RESTful Web Services and Clients

OpenCGA RESTful Web Services

HGVA is powered by the Open Computational Genomic Analysis (OpenCGA) project. OpenCGA implements an extensive API that enables numerous operations over metadata, samples and genomic data. The whole API specification can be accessed at:

http://bioinfo.hpc.cam.ac.uk/hgva/webservices

A description of the API and URLs design can be found at the OpenCGA Using OpenCGA documentation.

The tutorial Using RESTful Web Services URL shows practical examples on how to directly query the RESTful API. It focuses on those end points of the API which are of more interest for HGVA users, giving examples of their use and pin pointing certain peculiarities of the parameters for HGVA. Data is hierarchically organised in Projects and Studies. Please, in order to understand the API behaviour, have a look at Datasets and Studies in order to first how data is organized: *Projects, Studies* and *Cohorts* . For details on the query parameters, please refer to the Swagger documentation linked above.

Clients

Likewise, a number of client libraries are provided which make intensive use of the Using OpenCGA. They provide fast programmatic access for genome-scale data analysis, therefore discouraging massive downloads of data to local computers. Currently supported languages include Python, Java and JavaScript. A similar design has been used in all of them in order to facilitate their use, external contributions and maintenance. Again, all of them provide an exhaustive API for accessing the whole Using OpenCGA. Please, refer to the corresponding Tutorials to find details on how to download, install, configure the libraries as well as practical examples on how to use the methods which are **of particular interest for HGVA users**.

Java

The Java client library is distributed together with the rest of the OpenCGA code:

https://github.com/opencb/opencga/tree/develop/opencga-client

It offers a Java API to all the functionality provided by the Using OpenCGA. Please, refer to Using the Java REST client for further details on how to get the code, configure, build and use the library. **Only those methods which are of more interest to HGVA users** are described in that tutorial.

Python (*pyCGA*)

pyCGA is the Python client library for Using OpenCGA, all the web services are accessible through this client, and it offers a quick way to query OpenCGA projects programmatically from custom scripts. The Python client library is distributed with the rest of the OpenCGA code.

https://github.com/opencb/opencga/tree/develop/opencga-client/src/main/python

GitHub provides a public issue tracker which enables users to provide comments and contributions.

Please, refer to the tutorial Using the Python REST client in order to get detailed instructions for installing and configuring it, as well as a list of the methods which are **of more interest for HGVA users** and practical examples on how to use them.

JavaScript client

OpencgaClient is the Javascript client library for Using OpenCGA, all the web services are accessible through this client, and it offers a quick way to query OpenCGA projects through web interface. This is available at **OpenCB JSorolla**.