R Package

Version 1.2-1

User Guide

MORNINGSTAR®

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R Package Overview

The R package allows R statistical computing application users to extract data from their Commodity DataServer environments. This extraction can be achieved by executing Commodity DataServer queries via the Web Services or Morningstar Marketplace.

Pre-Installation

"R Project" must be downloaded before the Morningstar R package can be installed. "R Project" can be downloaded from http://www.r-project.org/.

Important note: The download directory path for the "R Project" should not have any spaces in a respective folder name. For example, "C:/Program Files" is not acceptable.

Installation

The following packages are prerequisites that need to be installed prior to installing the R package: bitops, RCurl, httr, rjson, and XML.

Open R Project and go to "Packages", then "Install Package". Select your respective location, for example, "USA".

- bitopts from CRAN repository specifying the closest repository URL as the source location.

  Example:

  ```
  install.packages('bitops', repos = '<REPOSITORY URL>')
  ```

- RCurl from CRAN repository specifying the closest repository URL as the source location.

  Example:

  ```
  install.packages('RCurl', repos = '<REPOSITORY URL>')
  ```

- httr from CRAN repository specifying the closest repository URL as the source location.

  Example: from CRAN repository specifying the closest repository URL as the source location.

  ```
  install.packages('httr', repos = '<REPOSITORY URL>')
  ```

- rjson from CRAN repository specifying the closest repository URL as the source location.

  Example:

  ```
  install.packages('rjson', repos = '<REPOSITORY URL>')
  ```

- XML from CRAN repository specifying the closest repository URL as the source location.

  Example:

  ```
  install.packages('XML', repos = '<REPOSITORY URL>')
  ```

Note: Installing RCurl using the source package includes native source codes which makes it somewhat more difficult especially on Windows platforms. If you cannot obtain the RCurl package using the R graphical UI or directly from the Omegahat repository, contact Commodity Data support and they will provide the package for you.

To download the Morningstar R Package, Please contact commoditydata-support@morningstar.com for the direct file.

After being downloaded, The R package can be installed using the install.packages command with the type parameter set to "source". For example, the following command installs the R package located on C:/Morningstar/downloads/ folder:

```
install.packages('C:/Morningstar/downloads/RLIM_1.2-1.tar.gz', type='source')
```

Note: The web service that the R package interacts with should be version 2.0.3 or higher.

Commands

executeQuery - Execute Commodity DataServer queries from WebServices

Description:

The executeQuery command will allow the user to run Commodity DataServer queries. Results may either be a data frame or a list of data frames depending on how many reports are generated by the query.

Usage

```
executeQuery(qry, userpw,
lim.ws="https://ws.morningstarcommodity.com", req.timeout=300,
verify.peer=TRUE)
```

Argument(s)	
qry	String which holds the Commodity DataServer query to be executed.
userpw	String which holds the username and password separated by a colon. Please make sure the value is surrounded in single or double quotes (') or (") Ex: 'limuser@mycompany.com:mypass'
lim.ws	The URL to the web services. Set to https://ws.morningstarcommodity.com by default
req.timeout	Timeout value for requests in seconds. Set to 300 seconds by default
verify.peer	Option to bypass verifying server certificate when using SSL. Set to TRUE by default. See the following link for further details: http://curl.haxx.se/docs/sslcerts.html

Value

A data frame or a list of data frames which contain the result set.

Examples

The following example demonstrates executing a Commodity DataServer query in R:

```
library('RLIM')

mimQry <- "SHOW 1: Close of NG 2: Open of NG 3: High of NG 4: Low
of NG when date is within 1 week"
```
Specify username and password separated by a colon

to be used for logging into Web Services.

for example, `limLogin<-'user@mycompany.com:mypass'`
```
executeQuery(mimQry, limLogin)
```

getFeedKeys – Retrieve a list of keys from Marketplace Server

Description:

Allows the user to make a http GET method to retrieve a list of keys for a specified feed. Results will be a data frame with a list of key & value pair of the given feed.

Usage
```
getFeedKeys(username, password,
base.uri="https://mp.morningstarcommodity.com",
feed.name,keyLimit=100,numPage=1)
```

Argument(s)	
username	String which holds the username. example: 'someuser@morningstar.com'
password	String which holds the password. example: 'secret'
Base.uri	The URL to the Marketplace web services. Set to https://mp.morningstarcommodity.com by default.This is an optional argument
feed.name	String which holds the feed name. example: Ice_ClearedOilOptions
keyLimit	Maximum number of keys to be collected. Set to 100 item by default. Example,maxResult=500. This is an optional argument.
numPage	Maximum number of pages for the key collections. Set to 1 page by default. Example,numPage=2. This is an optional argument

Value

A data frame or a list of data frames which contain the result set.

Example:
```
getFeedKeys(username='someuser@morningstar.com',password='secret',base.uri='ht
tps://mp.morningstarcommodity.com',feed.name='Ice_ClearedOilOptions')
```

getTimeSeries – Retrieve time series of a feed from Marketplace Server

Description

Allows a user to make a GET method to retrieve time series data from a specified feed. Results will be either a data frame or a list of data frame depending on how many reports are generated by the request.

Usage
```
getTimeSeries(username, password,
base.uri="https://mp.morningstarcommodity.com",
feed.name,key.names,key.values,from.date,to.date,req.timeout=300,
maxResult=10000,timeZone='GMT')
```

Argument(s)	
username	String which holds the username. example: 'someuser@morningstar.com'
password	String which holds the password. example: 'secret'
Base.uri	The URL to the Marketplace web services. Set to https://mp.morningstarcommodity.com by default. This is an optional argument
feed.name	String which holds the feed name. example: Ice_ClearedOilOptions
key.names	A vector which holds the key names.

	example: key.names＝c("Contract_Type","Strike","Strip","Contract")
key.values	A vector which holds the key values. example: key.values＝c("C","845","1/1/2015","AEO")
from.date	String which holds the starting date (ISO 8601 format) of the time series. example: from.date＝"2014-03-31"
to.date	String which holds the end date (ISO 8601 format) of the time series. example: to.date＝"2014-04-03". This is an optional argument
req.timeout	Timeout value in seconds. Set to 300 seconds by default. Example: req.timeout＝500. This is optional argument
maxResult	Maximum number rows of the time series. Set to 10000 item by default. example: maxResult＝50000. This is an optional argument
timeZone	Set the time zone of the time series data. Set to 'GMT' by default. Any wrong input will return 'GMT' timezone data. Example: timeZone＝"America/Chicago". This is an optional argument

Example
```
getTimeSeries(username="someuser@morningstar.com",
password="secret",feed.name="Ice_ClearedOilOptions",key.names=c("
Contract_Type","Strike","Strip","Contract"),key.values=c("C","845
","1/1/2015","AEO"),from.date="2014-03-31",to.date="2014-04-
03",req.timeout=500,maxResult=100,timeZone="America/Chicago" )
```

Supported Platforms

Morningstar Commodity Data for R Supported Versions Matrix (Windows 32-bit)

R Version	Bitopts	XML	RCurl
2.11.0	1.0-4.1	3.2-0.1	1.4-4.1
2.11.1	1.0-4.1	3.2-0.1	1.4-4.1
2.12.0	1.0-4.1	3.2-0.2	1.5-0.1
2.12.1	1.0-4.1	3.2-0.2	1.5-0.1
2.12.2	1.0-4.1	3.2-0.2	1.5-0.1
2.13.1	1.0-4.1	3.4-2.2	1.6-9.1
2.14.1	1.0-4.1	3.9-4.1	1.91-1.1

Links to Windows packages

XML

Version	Download Link
3.2-0.1	http://www.omegahat.org/R/bin/windows/contrib/2.11/XML_3.2-0.1.zip
3.2-0.2	http://www.omegahat.org/R/bin/windows/contrib/2.12/XML_3.2-0.2.zip
3.4-2.2	http://www.stats.ox.ac.uk/pub/RWin/bin/windows/contrib/2.13/XML_3.4-2.2.zip
3.9-4.1	http://www.stats.ox.ac.uk/pub/RWin/bin/windows/contrib/2.14/XML_3.9-4.1.zip

RCurl

Version	Download Link
1.4-4.1	http://www.omegahat.org/R/bin/windows/contrib/2.11/RCurl_1.4-4.1.zip
1.5-0.1	http://www.omegahat.org/R/bin/windows/contrib/2.12/RCurl_1.5-0.1.zip
1.6-9.1	http://www.stats.ox.ac.uk/pub/RWin/bin/windows/contrib/2.13/RCurl_1.6-9.1.zip
1.91-1.1	http://www.stats.ox.ac.uk/pub/RWin/bin/windows/contrib/2.14/RCurl_1.91-1.1.zip

Troubleshooting/FAQ

- I am getting following warning when I try to install RLIM 1.2-1 package

```
Warning in install.packages:
package 'C:/Morningstar/downloads/RLIM_1.2-1.tar.gz' is not
available (for R version 3.2.4 Revised)
```

  - This error occurs if the specified file path 'C:/Morningstar/downloads/RLIM_1.2-1.tar.gz' does not exist. Or if there is a spelling mistake in the file path. Please make sure there is no spelling mistake and the package file 'C:/Morningstar/downloads/RLIM_1.2-1.tar.gz' exists at the specified location.

  - The error can also be thrown due to the incompatibilities of versions. Please execute the install.packages command for RLIM package as follows

```
install.packages('C:/Morningstar/downloads/RLIM_1.2-1.tar.gz', type='source', repo=NULL)
```

- I am not able to access the Omegahat repository and cannot retrieve the prerequisites.

- Contact Commodity Data support and they will provide you the packages you need.

- I am trying to install RCurl from the source package but my installation fails.
  - The RCurl package has native source codes which require additional and somewhat complicated set of tools   and configurations to be present during its installation. Morningstar Commodity Data recommends that the user only install the binary version of the RCurl package.

- I am getting the following error when I try to run a query:
  - Error in curlPerform(url = url, headerfunction = header$update,   curl = curl, : SSL certificate problem, verify that the CA cert is OK. Details: error:14090086:SSL routines:SSL3_GET_SERVER_CERTIFICATE:certificate verify failed

  - This error occurs when the web service you are using (specified by lim.ws or https://ws.morningstarcommodity.com by default) is sending back a certificate to identify itself but that certificate is not in the list of known trusted certificates. You can either add the servers certificate by appending it to the file $RCURLDIR\library\RCurl\CurlSSL\cacert.pem or by using the verify.peer=false option.

    For more information, see http://ademar.name/blog/2006/04/curl-ssl-certificate-problem-v.html

- I appended the certificate to the file but am still having problems...
  - Contact Morningstar Commodity Data support. Please make sure you have the versions of R or RCurl available when contacting support.