Package 'RJDProcessor'

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Type Package

Title RJDProcessor

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Description The rjdverse libraries are the officially recommended R software for seasonal adjustment in the European Central Bank and Statistical System. The RJDProcessor library integrates the rjdverse packages into a fully R-based production pipeline, ready to be used and easily extendable by methodologists. It offers the capability to manage the entire seasonal adjustment process: acquisition, processing, storage, automation, and not just seasonal adjustment of the data. Processing of multiple time series is possible by storing their specifications in JSON files, and interoperability with other JDemetra+ software is guaranteed because RJDProcessor can read workspaces and is able to produce them as an output.

RJDProcessor also provides functions to manage workspaces, such as splitting a workspace containing multiple time series into individual single-series workspaces, which are suitable for storing in databases with single time series records. Functions to merge workspaces are also available.

License EUPL

Encoding UTF-8

LazyData true

Imports RJDemetra (>= 0.2.5),
rjson (>= 0.2.21)

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Collate import_and_interface_definition.R
Data_reader_csv.R
Data_reader_csv_istat_format.R
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R topics documented:

`Data_reader_csv` *Constructor (R-like) of the Data_reader object*

Description

This function creates a Data_reader object capable of reading data from CSV files and returning it using the `read_data()` function.

Usage

```
Data_reader_csv(input_source = NA, ...)
```

Arguments

`input_source`	A string with file name (also with path).

Value

The Data_reader_csv object

Examples

```
input_data_file_name <- system.file("extdata","CSV-FAS/grezzi_trim_FAS.csv", package = "RJDProcessor")
input_data_reader    <- Data_reader_csv(input_source = input_data_file_name)
input_data_reader@read_data()
```

Data_reader_csv_istat_format

Constructor (R-like) of the Data_reader object

Description

This function creates a Data_reader object capable of reading data from CSV files in ISTAT format and returning it using the `read_data()` function. The ISTAT format is a csv file with dates in format YYYYqMM as rownames and time_series names as colnames

Usage

```
Data_reader_csv_istat_format(input_source = NA, ...)
```

Arguments

`input_source`	A string with file name (also with path).

Value

The Data_reader_csv_istat_format object

Examples

```
input_data_file_name <- system.file("extdata","SITIC-TUR/grezziTUR.csv", package = "RJDProcessor")
input_data_reader <- Data_reader_csv_istat_format(input_source = input_data_file_name)
#input_data_reader@read_data()
```

Data_reader_ext_reg_csv

Constructor (R-like) of the Data_reader object

Description

This function creates a Data_reader_ext_reg object capable of reading data from CSV external regressors files and returning it using the `read_ext_reg_data()` function.

Usage

```
Data_reader_ext_reg_csv(input_source, ...)
```

Arguments

`input_source`	A string with the input: e.g. a file name (also with path) if the input is a file.

Value

The Data_reader_ext_reg_csv object

Examples

```
require(RJDemetra)
input_workspace_xml     <- system.file("extdata", "WorkspaceTUR-container/workspace-TUR.xml", package = "RJDP
input_data_file_name    <- system.file("extdata", "CSV-TUR/grezzi_trim_TUR.csv", package = "RJDProcessor")
regr_directory        <- system.file("extdata", "CSV-TUR/regr", package = "RJDProcessor")
ws                        <- load_workspace(file = input_workspace_xml)
compute(ws)
data_reader_ext_reg       <- Data_reader_ext_reg_csv(regr_directory)
all_model_ext_vars_info <- data_reader_ext_reg@read_ext_reg_info(ws)
vars_matrix         <- data_reader_ext_reg@read_ext_reg_data(all_model_ext_vars_info, "VATASC", frequency=12
```

Data_reader_ext_reg_tsplus

Constructor (R-like) of the Data_reader object

Description

This function creates a Data_reader_ext_reg object capable of reading data from TRAMO-SEATS+ external regressors files and returning it using the `read_ext_reg_data()` function.

Usage

```
Data_reader_ext_reg_tsplus(input_source, ...)
```

Arguments

`input_source`	A string with the input: e.g. a file name (also with path) if the input is a file.

Value

The Data_reader_ext_reg_tsplus object

Examples

```
require(RJDemetra)
input_workspace_xml     <- system.file("extdata", "WorkspaceTUR-container/workspace-TUR.xml", package = "RJDP
input_data_file_name    <- system.file("extdata", "SITIC-TUR/grezziTUR.csv", package = "RJDProcessor")
regr_directory        <- system.file("extdata", "SITIC-TUR/regr", package = "RJDProcessor")
ws                        <- load_workspace(file = input_workspace_xml)
compute(ws)
data_reader_ext_reg       <- Data_reader_ext_reg_tsplus(regr_directory)
all_model_ext_vars_info <- data_reader_ext_reg@read_ext_reg_info(ws)
vars_matrix         <- data_reader_ext_reg@read_ext_reg_data(all_model_ext_vars_info, "VATASC", frequency=12
```

Data_reader_ext_reg_xlsx *Constructor (R-like) of the Data_reader object*

Description

This function creates a Data_reader_ext_reg object capable of reading data from XLSX external regressors files and returning it using the `read_ext_reg_data()` function.

Usage

```
Data_reader_ext_reg_xlsx(input_source, ...)
```

Arguments

`input_source`	A string with the input: e.g. a file name (also with path) if the input is a file.

Value

The Data_reader_ext_reg_tsplus object

Examples

```
require(RJDemetra)
input_workspace_xlsx    <- system.file("extdata", "WorkspaceTUR-container/workspace-TUR.xml", package = "RJD
input_data_file_name    <- system.file("extdata", "SITIC-TUR/grezziTUR.csv", package = "RJDProcessor")
regr_directory        <- system.file("extdata", "SITIC-TUR/regr", package = "RJDProcessor")
ws                        <- load_workspace(file = input_workspace_xlsx)
compute(ws)
data_reader_ext_reg       <- Data_reader_ext_reg_tsplus(regr_directory)
all_model_ext_vars_info <- data_reader_ext_reg@read_ext_reg_info(ws)
vars_matrix         <- data_reader_ext_reg@read_ext_reg_data(all_model_ext_vars_info, "VATASC", frequency=12
```

Data_reader_list *Constructor (R-like) of the Data_reader object*

Description

This function creates a Data_reader object capable of reading data from a list and returning it using the `read_data()` function.

Usage

```
Data_reader_list(input_source = NA, ...)
```

Arguments

`input_source`	A string with file name (also with path).

Value

The Data_reader_csv object

Examples

```
FATEXP_10_list <- list("series_name"="FATEXP_10", "dates"=c("2005-01-01","2005-02-01","2005-03-01"),
                       "values"=c(12, 15, 11.1))
C_DEFL_list   <- list("series_name"="C_DEFL",   "dates"=c("2001-01-01","2001-02-01","2001-03-01"),
                       "values"=c(99, 100, 99.1))
# ...
input_data_list  <- list(FATEXP_10_list, C_DEFL_list) #add more time series if you want (here are 2)
input_data_reader <- Data_reader_list(input_source = input_data_list)
input_data_reader@read_data()
```

`Data_reader_xlsx` *Constructor (R-like) of the Data_reader object*

Description

This function creates a Data_reader object capable of reading data from XLSX files and returning it using the `read_data()` function.

Usage

```
Data_reader_xlsx(input_source = NA, ...)
```

Arguments

`input_source`	A string with file name (also with path).

Value

The Data_reader_xlsx object

Examples

```
input_data_file_name <- system.file("extdata","XLSX-TUR/grezzi_trim_TUR.xlsx", package = "RJDProcessor")
input_data_reader    <- Data_reader_xlsx(input_source = input_data_file_name)
input_data_reader@read_data()
```

Data_reader_xml *Constructor (R-like) of the Data_reader object*

Description

This function creates a Data_reader object capable of reading data from XLSX files and returning it using the `read_data()` function.

Usage

```
Data_reader_xml(input_source = NA, ...)
```

Arguments

`input_source`	A string with file name (also with path).

Value

The Data_reader_xlsx object

Examples

```
input_data_file_name <- system.file("extdata","Prod.xml", package = "RJDProcessor")
# NOTE: absolute paths are better for this Data_reader
input_data_reader    <- Data_reader_xml(input_source = input_data_file_name)
#input_data_reader@read_data() # for reading the data
```

JD_JSON_to_materialized_workspace *Turn a JD_JSON in a materialized workspace*

Description

This function obtain a JD_JSON file from a workspace stored in the filesystem (in a directory). See test foder for examples

Usage

```
JD_JSON_to_materialized_workspace(
  workspace_dir = NA,
  JSON_file,
  input_data_reader,
  ext_reg_data_reader = NA,
  series_to_proc_names = NA
)
```

Arguments

workspace_dir	-optional- the directory of the input workspace. Default = NA stores the workspace in a directory called "output_workspace_container"
JSON_file	Name of the JSON file that will be produced (also with path).
input_data_reader	A Data_Reader object
ext_reg_data_reader	-optional- A Data_reader_ext_reg object, to produce the metadata of the external regressors (i.e. create the names of the csv rather than a xlsx files o other containers for external regressors) Default = NA, do not consider external regressors (discouraged)
series_to_proc_names	-optional- an array containing the name of the series to be included in the workspace among the ones present in the JD_JSON file e.g. c("VATASA", "VATAIA")

Value

void in R environment, a workspace materialized in the filesystem

Examples

```
require(RJDemetra)
input_JD_JSON     <- system.file("extdata", "specifications_example1.txt", package = "RJDProcessor")
input_data_file_name <- system.file("extdata", "CSV-TUR/grezzi_trim_TUR.csv", package = "RJDProcessor")
regr_directory       <- system.file("extdata", "CSV-TUR/regr", package = "RJDProcessor")
input_data_reader         <- Data_reader_csv(input_source = input_data_file_name)
ext_reg_input_data_reader <- Data_reader_ext_reg_csv(regr_directory)
JD_JSON_to_materialized_workspace(workspace_dir="ws_out" ,input_JD_JSON, input_data_reader, ext_reg_input_da
```

JD_JSON_to_virtual_workspace

Turn a JD_JSON in a virtual workspace

Description

This function obtain a virtual workspace from a JD_JSON file. See test foder for examples

Usage

```
JD_JSON_to_virtual_workspace(
  JSON_file,
  input_data_reader,
  ext_reg_data_reader = NA,
  series_to_proc_names = NA
)
```

Arguments

JSON_file	Name of the JSON file to turn in a workspace (also with path).
input_data_reader	A Data_Reader object
ext_reg_data_reader	-optional- A Data_reader_ext_reg object, to read the external regressors in the desired format (csv, xlsx, tramoseats+, ...) Default = NA, do not consider external regressors (discouraged)
series_to_proc_names	-optional- an array containing the name of the series to be included in the workspace among the ones present in the JD_JSON file e.g. c("VATASA", "VATAIA")

Value

A virtual workspace

Examples

```
require(RJDemetra)
input_JD_JSON     <- system.file("extdata", "specifications_example1.txt", package = "RJDProcessor")
input_data_file_name <- system.file("extdata", "CSV-TUR/grezzi_trim_TUR.csv", package = "RJDProcessor")
regr_directory       <- system.file("extdata", "CSV-TUR/regr", package = "RJDProcessor")
input_data_reader         <- Data_reader_csv(input_source = input_data_file_name)
ext_reg_input_data_reader <- Data_reader_ext_reg_csv(regr_directory)
ws <- JD_JSON_to_virtual_workspace(input_JD_JSON, input_data_reader, ext_reg_input_data_reader, series_to_pr
```

---

read_data,Data_reader_csv-method

Get the data from a Data_reader_csv

Description

This function returns the data from the input_source of the object.

Usage

```
## S4 method for signature 'Data_reader_csv'
read_data(object, ...)
```

Value

data in form of numeric matrix, with rownames = dates (in string format, YYYY-MM-DD) and colnames = time series names (string)

Examples

```
input_data_file_name <- system.file("extdata","CSV-FAS/grezzi_trim_FAS.csv", package = "RJDProcessor")
input_data_reader    <- Data_reader_csv(input_source = input_data_file_name)
input_data_reader@read_data()
```

---

read_data,Data_reader_csv_istat_format-method
Get the data from a Data_reader_csv_istat_format

Description

This function returns the data from the input_source of the object.

Usage

```
## S4 method for signature 'Data_reader_csv_istat_format'
read_data(object, ...)
```

Value

data in form of numeric matrix, with rownames = dates (in string format, YYYYqMM) and colnames = time series names (string)

Examples

```
input_data_file_name <- system.file("extdata","SITIC-TUR/grezziTUR.csv", package = "RJDProcessor")
input_data_reader    <- Data_reader_csv_istat_format(input_source = input_data_file_name)
input_data_reader@read_data()
```

---

read_data,Data_reader_list-method
Get the data from a Data_reader_list

Description

This function returns the data from the input_source of the object.

Usage

```
## S4 method for signature 'Data_reader_list'
read_data(object, ...)
```

Value

data in form of numeric matrix, with rownames = dates (in string format, YYYY-MM-DD) and colnames = time series names (string)

Examples

```
FATEXP_10_list <- list("series_name"="FATEXP_10", "dates"=c("2005-01-01","2005-02-01","2005-03-01"),
                       "values"=c(12, 15, 11.1))
C_DEFL_list   <- list("series_name"="C_DEFL",   "dates"=c("2001-01-01","2001-02-01","2001-03-01"),
                       "values"=c(99, 100, 99.1))
#...
input_data_list  <- list(FATEXP_10_list, C_DEFL_list) #add more time series if you want (here are 2)
input_data_reader <- Data_reader_list(input_source = input_data_list)
#input_data_reader@read_data()
```

read_data,Data_reader_xlsx-method

Get the data from a Data_reader_csv

Description

This function returns the data from the input_source of the object.

Usage

```
## S4 method for signature 'Data_reader_xlsx'
read_data(object, ...)
```

Value

data in form of numeric matrix, with rownames = dates (in string format, YYYY-MM-DD) and colnames = time series names (string)

Examples

```
input_data_file_name <- system.file("extdata","XLSX-TUR/grezzi_trim_TUR.xlsx", package = "RJDProcessor")
input_data_reader    <- Data_reader_xlsx(input_source = input_data_file_name)
input_data_reader@read_data()
```

read_data,Data_reader_xml-method

Get the data from a Data_reader_xml

Description

This function returns the data from the input_source of the object.

Usage

```
## S4 method for signature 'Data_reader_xml'
read_data(object, ...)
```

Value

data in form of numeric matrix, with rownames = dates (in string format, YYYY-MM-DD) and colnames = time series names (string)

Examples

```
input_data_file_name <- system.file("extdata","Prod.xml", package = "RJDProcessor")
# NOTE: absolute paths are better for this Data_reader
input_data_reader    <- Data_reader_xml(input_source = input_data_file_name)
#input_data_reader@read_data() # for reading the data
```

`read_ext_reg_data,Data_reader_ext_reg_csv-method`
Read external regressors data

Description

This function reads data from external regressors and returns it as a numeric matrix with variable names as colnames and YYYY-MM-DD dates as rownames

Usage

```
## S4 method for signature 'Data_reader_ext_reg_csv'
read_ext_reg_data(
  object,
  var_info = NULL,
  time_series_info = NULL,
  frequency = NA_integer_,
  ...
)
```

Arguments

`var_info`	A string with file name (also with path).
`time_series_info`	A string with time series name in workspace name (also with path).
`frequency`	i.e. 12 = monthly data, 4 = quarterly data

Value

a numeric matrix with variable names as colnames and YYYY-MM-DD dates as rownames

Examples

```
require(RJDemetra)
input_workspace_xml     <- system.file("extdata", "WorkspaceTUR-container/workspace-TUR.xml", package = "RJDP
input_data_file_name    <- system.file("extdata", "CSV-TUR/grezzi_trim_TUR.csv", package = "RJDProcessor")
regr_directory        <- system.file("extdata", "CSV-TUR/regr", package = "RJDProcessor")
ws                        <- load_workspace(file = input_workspace_xml)
compute(ws)
data_reader_ext_reg       <- Data_reader_ext_reg_csv(regr_directory)
all_model_ext_vars_info <- data_reader_ext_reg@read_ext_reg_info(ws)
vars_matrix         <- data_reader_ext_reg@read_ext_reg_data(all_model_ext_vars_info, "VATASC", frequency=12
```

read_ext_reg_data,Data_reader_ext_reg_tsplus-method
Read external regressors data

Description

This function reads data from external regressors and returns it as a numeric matrix with variable names as colnames and YYYY-MM-DD dates as rownames

Usage

```
## S4 method for signature 'Data_reader_ext_reg_tsplus'
read_ext_reg_data(
  object,
  var_info = NULL,
  time_series_info = NULL,
  frequency = NA_integer_,
  ...
)
```

Arguments

var_info	A string with file name (also with path).
time_series_info	A string with time series name in workspace name (also with path).
frequency	i.e. 12 = monthly data, 4 = quarterly data

Value

a numeric matrix with variable names as colnames and YYYY-MM-DD dates as rownames

Examples

```
require(RJDemetra)
input_workspace_xml     <- system.file("extdata", "WorkspaceTUR-container/workspace-TUR.xml", package = "RJDP
input_data_file_name    <- system.file("extdata", "SITIC-TUR/grezziTUR.csv", package = "RJDProcessor")
regr_directory        <- system.file("extdata", "SITIC-TUR/regr", package = "RJDProcessor")
ws                        <- load_workspace(file = input_workspace_xml)
compute(ws)
data_reader_ext_reg       <- Data_reader_ext_reg_tsplus(regr_directory)
all_model_ext_vars_info <- data_reader_ext_reg@read_ext_reg_info(ws)
vars_matrix         <- data_reader_ext_reg@read_ext_reg_data(all_model_ext_vars_info, "VATASC", frequency=12
```

`read_ext_reg_data,Data_reader_ext_reg_xlsx-method`
Read external regressors data

Description

This function reads data from external regressors and returns it as a numeric matrix with variable names as colnames and YYYY-MM-DD dates as rownames

Usage

```
## S4 method for signature 'Data_reader_ext_reg_xlsx'
read_ext_reg_data(
  object,
  var_info = NULL,
  time_series_info = NULL,
  frequency = NA_integer_,
  ...
)
```

Arguments

`var_info`	A string with file name (also with path).
`time_series_info`	A string with time series name in workspace name (also with path).
`frequency`	i.e. 12 = monthly data, 4 = quarterly data

Value

a numeric matrix with variable names as colnames and YYYY-MM-DD dates as rownames

Examples

```
require(RJDemetra)
input_workspace_xlsx    <- system.file("extdata", "WorkspaceTUR-container/workspace-TUR.xml", package = "RJD
input_data_file_name    <- system.file("extdata", "XLSX-TUR/grezzi_trim_TUR.xlsx", package = "RJDProcessor")
regr_directory        <- system.file("extdata", "XLSX-TUR/regr", package = "RJDProcessor")
ws                        <- load_workspace(file = input_workspace_xlsx)
compute(ws)
data_reader_ext_reg       <- Data_reader_ext_reg_xlsx(regr_directory)
all_model_ext_vars_info <- data_reader_ext_reg@read_ext_reg_info(ws)
vars_matrix        <- data_reader_ext_reg@read_ext_reg_data(all_model_ext_vars_info, "VATASC", frequency=12
```

read_ext_reg_info,Data_reader_ext_reg_csv-method

Read information about external regressors from a workspace

Description

This function returns a list of information about external regressors used in the models contained in a workspaces

Usage

```
## S4 method for signature 'Data_reader_ext_reg_csv'
read_ext_reg_info(object, var_info_container, adjust_path = TRUE, ...)
```

Arguments

`var_info_container`
: workspace xml file path

Value

list() of information about external regressors

Examples

```
require(RJDemetra)
input_workspace_xml     <- system.file("extdata", "WorkspaceTUR-container/workspace-TUR.xml", package = "RJDP
input_data_file_name    <- system.file("extdata", "CSV-TUR/grezzi_trim_TUR.csv", package = "RJDProcessor")
regr_directory        <- system.file("extdata", "CSV-TUR/regr", package = "RJDProcessor")
ws                        <- load_workspace(file = input_workspace_xml)
compute(ws)
data_reader_ext_reg       <- Data_reader_ext_reg_csv(regr_directory)
all_model_ext_vars_info <- data_reader_ext_reg@read_ext_reg_info(ws)
```

read_ext_reg_info,Data_reader_ext_reg_tsplus-method

Read information about external regressors from a workspace

Description

This function returns a list of information about external regressors used in the models contained in a workspaces

Usage

```
## S4 method for signature 'Data_reader_ext_reg_tsplus'
read_ext_reg_info(object, var_info_container, adjust_path = TRUE, ...)
```

Arguments

`var_info_container`
: workspace xml file path

Value

list() of information about external regressors

Examples

```
require(RJDemetra)
input_workspace_xml     <- system.file("extdata", "WorkspaceTUR-container/workspace-TUR.xml", package = "RJDE
input_data_file_name    <- system.file("extdata", "SITIC-TUR/grezziTUR.csv", package = "RJDProcessor")
regr_directory        <- system.file("extdata", "SITIC-TUR/regr", package = "RJDProcessor")
ws                        <- load_workspace(file = input_workspace_xml)
compute(ws)
data_reader_ext_reg       <- Data_reader_ext_reg_tsplus(regr_directory)
all_model_ext_vars_info <- data_reader_ext_reg@read_ext_reg_info(ws)
```

---

read_ext_reg_info,Data_reader_ext_reg_xlsx-method

Read information about external regressors from a workspace

Description

This function returns a list of information about external regressors used in the models contained in a workspaces

Usage

```
## S4 method for signature 'Data_reader_ext_reg_xlsx'
read_ext_reg_info(object, var_info_container, adjust_path = TRUE, ...)
```

Arguments

`var_info_container`
: workspace xml file path

Value

list() of information about external regressors

Examples

```
require(RJDemetra)
input_workspace_xlsx    <- system.file("extdata", "WorkspaceTUR-container/workspace-TUR.xml", package = "RJD
input_data_file_name    <- system.file("extdata", "XLSX-TUR/grezzi_trim_TUR.xlsx", package = "RJDProcessor")
regr_directory        <- system.file("extdata", "XLSX-TUR/regr", package = "RJDProcessor")
ws                        <- load_workspace(file = input_workspace_xlsx)
compute(ws)
data_reader_ext_reg       <- Data_reader_ext_reg_xlsx(regr_directory)
all_model_ext_vars_info <- data_reader_ext_reg@read_ext_reg_info(ws)
```

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