

Getting started in 5 minutes

Pre-requisites

In order to follow this guide you have to install BioNetDB in your system. Please, please follow the steps on [Installation Guide](#) and set it up.

Download test data

Download the test data from <http://bioinfo.hpc.cam.ac.uk/downloads/bionetdb/bionetdb.dataset.tar.gz> and extract the content of the archive executing:

Download and extract

```
# Download in the /tmp folder
$ cd /tmp
$ wget http://bioinfo.hpc.cam.ac.uk/downloads/bionetdb/bionetdb.dataset.tar.gz

# Extract the content
$ tar xvfz bionetdb.dataset.tar.gz
bionetdb.dataset/
bionetdb.dataset/illumina_platinum.export.5k.json
bionetdb.dataset/mirna.csv
bionetdb.dataset/genes.json.gz
bionetdb.dataset/proteins.json.gz
bionetdb.dataset/illumina_platinum.export.5k.json.meta.json
bionetdb.dataset/Homo_sapiens.owl
bionetdb.dataset/10k.clinvar.json.gz

# List the content
$ cd bionetdb.dataset/
$ ls -ltrh
total 475M
-rw-rw-r-- 1 jtarraga jtarraga 38M Jun 26 13:39 proteins.json.gz
-rw-rw-r-- 1 jtarraga jtarraga 78M Jun 26 13:39 genes.json.gz
-rw-rw-r-- 1 jtarraga jtarraga 1.2M Jun 26 13:39 mirna.csv
-rw-rw-r-- 1 jtarraga jtarraga 53K Jun 26 13:39 illumina_platinum.export.5k.json.meta.json
-rw-rw-r-- 1 jtarraga jtarraga 56M Jun 26 13:39 illumina_platinum.export.5k.json
-rw-rw-r-- 1 jtarraga jtarraga 215M Jun 26 13:39 Homo_sapiens.owl
-rw-rw-r-- 1 jtarraga jtarraga 89M Jun 26 13:39 10k.clinvar.json.gz
```

Import genomic data

Before you query BioNetDB database, you have to populate it. Neo4j provides a mechanism to do batch imports of large amounts of data into a Neo4j database from CSV files. The importing mechanism has been integrated in the BioNetDB command line (*bionetdb.sh import*) that allows users, first, prepare your data by creating the Neo4j CSV files, and then, these files are loaded into the database.

Creating the Neo4j CSV files

In order to create the Neo4j CSV files you have to use the BioNetDB command line: *bionetdb.sh import --create-csv*. The following command line creates the Neo4j CSV files for the previously downloaded dataset.

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Create Neo4j CSV files

```
$ mkdir /tmp/bionetdb.dataset/csv
$ ./bionetdb.sh import -i /tmp/bionetdb.dataset -o /tmp/bionetdb.dataset
/csv --create-csv-files
...
...
[main] INFO org.opencb.bionetdb.core.utils.Neo4jBioPaxImporter - 2: 96%
[main] INFO org.opencb.bionetdb.core.utils.Neo4jBioPaxImporter - 2: 99%
[main] INFO org.opencb.bionetdb.core.utils.Neo4jBioPaxImporter -
Processing /tmp/bionetdb.dataset/Homo_sapiens.owl containing 383790 BioPax
elements in 11 s
[main] INFO org.opencb.bionetdb.core.utils.Neo4jBioPaxImporter -
Processing 55847 nodes
[main] INFO org.opencb.bionetdb.core.utils.Neo4jBioPaxImporter -
Processing 178398 relations
[main] INFO class org.opencb.bionetdb.app.cli.ImportCommandExecutor - Post-
processing 778 dna nodes
[main] INFO class org.opencb.bionetdb.app.cli.ImportCommandExecutor - Post-
processing 302 miRNA nodes
[main] INFO org.opencb.bionetdb.core.utils.Neo4jCsvImporter - Processing
JSON file /tmp/bionetdb.dataset/10k.clinvar.json.gz
[main] INFO org.opencb.bionetdb.core.utils.Neo4jCsvImporter - Parsing 5000
variants...
[main] INFO org.opencb.bionetdb.core.utils.Neo4jCsvImporter - Parsing
10000 variants...
[main] INFO org.opencb.bionetdb.core.utils.Neo4jCsvImporter - Parsed 10000
variants from /tmp/bionetdb.dataset/10k.clinvar.json.gz. Done!!!
[main] INFO org.opencb.bionetdb.core.utils.Neo4jCsvImporter - Processing
JSON file /tmp/bionetdb.dataset/illumina_platinum.export.5k.json
[main] INFO org.opencb.bionetdb.core.utils.Neo4jCsvImporter - Parsing 5000
variants...
[main] INFO org.opencb.bionetdb.core.utils.Neo4jCsvImporter - Parsed 5000
variants from /tmp/bionetdb.dataset/illumina_platinum.export.5k.json.
Done!!!
[main] INFO class org.opencb.bionetdb.app.cli.ImportCommandExecutor - Gene
indexing in 40 s
[main] INFO class org.opencb.bionetdb.app.cli.ImportCommandExecutor -
Protein indexing in 13 s
[main] INFO class org.opencb.bionetdb.app.cli.ImportCommandExecutor -
miRNA indexing in 0 s
[main] INFO class org.opencb.bionetdb.app.cli.ImportCommandExecutor -
BioPAX processing in 27 s
[main] INFO class org.opencb.bionetdb.app.cli.ImportCommandExecutor -
Variant processing in 19 s
```

The Neo4j CSV files are located in the output folder:

Neo4j CSV files

```
$ ls -ltr /tmp/bionetdb.dataset/csv
total 180936
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 VARIANT_ANNOTATION.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 TRANSPORT.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14
TRANSCRIPT_ANNOTATION_FLAG.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 REGULATION_REGION.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 PROTEIN_ANNOTATION.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 PHYSICAL_ENTITY.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 PANEL.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 ONTOLOGY.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 INTERACTION.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14
GENE_TRAIT_ASSOCIATION.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 GENE_ANNOTATION.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 EXPRESSION.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 EXON_OVERLAP.csv
```

```

-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 DISEASE_SUBGROUP.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 DISEASE_GROUP.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 CONFIG.csv
-rw-rw-r-- 1 jtarraga jtarraga      0 Jun 26 14:14 ASSEMBLY.csv
drwxr-xr-x 2 jtarraga jtarraga    4096 Jun 26 14:15 genes.rocksd
drwxr-xr-x 2 jtarraga jtarraga    4096 Jun 26 14:15 mirna.rocksd
drwxr-xr-x 2 jtarraga jtarraga    4096 Jun 26 14:15 proteins.rocksd
drwxr-xr-x 2 jtarraga jtarraga    4096 Jun 26 14:15 rocksd
-rw-rw-r-- 1 jtarraga jtarraga 14011261 Jun 26 14:15 XREF__PROTEIN__XREF.
csv
-rw-rw-r-- 1 jtarraga jtarraga 28263017 Jun 26 14:15 XREF.csv
-rw-rw-r-- 1 jtarraga jtarraga  240044 Jun 26 14:15 VARIANT__VARIANT_CALL.
csv
-rw-rw-r-- 1 jtarraga jtarraga  419286 Jun 26 14:15
VARIANT__TRAIT_ASSOCIATION.csv
-rw-rw-r-- 1 jtarraga jtarraga 3633480 Jun 26 14:15
VARIANT__POPULATION_FREQUENCY.csv
-rw-rw-r-- 1 jtarraga jtarraga   80045 Jun 26 14:15
VARIANT_FILE_INFO__FILE.csv
-rw-rw-r-- 1 jtarraga jtarraga  516837 Jun 26 14:15 VARIANT_FILE_INFO.csv
-rw-rw-r-- 1 jtarraga jtarraga  911253 Jun 26 14:15 VARIANT.csv
-rw-rw-r-- 1 jtarraga jtarraga  793845 Jun 26 14:15 VARIANT__CONSERVATION.
csv
-rw-rw-r-- 1 jtarraga jtarraga 2068937 Jun 26 14:15
VARIANT__CONSEQUENCE_TYPE.csv
-rw-rw-r-- 1 jtarraga jtarraga  390033 Jun 26 14:15 VARIANT_CALL.csv
-rw-rw-r-- 1 jtarraga jtarraga   75421 Jun 26 14:15 UNDEFINED.csv
-rw-rw-r-- 1 jtarraga jtarraga  849048 Jun 26 14:15 TRANSCRIPT__TFBS.csv
-rw-rw-r-- 1 jtarraga jtarraga   84839 Jun 26 14:15 TRANSCRIPT__PROTEIN.
csv
-rw-rw-r-- 1 jtarraga jtarraga  739714 Jun 26 14:15 TRANSCRIPT.csv
-rw-rw-r-- 1 jtarraga jtarraga 3312486 Jun 26 14:15 TFBS.csv
-rw-rw-r-- 1 jtarraga jtarraga    826 Jun 26 14:15
TARGET_GENE__MIRNA__GENE.csv
-rw-rw-r-- 1 jtarraga jtarraga  876916 Jun 26 14:15 SUBSTITUTION_SCORE.csv
-rw-rw-r-- 1 jtarraga jtarraga   1212 Jun 26 14:15 SO.csv
-rw-rw-r-- 1 jtarraga jtarraga 130465 Jun 26 14:15 SMALL_MOLECULE.csv
-rw-rw-r-- 1 jtarraga jtarraga   8913 Jun 26 14:15 RNA.csv
-rw-rw-r-- 1 jtarraga jtarraga   10839 Jun 26 14:15
REACTANT__REACTION__UNDEFINED.csv
-rw-rw-r-- 1 jtarraga jtarraga   1708 Jun 26 14:15
REACTANT__REACTION__RNA.csv
-rw-rw-r-- 1 jtarraga jtarraga   82014 Jun 26 14:15
REACTANT__REACTION__PROTEIN.csv
-rw-rw-r-- 1 jtarraga jtarraga   13002 Jun 26 14:15
REACTANT__REACTION__DNA.csv
-rw-rw-r-- 1 jtarraga jtarraga   93777 Jun 26 14:15
REACTANT__REACTION__COMPLEX.csv
-rw-rw-r-- 1 jtarraga jtarraga    39 Jun 26 14:15
PROTEIN_VARIANT_ANNOTATION__PROTEIN_KEYWORD.csv
-rw-rw-r-- 1 jtarraga jtarraga    48 Jun 26 14:15
PROTEIN_VARIANT_ANNOTATION__PROTEIN_FEATURE.csv
-rw-rw-r-- 1 jtarraga jtarraga 1558786 Jun 26 14:15
PROTEIN__PROTEIN_KEYWORD.csv
-rw-rw-r-- 1 jtarraga jtarraga 6322047 Jun 26 14:15
PROTEIN__PROTEIN_FEATURE.csv
-rw-rw-r-- 1 jtarraga jtarraga   23573 Jun 26 14:15 PROTEIN_KEYWORD.csv
-rw-rw-r-- 1 jtarraga jtarraga 74644290 Jun 26 14:15 PROTEIN_FEATURE.csv
-rw-rw-r-- 1 jtarraga jtarraga 2145473 Jun 26 14:15 PROTEIN.csv
-rw-rw-r-- 1 jtarraga jtarraga    6881 Jun 26 14:15
PRODUCT__REACTION__UNDEFINED.csv
-rw-rw-r-- 1 jtarraga jtarraga   97187 Jun 26 14:15
PRODUCT__REACTION__SMALL_MOLECULE.csv
-rw-rw-r-- 1 jtarraga jtarraga   1420 Jun 26 14:15
PRODUCT__REACTION__RNA.csv
-rw-rw-r-- 1 jtarraga jtarraga  102232 Jun 26 14:15
PRODUCT__REACTION__COMPLEX.csv
-rw-rw-r-- 1 jtarraga jtarraga 12258089 Jun 26 14:15 POPULATION_FREQUENCY.
csv
-rw-rw-r-- 1 jtarraga jtarraga   15956 Jun 26 14:15
PATHWAY_NEXT_STEP__REGULATION__REGULATION.csv

```

```

-rw-rw-r-- 1 jtarraga jtarraga      11308 Jun 26 14:15
PATHWAY_NEXT_STEP__REGULATION__CATALYSIS.csv
-rw-rw-r-- 1 jtarraga jtarraga      33343 Jun 26 14:15
PATHWAY_NEXT_STEP__REACTION__REGULATION.csv
-rw-rw-r-- 1 jtarraga jtarraga     162451 Jun 26 14:15
PATHWAY_NEXT_STEP__REACTION__REACTION.csv
-rw-rw-r-- 1 jtarraga jtarraga         963 Jun 26 14:15
PATHWAY_NEXT_STEP__REACTION__PATHWAY.csv
-rw-rw-r-- 1 jtarraga jtarraga         127 Jun 26 14:15
PATHWAY_NEXT_STEP__PATHWAY__REGULATION.csv
-rw-rw-r-- 1 jtarraga jtarraga         1996 Jun 26 14:15
PATHWAY_NEXT_STEP__PATHWAY__PATHWAY.csv
-rw-rw-r-- 1 jtarraga jtarraga          594 Jun 26 14:15
PATHWAY_NEXT_STEP__CATALYSIS__PATHWAY.csv
-rw-rw-r-- 1 jtarraga jtarraga      46186 Jun 26 14:15
PATHWAY_NEXT_STEP__CATALYSIS__CATALYSIS.csv
-rw-rw-r-- 1 jtarraga jtarraga     129897 Jun 26 14:15 PATHWAY.csv
-rw-rw-r-- 1 jtarraga jtarraga         34 Jun 26 14:15
MIRNA__TARGET__TRANSCRIPT.csv
-rw-rw-r-- 1 jtarraga jtarraga         968 Jun 26 14:15 MIRNA.csv
-rw-rw-r-- 1 jtarraga jtarraga         469 Jun 26 14:15 IS__RNA__MIRNA.csv
-rw-rw-r-- 1 jtarraga jtarraga      10413 Jun 26 14:15 IS__DNA__GENE.csv
-rw-rw-r-- 1 jtarraga jtarraga      94312 Jun 26 14:15 GENE__TRANSCRIPT.csv
-rw-rw-r-- 1 jtarraga jtarraga      51330 Jun 26 14:15 GENE__DRUG.csv
-rw-rw-r-- 1 jtarraga jtarraga     988165 Jun 26 14:15 GENE__DISEASE.csv
-rw-rw-r-- 1 jtarraga jtarraga     105517 Jun 26 14:15 GENE.csv
-rw-rw-r-- 1 jtarraga jtarraga        203 Jun 26 14:15 FILE.csv
-rw-rw-r-- 1 jtarraga jtarraga     120908 Jun 26 14:15 DRUG.csv
-rw-rw-r-- 1 jtarraga jtarraga     911319 Jun 26 14:15 DISEASE.csv
-rw-rw-r-- 1 jtarraga jtarraga        205 Jun 26 14:15
CONTROLLER__REGULATION__UNDEFINED.csv
-rw-rw-r-- 1 jtarraga jtarraga         67 Jun 26 14:15
CONTROLLER__REGULATION__RNA.csv
-rw-rw-r-- 1 jtarraga jtarraga      3529 Jun 26 14:15
CONTROLLER__CATALYSIS__UNDEFINED.csv
-rw-rw-r-- 1 jtarraga jtarraga     29158 Jun 26 14:15
CONTROLLER__CATALYSIS__PROTEIN.csv
-rw-rw-r-- 1 jtarraga jtarraga     41431 Jun 26 14:15
CONTROLLER__CATALYSIS__COMPLEX.csv
-rw-rw-r-- 1 jtarraga jtarraga     24238 Jun 26 14:15
CONTROLLED__REGULATION__REACTION.csv
-rw-rw-r-- 1 jtarraga jtarraga     208268 Jun 26 14:15
CONSEQUENCE_TYPE__TRANSCRIPT.csv
-rw-rw-r-- 1 jtarraga jtarraga     512125 Jun 26 14:15
CONSEQUENCE_TYPE__PROTEIN_VARIANT_ANNOTATION.csv
-rw-rw-r-- 1 jtarraga jtarraga         38 Jun 26 14:15
CONSEQUENCE_TYPE__GENE.csv
-rw-rw-r-- 1 jtarraga jtarraga     175344 Jun 26 14:15
COMPONENT_OF_PATHWAY__REACTION__PATHWAY.csv
-rw-rw-r-- 1 jtarraga jtarraga     32800 Jun 26 14:15
COMPONENT_OF_PATHWAY__PATHWAY__PATHWAY.csv
-rw-rw-r-- 1 jtarraga jtarraga     17555 Jun 26 14:15
COMPONENT_OF_COMPLEX__UNDEFINED__COMPLEX.csv
-rw-rw-r-- 1 jtarraga jtarraga      3298 Jun 26 14:15
COMPONENT_OF_COMPLEX__RNA__COMPLEX.csv
-rw-rw-r-- 1 jtarraga jtarraga     236226 Jun 26 14:15
COMPONENT_OF_COMPLEX__PROTEIN__COMPLEX.csv
-rw-rw-r-- 1 jtarraga jtarraga      6506 Jun 26 14:15
COMPONENT_OF_COMPLEX__DNA__COMPLEX.csv
-rw-rw-r-- 1 jtarraga jtarraga     17216 Jun 26 14:15
CELLULAR_LOCATION__UNDEFINED__CELLULAR_LOCATION.csv
-rw-rw-r-- 1 jtarraga jtarraga     44423 Jun 26 14:15
CELLULAR_LOCATION__SMALL_MOLECULE__CELLULAR_LOCATION.csv
-rw-rw-r-- 1 jtarraga jtarraga      3384 Jun 26 14:15
CELLULAR_LOCATION__RNA__CELLULAR_LOCATION.csv
-rw-rw-r-- 1 jtarraga jtarraga      8757 Jun 26 14:15
CELLULAR_LOCATION__DNA__CELLULAR_LOCATION.csv
-rw-rw-r-- 1 jtarraga jtarraga      4396 Jun 26 14:15 CELLULAR_LOCATION.csv
-rw-rw-r-- 1 jtarraga jtarraga     156427 Jun 26 14:15
CELLULAR_LOCATION__COMPLEX__CELLULAR_LOCATION.csv
-rw-rw-r-- 1 jtarraga jtarraga     22842 Jun 26 14:15

```

CELLULAR_LOCATION__CATALYSIS__CELLULAR_LOCATION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 117673 Jun 26 14:15 CATALYSIS.csv
 -rw-rw-r-- 1 jtarraga jtarraga 33 Jun 26 14:15 XREF__RNA__XREF.csv
 -rw-rw-r-- 1 jtarraga jtarraga 435530 Jun 26 14:15
 VARIANT__FUNCTIONAL_SCORE.csv
 -rw-rw-r-- 1 jtarraga jtarraga 240052 Jun 26 14:15
 VARIANT_CALL__VARIANT_FILE_INFO.csv
 -rw-rw-r-- 1 jtarraga jtarraga 2779326 Jun 26 14:15 TRAIT_ASSOCIATION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 39 Jun 26 14:15
 TARGET_TRANSCRIPT__TRANSCRIPT.csv
 -rw-rw-r-- 1 jtarraga jtarraga 31 Jun 26 14:15 TARGET_TRANSCRIPT.csv
 -rw-rw-r-- 1 jtarraga jtarraga 240043 Jun 26 14:15 SAMPLE__VARIANT_CALL.
 csv
 -rw-rw-r-- 1 jtarraga jtarraga 97 Jun 26 14:15 SAMPLE.csv
 -rw-rw-r-- 1 jtarraga jtarraga 204330 Jun 26 14:15 REGULATION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 887011 Jun 26 14:15 REACTION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 110854 Jun 26 14:15
 REACTANT__REACTION__SMALL_MOLECULE.csv
 -rw-rw-r-- 1 jtarraga jtarraga 635263 Jun 26 14:15
 PROTEIN_VARIANT_ANNOTATION__SUBSTITUTION_SCORE.csv
 -rw-rw-r-- 1 jtarraga jtarraga 187645 Jun 26 14:15
 PROTEIN_VARIANT_ANNOTATION__PROTEIN.csv
 -rw-rw-r-- 1 jtarraga jtarraga 445975 Jun 26 14:15
 PROTEIN_VARIANT_ANNOTATION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 43355 Jun 26 14:15
 PRODUCT__REACTION__PROTEIN.csv
 -rw-rw-r-- 1 jtarraga jtarraga 29473 Jun 26 14:15
 PATHWAY_NEXT_STEP__REGULATION__REACTION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 553 Jun 26 14:15
 PATHWAY_NEXT_STEP__REGULATION__PATHWAY.csv
 -rw-rw-r-- 1 jtarraga jtarraga 75303 Jun 26 14:15
 PATHWAY_NEXT_STEP__REACTION__CATALYSIS.csv
 -rw-rw-r-- 1 jtarraga jtarraga 538 Jun 26 14:15
 PATHWAY_NEXT_STEP__PATHWAY__REACTION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 322 Jun 26 14:15
 PATHWAY_NEXT_STEP__PATHWAY__CATALYSIS.csv
 -rw-rw-r-- 1 jtarraga jtarraga 7221 Jun 26 14:15
 PATHWAY_NEXT_STEP__CATALYSIS__REGULATION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 78151 Jun 26 14:15
 PATHWAY_NEXT_STEP__CATALYSIS__REACTION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 1366995 Jun 26 14:15 FUNCTIONAL_SCORE.csv
 -rw-rw-r-- 1 jtarraga jtarraga 20391 Jun 26 14:15 DNA.csv
 -rw-rw-r-- 1 jtarraga jtarraga 3052 Jun 26 14:15
 CONTROLLER__REGULATION__SMALL_MOLECULE.csv
 -rw-rw-r-- 1 jtarraga jtarraga 7105 Jun 26 14:15
 CONTROLLER__REGULATION__PROTEIN.csv
 -rw-rw-r-- 1 jtarraga jtarraga 13837 Jun 26 14:15
 CONTROLLER__REGULATION__COMPLEX.csv
 -rw-rw-r-- 1 jtarraga jtarraga 131 Jun 26 14:15
 CONTROLLED__REGULATION__PATHWAY.csv
 -rw-rw-r-- 1 jtarraga jtarraga 45 Jun 26 14:15
 CONTROLLED__REGULATION__CATALYSIS.csv
 -rw-rw-r-- 1 jtarraga jtarraga 73180 Jun 26 14:15
 CONTROLLED__CATALYSIS__REACTION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 2225052 Jun 26 14:15 CONSERVATION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 2521876 Jun 26 14:15 CONSEQUENCE_TYPE__SO.
 csv
 -rw-rw-r-- 1 jtarraga jtarraga 12201659 Jun 26 14:15 CONSEQUENCE_TYPE.csv
 -rw-rw-r-- 1 jtarraga jtarraga 29393 Jun 26 14:15
 COMPONENT_OF_COMPLEX__SMALL_MOLECULE__COMPLEX.csv
 -rw-rw-r-- 1 jtarraga jtarraga 109239 Jun 26 14:15
 COMPONENT_OF_COMPLEX__COMPLEX__COMPLEX.csv
 -rw-rw-r-- 1 jtarraga jtarraga 568684 Jun 26 14:15 COMPLEX.csv
 -rw-rw-r-- 1 jtarraga jtarraga 5644 Jun 26 14:15
 CELLULAR_LOCATION__REGULATION__CELLULAR_LOCATION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 68316 Jun 26 14:15
 CELLULAR_LOCATION__REACTION__CELLULAR_LOCATION.csv
 -rw-rw-r-- 1 jtarraga jtarraga 244996 Jun 26 14:15
 CELLULAR_LOCATION__PROTEIN__CELLULAR_LOCATION.csv

Load Neo4j CSV files

Once created the CSV files, they have to be loaded into the database by using the BioNetDB command line: *bionetdb.sh import*. This command line can only be used to load data into a previously unused database, so if you are using the default Neo4j database (located at `$NEO4J_HOME/data/databases/graph.db`), be sure that it is empty.

According to our example:

Load Neo4j CSV files

```

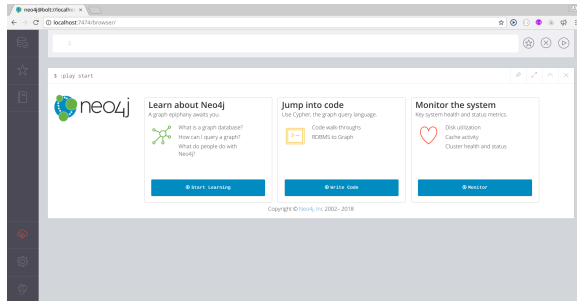
$ rm $NEO4J_HOME/data/databases/graph.db
$ ./bionetdb.sh import -i /tmp/bionetdb.dataset/csv
...
...
[>:23.27 MB/s-----|NODE:22.89 MB|*PROPERTIES(3)=====|LA|v:
63.93 MB/s(2)=====]2.11M 764K
Done in 6s 661ms
Prepare node index, started 2018-06-26 13:31:53.186+0000
[*DETECT:30.96
MB-----
----]2.12M 2.12M
Done in 974ms
Relationships, started 2018-06-26 13:31:54.217+0000
[*>:18.40 MB/s-----|T|PREPARE(3)
=====|RE|P|v:43.21]2.60M 376K
Done in 2s 665ms
Node Degrees, started 2018-06-26 13:31:56.955+0000
[*>(3)=====|CALCULATE(2)
=====]2.60M 2.60M
Done in 326ms
Relationship --> Relationship 1-32/32, started 2018-06-26 13:31:57.324
+0000
[*>-----|LINK(4)=====|v:??
-----]2.60M 2.60M
Done in 499ms
RelationshipGroup 1-32/32, started 2018-06-26 13:31:57.844+0000
[*>:??-----|v:??
-----]68.6K 68.6K
Done in 69ms
Node --> Relationship, started 2018-06-26 13:31:57.924+0000
[>:??---|>-----|LINK|*v:??(2)
=====]2.09M 2.09M
Done in 285ms
Relationship --> Relationship 1-32/32, started 2018-06-26 13:31:58.244+0000
[>-----|*LINK(2)=====|v:??
(2)=====]2.60M 2.44M
Done in 402ms
Count groups, started 2018-06-26 13:31:58.681+0000
[*>-----
-----|COUNT-----]67.3K 67.3K
Done in 53ms
Gather, started 2018-06-26 13:31:58.804+0000
[>-----
|*CACHE-----
----]67.3K 67.3K
Done in 67ms
Write, started 2018-06-26 13:31:58.900+0000
[>:??-----|ENCODE---|*v:??
-----]67.0K 67.0K
Done in 34ms
Node --> Group, started 2018-06-26 13:31:58.957+0000
[>-----|FIRST-----|*v:??
-----]14.1K 14.1K
Done in 21ms
Node counts, started 2018-06-26 13:31:59.012+0000
[>-----|*COUNT:76.29
MB-----]2.12M 2.12M
Done in 191ms
Relationship counts, started 2018-06-26 13:31:59.224+0000
[>(2)=====|*COUNT(2)
=====]2.61M 2.61M
Done in 256ms

IMPORT DONE in 13s 446ms.
Imported:
  2117124 nodes
  2605206 relationships
  15047626 properties
Peak memory usage: 536.43 MB

```

Accessing BioNetDB from Neo4j browser interface

You can access to your BioNetDB database from the Neo4j browser interface. Open your regular internet browser and type <http://localhost:7474>:



Now that you can access the BioNetDB database, you can start working with your imported data using the [Cypher](#) query language. For a Cypher tutorial, please refer to [Intro to Cypher](#) by the Neo4j Team.

Below you have some Cypher queries:

