

## Guidelines for the enrichment of the “Market capitalization of listed companies (current US\$)” data set from the World Bank Linked Data using the QB2OLAPem tool

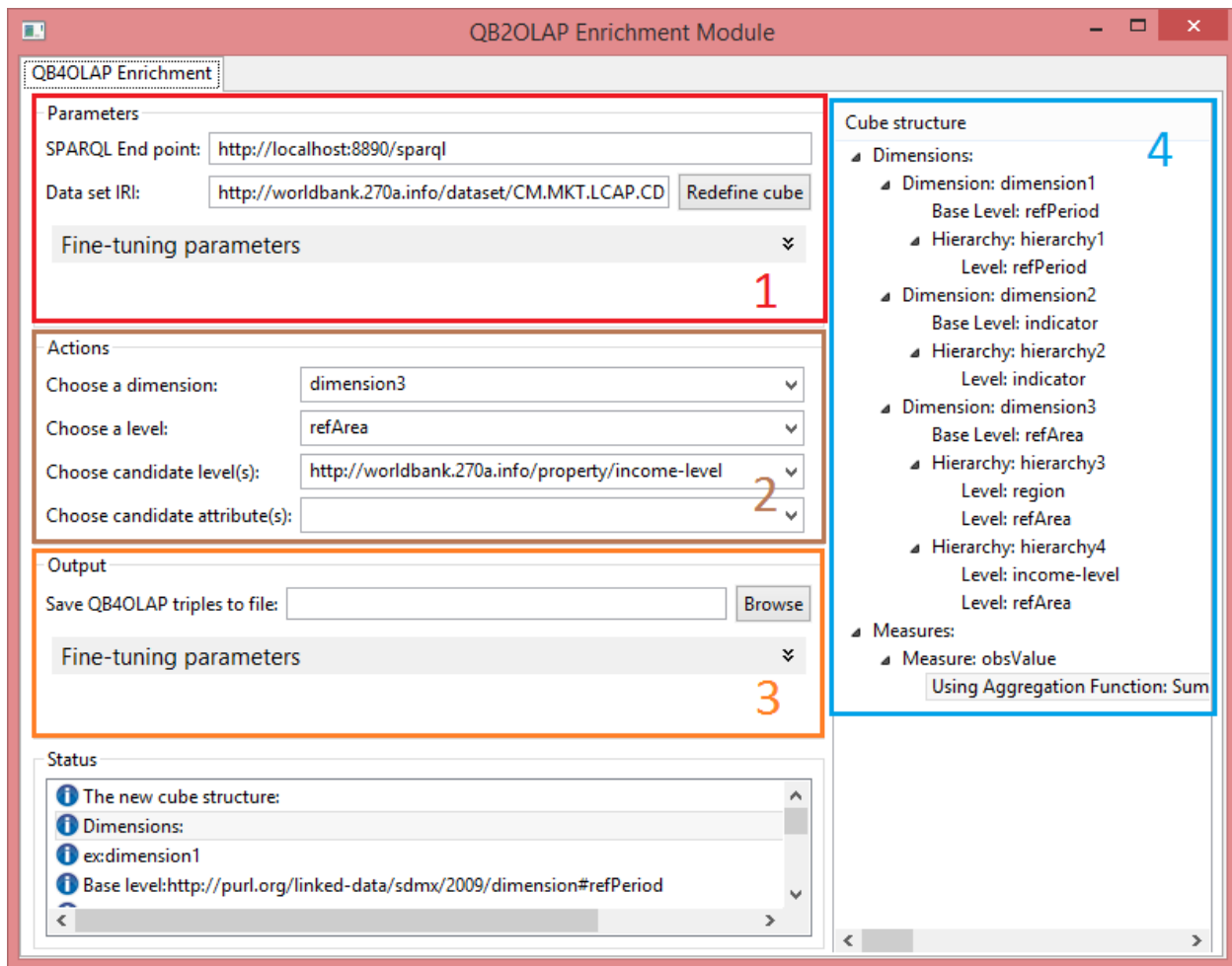
To enrich a QB data set, you need to use the QB2OLAPem tool to redefine the data set according to QB4OLAP and discover the concepts that can be used for the enrichment. In this process, it is necessary that you keep track of:

- The **total time** using the tool.
- Redefinition phase:
  - o **The time** used for this phase.
  - o The **total number of interface actions** (e.g., clicks, text area edits, and similar) used for this phase.
  - o The number of errors after interface actions, if any.
  - o The number of interface actions with no effect, if any.
- Enrichment phase:
  - o **The time** used for this phase.
  - o The **total number of interface actions** (e.g., clicks, text area edits, and similar) used for this phase.
  - o The number of errors after interface actions, if any.
  - o The number of interface actions with no effect, if any.

(Time is to be measured from the moment you perform the first interface action (of a phase) to the moment the last interface action (of a phase) finishes.)

At the end, save the triples representing the (enriched) QB4OLAP schema in a file that you name QB2OLAP\_EnrichedSchema\_name\_lastname. Then, please fill in the “QB2OLAP\_Evaluation\_name\_lastname.xlsx” excel sheet with the values of these parameters (the “Enrichment with QB2OLAPem” column). Also, once you are done with all the experiments (including other enrichment option) fill in the “QB2OLAPem survey”. Finally, send all files by email to [jvarga@essi.upc.edu](mailto:jvarga@essi.upc.edu). (To recapitulate, you should send 1) the excel file with the metrics you keep, 2) the file with triples produced with the tool, and 3) the filled in survey.)

The QB2OLAPem screen shoot is depicted below. (**Note: each selection of the values in the dropdown list automatically triggers related processing, so select relevant values only if needed.**)



There are 4 areas in the tool interface that will be used and they serve for:

1. (Red) The schema redefinition actions.
2. (Brown) The schema enrichment actions.
3. (Orange) The generation of the output schema triples.
4. (Blue) The visualization of the cube structure being constructed.

You are supposed to perform following task using the tool.

### 1. Schema redefinition phase

First, a syntactic transformation from QB to QB4OLAP basic constructs is needed. Using the area 1 (red), insert the following parameters:

- To the *SPARQL End point* text area:
- To the *Data set IRI* text area: <http://worldbank.270a.info/dataset/CM.MKT.LCAP.CD>
- Open *Fine-tuning parameters* and insert to the *Set graph* text area: <http://localhost:8890/WB>

and click on the *Redefine cube* button.

## 2. Schema enrichment phase

For the sake of simplicity, we want to create three leveled hierarchies, i.e., hierarchies consisting of the starting (QB) level, one new level on top of the starting one, plus the all level. Moreover, we are going to create two such hierarchies in the same dimension.

You should define a new level for the region and income-level properties. Using the area 2 (brown), select following values in the drop down lists (Note, check area 4 (blue) to find the values you need and see the effect of your action (i.e., when you select candidate level it will be added to the visualization)):

- To choose a dimension, in the *Choose a dimension* dropdown list choose dimension containing the *refArea* level. (See area 4 (blue), it is most probably dimension 2).
- To select a starting level, in the *Choose a level* dropdown list choose *refArea*.
- To add the region as new level, in the *Choose candidate level(s)* dropdown list choose <http://worldbank.270a.info/property/region>
- Finally, to also add income-type as new level, again in the same way in the *Choose candidate level(s)* dropdown list choose <http://worldbank.270a.info/property/income-level>

Optionally, you can also add a new level attribute in the following way. For a property chosen among the ones detected as candidate attributes you can choose a level attribute and add it to the level also using area 2 (brown). For example, you may:

- To choose a dimension, in the *Choose a dimension* dropdown list choose dimension containing the *refArea* level. (Most probably dimension 2).
- To select the level, in the *Choose a level* dropdown list choose *refArea*.
- To add label as attribute to the *refArea*, in the *Choose candidate attribute(s)* dropdown list choose <http://www.w3.org/2004/02/skos/core#prefLabel>

Finally, use the area 3 (orange), and specify the location to store the output QB4OLAP graph in the following way:

- Press *Browse* button
- Specify the location and press *Save* button

Note: remember to send these the file together with the excel sheet.