



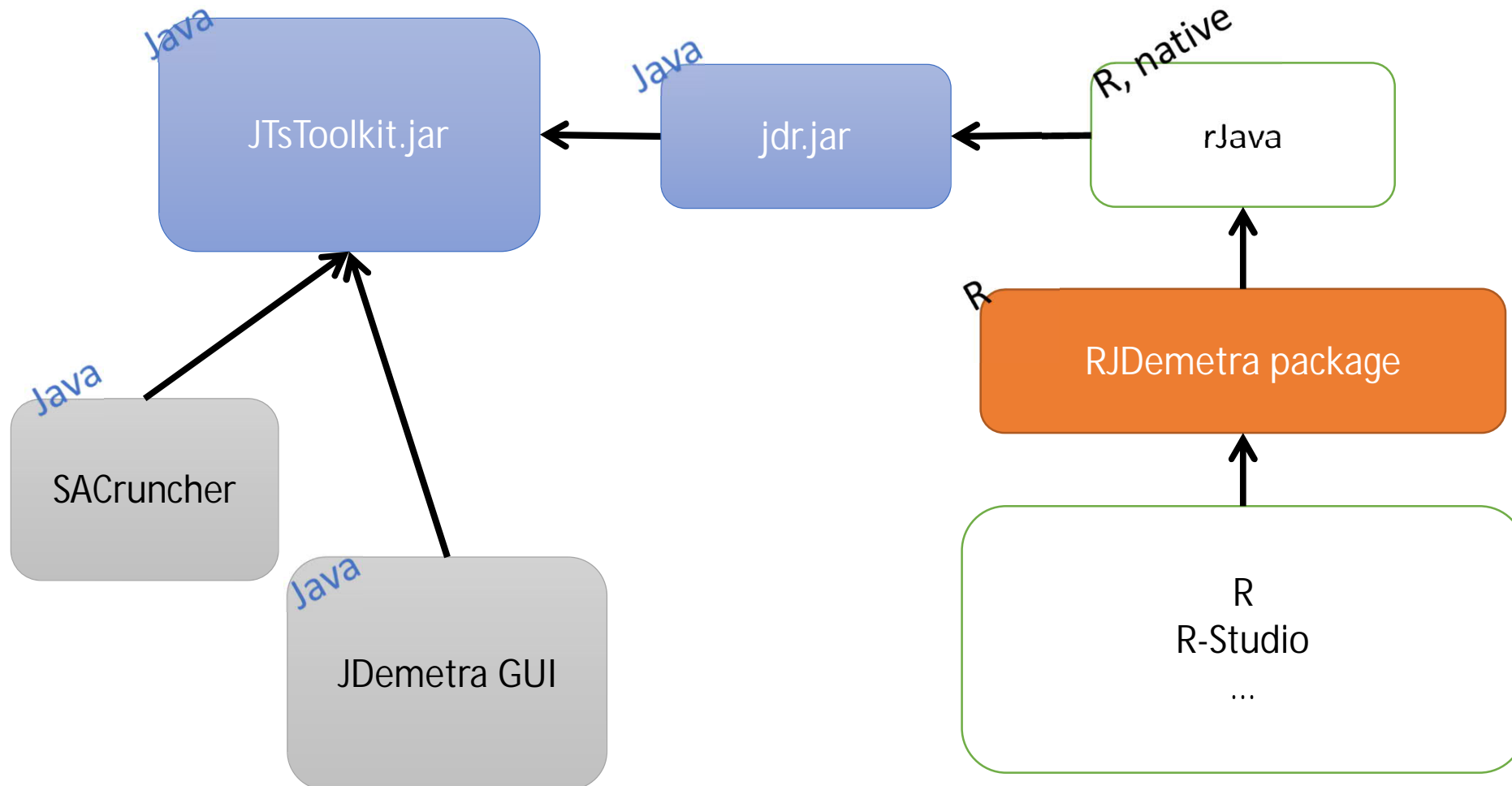
# JD+ and R

## ESTP Training

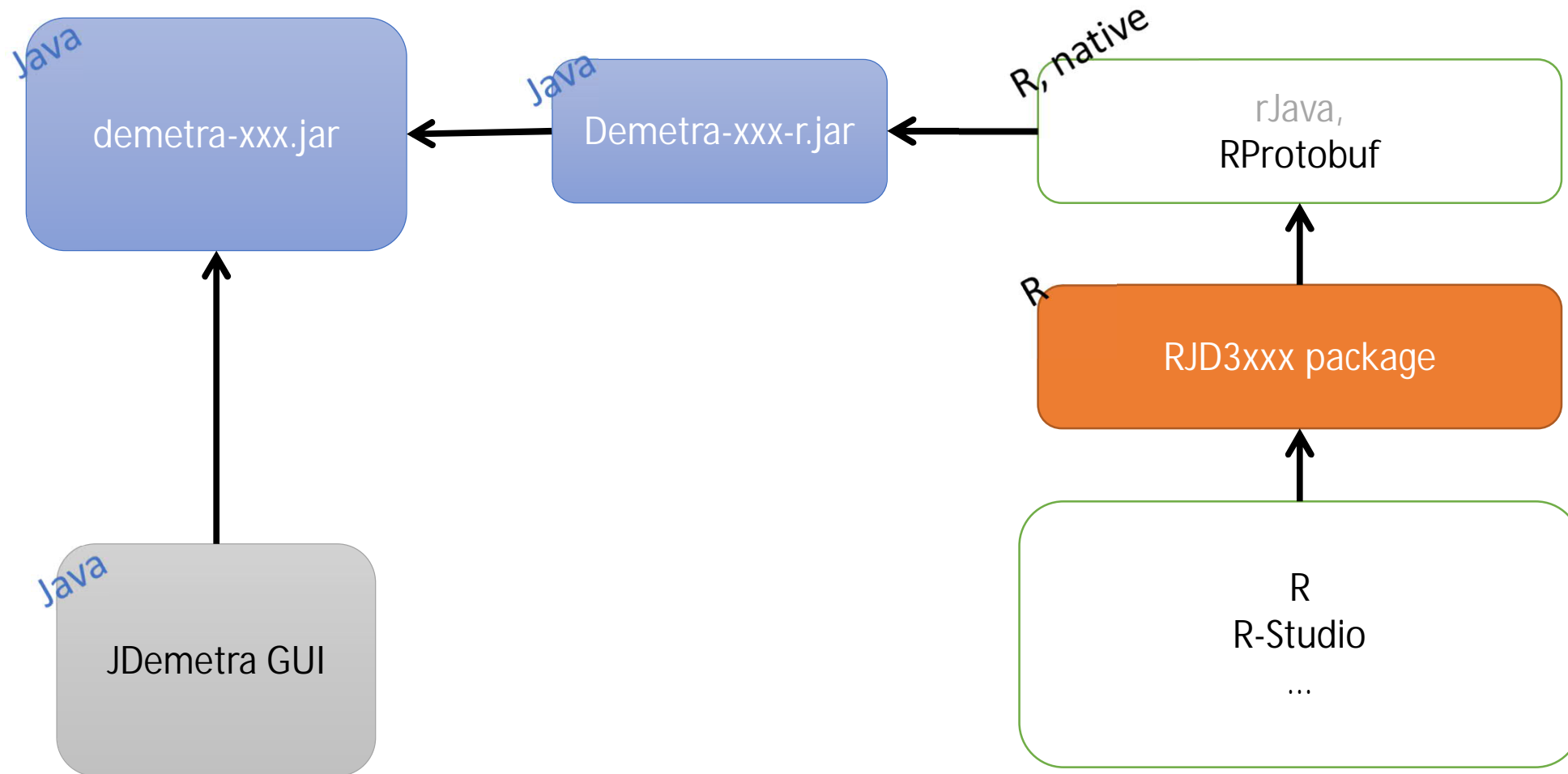
# 1. Main requirements

- RJDemetra
  - Java runtime ( $\geq 11$ )
  - R ( $\geq 3.1.1$ )
  - rJava ( $\geq 0.9-8$ )
- RJDemetra3
  - Java runtime ( $\geq 17.0$ )
  - R ( $\geq 3.6.0$ )
  - rJava ( $\geq 1.0-6$ ),
  - RProtoBuf ( $\geq 0.4.17$ )

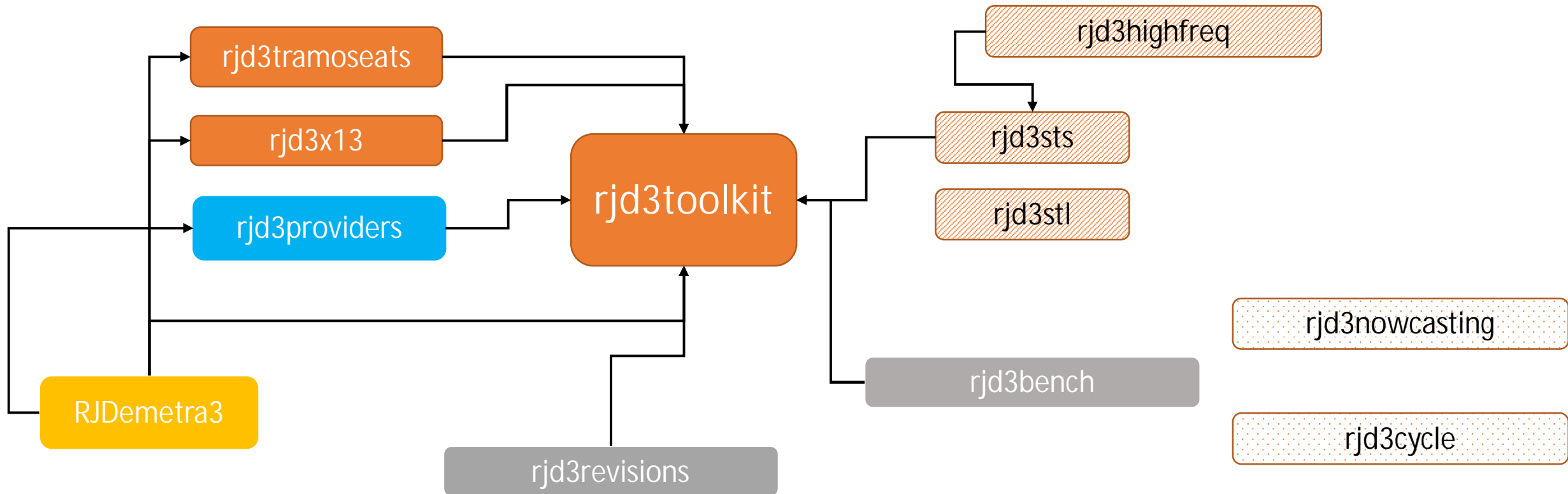
## 2. Technical design (Rjdemetra)



### 3. Technical design (Rjdemetra3)



## 4. Rjdemetra3: Overview



<https://github.com/rjdemetra>

Design similar to the Java libraries !


17-19/10/2023

CONTRACTORS ORGANISING SOME OF THE COURSES ARE  
ACTING UNDER A FRAMEWORK CONTRACT CONCLUDED WITH  
THE COMMISSION





rjd3tramoseats

inst

Proto files

 tramoseats.proto

Java package

 demetra-tramoseats-api-1.0.0-SNAPSHOT.jar  
 demetra-tramoseats-core-1.0.0-SNAPSHOT.jar  
 demetra-tramoseats-io-1.0.0-SNAPSHOT.jar  
 demetra-tramoseats-r-1.0.0-SNAPSHOT.jar

R files

```
.onLoad <- function(libname, pkgname) {  
  result <- .jpackage(pkgname, lib.loc=libname)  
  if (!result) stop("Loading java packages failed")  
  
  proto.dir <- system.file("proto", package = pkgname)  
  readProtoFiles2(protoPath = proto.dir)  
}
```

Description

**Depends:**  
R (>= 3.6.0),  
**Imports:**  
rJava (>= 1.0-6),  
RProtoBuf (>= 0.4.17),  
rjd3tools (>= 0.2.0),  
rjd3modelling (>= 0.2.0),  
rjd3sa (>= 0.2.0)

# 5. Objectives of R packages

- High-level functions with most common results
- Many low-level functions
  - Advanced users
  - Research
  - Training
  - Additional tools

## 6. Installing the packages

- If need be, referencing the correct java runtime ( $\geq 17.0$ )

A screenshot of an R console window. The title bar shows 'R 4.1.3 · C:/ESTP/estp2023/'. The command prompt shows the command `> usethis::edit_r_environ()` entered in blue text.

- Set your JAVA\_HOME variable (tip: use the jre provided with JD+)

A screenshot of the RStudio interface. The top pane shows several open files: 'seasonality.R', 'td.R', 'tdpeaks.R', 'seats-amb.R', and '.Renviron\*'. The bottom pane shows the content of the '.Renviron' file, where the line `JAVA_HOME='C:/LocalData/DEV/SOFTWARE/JD+/3.1.1/nbdemetra/jdk-17.0.8.1+1-jre'` is visible in green text.

- Install the various packages (internet access needed)
  - `remotes::install_github("rjdemetra/rjd3toolkit", "main", INSTALL_opts='--no-multiarch')`...



# 7. Examples

- Reading Excel files (JD+-like) and detecting errors

```
rjd3providers::set_spreadsheet_paths('./Data')
print(rjd3providers::spreadsheet_content("belgium.xlsx"))

indprod<-rjd3providers::spreadsheet_data('belgium.xlsx', 1)
plot(indprod$series$`Manufacture of textiles`$data, col='blue')

err<-lapply(indprod$series, function(z)rjd3tramoseats::terror(z$data, 'tr1', nback=6))
```

- Refreshing a workspace

```
jws<-rjdemetra3::jws_load(system.file('workspaces', 'test.xml', package='rjdemetra3'))
ws<-rjdemetra3::read_workspace(jws)
jws2<-rjdemetra3::jws_make_copy(jws)
rjd3providers::set_spreadsheet_paths("c:/localdata/data/excel/new")
rjdemetra3::jws_refresh(jws2, 'Complete')
ws2<-rjdemetra3::read_workspace(jws2)

sa1<-ws$processing$`SAProcessing-1`$`Exports
France`
sa2<-ws2$processing$`SAProcessing-1`$`Exports
France`
ts.plot(ts.union(sa1$results$final$sa$data, sa2$results$final$sa$data), col=c('red', 'blue'))
print(window(sa2$results$final$series$data-sa1$results$final$series$data, start=2018))
```

## 8. Final remarks

- Most features provided in the Java libraries can be called from R
- Most tasks can be automated
- Many additional tools could be developed in R