Universität Münster

rdf_fdw - Foreign Data Wrapper for RDF Triplestores

Motivation

Modern systems increasingly rely on RDF data exposed via SPARQL endpoints to enrich and interlink their data. Today, integration usually means:

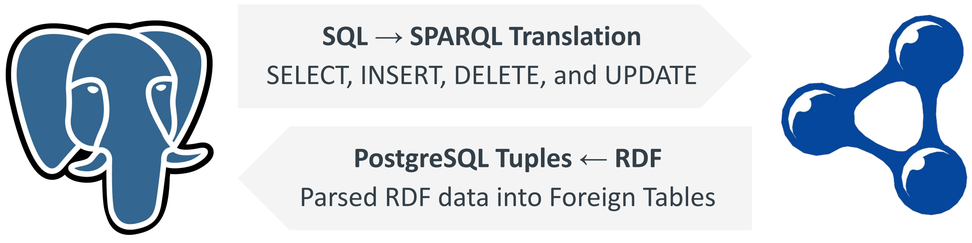
- Writing custom parsers and import pipelines
- Duplicating data across systems
- Maintaining synchronization logic when RDF data changes

This approach is fragile, hard to maintain, and quickly becomes a long-term operational burden.

rdf_fdw removes this barrier.

What is rdf_fdw?

rdf_fdw is a PostgreSQL Foreign Data Wrapper that enables direct access to RDF triple stores via SPARQL endpoints, making the Web of Data accessible from PostgreSQL!



It exposes RDF data as foreign tables while pushing as much work as possible to the RDF store — without exporting or duplicating data.

Highlights

- SQL → SPARQL pushdown (filters, ordering, limits)
- Data modification support (INSERT / UPDATE / DELETE)
- Native RDF terms (rdfnode) and SPARQL 1.1 functions
- No export pipelines, no data duplication!

Example

Films and their capital costs from Wikidata.

```
CREATE SERVER wikidata
FOREIGN DATA WRAPPER rdf_fdw
OPTIONS (endpoint 'https://query.wikidata.org/sparql');

CREATE FOREIGN TABLE films (
  name    rdfnode OPTIONS (variable '?filmLabel'),
  cost    rdfnode OPTIONS (variable '?cost'),
  country rdfnode OPTIONS (variable '?ccode')
)
SERVER wikidata OPTIONS (
  sparql $$
    SELECT ?film ?filmLabel ?cost
    WHERE {
      ?film wdt:P31/wdt:P279* wd:Q11424 ; # film
        wdt:P2130 ?cost ;         # capital cost (USD)
        wdt:P136 wd:Q157443 ;     # genre comedy
        wdt:P1981 wd:Q20644796 ; # FSK 12
        wdt:P495 ?c .
      ?c wdt:P297 ?ccode .        # country code
      SERVICE wikibase:label {
        bd:serviceParam wikibase:language "en" .
      }
    } $$
);

SELECT name FROM films
-- pushed down clauses
WHERE country = 'GB'::rdfnode AND
      cost BETWEEN 3500000 AND 4000000
ORDER BY name ASC, cost DESC
FETCH FIRST ROW ONLY;

                name
-----------------------------------
 "Monty Python's Life of Brian"@en
(1 row)
```

How to Get Involved

- Try **rdf_fdw** with your PostgreSQL projects
- Report Issues or suggest features
- Share your use case

Any feedback is much appreciated!
https://github.com/jimjonesbr/rdf_fdw

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