Package: RJSDMX (via r-universe)

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Title R Interface to SDMX Web Services

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Description Provides functions to retrieve data and metadata from providers that disseminate data by means of SDMX web services. SDMX (Statistical Data and Metadata eXchange) is a standard that has been developed with the aim of simplifying the exchange of statistical information. More about the SDMX standard and the SDMX Web Services can be found at: <https://sdmx.org>.

Depends R (>= 4.2.0), rJava (>= 0.8-8), zoo (>= 1.6-4)

SystemRequirements Java (>= 8)

License EUPL

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BugReports https://github.com/amattioc/SDMX/issues

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Contents

RJSDMX-package 2
addProvider 3

getCodes 4
getDimensions 4
getDSDIdentifier 5
getFlows 6
getProviders 6
getTimeSeries 7
getTimeSeries2 8
getTimeSeriesRevisions 9
getTimeSeriesTable 10
getTimeSeriesTable2 11
sdmxdf 12
sdmxHelp 13
setProviderCredentials 14

Index **15**

`RJSDMX-package` *Gets timeseries from SDMX data Provider*

Description

This package provides functions to extract timeseries data and structural metadata from an SDMX Provider (e.g. ECB,OECD, EUROSTAT) via SDMX Web Service

Details

Package:	RJSDMX
Type:	Package

The SDMX Connectors framework (of which RJSDMX is part) aims to offer data users the means for efficiently interacting with SDMX Web Service providers from within the most popular statistical tools. The source code of the SDMX Connectors project can be found at:

`https://github.com/amattioc/SDMX`

Information about the R Connector can be found in the dedicated wiki page:

`https://github.com/amattioc/SDMX/wiki/RJSDMX:-Connector-for-R`

In particular, all information related to configuration (network, tracing, security) can be found at:

`https://github.com/amattioc/SDMX/wiki/Configuration`

Author(s)

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See Also

getProviders, getTimeSeries, sdmxHelp

Examples

```
## Not run:
 my_ts = getTimeSeries('ECB','EXR.M.USD.EUR.SP00.A')

## End(Not run)
```

---

addProvider *add new provider*

Description

Configure a new data provider (only SDMX 2.1 REST providers are supported). This function can be used to configure a new (SDMX 2.1 compliant, REST based) data provider.

Usage

```
addProvider(name, endpoint, needsCredentials = 'false', needsURLEncoding = FALSE,
  supportsCompression = TRUE, description = "", sdmxVersion = "V2",
  supportsAvailability = F)
```

Arguments

name	the name of the provider
endpoint	the URL where the provider resides
needsCredentials	it can be one of "TRUE", "FALSE", "BASIC", "BEARER", "NONE". TRUE means "BASIC" and FALSE means "NONE" for backward compatility
needsURLEncoding	set this to TRUE if the provider does not handle character '+' in URLs
supportsCompression	set this to TRUE if the provider is able to handle compression
description	a brief text description of the provider
supportsAvailability	set this to TRUE if the provider is able to handle availability queries
sdmxVersion	what sdmx version this provider supports

Examples

```
## Not run:
addProvider('test', 'http://sdw-wsrest.ecb.europa.eu/service', FALSE)
getProviders()

## End(Not run)
```

getCodes *get dsd codes for dataflow*

Description

Extract the codes of a dimension. This function is used to retrieve the list of codes available for the input dimension and flow.

Usage

```
getCodes(provider, flow, dimension)
```

Arguments

flow	the identifier of the dataflow
dimension	the identifier of the dimension
provider	the name of the provider

Details

getCodes(provider, dataflow, dimension)

Examples

```
## Not run:
codes=getCodes('ECB', 'EXR', 'FREQ')

## End(Not run)
```

getDimensions *get dsd dimensions for dataflow*

Description

Extract the dimensions of a DataFlow. This function is used to retrieve the list of dimensions of the input dataflow

Usage

```
getDimensions(provider, dataflow)
```

Arguments

dataflow	the identifier of the dataflow
provider	the name of the provider

Details

getDimensions(provider, dataflow)

Examples

```
## Not run:
dims = getDimensions('ECB','EXR')

## End(Not run)
```

`getDSDIdentifier` *get DSD Identifier for dataflow*

Description

Extract the dsd identifier of a DataFlow. This function is used to retrieve the name of the keyfamily of the input dataflow.

Usage

```
getDSDIdentifier(provider, dataflow)
```

Arguments

`provider`	the name of the provider
`dataflow`	the identifier of the dataflow

Details

getDSDIdentifier(provider, dataflow)

Examples

```
## Not run:
id = getDSDIdentifier('ECB','EXR')

## End(Not run)
```

getFlows *get provider flow list*

Description

Extract the list of DataFlows of a provider. This function is used to query the list of dataflows of the provider. A matching pattern can be provided, if needed.

Usage

```
getFlows(provider, pattern = "")
```

Arguments

pattern	the pattern to match against the dataflow id or description. If a pattern is not provided, all dataflows are returned.
provider	the name of the provider

Details

getFlows(provider, pattern)

Author(s)

Attilio Mattiocco <Attilio.Mattiocco@bancaditalia.it>, Diana Nicoletti

Examples

```
## Not run:
## get all flows from ECB
flows = getFlows('ECB')
## get all flows that contain the 'EXR
flows = getFlows('ECB','*EXR*')

## End(Not run)
```

getProviders *get available providers*

Description

Extract the list of available Data Providers. This function is used to query the list of data providers.

Usage

```
getProviders()
```

Details

getProviders()

Examples

```
## Not run:
getProviders()

## End(Not run)
```

`getTimeSeries` *get time series*

Description

Extract a list of time series. This function is used to extract a list of time series identified by the parameters provided in input.

getTimeSeries(provider, id, start, end)

Usage

```
getTimeSeries(provider, id, start='', end='')
```

Arguments

`provider`	the name of the provider
`id`	identifier of the time series
`end`	the end time - optional
`start`	the start time - optional

Examples

```
## Not run:
# SDMX V2
## get single time series:
my_ts=getTimeSeries('ECB',id='EXR.A.USD.EUR.SP00.A')
## get monthly and annual frequency:
my_ts=getTimeSeries('ECB',id='EXR.A+M.USD.EUR.SP00.A')
## get all available frequencies:
my_ts=getTimeSeries('ECB',id='EXR..USD.EUR.SP00.A')

## End(Not run)
```

getTimeSeries2 *get time series (SDMX v3)*

Description

Extract a list of time series . This function is used to extract a list of time series identified by the parameters provided in input.

Usage

```
getTimeSeries2(
  provider,
  dataflow,
  key = "",
  filter = "",
  start = "",
  end = "",
  attributes = "all",
  measures = "all"
)
```

Arguments

provider	the name of the provider
dataflow	dataflow of the time series
key	timeseries key - optional
filter	optional filter to be applied - optional
start	the start time - optional
end	the end time - optional
attributes	the comma separated list of attributes to be returned - optional, default='all', 'none' for no attributes
measures	the comma separated list of measures to be returned - optional, default='all', 'none' for no measures

Examples

```
## Not run:
# SDMX V3

## get single time series:
my_ts=getTimeSeries2('ECB', dataflow='EXR', key='A.USD.EUR.SP00.A')
## get all available frequencies:
my_ts=getTimeSeries2('ECB', dataflow='EXR', key='.USD.EUR.SP00.A')

#or
```

```
#' ## get single time series: EXR.A.USD.EUR.SP00.A
my_ts=getTimeSeries2('ECB', dataflow='EXR',
filter='c[FREQ]=A&c[CURRENCY]=USD&c[CURRENCY_DENOM]=EUR&c[EXR_TYPE]=SP00&c[EXR_SUFFIX]=A')
## get monthly and annual frequency:
my_ts=getTimeSeries2('ECB', dataflow='EXR',
filter='c[FREQ]=A,M&c[CURRENCY]=USD&c[CURRENCY_DENOM]=EUR&c[EXR_TYPE]=SP00&c[EXR_SUFFIX]=A')
## get all available frequencies:
my_ts=getTimeSeries2('ECB', dataflow='EXR',
filter='c[CURRENCY]=USD&c[CURRENCY_DENOM]=EUR&c[EXR_TYPE]=SP00&c[EXR_SUFFIX]=A')

## End(Not run)
```

`getTimeSeriesRevisions` *get data revisions*

Description

Extract time series starting from a specific update time and with history of revisions. This function works as getTimeSeriesTable but the query can be narrowed to getting only observations that were updated after a specific point in time, and eventually it returns the revision history of the matching time series.

The result is packed into a data.frame

Usage

```
getTimeSeriesRevisions(provider, id, start = "", end = "",
  updatedAfter = "", includeHistory = TRUE)
```

Arguments

`id`	identifier of the time series
`provider`	the name of the provider
`end`	the end time - optional
`start`	the start time - optional
`updatedAfter`	the updatedAfter time - optional. It has to be in the form: 'YYYY-MM-DD'
`includeHistory`	boolean parameter - optional. If TRUE the full list of revisions will be returned

Details

getTimeSeriesRevisions(provider, id, start, end, updatedAfter, includeHistory)

Examples

```
## Not run:
  # get single time series with history:
  my_ts=getTimeSeriesRevisions('ECB','EXR.A.USD.EUR.SP00.A', includeHistory=TRUE)

  # get single time series (only observations updated after january 1st 2015):
  my_ts=getTimeSeriesRevisions('ECB','EXR.A.USD.EUR.SP00.A',
                  updatedAfter='2015', includeHistory=FALSE)

  # get single time series (full revision history starting from january 1st 2015):
  my_ts=getTimeSeriesRevisions('ECB','EXR.A.USD.EUR.SP00.A',
                  updatedAfter='2015', includeHistory=TRUE)

## End(Not run)
```

`getTimeSeriesTable` *get time series and return a data.frame*

Description

Extract a list of time series identified by the parameters provided in input, and return a data.frame as result.

getTimeSeriesTable(provider, id, start, end, gregorianTime)

Usage

```
getTimeSeriesTable(provider, id, start='', end='', gregorianTime=F)
```

Arguments

`id`	identifier of the time series
`provider`	the name of the provider
`end`	the end time - optional
`start`	the start time - optional
`gregorianTime`	set to true to have all daily dates - optional

Examples

```
## Not run:
  # SDMX V2
## get single time series:
my_ts=getTimeSeriesTable('ECB',id='EXR.A.USD.EUR.SP00.A')
## get monthly and annual frequency:
my_ts=getTimeSeriesTable('ECB',id='EXR.A+M.USD.EUR.SP00.A')
## get all available frequencies:
my_ts=getTimeSeriesTable('ECB',id='EXR..USD.EUR.SP00.A')


## End(Not run)
```

`getTimeSeriesTable2` *get time series and return a data.frame (SDMX v3)*

Description

Extract a list of time series identified by the parameters provided in input, and return a data.frame as result.

Usage

```
getTimeSeriesTable2(
  provider,
  dataflow,
  key = "",
  filter = "",
  start = "",
  end = "",
  attributes = "all",
  measures = "all",
  updatedAfter = .jnull(),
  includeHistory = FALSE,
  gregorianTime = F
)
```

Arguments

`provider`	the name of the provider
`dataflow`	dataflow of the time series
`key`	timeseries key
`filter`	optional filter to be applied
`start`	the start time - optional
`end`	the end time - optional
`attributes`	the comma separated list of attributes to be returned - optional, default='all', 'none' for no attributes
`measures`	the comma separated list of measures to be returned - optional, default='all', 'none' for no measures
`updatedAfter`	return only changes after this date - optional
`includeHistory`	include history of revisions - optional, default=false
`gregorianTime`	set to true to have all daily dates - optional

Examples

```
## Not run:
# SDMX V3

## get single time series:
my_ts=getTimeSeriesTable('ECB', dataflow='EXR', key='A.USD.EUR.SP00.A')
## get monthly and annual frequency:
my_ts=getTimeSeriesTable('ECB', dataflow='EXR', key='A+M.USD.EUR.SP00.A')
## get all available frequencies:
my_ts=getTimeSeriesTable('ECB', dataflow='EXR', key='.USD.EUR.SP00.A')

#or

## get single time series: EXR.A.USD.EUR.SP00.A
my_ts=getTimeSeriesTable('ECB', dataflow='EXR',
filter='c[FREQ]=A&c[CURRENCY]=USD&c[CURRENCY_DENOM]=EUR&c[EXR_TYPE]=SP00&c[EXR_SUFFIX]=A')
## get monthly and annual frequency:
my_ts=getTimeSeriesTable('ECB', dataflow='EXR',
filter='c[FREQ]=A,M&c[CURRENCY]=USD&c[CURRENCY_DENOM]=EUR&c[EXR_TYPE]=SP00&c[EXR_SUFFIX]=A')
## get all available frequencies:
my_ts=getTimeSeriesTable('ECB', dataflow='EXR',
filter='c[CURRENCY]=USD&c[CURRENCY_DENOM]=EUR&c[EXR_TYPE]=SP00&c[EXR_SUFFIX]=A')

## End(Not run)
```

---

sdmxdf *convert time series to data.frame*

Description

This function is used to transform the output of the getSDMX (or getTimeseries) functions from a list of time series to a data.frame. The metadata can be requested by explicitly passing the appropriate parameters.

Usage

```
sdmxdf(tslist, meta = FALSE, id = TRUE)
```

Arguments

tslist	the list of time series to be converted
meta	set this to TRUE if you want metadata to be included (default: FALSE, as this may increase the size of the result quite a bit)
id	set this to FALSE if you do not want the time series id to be included (default: TRUE)

Details

sdmxdf()

Examples

```
## Not run:
a=getSDMX('ECB', 'EXR.A|Q|M|D.USD.EUR.SP00.A')
ddf = sdmxdf(a)
ddf = sdmxdf(a, meta=TRUE)

## End(Not run)
```

`sdmxHelp` *open helper*

Description

Open a helper graphical application. This function opens a small sdmx metadata browser that can be helpful when building queries.

Usage

```
sdmxHelp(internalJVM = T)
```

Arguments

`internalJVM`	TRUE (default) if the GUI has to live in the R JVM. Set this to FALSE in MAC, to avoid issue #41

Details

sdmxHelp()

Examples

```
## Not run:
#opens the helper in the R JVM
sdmxHelp()
#opens the helper in an external JVM
sdmxHelp(FALSE)

## End(Not run)
```

`setProviderCredentials` *set Credentials for authenticating providers*

Description

Sets the credentials for providers that need authentication

Usage

```
setProviderCredentials(provider, user=.jnull(), pw=.jnull())
```

Arguments

`provider`	the name of the provider
`user`	the username
`pw`	the password

Index

∗ **package**
RJSDMX-package, 2
∗ **rJava**
getFlows, 6

addProvider, 3

getCodes, 4
getDimensions, 4
getDSDIdentifier, 5
getFlows, 6
getProviders, 6
getTimeSeries, 7
getTimeSeries2, 8
getTimeSeriesRevisions, 9
getTimeSeriesTable, 10
getTimeSeriesTable2, 11

RJSDMX *(*RJSDMX-package*)*, 2
RJSDMX-package, 2

sdmxdf, 12
sdmxHelp, 13
setProviderCredentials, 14