

Protokoll der Realisierung Daten auswerten

Daten auf Karte visualisieren

Demo Applikation für Bibliotheks-Statistik

Schweizerische Bibliotheksstatistik - Sparql Queries

Für jedes Jahr wurde ein Dataset definiert

Einfache Abfragen der Statistikdaten

Liste aller Datacube Datasets

Listet alle Statistikdaten auf (pro Jahr gibt es einen Statistic Dataset)

URL: <http://callimachus.fh-htwchur.ch/swisslibrarystatistics/list-statistic-datasets.rq?view>

Federated Query im Callimachus:

```
prefix qb:          <http://purl.org/linked-data/cube#>
prefix dct:        <http://purl.org/dc/terms/>

SELECT ?title ?description
WHERE {

    SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/LibraryStatisticData> {
        ?dataset ?property qb:Dataset .
        ?dataset dct:description ?description;
                 dct:title ?title
    }
}
```

Anzeige einer einzelnen Bibliothek über Verknüpfung der Statistikdaten

- Schweizerische Nationalbibliothek Datensatz: lod-libraries:U1001

```
prefix lgd:  <http://linkedgeodata.org/triplify/>
prefix rdfs: <http://www.w3.org/2000/01/rdf-schema#>
prefix lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX lgdo:  <http://linkedgeodata.org/ontology/>

SELECT ?bibNameInStatistic ?lgdresource ?city ?label
WHERE {
    SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/LibraryStatisticData> {
        lod-libraries:U1001
        lod-libraries:lgdRef ?lgdresource;
        rdfs:label ?bibNameInStatistic .
    }
    SERVICE <http://linkeddata.fh-htwchur.ch/sparqlify-web-admin-server/services/linkedgeodata/sparql> {
        ?lgdresource
        lgdo:addr%3Acity ?city;
    }
}
```

```

    rdfs:label ?label .
  }
}

```

Resultat:

bibNameInStatistic	lgdresource	city	label
Schweizerische Nationalbibliothek	lgd:node3376383962	Bern	Schweizerische Nationalbibliothek
Schweizerische Nationalbibliothek	lgd:node3376383962	Bern	Schweizerische Nationalbibliothek@de
Schweizerische Nationalbibliothek	lgd:node3376383962	Bern	Swiss National Library@en
Schweizerische Nationalbibliothek	lgd:node3376383962	Bern	Bibliothèque nationale suisse@fr
Schweizerische Nationalbibliothek	lgd:node3376383962	Bern	Biblioteca nazionale svizzera@it

Callimachus: Liste aller Bibliotheken

URL: http://callimachus.fh-htwchur.ch/swisslibrarystatistics/lgd_listLibraries.rq?view

```

PREFIX lgdo: <http://linkedgedata.org/ontology/>
PREFIX lgd: <http://linkedgedata.org/triplify/>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

SELECT ?lgdresource ?label ?city
WHERE {
  SERVICE <http://linkeddata.fh-htwchur.ch/sparqlify-web-admin-server/services/linkedgedata/sparql> {
    ?lgdresource
      rdf:type lgdo:Library;
      lgdo:addr%3Acity ?city;
      rdfs:label ?label .
  }
}

```

Callimachus: Anzeigen einer einzelnen Bibliothek mit Angabe der Igdnodeid in Variable

```

SELECT ?property ?value
WHERE {
  SERVICE <http://linkeddata.fh-htwchur.ch/sparqlify-web-admin-server/services/linkedgedata/sparql> {
    <?lgdnodeid> ?property ?value
  }
}

```

Beispiel-URL: http://callimachus.fh-htwchur.ch/LOD/swisslibrarystatistics/lgd_lib_by_nodeid.rq?view&lgdnodeid=http://linkedgedata.org/triplify/node32606774

Geonames

Geonames Repository in eigenem Sesame Store

URL: <http://linkeddata.fh-htwchur.ch/openrdf-workbench/repositories/geonames>

Alle Country Codes auflisten:

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX wgs84_pos: <http://www.w3.org/2003/01/geo/wgs84_pos#>
PREFIX gn: <http://www.geonames.org/ontology#>

SELECT DISTINCT ?code
WHERE {
  ?s gn:countryCode ?code
}

```

Nach Chur suchen über den Namen:

```
PREFIX rdf:      <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX wgs84_pos: <http://www.w3.org/2003/01/geo/wgs84_pos#>
PREFIX gn: <http://www.geonames.org/ontology#>

SELECT *

WHERE {
  ?s gn:name "Chur"
}
```

Nach Chur suchen über die Postleitzahl (Postal Code):

```
PREFIX rdf:      <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX wgs84_pos: <http://www.w3.org/2003/01/geo/wgs84_pos#>
PREFIX gn: <http://www.geonames.org/ontology#>

SELECT *

WHERE {
  ?s gn:postalCode "7000"
}
```

Bibliothek der HTW Chur suchen:

```
SELECT *

WHERE {
  <http://sws.geonames.org/10627125/> ?pred ?obj .
}
```

Federated Query im Callimachus PLZ -> Ortshierarchie

Beispiel PLZ 7306 (Fläsch):

```
PREFIX lgdo:      <http://linkedgedata.org/ontology/>
PREFIX lgd-adress: <http://linkedgedata.org/ontology/addr/>
PREFIX lgdm:      <http://linkedgedata.org/meta/>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX lgd: <http://linkedgedata.org/triplify/>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX gn: <http://www.geonames.org/ontology#>

SELECT ?gn_name ?gn_adm1Name ?gn_adm2Name ?gn_adm3Name
WHERE {
  SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/geonames> {
    ?s
      gn:postalCode "7306";
      gn:name ?gn_name;
      gn:parentADM1 ?gn_adm1;
      gn:parentADM2 ?gn_adm2;
      gn:parentADM3 ?gn_adm3 .
    ?gn_adm1 gn:name ?gn_adm1Name .
    ?gn_adm2 gn:name ?gn_adm2Name .
    ?gn_adm3 gn:name ?gn_adm3Name .
  }
}
```

Resultat:

- gn_name: Fläsch
- gn_adm1Name: Kanton Graubünden
- gn_adm2Name: Landquart District
- gn_adm3Name: Fläsch

Geonames Ontologie: <http://www.geonames.org/ontology/documentation.html>

Account eröffnen: <http://www.geonames.org/login>, Benutzername: noermaen

Bibliothekdatensätze sind in Geonames wie folgt beschrieben, Beispiel HTW Chur:

```
<?xml version="1.0" encoding="UTF-8" standalone="no"?>
<rdf:RDF xmlns:cc="http://creativecommons.org/ns#" xmlns:dcterms="http://purl.org/dc/terms/" xmlns:foaf="http://xmlns
<gn:Feature rdf:about="http://sws.geonames.org/10627125/">
<rdfs:isDefinedBy rdf:resource="http://sws.geonames.org/10627125/about.rdf"/>
<gn:name>Bibliothek Technik der HTW Chur</gn:name>
<gn:featureClass rdf:resource="http://www.geonames.org/ontology#S"/>
<gn:featureCode rdf:resource="http://www.geonames.org/ontology#S.LIBR"/>
<gn:countryCode>CH</gn:countryCode>
<wgs84_pos:lat>46.85301</wgs84_pos:lat>
<wgs84_pos:long>9.51248</wgs84_pos:long>
<gn:parentFeature rdf:resource="http://sws.geonames.org/7285515/">
<gn:parentCountry rdf:resource="http://sws.geonames.org/2658434/">
<gn:parentADM1 rdf:resource="http://sws.geonames.org/2660522/">
<gn:parentADM2 rdf:resource="http://sws.geonames.org/6458884/">
<gn:parentADM3 rdf:resource="http://sws.geonames.org/7285515/">
<gn:nearbyFeatures rdf:resource="http://sws.geonames.org/10627125/nearby.rdf"/>
<gn:locationMap rdf:resource="http://www.geonames.org/10627125/bibliothek-technik-der-htw-chur.html"/>
</gn:Feature>
<foaf:Document rdf:about="http://sws.geonames.org/10627125/about.rdf">
<foaf:primaryTopic rdf:resource="http://sws.geonames.org/10627125/">
<cc:license rdf:resource="http://creativecommons.org/licenses/by/3.0/">
<cc:attributionURL rdf:resource="http://sws.geonames.org/10627125/">
<cc:attributionName rdf:datatype="http://www.w3.org/2001/XMLSchema#string">GeoNames</cc:attributionName>
<dcterms:created rdf:datatype="http://www.w3.org/2001/XMLSchema#date">2015-08-13</dcterms:created>
<dcterms:modified rdf:datatype="http://www.w3.org/2001/XMLSchema#date">2015-08-13</dcterms:modified>
</foaf:Document>
</rdf:RDF>
```

Bibliotheksdatensätze scheinen wie folgt beschrieben:

```
<gn:Feature rdf:about="http://sws.geonames.org/10627125/">
...
<gn:featureCode rdf:resource="http://www.geonames.org/ontology#S.LIBR"/>
....
</gn:Feature>
```

Abfrage im Geonames von allen Bibliotheken:

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX gn: <http://www.geonames.org/ontology#>

SELECT *
WHERE {
    ?s ?p <http://www.geonames.org/ontology#S.LIBR>
}
```

Liefert nun den Eintrag zu <http://sws.geonames.org/10174606/> / "Libreria al Ponte"

Übersicht Geonames Webservices: <http://www.geonames.org/export/ws-overview.html>

Visualisierung der Anzahl Bibliotheken für jede Region

Übersicht Bibliotheksdaten in LinkedGeodata (OSM/LGD)

- Total Bibliothekseinträge: 608
- Bibliotheken in welchen keine Ortschaft angegeben ist: 277
- Bibliotheken ohne Label: 44
- Bibliotheken ohne Postcode: 285

** Auswertung Verlinkte Bibliotheken OSM <-> Statistikdaten **

Total verknüpfte Bibliotheken: **152**. Das wurde mit der folgenden Query ausgewertet:

```
prefix lgd: <http://linkedgedata.org/triplify/>
PREFIX lgdo: <http://linkedgedata.org/ontology/>
PREFIX lgd-adress: <http://linkedgedata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT *
WHERE {
  SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/LibraryStatisticData> {
    ?library_statDat
    lod-libraries:lgdRef ?lgdresource;
    rdfs:label ?label_statDat .
  }
  SERVICE <http://linkeddata.fh-htwchur.ch/sparqlify-web-admin-server/services/linkedgedata/sparql> {
    ?lgdresource rdf:type lgdo:Library;
    rdfs:label ?lgd_label .
  }
}
```

Probleme mit der Postleitzahl bei LGD / OSM

Anzahl verknüpfte Bibliotheken, bei welchen bei der OSM-Bibliothek eine PLZ / Postcode angegeben ist:

```
PREFIX lgd: <http://linkedgedata.org/triplify/>
PREFIX lgdo: <http://linkedgedata.org/ontology/>
PREFIX lgd-adress: <http://linkedgedata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT *
WHERE {
  SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/LibraryStatisticData> {
    ?library_statDat
    lod-libraries:lgdRef ?lgdresource;
    rdfs:label ?label_statDat .
  }
  SERVICE <http://linkeddata.fh-htwchur.ch/sparqlify-web-admin-server/services/linkedgedata/sparql> {
    ?lgdresource rdf:type lgdo:Library;
    lgd-adress:postcode ?postcode
  }
}
```

Schiesst einen Fehler:

```
type Status report

message Query evaluation error: org.openrdf.query.resultio.QueryResultParseException: java.lang.IllegalArgumentExceptionExcept
description The server encountered an internal error that prevented it from fulfilling this request.
```

Dieser kommt vom Sesame Server, wohin der erste Teil der Query geschickt wird. Dies kann reproduziert werden, wenn man folgende Query auf dem Sesame Server (<http://linkeddata.fh-htwchur.ch/openrdf-workbench/repositories/LibraryStatisticData/query>) ausführt:

```
PREFIX lgd: <http://linkedgedata.org/triplify/>
PREFIX lgdo: <http://linkedgedata.org/ontology/>
PREFIX lgd-adress: <http://linkedgedata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>

SELECT *
WHERE {
```

```

?library_statDat
  lod-libraries:lgdRef ?lgdresource;
  rdfs:label ?label_statDat .
SERVICE <http://linkeddata.fh-htwchur.ch/sparqlify-web-admin-server/services/linkedgedata/sparql> {
  ?lgdresource rdf:type lgdo:Library;
  lgd-adress:postcode ?postcode
}
}

```

Führt man folgende Query direkt im LGD-Sparql-Endpoint (<http://linkeddata.fh-htwchur.ch/sparqlify-web-admin-server/services/linkedgedata/sparql/>) aus, sieht man, dass die Postalcodes als Ressourcen sowie AUCH als Literale zurückgegeben werden. Damit kann der Sesame-Server wohl nicht umgehen:

```

SELECT * WHERE {
  ?lgdresource rdf:type lgdo:Library;
  <http://linkedgedata.org/ontology/addr/postcode> ?postcode
}

```

Resultat:

```

...
lgd:way369796658 [http] <8363>
lgd:node32606774 [http] "3011"
...

```

** Entscheid: Ich hole mir die Bezirke über die Postleitzahl, welche für die Bibliotheken in den Statistikdaten angegeben sind. Die Daten aus OSM können für die Darstellung der Bibliotheken in einer Karte genutzt werden**

Sparql Bibliothek <-> Bezirk

Federated Query welche sich für jede Bibliothek den Bezirk über Geonames holt:

```

PREFIX lgd: <http://linkedgedata.org/triplify/>
PREFIX lgdo: <http://linkedgedata.org/ontology/>
PREFIX lgd-adress: <http://linkedgedata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gn: <http://www.geonames.org/ontology#>

SELECT ?label_statDat ?stat_postalcode ?gn_name ?gn_adm1Name ?gn_adm2Name ?gn_adm3Name
WHERE {
  SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/LibraryStatisticData> {
    ?library_statDat rdf:type lod-libraries:library;
    lod-libraries:postalCode_stat ?stat_postalcode;
    rdfs:label ?label_statDat .
  }
  SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/geonames> {
    ?s
    gn:postalCode ?stat_postalcode;
    gn:name ?gn_name;
    gn:parentADM1 ?gn_adm1;
    gn:parentADM2 ?gn_adm2;
    gn:parentADM3 ?gn_adm3 .
    ?gn_adm1 gn:name ?gn_adm1Name .
    ?gn_adm2 gn:name ?gn_adm2Name .
    ?gn_adm3 gn:name ?gn_adm3Name .
  }
}
}

```

Ergebniss einer Zeile (von insgesamt 1170 Resultaten):

```

label_statDat = "Schul- und Gemeindebibliothek Zweisimmen"
stat_postalcode = "3770"
gn_adm1Name = "Canton de Berne"
gn_adm2Name = "Obersimmental-Saanen District"
gn_adm3Name = "Zweisimmen"
gn_name = "Zweisimmen"

```

Query Geonames

Für jeden Bezirk die Anzahl Bibliotheken zählen:

```
PREFIX lgd: <http://linkedgedata.org/triplify/>
PREFIX lgdo: <http://linkedgedata.org/ontology/>
PREFIX lgd-adress: <http://linkedgedata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gn: <http://www.geonames.org/ontology#>

SELECT ?district_name ?admin2child_name ?postalcode
WHERE {
    SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/geonames> {
        ?district gn:featureCode gn:A.ADM2; //ADM2 sind Districts
            gn:name ?district_name .

        ?admin2Child gn:parentADM2 ?district;
            gn:name ?admin2child_name;
            gn:featureClass gn:P; // es handelt sich um eine Ortschaft
            gn:postalCode ?postalcode .
    }
}
```

Anzahl Resultate: 3356. Wir haben also 3356 Gemeinden, welche in einem District / Bezirk eingegliedert sind.

Unter http://www.bfs.admin.ch/bfs/portal/de/index/infothek/nomenklaturen/blank/blank/raum_glied/01.html kann die Raumgliederung heruntergeladen werden. Die Raumgliederungen der Schweiz 2015 - MS-Excel Version. Download (XLS)

Query OSM Libraries <-> Geonames

Bezirke zählen, in welchen sie Bibliotheken befinden:

```
PREFIX lgd: <http://linkedgedata.org/triplify/>
PREFIX lgdo: <http://linkedgedata.org/ontology/>
PREFIX lgd-adress: <http://linkedgedata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gn: <http://www.geonames.org/ontology#>

SELECT ?district_name (COUNT(?district_name) AS ?numberOfLibraries)
WHERE {
    SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/geonames> {
        ?district gn:featureCode gn:A.ADM2;
            gn:name ?district_name .

        ?admin2Child gn:parentADM2 ?district;
            gn:name ?admin2child_name;
            gn:featureClass gn:P;
            gn:postalCode ?postalcode .

        SERVICE <http://linkeddata.fh-htwchur.ch/openrdf-sesame/repositories/LibraryStatisticData> {
            ?library_statDat lod-libraries:postalCode_stat ?postalcode;
                rdfs:label ?libstat_label .
        }
    }
}

GROUP BY ?district_name
```

Anzahl Resultate: 120. Wir haben also 120 Bezirke, in welchen sich Bibliotheken befinden.

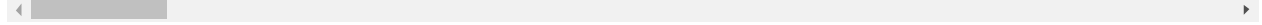
```
PREFIX lgd: <http://linkedgedata.org/triplify/>
PREFIX lgdo: <http://linkedgedata.org/ontology/>
PREFIX lgd-adress: <http://linkedgedata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gn: <http://www.geonames.org/ontology#>
```



```
GROUP BY ?swissmap_district_name ?swissmap_district_id
```

Die Query ohne Namespaces und auf einer Zeile (für Aufruf über JQuery/Ajax/Sesame Rest API):

```
SELECT ?swissmap_district_id ?swissmap_district_name (COUNT(?swissmap_district_name) AS ?numberOfLibraries) WHERE {
```



Gibt 105 Resultate

Datensatz Bezirke <http://central-ckan.liip.ch.chbar1.nine.ch/dataset/ch-swisstopo-swissboundaries3d-bezirk-flaeche-fill>

OSM Libraries <-> Geonames Beispielapplikation

Eine Beispielapplikation wurde hier entwickelt: (Beispielapplikation Sourcen)[WebContent/TopoJson/]

<http://callimachus.fh-htwchur.ch/swisslibrarystatistics/ch-cantons-districts.html>

data.admin.ch - Statistikdaten Bevölkerungszahlen

Metrik von Niklaus vorgeschlagen:

- Für jede Region soll die Ausleihe pro Person berechnet werden
- Analog Anzahl Bücher pro Person

Beispiel generierter Maps mit Bevölkerungszahlen: <http://data.admin.ch/map/>. Dort sieht man, dass Federated Queries verwendet werden, um die Daten zu holen.

Alle Queries können in folgendem Sparql-Endpoint ausgeführt werden: <http://data.admin.ch/query/>

Es ist wohl der gleiche Sparql-Endpoint wie hier: <http://lindas-data.ch/sparql>

Die Dokumentation findet sich hier: <https://github.com/zazuko/fso-lod/blob/master/doc/STATPOP/index.md>. Die Einwohnerstatistikdaten sind mit dem Datacube Vokabular aufgebaut.

Alle Sparql-Abfragen in den Beispieldaten beschränken sich auf den Named Graph <http://lindas-data.ch/resource/statpop>.

Alle Named Graphs auflisten

```
SELECT DISTINCT ?g {  
  GRAPH ?g { ?s ?p ?o . }  
}
```

Resultat:

```
http://www.openlinksw.com/schemas/virttrdf#  
http://www.w3.org/ns/ldp#  
http://localhost:8890/sparql  
http://localhost:8890/DAV/  
http://www.w3.org/2002/07/owl#  
http://lindas-data.ch/resource/bvch_2015_03_23  
http://lindas-data.ch/resource/components  
http://lindas-data.ch/resource/documents  
http://lindas-data.ch/resource/roles  
http://lindas-data.ch/resource/bvch  
http://lindas-data.ch/resource/bafu_ubd  
http://lindas-data.ch/resource/settingsGraph  
http://lindas-data.ch/resource/accountsGraph  
http://lindas-data.ch/resource/jonassch/settingsGraph  
http://lindas-data.ch/resource/bvch_2015_03_23/2015-04-21  
http://lindas-data.ch/resource/test01_import/2015-02-10  
http://lindas-data.ch/resource/groupsGraph  
http://lindas-data.ch/resource/initialSettingsGraph  
http://lindas-data.ch/resource/jobsGraph  
http://lindas-data.ch/resource/sessionsGraph  
http://lindas-data.ch/resource/statpop2  
http://lindas-data.ch/resource/OntosAdmin/settingsGraph  
http://lindas-data.ch/resource/graphsGraph
```

```
http://lindas-data.ch/resource/voigt/settingsGraph
http://lindas-data.ch/resource/statpop
http://lindas-data.ch/resource/histgemeinde
http://lindas-data.ch/resource/test01_import/2015-02-13
http://lindas-data.ch/resource/test01_import/2015-02-10T15:34:50.925
http://lindas-data.ch/resource/Test03_graph/2015-02-12
http://eventos.com/d2rqmapper
http://lindas-data.ch/resource/blv
```

Auflisten von allen Datacube Datasets

```
PREFIX qb: <http://purl.org/linked-data/cube#>
SELECT *
WHERE {
  ?s a qb:DataSet
}
```

Resultat:

```
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01
http://environment.data.admin.ch/ubd/28/qb/ubd28
http://environment.data.admin.ch/ubd/66/qb/ubd66
```

Datensatz Einwohnerstatistik

Die Bevölkerungsstatistik befindet sich im folgenden Named Graph: <http://lindas-data.ch/resource/statpop>

Die offiziellen Bevölkerungs-Daten können hier heruntergeladen werden: Bundesamt für Statistik - Bevölkerungsstand und -struktur – Detaillierte Daten

Der Statistikdatensatz scheint wie hier aufgebaut zu sein: Ständige und nichtständige Wohnbevölkerung nach institutionellen Gliederungen, Geschlecht, Staatsangehörigkeit und Alter

Liste Datacube Datasets im Named Graph <http://lindas-data.ch/resource/statpop>

```
PREFIX qb: <http://purl.org/linked-data/cube#>
SELECT *
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  ?s a qb:DataSet
}
```

Resultat:

```
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01
```

Folgend wird nur noch dieser Named Graph verwendet.

Anzeige des einzelnen Dataset http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01:

```
SELECT *
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  <http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01> ?p ?o
}
```

Resultat:

```
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://www.w3.org/ns/prov#Entity
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://purl.org/linked-data/cube#DataSet
http://purl.org/dc/terms/creator      http://dbpedia.org/resource/Bern_University_of_Applied_Sciences
http://www.w3.org/ns/prov#generatedAtTime      2013-02-27T09:20:59Z
```

```

http://www.w3.org/ns/prov#wasDerivedFrom http://data.admin.ch/bfs/data/STATTAB-SDMX-01-2A01+2011.1.1+GENERIC.xml
http://www.w3.org/ns/prov#wasGeneratedBy http://data.admin.ch/bfs/provenance/activity/20130227092059
http://purl.org/dc/terms/issued 2013-02-27T09:20:59Z
http://purl.org/dc/terms/identifier "DSD_T_PERSON_STATTAB-01-2A01"
http://purl.org/dc/terms/license http://creativecommons.org/publicdomain/zero/1.0/
http://www.w3.org/ns/prov#wasAttributedTo http://dbpedia.org/resource/Bern_University_of_Applied_Sciences
http://purl.org/linked-data/cube#structure http://data.admin.ch/bfs/structure/DSD_T_PERSON_STATTAB-01-2A01

```

Einzelne Datenstruktur http://data.admin.ch/bfs/structure/DSD_T_PERSON_STATTAB-01-2A01 anzeigen

```

SELECT *
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  <http://data.admin.ch/bfs/structure/DSD_T_PERSON_STATTAB-01-2A01> ?p ?o
}

```

Resultat:

```

http://www.w3.org/1999/02/22-rdf-syntax-ns#type http://purl.org/linked-data/sdmx#DataStructureDefinition
http://www.w3.org/1999/02/22-rdf-syntax-ns#type http://www.w3.org/ns/prov#Entity
http://www.w3.org/1999/02/22-rdf-syntax-ns#type http://purl.org/linked-data/cube#DataStructureDefinition
http://www.w3.org/2002/07/owl#versionInfo "2011.0"
http://purl.org/dc/terms/creator http://dbpedia.org/resource/Bern_University_of_Applied_Sciences
http://www.w3.org/ns/prov#generatedAtTime 2013-02-27T09:19:00Z
http://purl.org/linked-data/sdmx/2009/concept#mAgency "REF_DEMO"
http://purl.org/linked-data/cube#component nodeID://b10179
http://purl.org/linked-data/cube#component nodeID://b10180
http://purl.org/linked-data/cube#component nodeID://b10181
http://purl.org/linked-data/cube#component nodeID://b10182
http://purl.org/linked-data/cube#component nodeID://b10183
http://purl.org/linked-data/cube#component nodeID://b10184
http://purl.org/linked-data/cube#component nodeID://b10185
http://purl.org/linked-data/cube#component nodeID://b10186
http://purl.org/linked-data/cube#component nodeID://b10187
http://purl.org/linked-data/sdmx/2009/concept#dsi "DSD_T_PERSON_STATTAB-01-2A01"
http://www.w3.org/ns/prov#wasDerivedFrom http://data.admin.ch/bfs/data/STATTAB-SDMX-01-2A01+2011.1.xml
http://www.w3.org/ns/prov#wasGeneratedBy http://data.admin.ch/bfs/provenance/activity/20130227091900
http://purl.org/dc/terms/issued 2013-02-27T09:19:00Z
http://www.w3.org/2004/02/skos/core#prefLabel "Person STATTAB px-d-01-2A01"
http://purl.org/dc/terms/license http://creativecommons.org/publicdomain/zero/1.0/
http://www.w3.org/ns/prov#wasAttributedTo http://dbpedia.org/resource/Bern_University_of_Applied_Sciences

```

Abfrage aller Dimensionen

```

PREFIX qb: <http://purl.org/linked-data/cube#>
SELECT ?s
FROM <http://lindas-data.ch/resource/statpop>
WHERE
{
  ?s a qb:DimensionProperty
}

```

Resultat:

```

http://data.admin.ch/bfs/property/SEX
http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID
http://data.admin.ch/bfs/property/POPULATIONTYPE
http://data.admin.ch/bfs/property/HISTREPORTINGMUNICIPALITYID
http://data.admin.ch/bfs/property/AGE
http://data.admin.ch/bfs/property/STATYEAR
http://data.admin.ch/bfs/property/STATDATE
http://data.admin.ch/bfs/property/NATIONALITYCATEGORY

```

Einzelne Component anzeigen

```

PREFIX qb: <http://purl.org/linked-data/cube#>

```

```

SELECT *
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  <nodeID://b10179> ?p ?o
}

```

Resultat:

```

http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://purl.org/linked-data/cube#ComponentSpecification
http://purl.org/linked-data/cube#dimension          http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID
http://purl.org/linked-data/cube#order 1

```

Anzeige einzelner Dimension

```

SELECT *
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  <http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID> ?p ?o
}

```

Resultat:

```

http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://www.w3.org/1999/02/22-rdf-syntax-ns#Property
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://purl.org/linked-data/cube#CodedProperty
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://purl.org/linked-data/cube#DimensionProperty
http://www.w3.org/2000/01/rdf-schema#range            http://data.admin.ch/bfs/class/2011.2/CL_HGDE_GDE
http://www.w3.org/2004/02/skos/core#prefLabel        "Commune d'annonce"@fr
http://www.w3.org/2004/02/skos/core#prefLabel        "Commune of reporting"@en
http://www.w3.org/2004/02/skos/core#prefLabel        "Comune di notifica"@it
http://www.w3.org/2004/02/skos/core#prefLabel        "Meldegemeinde"@de
http://purl.org/linked-data/cube#codeList             http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE
http://purl.org/linked-data/cube#concept              http://data.admin.ch/bfs/concept/1.0/CS_STATPOP/REPORTINGMUNICIPALITYID

```

Für alle Components die Dimension anzeigen

```

PREFIX qb: <http://purl.org/linked-data/cube#>
SELECT ?dimension ?dimensionlabel ?order ?concept
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  ?component a qb:ComponentSpecification;
  qb:dimension ?dimension;
  qb:order ?order .
  ?dimension <http://www.w3.org/2004/02/skos/core#prefLabel> ?dimensionlabel;
  qb:concept ?concept .
  FILTER(LANGMATCHES(LANG(?dimensionlabel), "de"))
}

```

Resultat:

```

http://data.admin.ch/bfs/property/HISTREPORTINGMUNICIPALITYID "Meldegemeinde (historisch)"@de 3 http://data.a
http://data.admin.ch/bfs/property/NATIONALITYCATEGORY "Staatsangehörigkeitskategorie"@de 6 http://data.admin.
http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID "Meldegemeinde"@de 1 http://data.admin.ch/bfs/concept/
http://data.admin.ch/bfs/property/STATYEAR "Statistikjahr"@de 7 http://data.admin.ch/bfs/concept/1.0/CS_STATPOP/S
http://data.admin.ch/bfs/property/SEX "Geschlecht"@de 2 http://data.admin.ch/bfs/concept/1.0/CS_STATPOP/SEX
http://data.admin.ch/bfs/property/AGE "Alter"@de 5 http://data.admin.ch/bfs/concept/1.0/CS_STATPOP/AGE
http://data.admin.ch/bfs/property/STATDATE "Referenzdatum des Datensatzes"@de 8 http://data.admin.ch/bfs/concept/
http://data.admin.ch/bfs/property/POPULATIONTYPE "Bevölkerungstyp"@de 4 http://data.admin.ch/bfs/concept/1.0/C

```

Die Eigenschaften einer einzelnen Municipality anzeigen (Aeugst am Albis)

```

SELECT *
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  <http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/1> ?p ?o
}

```

```
}
```

Resultat:

```
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://purl.org/linked-data/sdmx#Concept
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://data.admin.ch/bfs/class/2011.2/CL_HGDE_GDE
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://www.w3.org/2004/02/skos/core#Concept
http://www.w3.org/2004/02/skos/core#prefLabel        "Aegst am Albis"
http://purl.org/linked-data/xkos#isPartOf            http://data.admin.ch/bfs/code/CL_HGDE_GDE/13256
http://www.w3.org/2004/02/skos/core#inScheme         http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE
http://www.w3.org/2004/02/skos/core#notation         "1"
http://www.w3.org/2004/02/skos/core#topConceptOf     http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE
```

Anzahl Bewohner für Gemeinde id="1"

```
PREFIX bfs:      <http://data.admin.ch/bfs/property/>
PREFIX qb:       <http://purl.org/linked-data/cube#>
PREFIX skos:     <http://www.w3.org/2004/02/skos/core#>
SELECT ?year ?age ?ptype ?number
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  ?s
    bfs:REPORTINGMUNICIPALITYID      ?remuniuri;
    bfs:NB_PERSON                     ?number;
    bfs:POPULATIONTYPE                ?ptype;
    bfs:AGE                            ?age;
    bfs:STATYEAR                      ?year;
    bfs:NATIONALITYCATEGORY           ?nationalitycategory.
  ?remuniuri skos:notation "1"
}
```

Resultat:

```
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/0 http://da
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/0 http://da
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/1 http://da
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/1 http://da
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/10 http://da
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/10 http://da
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/10 http://da
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/11 http://da
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/11 http://da
"2011+01:00"^^<http://www.w3.org/2001/XMLSchema#gYear> http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/12 http://da
```

Einwohnerstatistik für Municipalities

```
PREFIX bfs:      <http://data.admin.ch/bfs/property/>
PREFIX qb:       <http://purl.org/linked-data/cube#>
PREFIX skos:     <http://www.w3.org/2004/02/skos/core#>
SELECT ?s ?remuniuri ?number
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  ?s
    bfs:REPORTINGMUNICIPALITYID      ?remuniuri;
    bfs:NB_PERSON                     ?number;
    bfs:POPULATIONTYPE                ?ptype;
    bfs:STATYEAR                      ?year.
}
LIMIT 100
```

Resultat (Auszug)

```
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/0/1/2011/2011-12-31 http://data.admir
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/0/2/2011/2011-12-31 http://data.admir
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/1/1/2011/2011-12-31 http://data.admir
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/1/2/2011/2011-12-31 http://data.admir
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/10/1/2011/2011-12-31 http://data.admir
```

Den einzelnen Datensatz http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/0/1/2011/2011-12-31 anzeigen:

```
SELECT *
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
<http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/0/1/2011/2011-12-31> ?p ?o
}
```

```
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://purl.org/linked-data/cube#Observation
http://data.admin.ch/bfs/property/SEX              http://data.admin.ch/bfs/code/1.0/CL_SEX/1
http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/1061
http://data.admin.ch/bfs/property/POPULATIONTYPE   http://data.admin.ch/bfs/code/1.0/CL_POPULATIONTYPE/1
http://data.admin.ch/bfs/property/HISTREPORTINGMUNICIPALITYID http://data.admin.ch/bfs/code/1.0/CL_HGDE_GDE/15379
http://data.admin.ch/bfs/property/AGE              http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/0
http://data.admin.ch/bfs/property/STATYEAR        "2011+01:00"^^<http://www.w3.org/2001/XMLSchema#Year>
http://data.admin.ch/bfs/property/STATDATE        http://reference.data.gov.uk/id/year/2011
http://data.admin.ch/bfs/property/NATIONALITYCATEGORY http://data.admin.ch/bfs/code/1.0/CL_NATIONALITYCATEGORY/1
http://data.admin.ch/bfs/property/NB_PERSON       302
http://purl.org/linked-data/cube#dataSet          http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01
```

Die Municipality-ID zusätzlich ausgeben:

```
PREFIX bfs:      <http://data.admin.ch/bfs/property/>
PREFIX qb:       <http://purl.org/linked-data/cube#>
PREFIX skos:     <http://www.w3.org/2004/02/skos/core#>
SELECT ?s ?remuniid ?number
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  ?s
    bfs:Nb_PERSON ?number;
    bfs:REPORTINGMUNICIPALITYID ?remuniuri;
    bfs:POPULATIONTYPE ?ptype;
    bfs:STATYEAR ?year.
  ?remuniuri skos:notation ?remuniid
}
```

Resultat (Auszug):

```
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/0/1/2011/2011-12-31 "1061" 302
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/0/2/2011/2011-12-31 "1061" 88
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/1/1/2011/2011-12-31 "1061" 261
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/1/2/2011/2011-12-31 "1061" 90
http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/10/1/2011/2011-12-31 "1061" 199
```

Ausgabe von http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1061/1/15379/1/0/1/2011/2011-12-31

```
PREFIX bfs:      <http://data.admin.ch/bfs/property/>
PREFIX qb:       <http://purl.org/linked-data/cube#>
PREFIX skos:     <http://www.w3.org/2004/02/skos/core#>
SELECT ?p ?o
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  <http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01/1/1/13256/1/0/1/2011/2011-12-31> ?p ?o
}
```

Resultat:

```
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://purl.org/linked-data/cube#Observation
http://data.admin.ch/bfs/property/SEX              http://data.admin.ch/bfs/code/1.0/CL_SEX/1
http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/1
http://data.admin.ch/bfs/property/POPULATIONTYPE   http://data.admin.ch/bfs/code/1.0/CL_POPULATIONTYPE/1
http://data.admin.ch/bfs/property/HISTREPORTINGMUNICIPALITYID http://data.admin.ch/bfs/code/1.0/CL_HGDE_GDE/13256
http://data.admin.ch/bfs/property/AGE              http://data.admin.ch/bfs/code/1.0/CL_AGE_0T0120/0
http://data.admin.ch/bfs/property/STATYEAR        "2011+01:00"^^<http://www.w3.org/2001/XMLSchema#Year>
http://data.admin.ch/bfs/property/STATDATE        http://reference.data.gov.uk/id/year/2011
```

http://data.admin.ch/bfs/property/NATIONALITYCATEGORY http://data.admin.ch/bfs/code/1.0/CL_NATIONALITYCATEGORY/1
http://data.admin.ch/bfs/property/NB_PERSON 5
http://purl.org/linked-data/cube#dataSet http://data.admin.ch/bfs/dataset/DSD_T_PERSON_STATTAB-01-2A01

Anzahl Bewohner für jede Municipality (summierte Werte)

```
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
PREFIX bfs: <http://data.admin.ch/bfs/property/>
SELECT ?remuniuri ?remuniid ?sumpersons
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  {
    SELECT (SUM(?number) AS ?sumpersons) ?remuniuri
    WHERE {
      ?s
        bfs:NB_PERSON ?number;
        bfs:REPORTINGMUNICIPALITYID ?remuniuri;
        bfs:POPULATIONTYPE ?ptype.
      ?ptype skos:notation ?pnumber.
      FILTER ((xsd:int(?pnumber)) <= 2)
    }
    GROUP BY ?remuniuri
  }
  ?remuniuri skos:notation ?remuniid.
}
```

Resultat (Auszug):

"1"	1914
"10"	4777
"1002"	3327

Kann gekürzt werden zu folgender Query (ergibt dasselbe), inkludiert noch das Gemeindelabel

```
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
PREFIX bfs: <http://data.admin.ch/bfs/property/>
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
SELECT ?remuniid (SUM(?number) AS ?allnumber)
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  ?remuniid
    bfs:NB_PERSON ?number;
    bfs:REPORTINGMUNICIPALITYID ?remuniuri;
    bfs:POPULATIONTYPE ?ptype.
  ?ptype skos:notation ?pnumber.
  ?remuniuri
    skos:notation ?remuniid;
    skos:prefLabel ?municipalityLabel .
  FILTER ((xsd:int(?pnumber)) <= 2)
}
GROUP BY ?remuniid
LIMIT 100
```

Resultat (Auszug)

"4077"	"Tägerig"	1377
"2131"	"Echarlens"	741
"1098"	"Ruswil"	6618
"242"	"Birmensdorf (ZH)"	5973
"5726"	"La Rippe"	1039

Average Age per Municipality

```
SELECT ?remuniid (((FLOOR(?avgnew / ?numberall2 * 100)) / 100) AS ?allavg)
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  {
```

```

{
  SELECT (SUM(?numberall * ?ageamount) AS ?avgnew) (SUM(?numberall) AS ?numberall2) ?remuniuri
  FROM <http://lindas-data.ch/resource/statpop>
  WHERE
  {
    {
      SELECT (SUM(?number) AS ?numberall) ?remuniuri (xsd:int(?agelit) AS ?ageamount)
      FROM <http://lindas-data.ch/resource/statpop>
      WHERE
      {
        {
          ?s1 <http://data.admin.ch/bfs/property/NB_PERSON> ?number;
          <http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID> ?remuniuri;
          <http://data.admin.ch/bfs/property/POPULATIONTYPE> ?ptype;
          <http://data.admin.ch/bfs/property/AGE> ?age.
          ?age <http://www.w3.org/2004/02/skos/core#notation> ?agelit.
          ?ptype <http://www.w3.org/2004/02/skos/core#notation> ?pnumber.
          FILTER ((xsd:int(?pnumber)) <= 2)
        }
        GROUP BY ?remuniuri ?agelit
      }
    }
    GROUP BY ?remuniuri
  }
  ?remuniuri <http://www.w3.org/2004/02/skos/core#notation> ?remuniid.
}

```

Query ist momentan kaputt, deshalb ladet auch die Beispielchloropleth auf der Webseite nicht

Female/Male Ratio per Municipality

```

SELECT ?remuniid ?allnumber
FROM <http://lindas-data.ch/resource/statpop>
WHERE
{
  {
    SELECT (((SUM(IF(?sex=<http://data.admin.ch/bfs/code/1.0/CL_SEX/2>, ?number, 0))) / (SUM(IF(?sex=<http://data.admin.ch/
    FROM <http://lindas-data.ch/resource/statpop>
    WHERE
    {
      ?s <http://data.admin.ch/bfs/property/NB_PERSON> ?number;
      <http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID> ?remuniuri;
      <http://data.admin.ch/bfs/property/SEX> ?sex;
      <http://data.admin.ch/bfs/property/POPULATIONTYPE> ?ptype;
      <http://data.admin.ch/bfs/property/HISTREPORTINGMUNICIPALITYID> ?muniuri.

      ?ptype <http://www.w3.org/2004/02/skos/core#notation> ?pnumber.
      FILTER ((xsd:int(?pnumber)) <= 2)
    }
    GROUP BY ?remuniuri
  }
  ?remuniuri <http://www.w3.org/2004/02/skos/core#notation> ?remuniid.
}
LIMIT 10000

```

Resultat:

remuniid	allnumber
"1"	0.991675338189386
"10"	0.991246352646936
"1002"	0.96283185840708

Datensatz Gemeinde / Bezirke (Municipality/Districts)

Gemeinden auflisten

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>

```

```

SELECT *
WHERE {

```



```
?politicalMunicipality rdf:type gont:Municipality
}
```

Resultat:

```
http://classifications.data.admin.ch/municipality/668
http://classifications.data.admin.ch/municipality/31
http://classifications.data.admin.ch/municipality/6408
http://classifications.data.admin.ch/municipality/2886
http://classifications.data.admin.ch/municipality/4791
http://classifications.data.admin.ch/municipality/496
```

Einzelne Gemeinde Mühleberg (668) anzeigen:

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
SELECT *
```

```
WHERE {
  <http://classifications.data.admin.ch/municipality/668> ?p ?o
}
```

Resultat:

```
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      https://gont.ch/Municipality
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      https://gont.ch/PoliticalMunicipality
http://www.w3.org/2002/07/owl#sameAs                 http://dbpedia.org/resource/Mühleberg
http://purl.org/dc/terms/identifizier                 668
https://gont.ch/id 668
https://gont.ch/municipalityVersion                  http://classifications.data.admin.ch/municipalityversion/15202
https://gont.ch/municipalityVersion                  http://classifications.data.admin.ch/municipalityversion/13859
https://gont.ch/municipalityVersion                  http://classifications.data.admin.ch/municipalityversion/13471
https://gont.ch/municipalityVersion                  http://classifications.data.admin.ch/municipalityversion/10700
```

Einzelne Municipalityversion 15202 anzeigen:

```
SELECT ?p ?o
WHERE {
  <http://classifications.data.admin.ch/municipalityversion/15202> ?p ?o .
}
```

Resultat:

```
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      https://gont.ch/MunicipalityVersion
http://purl.org/dc/terms/identifizier                 15202
https://gont.ch/municipality                          http://classifications.data.admin.ch/municipality/668
https://gont.ch/admissionEvent                       http://classifications.data.admin.ch/event/hgv/municipality/3050
https://gont.ch/district                             http://classifications.data.admin.ch/districtentryversion/10288
https://gont.ch/admissionMode                        http://data.admin.ch/id/code/ech-0071/24
https://gont.ch/id                                    15202
https://gont.ch/longName                              "Mühleberg"
https://gont.ch/shortName                             "Mühleberg"
https://gont.ch/canton                               http://classifications.data.admin.ch/canton/BE
```

Einzelner AdmissionMode anzeigen:

```
SELECT *
WHERE {
  <http://data.admin.ch/id/code/ech-0071/24> ?p ?o
}
```

Resultat:

```
http://www.w3.org/1999/02/22-rdf-syntax-ns#type      http://www.w3.org/2004/02/skos/core#Concept
http://www.w3.org/2004/02/skos/core#prefLabel       "Neue Bezirks-/Kantonszuteilung"@de
```

```
http://www.w3.org/2004/02/skos/core#altLabel "Neuer BEZ/KT"@de
http://www.w3.org/2004/02/skos/core#notation 24
```

Admission-Event zu <https://gont.ch/municipalityVersion> <http://classifications.data.admin.ch/municipalityversion/15202>

```
SELECT ?admissionEvent ?pAdmissionEvent ?oAdmissionEvent
WHERE {
  <http://classifications.data.admin.ch/municipalityversion/15202>
  <https://gont.ch/admissionEvent> ?admissionEvent;
  <https://gont.ch/admissionMode> ?admissionMode .

  ?admissionEvent ?pAdmissionEvent ?oAdmissionEvent .
}
```

Resultat:

```
http://classifications.data.admin.ch/event/hgv/municipality/3050 http://www.w3.org/1999/02/22-rdf-syntax-ns#type
http://classifications.data.admin.ch/event/hgv/municipality/3050 http://purl.org/dc/terms/identifizier 3050
http://classifications.data.admin.ch/event/hgv/municipality/3050 https://gont.ch/date 2010-01-01+01:00
http://classifications.data.admin.ch/event/hgv/municipality/3050 https://gont.ch/id 3050
```

Districts auflisten

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX gont: <https://gont.ch/>
PREFIX purl: <http://purl.org/dc/terms/>

SELECT ?district_identifizier ?district_shortName ?district_longName
WHERE {
  ?district rdf:type gont:DistrictEntityVersion;
  purl:identifizier ?district_identifizier;
  gont:longName ?district_longName ;
  gont:shortName ?district_shortName
}
```

Resultat (Auszug):

```
10288 "Bern-Mittelland" "Verwaltungskreis Bern-Mittelland"
10141 "Waldenburg" "Bezirk Waldenburg"
10246 "Thun" "Amtsbezirk Thun"
10218 "Signau" "Amtsbezirk Signau"
10154 "Saanen" "Amtsbezirk Saanen"
10118 "Erlach" "Amtsbezirk Erlach"
10276 "Jura-Nord vaudois" "District du Jura-Nord vaudois"
10035 "Brig" "Bezirk Brig"
10084 "Gösigen" "Bezirk Gösigen"
10002 "Mendrisio" "Distretto di Mendrisio"
```

Einzelner District anzeigen mit ID 10288:

```
SELECT ?
WHERE {
  <http://classifications.data.admin.ch/districtentryversion/10288> ?p ?o
}
```

Resultat:

```
http://www.w3.org/1999/02/22-rdf-syntax-ns#type https://gont.ch/DistrictEntityVersion
http://purl.org/dc/terms/identifizier 10288
https://gont.ch/admissionEvent http://classifications.data.admin.ch/event/hgv/district/152
https://gont.ch/admissionMode http://data.admin.ch/id/code/ech-0071/21
https://gont.ch/id 10288
https://gont.ch/longName "Verwaltungskreis Bern-Mittelland"
https://gont.ch/shortName "Bern-Mittelland"
https://gont.ch/canton http://classifications.data.admin.ch/canton/BE
```

Alle Districts zu einzelner Municipality

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
SELECT *

WHERE {
  <http://classifications.data.admin.ch/municipality/668>
    gont:municipalityVersion    ?municipalityVersion .

  ?municipalityVersion
    gont:admissionEvent    ?admissionEvent;
    gont:district          ?district .

  ?admissionEvent gont:date    ?gontdate .

  ?district
    gont:longName            ?district_longName ;
    gont:shortName          ?district_shortName
}
```

Resultat:

```
http://classifications.data.admin.ch/municipalityversion/15202 http://classifications.data.admin.ch/event/hgv/munici
http://classifications.data.admin.ch/municipalityversion/10700 http://classifications.data.admin.ch/event/hgv/munici
http://classifications.data.admin.ch/municipalityversion/13859 http://classifications.data.admin.ch/event/hgv/munici
http://classifications.data.admin.ch/municipalityversion/13471 http://classifications.data.admin.ch/event/hgv/munici
```

Aktueller District zu einer Municipality

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
SELECT *

WHERE {
  <http://classifications.data.admin.ch/municipality/668> gont:municipalityVersion ?municipalityVersion .
  ?municipalityVersion
    gont:admissionEvent ?admissionEvent;
    gont:district ?district .
  ?admissionEvent gont:date ?gontdate .
  ?district
    gont:longName ?district_longName ;
    gont:shortName ?district_shortName
}
ORDER BY DESC(xsd:date(?gontdate)) LIMIT 1
```

Resultat:

```
http://classifications.data.admin.ch/municipalityversion/15202 http://classifications.data.admin.ch/event/hgv/munici
```

Aktueller District zu jeder Municipality anzeigen

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>

SELECT ?muni ?muni_Version ?maxgontdate ?district
WHERE {
  # get current admission event
  {
    SELECT ?municipality_id (MAX($gontdate) AS ?maxgontdate)
    WHERE {
      ?municipality          rdf:type                gont:Municipality;
      gont:id                ?municipality_id;
      gont:municipalityVersion ?municipalityVersion .
      ?municipalityVersion  gont:admissionEvent    ?admissionEvent .
      ?admissionEvent       gont:date              ?gontdate
    }
  }
}
```

```

    }
    GROUP BY ?municipality_id
    # ORDER BY DESC(?gontdate)
}

?muni          rdf:type          gont:Municipality;
               gont:id          ?municipality_id;
               gont:municipalityVersion  ?muni_Version .

?muni_Version  gont:admissionEvent  ?admi_Event;
               gont:district        ?district .
?admi_Event    gont:date            ?maxgontdate .

}
ORDER BY ?municipality_id

```

Resultat:

```

http://classifications.data.admin.ch/municipality/1      http://classifications.data.admin.ch/municipalityversion/1325
http://classifications.data.admin.ch/municipality/2      http://classifications.data.admin.ch/municipalityversion/1174
http://classifications.data.admin.ch/municipality/3      http://classifications.data.admin.ch/municipalityversion/1186
http://classifications.data.admin.ch/municipality/4      http://classifications.data.admin.ch/municipalityversion/1196

```

Verknüpfen Daten Einwohnerstatistik / Daten Gemeinde/Bezirke

Beispielgemeinde Mühleberg (id 668)

Gemeinde in Statistikdatensatz abfragen:

```

PREFIX skos:    <http://www.w3.org/2004/02/skos/core#>
PREFIX bfsclass: <http://data.admin.ch/bfs/class/2011.2/>

SELECT *
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  ?municipality a bfsclass:CL_HGDE_GDE;
    skos:notation "668";
    skos:prefLabel ?muni_label
}

```

Resultat:

```

municipality          muni_label
http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/668      "Mühleberg"

```

Kompletter Datensatz:

```

http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/668:

http://www.w3.org/1999/02/22-rdf-syntax-ns#type          http://purl.org/linked-data/sdmx#Concept
http://www.w3.org/1999/02/22-rdf-syntax-ns#type          http://data.admin.ch/bfs/class/2011.2/CL_HGDE_GDE
http://www.w3.org/1999/02/22-rdf-syntax-ns#type          http://www.w3.org/2004/02/skos/core#Concept
http://www.w3.org/2004/02/skos/core#prefLabel            "Mühleberg"
http://purl.org/linked-data/xkos#isPartOf                http://data.admin.ch/bfs/code/CL_HGDE_GDE/15202
http://www.w3.org/2004/02/skos/core#inScheme              http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE
http://www.w3.org/2004/02/skos/core#notation              "668"
http://www.w3.org/2004/02/skos/core#topConceptOf         http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE

```

Variante mit Filter auf id-feld und der Typ-Konversion Integer --> String:

```

PREFIX skos:    <http://www.w3.org/2004/02/skos/core#>
PREFIX bfs:     <http://data.admin.ch/bfs/property/>
PREFIX qb:      <http://purl.org/linked-data/cube#>
PREFIX rdf:    <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont:   <https://gont.ch/>
PREFIX bfsclass: <http://data.admin.ch/bfs/class/2011.2/>

```

```
PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
```

```
SELECT *
FROM <http://lindas-data.ch/resource/statpop>
WHERE {
  ?municipality a bfsclass:CL_HGDE_GDE;
  skos:notation ?muni_id;
  skos:prefLabel ?muni_label .
  Filter (xsd:integer(?muni_id) = 668)
}
```

Abfrage der Gemeinde aus dem Gemeinde/Bezirkdatensatz:

```
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
PREFIX bfs: <http://data.admin.ch/bfs/property/>
PREFIX qb: <http://purl.org/linked-data/cube#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
PREFIX bfsclass: <http://data.admin.ch/bfs/class/2011.2/>
PREFIX purlterms: <http://purl.org/dc/terms/>
```

```
SELECT *
WHERE {
  ?municipality a gont:Municipality;
  gont:id 668;
  gont:id ?id .
}
```

Resultat:

```
http://classifications.data.admin.ch/municipality/668 668
```

Municipalities kombinieren - Variante Subselect

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
PREFIX bfsclass: <http://data.admin.ch/bfs/class/2011.2/>
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
```

```
SELECT ?muni ?muni_stat
WHERE {
  # get all municipalities from the statistic dataset
  {
    SELECT DISTINCT (xsd:integer(?munistat_id) AS ?munistat_id_int) ?muni_stat
    WHERE {
      ?muni_stat a bfsclass:CL_HGDE_GDE;
      skos:notation ?munistat_id;
      skos:prefLabel ?munistat_label .
    }
  }

  ?muni          rdf:type          gont:Municipality;
                 gont:id          ?munistat_id_int .
}
ORDER BY ?munistat_id_int
```

Municipalities kombinieren - Variante Filter

```
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
PREFIX bfs: <http://data.admin.ch/bfs/property/>
PREFIX qb: <http://purl.org/linked-data/cube#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
PREFIX bfsclass: <http://data.admin.ch/bfs/class/2011.2/>
PREFIX purlterms: <http://purl.org/dc/terms/>
```

```
SELECT max(?gontdate) ?district_longName ?muni_district ?munidistrict_id ?muni_stat ?munistat_label ?munistat_id
WHERE {
```

```

?municipalityVersion
  gont:admissionEvent ?admissionEvent;
  gont:district ?district .
?admissionEvent gont:date ?gontdate .
?district
  gont:longName ?district_longName ;
  gont:shortName ?district_shortName .

?muni_district a gont:Municipality;
  gont:municipalityVersion ?municipalityVersion;
  gont:id ?munidistrict_id .

?muni_stat a bfsclass:CL_HGDE_GDE;
  skos:notation ?munistat_id;
  skos:prefLabel ?munistat_label .
Filter (xsd:integer(?munistat_id) = ?munidistrict_id)
}
ORDER BY DESC(?district_longName)

```

Resultat:

callret-0	district_longName	muni_district	munidistrict_id	muni_stat	munistat_label	munistat_id
1960-01-01+01:00	"District du Pays-d'Enhaut"	http://classifications.data.admin.ch/municipality/5841	5841	t		
1960-01-01+01:00	"District du Pays-d'Enhaut"	http://classifications.data.admin.ch/municipality/5842	5842	t		
1960-01-01+01:00	"District du Pays-d'Enhaut"	http://classifications.data.admin.ch/municipality/5843	5843	t		
1994-01-01+01:00	"Bezirk Arlesheim"	http://classifications.data.admin.ch/municipality/2767	2767	http://data.a		
1994-01-01+01:00	"Bezirk Arlesheim"	http://classifications.data.admin.ch/municipality/2769	2769	http://data.a		
1994-01-01+01:00	"Bezirk Arlesheim"	http://classifications.data.admin.ch/municipality/2772	2772	http://data.a		

Einwohner für jeden District zählen

Für jeden District die Gemeinden aufzählen und darin die Bewohner zählen

```

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
PREFIX bfs: <http://data.admin.ch/bfs/property/>
PREFIX qb: <http://purl.org/linked-data/cube#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
PREFIX bfsclass: <http://data.admin.ch/bfs/class/2011.2/>
PREFIX purlterms: <http://purl.org/dc/terms/>

SELECT max(?gontdate) ?district_longName ?muni_stat ?munistat_label ?allnumber
WHERE {

  ?municipalityVersion
    gont:admissionEvent ?admissionEvent;
    gont:district ?district .
  ?admissionEvent gont:date ?gontdate .
  ?district
    gont:longName ?district_longName ;
    gont:shortName ?district_shortName .

  ?muni_district a gont:Municipality;
    gont:municipalityVersion ?municipalityVersion;
    gont:id ?munidistrict_id .

  ?muni_stat
    skos:notation ?munistat_id;
    skos:prefLabel ?munistat_label .

  {
    SELECT (SUM(?number) AS ?allnumber) ?muni_stat
    WHERE {
      ?s <http://data.admin.ch/bfs/property/NB_PERSON> ?number;
      <http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID> ?muni_stat;
      <http://data.admin.ch/bfs/property/POPULATIONTYPE> ?ptype;
      <http://data.admin.ch/bfs/property/HISTREPORTINGMUNICIPALITYID> ?muniuri.
      ?ptype <http://www.w3.org/2004/02/skos/core#notation> ?pnumber.
      FILTER ((xsd:int(?pnumber)) <= 2)
    }
    GROUP BY ?muni_stat
  }
}

```

```

    Filter (xsd:integer(?munistat_id) = ?munidistrict_id)
}
ORDER BY DESC(?district_longName)

```

Resultat:

1960-01-01+01:00	"District du Pays-d'Enhaut"	http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/5841	"Château-
1960-01-01+01:00	"District du Pays-d'Enhaut"	http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/5843	"Rougemor
1960-01-01+01:00	"District du Pays-d'Enhaut"	http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/5842	"Rossiniè
1994-01-01+01:00	"Bezirk Arlesheim"	http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/2768	"Ettinger
1994-01-01+01:00	"Bezirk Arlesheim"	http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/2761	"Aesch (E
1994-01-01+01:00	"Bezirk Arlesheim"	http://data.admin.ch/bfs/code/2011.2/CL_HGDE_GDE/2775	"Therwil"

Die Werte bezüglich dem District gruppieren

```

PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
PREFIX bfs: <http://data.admin.ch/bfs/property/>
PREFIX qb: <http://purl.org/linked-data/cube#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
PREFIX bfsclass: <http://data.admin.ch/bfs/class/2011.2/>
PREFIX purlterms: <http://purl.org/dc/terms/>

```

```

SELECT ?district_id SUM(?allnumber) AS ?district_number_persons
WHERE {
  {
    SELECT max(?gontdate) ?district ?district_longName ?district_id ?munistat_label ?allnumber {
      ?municipalityVersion
        gont:admissionEvent ?admissionEvent;
        gont:district ?district .
      ?admissionEvent gont:date ?gontdate .
      ?district
        gont:longName ?district_longName ;
        gont:shortName ?district_shortName ;
        gont:id ?district_id .

      ?muni_district a gont:Municipality;
        gont:municipalityVersion ?municipalityVersion;
        gont:id ?munidistrict_id .

      ?muni_stat
        skos:notation ?munistat_id;
        skos:prefLabel ?munistat_label .
    }

    {
      SELECT (SUM(?number) AS ?allnumber) ?muni_stat
      WHERE {
        ?s <http://data.admin.ch/bfs/property/NB_PERSON> ?number;
          <http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID> ?muni_stat;
          <http://data.admin.ch/bfs/property/POPULATIONTYPE> ?ptype;
          <http://data.admin.ch/bfs/property/HISTREPORTINGMUNICIPALITYID> ?muniuri.
        ?ptype <http://www.w3.org/2004/02/skos/core#notation> ?pnumber.
        FILTER ((xsd:int(?pnumber)) <= 2)
      }
      GROUP BY ?muni_stat
    }
    Filter (xsd:integer(?munistat_id) = ?munidistrict_id)
  }
  ORDER BY ?district_longName
}
GROUP BY ?district_id

```

Resultat:

district_id	district_sum_number
10064	5633312
10160	970944
10297	1641984
...	

Resultat gespeichert in der Datei districtsID_NumberOfPersons.txt

Variante mit Ausgabe des Namens des Districts:

```
PREFIX skos: <http://www.w3.org/2004/02/skos/core#>
PREFIX bfs: <http://data.admin.ch/bfs/property/>
PREFIX qb: <http://purl.org/linked-data/cube#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
PREFIX bfsclass: <http://data.admin.ch/bfs/class/2011.2/>
PREFIX purlterms: <http://purl.org/dc/terms/>

SELECT ?district_shortName SUM(?allnumber) AS ?district_number_persons
WHERE {
  {
    SELECT max(?gontdate) ?district ?district_longName ?district_shortName ?district_id ?munistat_label ?allnumbe
      ?municipalityVersion
      gont:admissionEvent ?admissionEvent;
      gont:district ?district .
    ?admissionEvent gont:date ?gontdate .
    ?district
      gont:longName ?district_longName ;
      gont:shortName ?district_shortName ;
      gont:id ?district_id .

    ?muni_district a gont:Municipality;
      gont:municipalityVersion ?municipalityVersion;
      gont:id ?munidistrict_id .

    ?muni_stat
      skos:notation ?munistat_id;
      skos:prefLabel ?munistat_label .

    {
      SELECT (SUM(?number) AS ?allnumber) ?muni_stat
      WHERE {
        ?s <http://data.admin.ch/bfs/property/NB_PERSON> ?number;
          <http://data.admin.ch/bfs/property/REPORTINGMUNICIPALITYID> ?muni_stat;
          <http://data.admin.ch/bfs/property/POPULATIONTYPE> ?ptype;
          <http://data.admin.ch/bfs/property/HISTREPORTINGMUNICIPALITYID> ?muniuri.
        ?ptype <http://www.w3.org/2004/02/skos/core#notation> ?pnumber.
        FILTER ((xsd:int(?pnumber)) <= 2)
      }
      GROUP BY ?muni_stat
    }
    Filter (xsd:integer(?munistat_id) = ?munidistrict_id)
  }
  ORDER BY ?district_shortName
}
GROUP BY ?district_shortName
```

Resultat gespeichert in der Datei districtsShortName_NumberOfPersons.txt

Einwohnerstatistik - Bibliotheksstatistik

Vorgehen:

- Einwohner pro District zählen - Done
- Bibliotheken pro District zählen - Done
- Einwohner und Bibliotheken pro District zählen - Geht noch nicht

Bibliotheken pro District zählen

Für Municipality District und PLZ (über Dbpedia) holen

```
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX gont: <https://gont.ch/>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX dbo: <http://dbpedia.org/ontology/>
```



```

SELECT *
WHERE {
  SERVICE <http://data.admin.ch/query> {
    SELECT ?muni ?muni_Version ?dbpediaSameAs ?maxgontdate ?district
    WHERE {
      # get current admission event
      {
        SELECT ?municipality_id (MAX($gontdate) AS ?maxgontdate)
        WHERE {
          ?municipality          rdf:type          gont:Municipality;
                                gont:id           ?municipality_id;
                                gont:municipalityVersion ?municipalityVersion .
          ?municipalityVersion   gont:admissionEvent ?admissionEvent .
          ?admissionEvent        gont:date          ?gontdate
        }
        GROUP BY ?municipality_id
        # ORDER BY DESC(?gontdate)
      }

      ?muni          rdf:type          gont:Municipality;
                    gont:id           ?municipality_id;
                    owl:sameAs      ?dbpediaSameAs;
                    gont:municipalityVersion ?muni_Version .

      ?muni_Version gont:admissionEvent ?admi_Event;
                    gont:district      ?district .
      ?admi_Event   gont:date          ?maxgontdate .
    }
    ORDER BY ?municipality_id
  }
  SERVICE <http://dbpedia.org/sparql> {
    ?dbpediaSameAs dbo:postalCode ?postalcode
  }
}

```

Funktioniert, die Abfrage dauert aber sehr lange.

Für Municipality District, PLZ und Bibliothek holen

```

PREFIX rdf:      <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs:    <http://www.w3.org/2000/01/rdf-schema#>
PREFIX gont:    <https://gont.ch/>
PREFIX owl:   <http://www.w3.org/2002/07/owl#>
PREFIX dbo:     <http://dbpedia.org/ontology/>
PREFIX lgd:     <http://linkedgedata.org/triplify/>
PREFIX lgdo:    <http://linkedgedata.org/ontology/>
PREFIX lgd-adress: <http://linkedgedata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX gn:      <http://www.geonames.org/ontology#>
PREFIX lod-swissmaps: <http://linkeddata.fh-htwchur.ch/swissmap#>

SELECT *
WHERE {
  SERVICE <http://data.admin.ch/query> {
    SELECT ?muni ?muni_Version ?dbpediaSameAs ?maxgontdate ?district
    WHERE {
      # get current admission event
      {
        SELECT ?municipality_id (MAX($gontdate) AS ?maxgontdate)
        WHERE {
          ?municipality          rdf:type          gont:Municipality;
                                gont:id           ?municipality_id;
                                gont:municipalityVersion ?municipalityVersion .
          ?municipalityVersion   gont:admissionEvent ?admissionEvent .
          ?admissionEvent        gont:date          ?gontdate
        }
        GROUP BY ?municipality_id
        # ORDER BY DESC(?gontdate)
      }

```

```

}

?muni      rdf:type          gont:Municipality;
           gont:id           ?municipality_id;
           owl:sameAs      ?dbpediaSameAs;
           gont:municipalityVersion ?muni_Version .

?muni_Version  gont:admissionEvent      ?admi_Event;
               gont:district            ?district .
?admi_Event    gont:date                 ?maxgontdate .

}
ORDER BY ?municipality_id
}

SERVICE <http://dbpedia.org/sparql> {
  ?dbpediaSameAs dbo:postalCode ?postalcode
}

?library_statDat lod-libraries:postalCode_stat ?postalcode;
  rdfs:label ?libstat_label
}

```

Resultate nach District gruppieren

```

PREFIX rdf:    <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs:   <http://www.w3.org/2000/01/rdf-schema#>
PREFIX gont:   <https://gont.ch/>
PREFIX owl:  <http://www.w3.org/2002/07/owl#>
PREFIX dbo:    <http://dbpedia.org/ontology/>
PREFIX lgd:    <http://linkedgeodata.org/triplify/>
PREFIX lgdo:   <http://linkedgeodata.org/ontology/>
PREFIX lgd-adress: <http://linkedgeodata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX gn:     <http://www.geonames.org/ontology#>
PREFIX lod-swissmaps: <http://linkeddata.fh-htwchur.ch/swissmap#>

SELECT ?district (COUNT(?district) as ?numberOfLibraries)
WHERE {

  SERVICE <http://data.admin.ch/query> {
    SELECT ?muni ?muni_Version ?dbpediaSameAs ?maxgontdate ?district
    WHERE {
      # get current admission event
      {
        SELECT ?municipality_id (MAX(?gontdate) AS ?maxgontdate)
        WHERE {
          ?municipality      rdf:type          gont:Municipality;
                             gont:id           ?municipality_id;
                             gont:municipalityVersion ?municipality_Version .
          ?municipality_Version gont:admissionEvent ?admissionEvent .
          ?admissionEvent      gont:date         ?gontdate
        }
      }
      GROUP BY ?municipality_id
      # ORDER BY DESC(?gontdate)
    }
  }

  ?muni      rdf:type          gont:Municipality;
           gont:id           ?municipality_id;
           owl:sameAs      ?dbpediaSameAs;
           gont:municipalityVersion ?muni_Version .

  ?muni_Version  gont:admissionEvent      ?admi_Event;
               gont:district            ?district .
?admi_Event    gont:date                 ?maxgontdate .

}
ORDER BY ?municipality_id
}

SERVICE <http://dbpedia.org/sparql> {
  ?dbpediaSameAs dbo:postalCode ?postalcode
}

```

```

}

?library_statDat lod-libraries:postalCode_stat ?postalcode;
rdfs:label ?libstat_label
}
GROUP BY ?district

```

Funktioniert.

Variante mit Ausgabe des Shortname des Bezirkes

```

PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX gont: <https://gont.ch/>
PREFIX owl: <http://www.w3.org/2002/07/owl#>
PREFIX dbo: <http://dbpedia.org/ontology/>
PREFIX lgd: <http://linkedgeodata.org/triplify/>
PREFIX lgdo: <http://linkedgeodata.org/ontology/>
PREFIX lgd-adress: <http://linkedgeodata.org/ontology/addr/>
PREFIX lod-libraries: <http://linkeddata.fh-htwchur.ch/libraryData#>
PREFIX gn: <http://www.geonames.org/ontology#>
PREFIX lod-swissmaps: <http://linkeddata.fh-htwchur.ch/swissmap#>

SELECT ?district_shortName (COUNT(?district_shortName) as ?numberOfLibraries)
WHERE {

  SERVICE <http://data.admin.ch/query> {
    SELECT ?muni ?muni_Version ?dbpediaSameAs ?maxgontdate ?district_shortName
    WHERE {
      # get current admission event
      {
        SELECT ?municipality_id (MAX($gontdate) AS ?maxgontdate)
        WHERE {
          ?municipality rdf:type gont:Municipality;
            gont:id ?municipality_id;
            gont:municipalityVersion ?municipalityVersion .
          ?municipalityVersion gont:admissionEvent ?admissionEvent .
          ?admissionEvent gont:date ?gontdate
        }
        GROUP BY ?municipality_id
        # ORDER BY DESC(?gontdate)
      }

      ?muni rdf:type gont:Municipality;
        gont:id ?municipality_id;
        owl:sameAs ?dbpediaSameAs;
        gont:municipalityVersion ?muni_Version .

      ?muni_Version gont:admissionEvent ?admi_Event;
        gont:district ?district .
      ?district gont:id ?district_id;
        gont:longName ?district_longName ;
        gont:shortName ?district_shortName .
      ?admi_Event gont:date ?maxgontdate .
    }
    ORDER BY ?municipality_id
  }

  SERVICE <http://dbpedia.org/sparql> {
    ?dbpediaSameAs dbo:postalCode ?postalcode
  }

  ?library_statDat lod-libraries:postalCode_stat ?postalcode;
  rdfs:label ?libstat_label
}
GROUP BY ?district_shortName

```

Das Java-Programm `DataAdminClient.java` generiert aus dem Resultat die Datei `districtsNumberOfLibraries.json`.

Anzahl Einwohner und Anzahl Bibliotheken pro District

Noch keine Lösung gefunden

Geonames Search Webservice zur Bestimmung der Ortshierarchie (Alt, wird nicht verwendet)

Bibliotheken suchen

<http://www.geonames.org/search.html?q=Bibliothek&country=CH&type=rdf>

Gibt 2 Resultate

Geonames löst für eine Koordinate direkt die hierarchische Struktur auf, z. Bsp. Chur -> Bezirk Plessur -> Graubünden -> Schweiz

1. Wir schauen mit Postalcode und Land-Kennung die Admin-Codes nach:

```
Placename lookup with postalcode (JSON)
Webservice Type : REST /JSON
Url : api.geonames.org/postalCodeLookupJSON?
Parameters : postalcode,country ,maxRows (default = 20),callback, charset (default = UTF-8)
Result : returns a list of places for the given postalcode in JSON format, sorted by postalcode,placename
```

Example Get Request:

```
http://api.geonames.org/postalCodeLookupJSON?postalcode=7306&country=CH&username=noermaen
```

Resultat (Auszug)

```
{ "postalcodes":
  [
    {
      "adminCode1": "GR",
      "adminCode2": "1826",
      "adminCode3": "3951",
      "adminName1": "Kanton Graubünden",
      "adminName2": "Bezirk Landquart",
      "adminName3": "Fläsch",
      "lng": 9.502502323781066,
      "countryCode": "CH",
      "postalcode": "7306",
      "placeName": "Fläsch",
      "lat": 47.039635984423946
    }
  ]
}
```

Wir bekommen im Resultat jedoch nicht die PlaceID, welche wir für die Auflösung der Hierarchie brauchen.

Mit dem Geonames Search Webservice (<http://www.geonames.org/export/geonames-search.html>) schauen wir über die Admin-Codes die Place-ID nach:

```
http://api.geonames.org/searchJSON?name=Fläsch&adminCode1=GR&adminCode2=1826&adminCode3=3951&username=noermaen
```

Resultat:

```
{
  "totalResultsCount": 3,
  "geonames":
  [
    { "countryId": "2658434", "adminCode1": "GR", "countryName": "Switzerland", "fclName": "country, state, region, ...", "countryC
    { "countryId": "2658434", "adminCode1": "GR", "countryName": "Switzerland", "fclName": "city, village, ...", "countryCode": "CH"
```

```
{ "countryId": "2658434", "adminCode1": "GR", "countryName": "Switzerland", "fclName": "spot, building, farm", "countryCode": "
]
}
```

Javascript-Code für eine Beispiel-Anwendung: <http://www.geonames.org/export/ajax-postalcode-autocomplete.html>

2. Mit Place-ID holen wir uns die Hierarchie:

<http://www.geonames.org/export/place-hierarchy.html#hierarchy>

Returns all GeoNames higher up in the hierarchy of a place name.
Webservice Type : XML or JSON
Url : api.geonames.org/hierarchy?
api.geonames.org/hierarchyJSON?
Parameters :
geonameId : the geonameId for the hierarchy
Result : returns a list of GeoName records, ordered by hierarchy level. The top hierarchy (continent) is the first el

Example, hierarchy of Zurich, Switzerland, Europe:

<http://api.geonames.org/hierarchy?geonameId=2657896&username=noermaen>

Der Geonames-Webservice bietet nur eine beschränkte Anzahl von Zugriffe. Diese Anzahl reicht für unsere Zwecke nicht aus
=> Ich habe die Daten für die Schweiz aus dem Dump in eine Sesame Repository importiert

Callimachus: Eigene Views erstellen

Die Rest-Schnittstelle für die Named Queries generiert kein Standard-JSON.

Dokumentation:

- http://callimachusproject.org/docs/1.4/callimachus-for-web-developers.docbook?view#Results_from_named_queries
- <http://callimachusproject.org/docs/1.4/callimachus-for-web-developers.docbook?view#query-template>

Folgender Code funktioniert nicht:

```
// url for library list: http://localhost/swisslibrarystatistics/osm_libraries/sparq-lgd-federated-library-list.rq
$.ajax({
  type: "GET",
  // url: "http://localhost/swisslibrarystatistics/osm_libraries/sparq-local-library-list.rq?results&tx=out:js
  url: "../osm_libraries/sparq-local-library-list.rq?results&tx=out:json",
  encoding: 'UTF-8',
  beforeSend: function(){
    //console.log("before send");
  },
  error: function(jqXHR, textStatus, errorThrown ) {
    console.log("error: ");
    console.log(textStatus);
    console.log("error: ");
    console.log(errorThrown);
    console.log("error: ");
    console.log(jqXHR);
  }
})
.done(function(result) {
  console.log(result);
});
```

Alternative: Man könnte das CSV parsen mit <http://papaparse.com/>

Callimachus ist kompatibel zur Google Visualization API:

https://developers.google.com/chart/interactive/docs/dev/implementing_data_source#json-response-format

Konkret wird Google Charts benutzt: <https://developers.google.com/chart/interactive/docs/>

Callimachus: View für die Bibliotheksliste (LGD)

Anpassen von `swisslibrarystatistics/lgdLibraries/lgd_listLibraries.rq`

```
# @Cache-Control: max-age=3600
# @view lgd_ListLibraries_view.xhtml
```

View template angelegt unter http://localhost/swisslibrarystatistics/lgdLibraries/lgd_ListLibraries_view.xhtml

Implementierung einer Suche

Die Bibliotheken sollen durchsucht werden.

Umsetzung könnte man analog zu <http://localhost/tutorials/quotes-selectize-20140807/quotation.xhtml?view> machen.

Generieren eines Callimachus Archives

Das Export-Format von Callimachus ist ein Zip-File mit der Endung `.car`

Archiv aus bestehendem lokalem Directory erzeugen:

```
zip -r swisslibrarystatistics.car swisslibrarystatistics
```

Linked Geo Data / OSM Daten Export für Bibliotheken

Importieren der Daten aus OSM / Linked Geo Data

Mittels der entwickelten kleinen Jena-Applikation wird eine ttl-Datei exportiert.

Java Code: `linkedGeoDataLibrary/ ... /TestLinkedGeoDataClient.java`

(Veraltet. Wurde Anfangs Projekt versucht): Einbeziehen der Statistik-Daten auf Datahub.io

Ich habe die Beispielstatistikdaten mal auf datahub.io geladen.

Link: <https://ckanet-storage.commondatastorage.googleapis.com/2015-08-14T12:07:12.200Z/library-statistics-data.ttl>

Link für den Eintrag: <http://datahub.io/dataset/statistic-data-for-swiss-library>

Auszug aus Statisk-Daten (Turtle)

```
@prefix lgd:    <http://linkedgedata.org/triplify/> .
@prefix libStat: <http://linkeddata.fh-htwchur.ch/ontology/libraryStatistic/> .
@prefix lgdo:   <http://linkedgedata.org/ontology/> .
```

```
libStat:1970531633
  a                libStat:LibStatistic;
  libStat:osmLib lgd:node1970531633;
  libStat:numberOfBooks 200 .
```

```
libStat:2609307026
  a                libStat:LibStatistic;
  libStat:osmLib lgd:node2609307026;
  libStat:numberOfBooks 50 .
```

Query für eine Liste:

```

SELECT ?libStat ?osmLibNodeId ?numberOfBooks
WHERE {
  ?libStat a libStat:LibStatistic
  ; libStat:osmLib ?osmLibNodeId
  ; libStat:numberOfBooks ?numberOfBooks .
}

```

Query der Daten mit TTL-Datei auf datahub.io:

```

SELECT ?libStat ?osmLibNodeId ?numberOfBooks
FROM <http://ckannet-storage.commondatastorage.googleapis.com/2015-08-14T12:07:12.200Z/library-statistics-data.ttl>
WHERE {
  ?libStat a libStat:LibStatistic
  ; libStat:osmLib ?osmLibNodeId
  ; libStat:numberOfBooks ?numberOfBooks .
}

```

Fazit:

- Im Sparql-Endpoint <http://sparql.org/sparql> funktioniert diese Query.
- Im Callimachus bekomme Ich dazu keine Ausgabe. Ich dazu mal ein Issue aufgemacht: <https://github.com/3-Round-Stones/callimachus/issues/225> => Fazit: Sparql definiert das automatische herunterladen einer RDF-Datei NICHT

Wenn ich diesen Datensatz im Callimachus eintrage, bekomme ich folgende Fehlermeldung:

```

Host name 'ckannet-storage.commondatastorage.googleapis.com' does not match the certificate subject provided by the p

```

Habe die Callimachus-Installation gefixt: https://github.com/htwchur/LOD_LED/issues/14

Es ist wohl momentan nicht möglich, eine externe RDF-Datei über Callimachus miteinzubeziehen.

Dave schlägt folgendes vor:

You should SPARQL's GRAPH keyword (instead of SERVICE) if you are querying RDF in a flat file: Link:

<http://www.w3.org/TR/2013/REC-sparql11-query-20130321/#queryDataset> Use the the SERVICE clause for remote SPARQL endpoints, and GRAPH when you want to query RDF files at a known URL.

Here is an example:

```

PREFIX xsd: <http://www.w3.org/2001/XMLSchema#>
PREFIX rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>

SELECT ?s {
  GRAPH <https://example.com/data/FinancialDates.rdf> {
    ?s a owl:Class . #FILTER( REGEX( STR(?s), "^http://www.omg.org", "i" ) )
  }
} LIMIT 1000

```

Bezogen auf unser Beispiel:

```

PREFIX geovocab-geom2: <http://geovocab.org/geometry#>
PREFIX lgdo: <http://linkedgeodata.org/ontology/>
PREFIX lgdm: <http://linkedgeodata.org/meta/>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
PREFIX lgd-addr: <http://linkedgeodata.org/ontology/addr%3A>
PREFIX spy: <http://aksw.org/sparqlify/>
PREFIX lu: <http://id.sirf.net/def/lu#>
PREFIX dcterms: <http://purl.org/dc/terms/>
PREFIX rdfs: <http://www.w3.org/2000/01/rdf-schema#>
PREFIX lgd: <http://linkedgeodata.org/triplify/>
PREFIX ogc: <http://www.opengis.net/ont/geosparql#>
PREFIX wgs: <http://www.w3.org/2003/01/geo/wgs84_pos#>
PREFIX lgd-adress: <http://linkedgeodata.org/ontology/addr/>
PREFIX geovocab-geom: <http://geovocab.org/geometry>
PREFIX lgd-geom: <http://linkedgeodata.org/geometry/>

```

```

PREFIX xsd:      <http://www.w3.org/2001/XMLSchema#>
PREFIX owl:    <http://www.w3.org/2002/07/owl#>
PREFIX geovocab-spatial: <http://geovocab.org/spatial#>
PREFIX rdf:      <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
PREFIX skos:     <http://www.w3.org/2004/02/skos/core#>
PREFIX lgd-contact: <http://linkedgedata.org/ontology/contact%3A>
PREFIX libStat: <http://linkeddata.fh-htwchur.ch/ontology/libStat/>

```

```

SELECT ?libStat ?osmLibNodeId ?numberOfBooks {
  GRAPH <http://ckannet-storage.commondatastorage.googleapis.com/2015-08-17T14:29:58.955Z/library-statistics-data>
    ?libStat a libStat:LibStatistic
    ; libStat:osmLib ?osmLibNodeId
    ; libStat:numberOfBooks ?numberOfBooks .
}
}

```

Im Callimachus kommen keine Resultate zurück.

Wenn Ich die Query unter sparql.org/sparql ausführe, bekomme ich folgende Fehlermeldung:

```
Error 400: No dataset description in protocol request or in the query string
```

Vom Tutorial unter <http://www.cambridge semantics.com/semantic-university/sparql-by-example/>:

```

PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>
CONSTRUCT { ?X vCard:FN ?name .
            ?X vCard:URL ?url .
            ?X vCard:TITLE ?title . }
FROM <http://dig.csail.mit.edu/2008/webdav/timbl/foaf.rdf>
WHERE {
  OPTIONAL { ?X foaf:name ?name . FILTER isLiteral(?name) . }
  OPTIONAL { ?X foaf:homepage ?url . FILTER isURI(?url) . }
  OPTIONAL { ?X foaf:title ?title . FILTER isLiteral(?title) . }
}

```

Die Query funktioniert unter <http://sparql.org/sparql.html>

Callimachus kann mit dem CONSTRUCT nicht umgehen. Ich versuche folgendes:

```

PREFIX vCard: <http://www.w3.org/2001/vcard-rdf/3.0#>
PREFIX foaf: <http://xmlns.com/foaf/0.1/>

SELECT ?name ?url ?title
FROM <http://dig.csail.mit.edu/2008/webdav/timbl/foaf.rdf>
WHERE {
  OPTIONAL { ?X foaf:name ?name . FILTER isLiteral(?name) . }
  OPTIONAL { ?X foaf:homepage ?url . FILTER isURI(?url) . }
  OPTIONAL { ?X foaf:title ?title . FILTER isLiteral(?title) . }
}

```

Funktioniert im sparql.org/sparql Endpoint und unter <http://demo.openlinksw.com/sparql>, im Callimachus als Named Query kommen keine Daten zurück.

Erklärung für Unterstützung für die Query eines Remote RDF Files: <http://stackoverflow.com/questions/30433069/sesame-workbench-querying-an-online-data-set>

Varianten:

- Installieren Sesame auf dem ID-Server und ziehe diesen dann in die Callimachus-Installation mitein.
- Statistik-Daten im internen Callimachus-Store speichern.

