ([https://jhudatascience.org/intro\\_to\\_r/modules/cheatsheets/Day-2.pdf](https://jhudatascience.org/intro_to_r/modules/cheatsheets/Day-2.pdf))



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