

Package ‘Rblpapi’

January 21, 2018

Title R Interface to 'Bloomberg'

Version 0.3.8

Date 2018-01-20

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Imports Rcpp (>= 0.11.0), utils

Suggests fts, xts, zoo, data.table, knitr, RUnit

VignetteBuilder knitr

LazyLoad yes

LinkingTo Rcpp, BH

Description An R Interface to 'Bloomberg' is provided via the 'Blp API'.

SystemRequirements A valid Bloomberg installation. The API headers and dynamic library are downloaded from <<https://github.com/Rblp/blp>> during the build step. See <<https://bloomberg.github.io/blpapi-docs/cpp/3.8>> as well as <<http://www.bloomberglabs.com/api/>> for API documentation. A compiler recent enough for (at least partial) C++11 support; g++-4.6.* or later should be sufficient and g++-4.9.* or later is preferred.

URL <http://dirk.eddelbuettel.com/code/rblpapi.html>,
<https://github.com/Rblp/Rblpapi>

BugReports <https://github.com/Rblp/Rblpapi/issues>

License file LICENSE

RoxygenNote 6.0.1

NeedsCompilation yes

Repository CRAN

Date/Publication 2018-01-21 21:55:50 UTC

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 bdh

Run 'Bloomberg Data History' Queries

Description

This function uses the Bloomberg API to retrieve 'bdh' (Bloomberg Data History) queries

Usage

```
bdh(securities, fields, start.date, end.date = NULL,
    include.non.trading.days = FALSE, options = NULL, overrides = NULL,
    verbose = FALSE, identity = NULL, con = defaultConnection(),
    int.as.double = getOption("blpIntAsDouble", FALSE))
```

Arguments

securities	A character vector with security symbols in Bloomberg notation.
fields	A character vector with Bloomberg query fields.
start.date	A Date variable with the query start date.
end.date	An optional Date variable with the query end date; if omitted the most recent available date is used.
include.non.trading.days	An optional logical variable indicating whether non-trading days should be included.

options	An optional named character vector with option values. Each field must have both a name (designating the option being set) as well as a value.
overrides	An optional named character vector with override values. Each field must have both a name (designating the override being set) as well as a value.
verbose	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'
identity	An optional identity object.
con	A connection object as created by a <code>blpConnect</code> call, and retrieved via the internal function <code>defaultConnection</code> .
<code>int.as.double</code>	A boolean indicating whether integer fields should be retrieved as doubles instead. This option is a workaround for very large values which would overflow <code>int32</code> . Defaults to 'FALSE'

Value

A list with as many entries as there are entries in `securities`; each list contains a data.frame with one row per observations and as many columns as entries in `fields`. If the list is of length one, it is collapsed into a single data frame. Note that the order of securities returned is determined by the backend and may be different from the order of securities in the `securities` field.

Author(s)

Whit Armstrong and Dirk Eddelbuettel

See Also

For historical futures series, see 'DOCS #2072138 <GO>' on the Bloomberg terminal about selecting different rolling conventions.

Examples

```
## Not run:
bdh("SPY US Equity", c("PX_LAST", "VOLUME"), start.date=Sys.Date()-31)

## example for an options field: request monthly data; see section A.2.4 of
## http://www.bloomberglabs.com/content/uploads/sites/2/2014/07/blrapi-developers-guide-2.54.pdf
## for more
opt <- c("periodicitySelection"="MONTHLY")
bdh("SPY US Equity", c("PX_LAST", "VOLUME"),
    start.date=Sys.Date()-31*6, options=opt)

## example for options and overrides
opt <- c("periodicitySelection" = "QUARTERLY")
ovrd <- c("BEST_FPERIOD_OVERRIDE"="1GQ")
bdh("IBM US Equity", "BEST_SALES", start.date=Sys.Date()-365.25*4,
    options=opt, overrides=ovrd)

## End(Not run)
```

bdp

*Run 'Bloomberg Data Point' Queries***Description**

This function uses the Bloomberg API to retrieve 'bdp' (Bloomberg Data Point) queries

Usage

```
bdp(securities, fields, options = NULL, overrides = NULL, verbose = FALSE,
    identity = NULL, con = defaultConnection())
```

Arguments

<code>securities</code>	A character vector with security symbols in Bloomberg notation.
<code>fields</code>	A character vector with Bloomberg query fields.
<code>options</code>	An optional named character vector with option values. Each field must have both a name (designating the option being set) as well as a value.
<code>overrides</code>	An optional named character vector with override values. Each field must have both a name (designating the override being set) as well as a value.
<code>verbose</code>	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'
<code>identity</code>	An optional identity object.
<code>con</code>	A connection object as created by a <code>blpConnect</code> call, and retrieved via the internal function <code>defaultConnection</code> .

Value

A data frame with as many rows as entries in `securities` and columns as entries in `fields`.

Author(s)

Whit Armstrong and Dirk Eddelbuettel

Examples

```
## Not run:
bdp(c("ESA Index", "SPY US Equity"), c("PX_LAST", "VOLUME"))

## using overrides (cf https://github.com/Rblp/Rblpapi/issues/67)
bdp("EN00 Index", "MLI_OAS", overrides=c(MLI_DATE="20150831"))

## another override example (cf http://stackoverflow.com/a/39373019/143305)
ovrd <- c("CALC_INTERVAL"="10Y", "MARKET_DATA_OVERRIDE"="PE_RATIO")
bdp("SPX Index", "INTERVAL_AVG", overrides=ovrd)

## End(Not run)
```

bds *Run 'Bloomberg Data Set' Queries*

Description

This function uses the Bloomberg API to retrieve 'bds' (Bloomberg Data Set) queries

Usage

```
bds(security, field, options = NULL, overrides = NULL, verbose = FALSE,
    identity = NULL, con = defaultConnection())
```

Arguments

security	A character value with a single security symbol in Bloomberg notation.
field	A character string with a single Bloomberg query field.
options	An optional named character vector with option values. Each field must have both a name (designating the option being set) as well as a value.
overrides	An optional named character vector with override values. Each field must have both a name (designating the override being set) as well as a value.
verbose	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'
identity	An optional identity object.
con	A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

A list with as many entries as there are entries in `securities`; each list contains a data.frame with one row per observations and as many columns as entries in `fields`. If the list is of length one, it is collapsed into a single data frame.

Author(s)

Whit Armstrong and Dirk Eddebuettel

Examples

```
## Not run:
## simple query
bds("GOOG US Equity", "TOP_20_HOLDERS_PUBLIC_FILINGS")
## example of using overrides
overrd <- c("START_DT"="20150101", "END_DT"="20160101")
bds("CPI YOY Index", "ECO_RELEASE_DT_LIST", overrides = overrd)

## End(Not run)
```

beqs

Run 'Bloomberg EQS' Queries

Description

This function uses the Bloomberg API to retrieve 'beqs' (Bloomberg EQS Data) queries

Usage

```
beqs(screenName, screenType = "GLOBAL", language = "", group = "",
      date = NULL, verbose = FALSE, con = defaultConnection())
```

Arguments

screenName	A character string with the name of the screen to execute. It can be a user defined EQS screen or one of the Bloomberg Example screens on EQS
screenType	A character string of value PRIVATE or GLOBAL Use PRIVATE for user-defined EQS screen. Use GLOBAL for Bloomberg EQS screen.
language	An optional character string with the EQS language
group	An optional character string with the Screen folder name as defined in EQS
date	An optional Date object with the 'point in time' date of the screen to execute.
verbose	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'.
con	A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

A data frame object with the date in the first column and the requested EQS data in the remaining columns.

Author(s)

Rademeyer Vermaak and Dirk Eddelbuettel

Examples

```
## Not run:
head(beqs("Global Oil Companies YTD Return"), 20)
head(beqs("Global Oil Companies YTD Return", "GLOBAL"), 20)
head(beqs("Global Oil Companies YTD Return", "GLOBAL", "GERMAN"), 20)
head(beqs("Global Oil Companies YTD Return", "GLOBAL", "GERMAN", "GENERAL"), 20)
head(beqs("Global Oil Companies YTD Return", "GLOBAL", "ENGLISH", "GENERAL",
          as.Date("2015-09-30")), 20)

## End(Not run)
```

blpAuthenticate	<i>Authenticate Bloomberg API access</i>
-----------------	--

Description

This function authenticates against the the Bloomberg API

Usage

```
blpAuthenticate(uuid, host = "localhost", ip.address,
               con = defaultConnection())
```

Arguments

uuid	A character variable with a unique user id token
host	A character variable with a hostname, defaults to 'localhost'
ip.address	An optional character variable with an IP address
con	A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

Not sure. May just be the side effect of having the session authenticated.

Author(s)

Whit Armstrong and Dirk Eddelbuettel

blpConnect	<i>Establish connection to Bloomberg service</i>
------------	--

Description

This function connects to the Bloomberg API

Usage

```
blpConnect(host = getOption("blpHost", "localhost"),
           port = getOption("blpPort", 8194L), default = TRUE)
```

Arguments

host	A character option with either a machine name that is resolvable by DNS, or an IP address. Defaults to 'localhost'.
port	An integer variable with the connection port. Default to 8194L.
default	A logical indicating whether this connection should be saved as the default, as opposed to returned to the user. Default to TRUE.

Details

For both host and port argument, default values can also be specified via `options` using, respectively, the named entries `blpHost` and `blpConnect`.

If an additional option `blpAutoConnect` is set to 'TRUE', a connection is established in the `.onAttach()` function and stored in the package environment. This effectively frees users from having to explicitly create such an object.

Value

In the `default=TRUE` case nothing is returned, and this connection is automatically used for all future calls which omit the `con` argument. Otherwise a connection object is returned which is required by all the accessor functions in the package.

Author(s)

Whit Armstrong and Dirk Eddelbuettel

Examples

```
## Not run:
con <- blpConnect() # adjust as needed

## End(Not run)
```

<code>blpDisconnect</code>	<i>Placeholder function for disconnection from Bloomberg</i>
----------------------------	--

Description

This function provides an empty stub and does not really disconnect.

Usage

```
blpDisconnect(con)
```

Arguments

`con` A connection object

Details

The internal connection object is managed via finalizers. As such the connection is only destroyed, and the connection removed, once the package is unloaded or the session is otherwise terminated.

Value

A boolean is returned; it simply states whether the connection object was small or large relative to an arbitrary cutoff of 1000 bytes.

Author(s)

Whit Armstrong and Dirk Eddelbuettel

Examples

```
## Not run:
  blpDisconnect(con)

## End(Not run)
```

bsrch	<i>Run 'Bloomberg SRCH' Queries</i>
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Description

This function uses the Bloomberg API to retrieve 'bsrch' (Bloomberg SRCH Data) queries

Usage

```
bsrch(domain, limit = "", verbose = FALSE, con = defaultConnection())
```

Arguments

domain	A character string with the name of the domain to execute. It can be a user defined SRCH screen, commodity screen or one of the variety of Bloomberg examples. All domains are in the format <domain>:<search_name>.
limit	A character string containing a value by which to limit the search length – NOT YET IMPLEMENTED
verbose	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'.
con	A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

A data frame object with the requested SRCH data.

Author(s)

Morgan Williams and Dirk Eddelbuettel

Examples

```
## Not run:
  head(bsrch("COMDTY:NGFLOW"), 20)
  head(bsrch("COMDTY:VESSEL"), 20)

## End(Not run)
```

defaultConnection	<i>Return the default connection object</i>
-------------------	---

Description

This function return the default connection object from the package environment. If no default connection has been established yet, an error message is shown,

Usage

```
defaultConnection()
```

Details

For the connection object, the required arguments host and port argument can be set via [options](#). In addition, if an additional option b1pAutoConnect is set to 'TRUE', a connection is established in the .onAttach() function and stored in the package environment. This effectively frees users from having to explicitly create such an object. Of course, the user can also call b1pConnect explicitly and store the connection object. This helper function looks up the stored connection object and returns it. In case no connection has been established, and error message is shown.

Author(s)

Whit Armstrong and Dirk Eddelbuettel

Examples

```
## Not run:  
con <- defaultConnection()  
  
## End(Not run)
```

fieldInfo	<i>Run 'Bloomberg Field Data' Queries</i>
-----------	---

Description

This function uses the Bloomberg API to retrieve fieldInfo

Usage

```
fieldInfo(fields, con = defaultConnection())
```

Arguments

fields A character vector with Bloomberg query fields.
 con A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

A data frame with as many rows as entries in fields

Author(s)

Whit Armstrong and Dirk Eddelbuettel

Examples

```
## Not run:
  fieldInfo(c("PX_LAST", "VOLUME"))

## End(Not run)
```

fieldSearch	<i>Search for matching data fields</i>
-------------	--

Description

This function searches for matching Bloomberg data fields given a search term.

Usage

```
fieldSearch(searchterm, excludeterm = "Static", con = defaultConnection())
```

Arguments

searchterm A string with the term to search for
 excludeterm A string with an expression for matches to excludes, defaults to "Static"
 con A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

A data frame with three columns of the id, mnemonic and description of each match.

Author(s)

Dirk Eddelbuettel

Examples

```
## Not run:
  head(fieldSearch("vwap"), 20)

## End(Not run)
```

getBars

*Get Open/High/Low/Close/Volume Bars from Bloomberg***Description**

This function uses the Bloomberg API to retrieve bars for the requested security.

Usage

```
getBars(security, eventType = "TRADE", barInterval = 60,
  startTime = Sys.time() - 60 * 60 * 6, endTime = Sys.time(),
  options = NULL, verbose = FALSE, returnAs = getOption("blpType",
  "matrix"), tz = Sys.getenv("TZ", unset = "UTC"),
  con = defaultConnection())
```

Arguments

security	A character variable describing a valid security ticker
eventType	A character variable describing an event type; default is 'TRADE'
barInterval	A integer denoting the number of minutes for each bar
startTime	A Datetime object with the start time, defaults to one hour before current time
endTime	A Datetime object with the end time, defaults to current time
options	An optional named character vector with option values. Each field must have both a name (designating the option being set) as well as a value.
verbose	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'
returnAs	A character variable describing the type of return object; currently supported are 'matrix' (also the default), 'fts', 'xts', 'zoo' and 'data.table'
tz	A character variable with the desired local timezone, defaulting to the value 'TZ' environment variable, and 'UTC' if unset
con	A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

A numeric matrix with elements 'time' (as a 'POSIXct' object), 'open', 'high', 'low', 'close', 'numEvents', 'volume', 'value' or an object of the type selected in returnAs. Note that the 'time' value is adjusted: Bloomberg returns the *opening* time of the bar interval, whereas financial studies typically refer to the most recent timestamp. Therefore, if one wants the timestamp associated with the end of the bar interval one should add the length of the bar interval to time value returned from Bloomberg to obtain the time at the end of the interval.

Author(s)

Dirk Eddelbuettel

Examples

```
## Not run:  
  getBars("ES1 Index")  
  
## End(Not run)
```

<code>getHeaderVersion</code>	<i>Get Bloomberg library header version</i>
-------------------------------	---

Description

This function retrieves the version of Bloomberg API headers.

Usage

```
getHeaderVersion()
```

Value

A string with four dot-separated values for major, minor, patch and build version of the headers.

Author(s)

Dirk Eddelbuettel

See Also

`getRuntimeVersion`

Examples

```
## Not run:  
  getHeaderVersion()  
  
## End(Not run)
```

getMultipleTicks *Get Multiple Ticks from Bloomberg*

Description

This function uses the Bloomberg API to retrieve multiple ticks for the requested security.

Usage

```
getMultipleTicks(security, eventType = c("TRADE", "BID", "ASK"),
  startTime = Sys.time() - 60 * 60, endTime = Sys.time(), verbose = FALSE,
  returnAs = getOption("blpType", "data.frame"), tz = Sys.getenv("TZ", unset
    = "UTC"), con = defaultConnection())
```

Arguments

security	A character variable describing a valid security ticker
eventType	A character vector describing event types, default is c("TRADE", "BID", "ASK")
startTime	A Datetime object with the start time, defaults to one hour before current time
endTime	A Datetime object with the end time, defaults to current time
verbose	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'
returnAs	A character variable describing the type of return object; currently supported are 'data.frame' (also the default) and 'data.table'
tz	A character variable with the desired local timezone, defaulting to the value 'TZ' environment variable, and 'UTC' if unset
con	A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

A numeric matrix with elements 'time', (as a 'POSIXct' object), 'values' and 'sizes', or an object of the type selected in returnAs.

Author(s)

Dirk Eddelbuettel

getPortfolio	<i>Run 'Portfolio Data' Queries</i>
--------------	-------------------------------------

Description

This function uses the Bloomberg API to retrieve 'portfolio' queries

Usage

```
getPortfolio(security, field, options = NULL, overrides = NULL,  
             verbose = FALSE, identity = NULL, con = defaultConnection())
```

Arguments

security	A character value with a single security symbol in Bloomberg notation.
field	A character string with a single Bloomberg query field.
options	An optional named character vector with option values. Each field must have both a name (designating the option being set) as well as a value.
overrides	An optional named character vector with override values. Each field must have both a name (designating the override being set) as well as a value.
verbose	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'
identity	An optional identity object.
con	A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

A list with as many entries as there are entries in `securities`; each list contains a `data.frame` with one row per observations and as many columns as entries in `fields`. If the list is of length one, it is collapsed into a single data frame.

Author(s)

John Laing

getRuntimeVersion *Get Bloomberg library run-time version*

Description

This function retrieves the version of Bloomberg API run-time.

Usage

```
getRuntimeVersion()
```

Value

A string with four dot-separated values for major, minor, patch and build version of the run-time library.

Author(s)

Dirk Eddelbuettel

See Also

getHeaderVersion

Examples

```
## Not run:  
  getRuntimeVersion()  
  
## End(Not run)
```

getTicks *Get Ticks from Bloomberg*

Description

This function uses the Bloomberg API to retrieve ticks for the requested security.

Usage

```
getTicks(security, eventType = "TRADE", startTime = Sys.time() - 60 * 60,  
         endTime = Sys.time(), verbose = FALSE, returnAs = getOption("blpType",  
         "data.frame"), tz = Sys.getenv("TZ", unset = "UTC"),  
         con = defaultConnection())
```


Arguments

security	A character variable describing a valid security ticker
eventType	A character variable describing an event, default is 'TRADE'.
startTime	A Datetime object with the start time, defaults to one hour before current time
endTime	A Datetime object with the end time, defaults to current time
verbose	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'
returnAs	A character variable describing the type of return object; currently supported are 'data.frame' (also the default), 'data.table', 'fts', 'xts' and 'zoo'
tz	A character variable with the desired local timezone, defaulting to the value 'TZ' environment variable, and 'UTC' if unset
con	A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

Depending on the value of 'returnAs', either a 'data.frame' or 'data.table' object also containing non-numerical information such as condition codes, or a time-indexed container of type 'fts', 'xts' and 'zoo' with a numeric matrix containing only 'value' and 'size'.

Note

Bloomberg returns condition codes as well, and may return *multiple observations for the same trade*. Eg for ES we can get 'AS' or 'AB' for aggressor buy or sell, 'OR' for an order participating in the matching event, or a 'TSUM' trade summary. Note that this implies double-counting. There may be an option for this in the API.

The Bloomberg API allows to retrieve up to 140 days of intra-day history relative to the current date.

Author(s)

Dirk Eddelbuettel

Examples

```
## Not run:
res <- getTicks("ES1 Index")
str(res)
head(res, 20)
res <- getTicks("ES1 Index", returnAs="data.table")
str(res)
head(res, 20)

## End(Not run)
```

lookupSecurity	<i>Look up symbol from Bloomberg</i>
----------------	--------------------------------------

Description

This function uses the Bloomberg API to look up tickers and descriptions given the name of a company.

Usage

```
lookupSecurity(query, yellowkey = c("none", "cmdt", "eqty", "muni", "prfd",
  "clnt", "mmkt", "govt", "corp", "indx", "curr", "mtge"),
  language = c("none", "english", "kanji", "french", "german", "spanish",
  "portuguese", "italian", "chinese_trad", "korean", "chinese_simp", "none_1",
  "none_2", "none_3", "none_4", "none_5", "russian"), maxResults = 20,
  verbose = FALSE, con = defaultConnection())
```

Arguments

query	A character variable describing the name of the company; for certain queries a trailing space may help.
yellowkey	A character variable that restricts the asset classes to search in; one of "none", "cmdt", "eqty", "muni", "prfd", "clnt", "mmkt", "govt", "corp", "indx", "curr", "mtge".
language	A character variable denoting the language that the results will be translated in; one of "NONE", "english", "kanji", "french", "german", "spanish", "portuguese", "italian", "chinese_trad", "korean", "chinese_simp", "none_1", "none_2", "none_3", "none_4", "none_5", "russian"
maxResults	A integer variable containing a value by which to limit the search length
verbose	A boolean indicating whether verbose operation is desired, defaults to 'FALSE'
con	A connection object as created by a blpConnect call, and retrieved via the internal function defaultConnection.

Value

A data.frame with two columns of the ticker and description of each match.

Author(s)

Kevin Jin and Dirk Eddelbuettel

Examples

```
## Not run:
lookupSecurity("IBM")
lookupSecurity("IBM", maxResults=1000) # appears to be capped at 1000
lookupSecurity("IBM", "mtge")
lookupSecurity("IBM ", "mtge") # trailing space affects query

## modify the symbol column (cf issue ticket 215 at GitHub)
res <- lookupSecurity("IBM")
res[, "symbol"] <- sub(pattern="^(.+)<(.)(<.+)>$", "\\1 \\U\\2\\E\\3",
                      perl=TRUE, res[, "security"])

res

## End(Not run)
```

subscribe

Subscribe to streaming market data

Description

This function uses the Bloomberg API to stream live market data

Usage

```
subscribe(securities, fields, fun, options = NULL, identity = NULL,
          con = defaultConnection())
```

Arguments

securities	A character vector with security symbols in Bloomberg notation.
fields	A character vector with Bloomberg query fields.
fun	An R function to be called on the subscription data.
options	An optional named character vector with option values. Each field must have both a name (designating the option being set) as well as a value.
identity	An optional identity object.
con	A connection object as created by a <code>blpConnect</code> call, and retrieved via the internal function <code>defaultConnection</code> .

Details

The `subscribe` function allows one to subscribe to streaming market quotes.

Full details of the subscription string can be found in the header file [blpapi_subscriptionlist.h](#).

Value

This function always returns `NULL`.

Author(s)

Whit Armstrong

References

<http://bloomberg.github.io/blpapi-docs/cpp/3.8>

Examples

```
## Not run:  
  subscribe(securities=c("TYZ5 Comdy", "/cusip/912810RE0@BGN"),  
            fields=c("LAST_PRICE", "BID", "ASK"),  
            fun=function(x) print(str(x$data)))  
  
## End(Not run)
```

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