Windows R Setup

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2018

Outline

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This is focused on R

- This is about installing R (R Core Team, 2017).
- And some editors that cooperate with it
    - Rstudio
    - Emacs
- It does not address
    - Rtools, the GNU-based framework that is necessary to compile R packages within Windows.
    - Other Editors that can interact with R, but have enthusiastic users, such as Eclipse, Notepad++, Gedit.

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More Complete Information is Available

- This note is an overview and walkthrough of the R for Windows setup, but full information is available on the CRMDA web pages

For Windows (which this guide concerns):
: https://crmda.ku.edu/windows-admin-tips

For Macintosh (which this guide does not concern):
: https://crmda.ku.edu/mac-admin-tips

For Linux (again, which this guide does not concern):
: https://crmda.ku.edu/linux-help

We'll create a setup aggregator page

https://crmda.ku.edu/setup

- will be the permanent "top level".
- The slides you see now are from CRMDA Guide 46, "Windows R Setup", and the home address for that will be (after it is uploaded)
  https://crmda.ku.edu/guides-46-windows_r_setup

Do I think Windows is *Not Very Good*?

- Probably *Yes*.
- It is more-and-more difficult to use as a scientific research platform.
  - Settings are either concealed or made unavailable to users.
  - Defaults are set for people who don't know anything about computing (e.g., file paths, file names)
- The CRMDA Windows help page has several tips

The Single, most Important, OS config change

- TURN OFF "hide extensions of known file types" in the file manager (Windows Explorer).

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Downloads

In a Web Browser near you, Get R

R The R homepage is http://r-project.org. Everybody who uses R should visit that page

  - but use our server, http://rweb.crmda.ku.edu/cran

Software downloads

- Browse to http://rweb.crmda.ku.edu/cran
- Click "Download R for Windows", choose "base", then download a file. It will have a name like "R-3.4.3-win.exe".

Download Editors

Rstudio is an Editor and Graphical Interface that sits "on top" of R. Visit
         http://www.rstudio.com, choose Download Rstudio, look for the Free
         RStudio Desktop license. At the bottom of the screen, look for the latest and
         greatest, which today is RStudio-1.1.383.exe.

- Rstudio has some special (seemingly-always-under-development) features that require 3rd
  party software, such as Pandoc, and the Rstudio distribution includes those things. This
  sometimes causes conflicts for systems that already have those other things installed.

  Emacs Visit Professor Vincent Goulet's Emacs website,
         https://vigou3.github.io/emacs-modified-windows where versions for
         Windows and Macintosh can be obtained.

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Install R, but be cautious

- In File Manager, Right-click the R installer file and choose "Run As Administrator"
- Install in "C:\Program Files\R", NOT "C:\Program Files\R\R-3.3.1"
- Add R's bin directory to the system path (Control Panel, System, Advanced, Environment)

See What Is Installed

- R's Icon should appear on the desktop or in the program menu.
- Launch it, test the editor for scripts

Prove that R works

Obtain output from the `sessionInfo()` function.

```
1  sessionInfo ()
```

```
1  R version 3.4.3 (2017 -11 -30)
2  Platform : x86_64 -pc - linux - gnu (64 - bit )
3  Running under : Ubuntu 17.10
4
5  Matrix products : default
6  BLAS : / usr /lib / x86_64 - linux - gnu / blas / libblas . so .3.7.1
7  LAPACK : / usr /lib / x86_64 - linux - gnu / lapack / liblapack . so .3.7.1
8
9  locale :
10  [1] LC_CTYPE = en_US . UTF -8      LC_NUMERIC =C
11  [3] LC_TIME = en_US . UTF -8       LC_COLLATE = en_US . UTF -8
12  [5] LC_MONETARY = en_US . UTF -8   LC_MESSAGES = en_US . UTF -8
13  [7] LC_PAPER = en_US . UTF -8      LC_NAME =C
14  [9] LC_ADDRESS =C              LC_TELEPHONE =C
15  [11] LC_MEASUREMENT = en_US . UTF -8 LC_IDENTIFICATION =C
16
17  attached base packages :
```

Prove that R works ...

```
18   [1] stats      graphics  grDevices utils      datasets  base
19
20   loaded via a namespace (and not attached):
21   [1] compiler_3.4.3 tools_3.4.3
```

List the installed R packages

Run this command in the R terminal:

```
1   library ()
```

To see a list of the packages you have.

Use the `install.packages()` function to install a new package from CRAN

```
1   install.packages ("kutils")
```

Package installation questions

- If you run R "as administrator", then packages will probably be installed in "C:\Program Files\R\library".

- To update those packages, it will be necessary to run update.packages() as an administrator

- If you run R as a "regular user", you won't have permission to write in "C:\Program Files\R\library" and R will offer to create a directory in the user folder for packages.

- There are Pros and Cons for doing things as the administrator.
  - In a computer lab, where several users may log in on one machine, the administrator approach keeps everybody on the same level.

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RStudio

- Right click, Run as Admin

Be Cautious how you Launch RStudio

- Click the icon: the R working directory is not set correctly
- Suggestion: Use File manager to find an R file, then "Open With"

Outline

Emacs Install

- Right click, Run as Admin

Be Cautious how you intitialize Emacs

- If no init.el file exists, defaults may seem disappointing.
- See "Emacs has no learning curveEmacs has no learning curve", some lecture notes I prepared.
- A reasonably up-to-date init.el is generally available in http://pj.freefaculty.org/Software/favoriteEmacsFiles

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References

R Core Team (2017). *R: A Language and Environment for Statistical Computing*. R
Foundation for Statistical Computing, Vienna, Austria.

Session

```
1   sessionInfo ()
```

```
1   R version 3.4.3 (2017-11-30)
2   Platform: x86_64-pc-linux-gnu (64-bit)
3   Running under: Ubuntu 17.10
4
5   Matrix products: default
6   BLAS: /usr/lib/x86_64-linux-gnu/blas/libblas.so.3.7.1
7   LAPACK: /usr/lib/x86_64-linux-gnu/lapack/liblapack.so.3.7.1
8
9   locale:
10   [1] LC_CTYPE=en_US.UTF-8        LC_NUMERIC=C
11   [3] LC_TIME=en_US.UTF-8         LC_COLLATE=en_US.UTF-8
12   [5] LC_MONETARY=en_US.UTF-8     LC_MESSAGES=en_US.UTF-8
13   [7] LC_PAPER=en_US.UTF-8        LC_NAME=C
14   [9] LC_ADDRESS=C                LC_TELEPHONE=C
15   [11] LC_MEASUREMENT=en_US.UTF-8 LC_IDENTIFICATION=C
16
17   attached base packages:
18   [1] stats     graphics  grDevices utils     datasets  base
19
```

Session …

```
20   loaded via a namespace (and not attached):
21   [1] compiler_3.4.3 tools_3.4.3
```