Upgrading to R 4.0.0

A worked example on Ubuntu 19.10

Dirk Eddelbuettel

What is going on?

- R 4.0.0 was released two days
- A lot of 'sturm and drang' on social media
- Sadly a lot more noise than signal
- Trying to help with a simple (yet real) example

Concrete Context

My machine(s)

- Upgrade on my laptop: about 70 mins for 500+ packages
- Now: main workstation / server with about 680 packages
- We will do this "live" *i.e.* I will record the steps
- It runs Ubuntu 19.10 so installation is from source
- It upgrades from CRAN frequently so libraries up to date etc

Beware

Your machine, your responsibility

- We are venturing into system adminstration here
- Do not follow or repeat if unsure of commands / context
- You *can* try dry-runs in Docker, a virtual machine, an old box
- *Do that!* if at all unsure
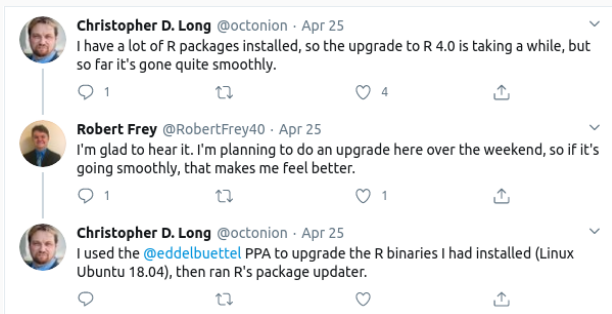- First rule: Don't brick a working system

R and its tools are *very* mature

- CRAN and R are tested *exceptionally* well
- These components work, and work with each other
- Don't fall for *Fear, Uncertainty and Doubt*
- This is not hard or impossible

This is not …

- A tutorial for use on Windows and binary packages
- A tutorial for use on data scientist laptops
- A tutorial for another random other Linux distro
- An example for using c2d4u PPA as it is not yet R 4.0.0 ready
- But it should apply where
    - R itself and key ("r-recommended") packages are binaries
    - Everything else is sources

Tweets yesterday

Christopher D. Long @octonion · Apr 25

I have a lot of R packages installed, so the upgrade to R 4.0 is taking a while, but so far it's gone quite smoothly.

💬 1   🔁   ♡ 4   ⬆️

Robert Frey @RobertFrey40 · Apr 25

I'm glad to hear it. I'm planning to do an upgrade here over the weekend, so if it's going smoothly, that makes me feel better.

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Christopher D. Long @octonion · Apr 25

I used the @eddelbuettel PPA to upgrade the R binaries I had installed (Linux Ubuntu 18.04), then ran R's package updater.

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We detail 'how'

And show it live

On Ubuntu 19.10

Key Functions

```r
available.packages() # query repos for avail. versions
installed.packages() # query what you have

update.packages()    # workhorse we will use to upgrade
install.packages()   # its cousin

options(Ncpus=parallel::detectCores()) # use all cores
```

It really is worth learning about these. Base R has all it takes to interact with repos in a controlled, planned, managed, … way. Take advantage!

Key commands

```
## Preparation: ensure OS and R pkgs are current
sudo apt update && sudo apt dist-upgrade  # OS
update.r                                   # CRAN

## Then the actual upgrade: 'r-base' .deb packages
sudo add-apt-repository --yes "ppa:edd/r-4.0"
sudo apt dist-upgrade

## R side, either Rscript or in R
Rscript -e 'upgrade.package(checkBuilt=TRUE, ask=FALSE)'
```

BioC lags R release a little

- Current BioC matches R 3.6.3
- So we need to switch to BioC 'devel'

Installation

To install this package, start R (version "4.0") and enter:

```
if (!requireNamespace("BiocManager", quietly = TRUE))
    install.packages("BiocManager")

# The following initializes usage of Bioc devel
BiocManager::install(version='devel')

BiocManager::install("Biobase")
```

For older versions of R, please refer to the appropriate Bioconductor release.

Source: https://bioconductor.org/packages/3.11/bioc/html/Biobase.html

Upgrade Experience

- Straightforward and without hickups
- No *Fear, Uncertainty, Doubt*
- Enjoy this treasure chest curated by CRAN Admins & R Core
- To whom we say *Thank You* for all the hard work leading to this

THANK YOU!

slides http://dirk.eddelbuettel.com/presentations/

web http://dirk.eddelbuettel.com/

mail dirk@eddelbuettel.com

github @eddelbuettel

twitter @eddelbuettel