RECONSTRUCT-DB

A `RESTful API` for storing the scientific data generated within the RECONSTRUCT project.

Use cases and RESTful endpoints

In the following the basic use cases are explained and a usage example given using the CLI curl instruction.

LOGIN

```
curl -X POST -H "Content-Type: application/json" --data '{"email":
"ýour.email@uni-institute.edu", "password": "your.password"}'
'http://vmd17974.contabo.host:3000/login'
```

After having logged in you will see a bearer token, which has to be provided in all subsequent requests. Consider the following example to obtain all data of data model "sample":

```
curl -H 'Authorization: Bearer result_from_login_has_to_be_put_here'
http://vmd17974.contabo.host:3000/samples
```

Note: All API endpoints require a successful log-in and subsequent usage of a bearer token. This means, that you always have to supply the above header in all API calls listed below.

CREATE

Single instance

To create a single instance of a given data model (a row in the relation database) use the following command.

```
curl -H 'Authorization: Bearer result_from_login_has_to_be_put_here'
--data "name=XYZ&material=leaf"
'http://vmd17974.contabo.host:3000/samples'
```

Bulk create

To create many model instances (rows in the relational database's respective table) use the upload Excel or upload CSV end-points.

CSV
```
curl -H 'Authorization: Bearer result_from_login_has_to_be_put_here'
-F 'csv_file=@./samples.csv'
'http://vmd17974.contabo.host:3000/samples/upload_csv'
```

Excel (XLSX)
```
curl -H 'Authorization: Bearer result_from_login_has_to_be_put_here'
-F 'xlsx_file=@./samples.xlsx'
'http://vmd17974.contabo.host:3000/samples/upload_xlsx'
```

READ

A single, a subset, or all instances of a given model can be read. Here, a single model is identified by its ID, while a subset can be obtained by pagination (`page` and `per_page`

parameters), and *or* or by searching (`filter` parameter) textual model-fields (textual columns in the respective relational database's table).

SINGLE

Given an identifier of the desired model instance it can be retrieved as follows:

```
curl 'http://vmd17974.contabo.host:3000/sample/1'
```

MULTIPLE

Search

To retrieve all samples that match "`ChrC09`" in any of their textual fields (`chromosome` and `name`) use the following command:

```
curl -H 'Authorization: Bearer result_from_login_has_to_be_put_here'
'http://vmd17974.contabo.host:3000/samples?filter=eaf'
```

Subset / Paginate

To iterate through model instances the following command can be applied.

```
curl -H 'Authorization: Bearer result_from_login_has_to_be_put_here'
'http://vmd17974.contabo.host:3000/samples?page=10&per_page=20'
```

Subset of Search Results

To combine the above two methods, simply give all request parameters:

```
curl -H 'Authorization: Bearer result_from_login_has_to_be_put_here'
'http://vmd17974.contabo.host:3000/samples?page=10&per_page=20&filte
r=chrC09'
```

UPDATE

In order to change some of the fields of a given model instance, its ID is required as are the new values of the fields in question. Given this, the following command updates a model instance accordingly:

```
curl -H 'Authorization: Bearer result_from_login_has_to_be_put_here'
-X PUT --data 'name=NewFancyName'
'http://vmd17974.contabo.host:3000/sample/1'
```

DELETE

In order to delete an instance of a data model its ID is required. The following command deletes the instance by removing it from the underlying relational database's corresponding table:

```
curl -H 'Authorization: Bearer result_from_login_has_to_be_put_here'
-X DELETE 'http://vmd17974.contabo.host:3000/sample/4'
```

Using the API within an analysis / Example in **R**

The following example code explains how to obtain data from Kodiaq-DB from within a R-Script.

```r
require(httr)

# Login
auth.token <- content(POST(
  'http://vmd17974.contabo.host:3000/login',
  body = list('email' =  'asis.hallab@gmail.com',
              'password' = 'admin')
))$token

# Obtain JSON data as list of lists
samples.list <- content(GET(
  'http://vmd17974.contabo.host:3000/samples',
  add_headers('authorization' = paste('bearer', auth.token))
))
```