R

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Overview

OpenCGA implements an R REST client library called o**pencgaR** to execute any query or operation through the REST web services API. The client offers programmatic access to the implemented REST web services, facilitating the access and analysis of data stored in OpenCGA. From version 2.0.0 data is returned in a new *RestResponse* object which contains metadata and the results. The client also implements some handy methods to return information from this object.

opencgaR has been implemented by Marta Bleda. The code is open-source and can be found at https://github.com/opencb/opencga/tree/develop/opencga-client/src/main/R. It can be installed easily by downloading the pre-build package. Please, find more details on how to use the R library at Using the R client.

Installation

The R client requires at least **R version 3.4,** although most of the code is fully compatible with earlier versions. The pre-build R package of the R client can be downloaded from the OpenCGA v2.0.0 GitHub Release at https://github.com/opencb/opencga/releases and installed using the `install.packages` function in R. `install.packages` can also install a source package from a remote `.tar.gz` file by providing the URL to such file (code below).

```
## Install opencgaR by providing the URL to the package
install.packages("opencgaR_2.0.0.tar.gz", repos=NULL, type="source")
```

Getting started

Connection and authentication into an OpenCGA instance

A set of methods have been implemented to deal with the connectivity and login to the REST host. Connection to the host is done in two steps using the functions ***initOpencgaR*** and ***opencgaLogin*** for defining the connection details and login, respectively.

The ***initOpencgaR*** function accepts either host and version information or a configuration file (as a `list()` or in YAML or JSON format). The ***opencgaLogin*** function establishes the connection with the host, it requires an opencgaR object (created using `initOpencgaR` function) and the login details: user and password. User and password can optionally be introduced interactively through a popup window using `interactive=TRUE`, to avoid typing user credentials within the R script or a config file.

The code below shows three different ways to initialise the OpenCGA connection with the REST server.

```
## Initialise connection specifying host and REST version
con <- initOpencgaR(host = "http://bioinfo.hpc.cam.ac.uk/opencga-prod/",
version = "v2")

## Initialise connection using a configuration in R list
conf <- list(version="v2", rest=list(host="http://bioinfo.hpc.cam.ac.uk
/opencga-prod/"))
con <- initOpencgaR(opencgaConfig=conf)

## Initialise connection using a configuration file (in YAML or JSON
format)
conf <- "/path/to/conf/client-configuration.yml"
con <- initOpencgaR(opencgaConfig=conf)
```

Once the connection has been initialised users can login specifying their OpenCGA user ID and password.

```
## Log in
con <- opencgaLogin(opencga = con, userid = "demouser", passwd =
"demouser")
```

Examples

```
## Look for the first 5 sample IDs of the study "1000g"
sample_result = sampleClient(OpencgaR = con, endpointName = "search",
params = list(study="1000g",

limit=5,

include="id"))
results(sample_result)
```


```
## Look for the first 5 sample IDs of the study "1000g"
sample_result = sampleClient(OpencgaR = con, endpointName = "search",
params = list(study="1000g",

limit=5,

include="id"))
results(sample_result)
```


| endpointName | Endpoint WS | parameters accepted | | -- | :-- | --: | | groupByAudit | /{apiVersion}/admin /audit/groupBy | count, limit, fields[*], entity[*], action, before, after, date | | indexStatsCatalog | /{apiVersion}/admin/catalog/indexStats | | | installCatalog | /{apiVersion}/admin/catalog/install | body[*] | | jwtCatalog | /{apiVersion}/admin/catalog/jwt | body[*] | | createUsers | /{apiVersion}/admin/users/create | body[*] | | importUsers | /{apiVersion}/admin/users/import | body[*] | | syncUsers | /{apiVersion}/admin /users/sync | body[*] |