

Writing Wikidata SPARQL queries

Wikidata is a collaboratively edited knowledge base. The data there can be queried to find information and help identify missing information. This guide shows you how its interface works.

This is the query helper tool, which allows you to create or modify a query without knowing SPARQL. There is a guide with videos and gifs on how to use it here:

https://www.wikidata.org/wiki/Wikidata:SPARQL_query_service/Query_Helper

Wikidata ignores things starting with # - they are comments rather than instructions. I use them to help me remember what the numbers mean. There is an exception: typing #defaultView at the start of your query gives you the option to tell Wikidata how you'd like your results to appear when you click execute (play), e.g. graph, timeline.

Both buttons open the examples folder. **The easiest way to create a query as a beginner is find a one similar to what you want and tweak and adjust it for your purposes.**

The help button dropdown offers options including a User manual and to request a query.

Tools to help with specific Wikidata things like editing or visualising.

SELECT is the part of a query where you specify what you want to see. The question mark is something you are looking for and provides headings for your results table. Adding Label with a capital L means you will see text in your chosen language rather than just a Wikidata reference number.

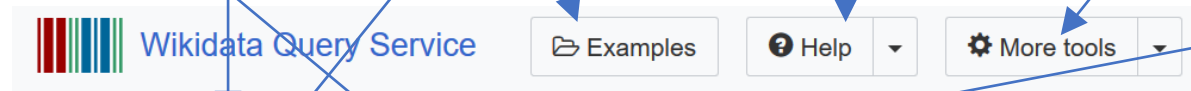
SERVICE tells Wikidata how you'd like your results to look, e.g. appearing in English.

WHERE gives the criteria to narrow down your search. This includes everything within the squiggly brackets.

In this query the item should be "type of thing, human", with "gender, female".

The next part, within brackets requests occupation (P106) and any subset (P279) – so as well as chemists, the query will find people listed as more specific types of a thing, e.g. organic chemists, etc.

The query then asks for the place of birth. Instead of asking for a specific date of birth, adding another ? term afterwards tells Wikidata to show people with any place of birth and to report the place under this heading in a table. The next row asks for the coordinates of the place of birth to be added as another column.



```
1 #Women chemists for map
2 SELECT DISTINCT ?item ?itemLabel ?date_of_birth ?image ?coord
3 WHERE {
4   SERVICE wikibase:label { bd:serviceParam wikibase:language "en". }
5   ?item wdt:P31 wd:Q5; #human
6     wdt:P21 wd:Q6581072; #woman
7     (wdt:P106/(wdt:P279*)) wd:Q593644. #chemist
8   ?item wdt:P19 ?pob. #place of birth
9   ?pob wdt:P625 ?coord. #co-ordinates of that place
10  OPTIONAL { ?item wdt:P106 ?occupation. }
11  OPTIONAL { ?item wdt:P569 ?date_of_birth. }
12  OPTIONAL { ?item wdt:P18 ?image. }
13 }
14 ORDER BY (?item)
```

ORDER BY allows you to specify which column should set the order for results when you click execute.

OPTIONAL lets you request things that you would like to see but that aren't essential. If you do not specify something as OPTIONAL, any item that does not have the property will not appear in your results.

Fullscreen button.

Prefixes – not beginner-friendly!

Format query button automatically adds service and limits to 100 results.

Restore previous query takes you back to the query as it was the last time you pressed execute query (play).

Clear query deletes everything.

Short URL creates a link to your query that is more space-efficient than copying and pasting from your browser address bar.

Useful for sharing work or asking for help or feedback.

The execute query or "play" button gives you the results based on what you've typed into the query window. You may see a blue running query bar, then a green rendering results bar, and then your results will appear.

The default view for results (unless you specify otherwise) is a table with the ?terms you used as headings. You can sort by any heading or click on item numbers or images to see more.

Wikidata query results

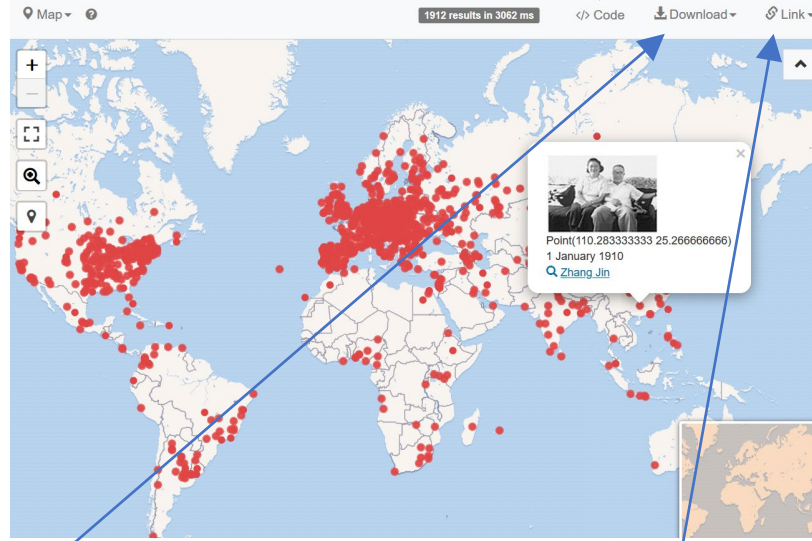
See a quick summary of how many results your query returned. This can be a good indicator whether your query is right / the extent to which Wikidata has useful data on your topic.

You can choose to view your results as: table, image grid, graph (with tool to customise display options), map, chart (various types available), tree map, tree, timeline, dimensions (useful for things with lots of mathematical values) or graph (bobbly – see example below).

item	itemLabel	date_of_birth	image	coord
Q35703	Gertrude B. Elion	23 January 1918	commons:Gertrude Elion.jpg	Point(-74.006015 40.712728)
Q35703	Gertrude B. Elion	23 January 1918	commons:Gertrude Elion 1991.jpg	Point(-74.006015 40.712728)
Q35703	Gertrude B. Elion	23 January 1918	commons:Nci-vol-8236-300 Gertrude Elion.jpg	Point(-74.006015 40.712728)
Q49280	Mary Engle Pennington	8 October 1872	commons:Mary Engle Pennington (1872-1952).jpg	Point(-86.774444444 36.162222222)
Q49280	Mary Engle Pennington	8 October 1872	commons:Mary Engle Pennington as a young girl.jpg	Point(-86.774444444 36.162222222)
Q55212	Anna Krylov	1 January 1967	commons:Anna Krylov.jpg	Point(37.804166666 48.008888888)
Q55213	Sylvia T. Ceyer	18 December 1953		Point(-87.627777777 41.881944444)

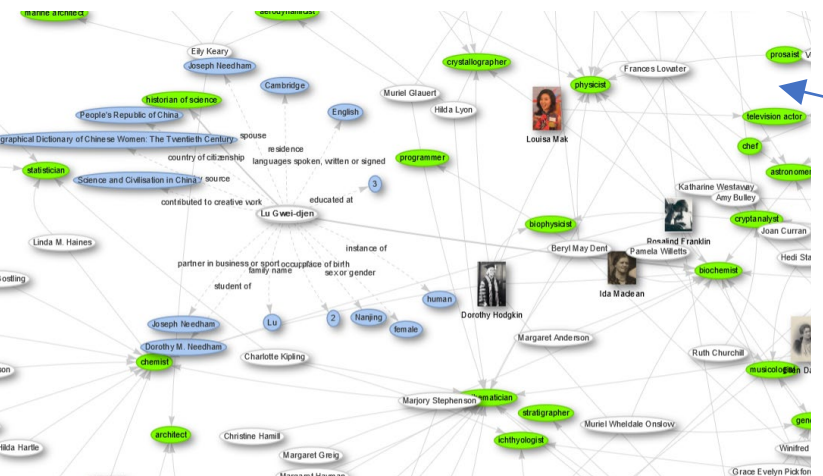
Use the button to the top right of the results to change how results appear. The ? button to the right explains the views available.

Gives you the option to get the code for your results in lots of different programming languages.



Download your results in different ways. Most useful to beginners are probably as a CSV file (for using in Excel / Sheets) or as an SVG image (could be used as a still in a presentation or printed document).

Choose from 3 link options: results with no query details (unless someone goes hunting for them) or a SPARQL endpoint (not beginner friendly) or to the code to embed the results, e.g on your own website.



With some queries, you can see relationships between items in network graphs (e.g. this one shows alumna of a university grouped by occupation).

You can click on nodes (the words or pictures) to see more information about that node.

There's a video in English on how to create SPARQL Queries and visualise data at:
https://media.ed.ac.uk/media/Wikidata+Sparql+Query+Tutorial/1_7v9v6s04
 This is also a nice guide for beginners:
https://www.wikidata.org/wiki/Wikidata:SPARQL_query_service/A_gentle_introduction_to_the_Wikidata_Query_Service