TSACE Webinar, Wednesday December 14th 2022


Using JDemetra+ in R: from version 2 to version 3
Presentation 1: General Outline of the R-JDemetra+ universe

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Outline of the webinar

Four presentations

- P1: general introduction
  - higlighting the main evolutions between version 2 and 3
  - outlining the global scope of R tools for JDemetra+
  - defining the scope of the webinar : SA with X-13 and Tramo-Seats (leaving the rest aside. . . for furure webinars ?)
  - working environment set-up
- P2: Focus on SA with X13 or tramo-seats in R and related tools.
- P3: Working in R with JDemetra+ specific data structure (workspaces)
- P4: Quality assessement and production in R

Resources on GitHub: slides, code, additionnal references
https://github.com/annasmyk/Tsace_RJD_Webinar_Dec22

JDemetra+: a library of algorithms for time series analysis

JDemetra+ is a library of algorithms on:

- seasonal adjustment (GUI and R)
- trend and cycle estimation (R only)
- benchmarking and temporal disaggregation (GUI and R)
- nowcasting (R and Plug-in)

They can be accessed via graphical user-interface (GUI) and/or R and/or plug-ins. The available output, functions or tools are in general not identical using R or GUI for example, it is often fruitlful to combine them.

JDemetra+ also offers general utilities for time series analysis: tests, autocorrelations functions, arima modelling, spectral analysis tools . . . (in GUI and R)

Why R packages ?

Before 2019: access only through GUI and plug-ins.

Why add R packages ?

Allows to immerse JD+ algoriths in the R universe, whith all its pre-existing statistical functions and user-community.

In March 2019, `RJDemetra` (containing X-13 Arima and Tramo-Seats) was published on CRAN: - first R package that enables to use Tramo-Seats - faster than existing R packages on seasonal adjustment

Since, many more packages have been developped as JDemetra+ was upgraded from version 2 to version 3 - extension of scope : High-frequency data, STL - ...

Goals of thiswebinar - rationale and context for using JD+ in R - highlight the differences from v2 to v3 ("what is new ? what is missing ?)

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From V2 to v3: changing gears

V2 : RJDemetra (X13-Arima, Tramo-seats, workspace wrangling) and some more specific packatges like rjdhighfreq, rjdsts... (corresponding to the version 2.x family of JD+ Core)

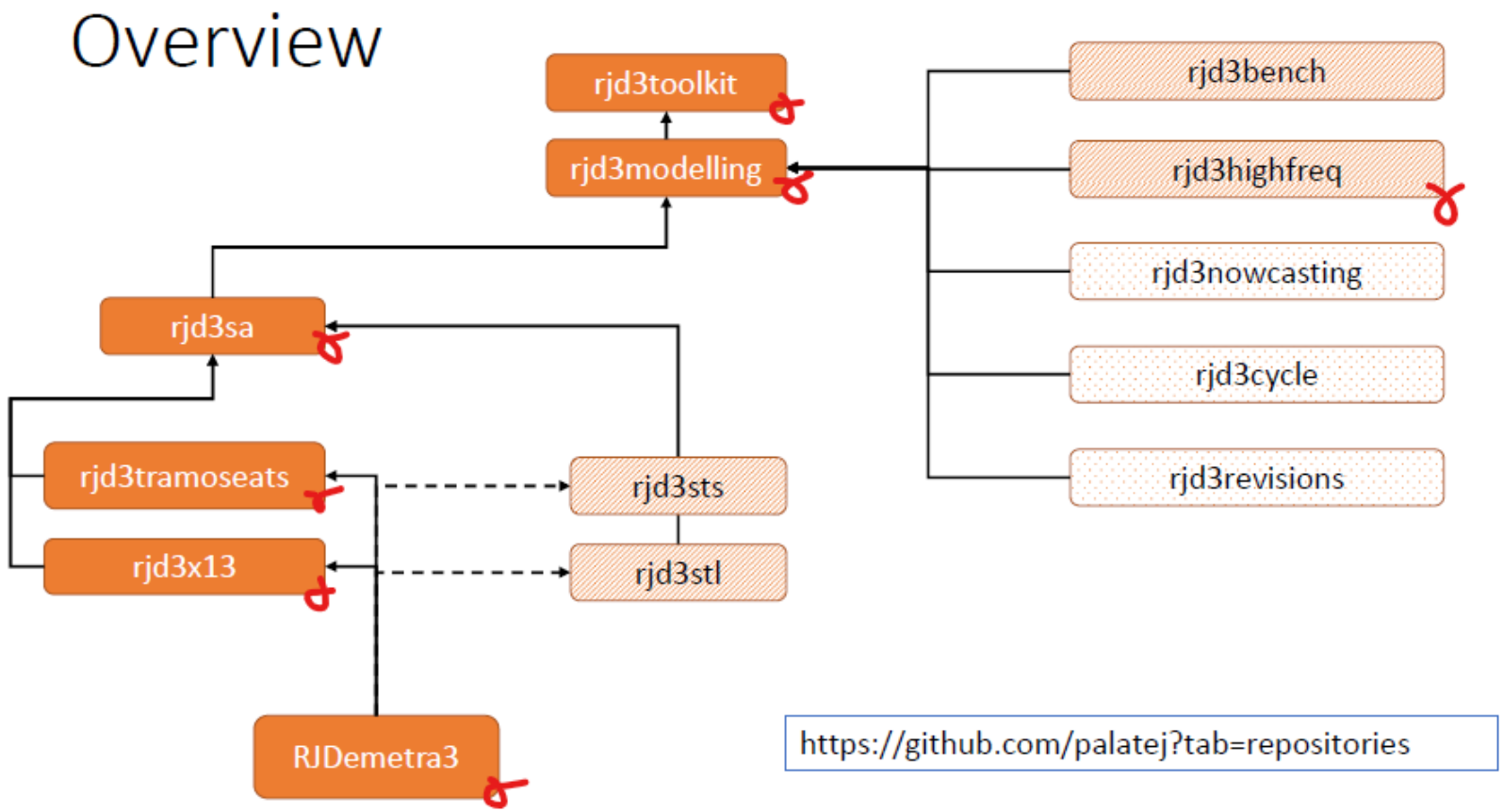
The mindset of version 3 (vs v2) is

- modularity: independent more specific functions
- more "stand alone" tools (not only retrieving results on)

V3 : A suite of packages cf schema

(corresponding to the version 2.x family of JD+ Core) (still uder contstruction, moving perimeters)

Organisation of the rjd3 packages



Seasonal adjustment algorithms in JDemetra+ version 3

For seasonal adjustment, specifically, JDemetra+ contains:

- X13-Arima (GUI and R)
- Tramo-seats (GUI and R)
- STL (R only)
- STS (SSF framework) (R only)

All of these algorithms can be used with HF data.

For X13-Arima and Tramo seats some illustrations are available only via GUI.

Scope of this webinar : SA with X-13 and Tramo-Seats, including HF data

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Installing packages (1/2)

Version 2: RJDemetra is on CRAN

```
install.packages(RJDemetra)
library(RJDemetra)
```

In part 3 and 4 we will also use

- JDCruncher (based on cruncher output) To install it: download the **.zip** or **.tar.gz** file from https://github.com/InseeFr/JDCruncheR/releases.
- rjdworkspace (based on RJDemetra) To install it: download the **.zip** or **.tar.gz** file from https://github.com/InseeFrLab/rjdworkspace/releases.

You can run v2 and v3 simultaneously

Version 3 requires Java ≥ 17 (see https://github.com/jdemetra/rjdemetra/wiki/Installation-manual)

Installing packages (2/2)

Installing latest version from GitHub (as not on CRAN yet)

```
# install.packages("remotes")
remotes::install_github("palatej/rjd3toolkit")
remotes::install_github("palatej/rjd3modelling")
remotes::install_github("palatej/rjd3sa")
remotes::install_github("palatej/rjd3arima")
remotes::install_github("palatej/rjd3x13")
remotes::install_github("palatej/rjd3tramoseats")
remotes::install_github("palatej/rjdemetra3")
remotes::install_github("palatej/rjdfilters")
remotes::install_github("palatej/rjd3sts")
remotes::install_github("palatej/rjd3highfreq")
remotes::install_github("palatej/rjd3stl")
remotes::install_github("palatej/rjd3bench")
remotes::install_github("AQLT/ggdemetra3") #addtionnal graphics
```