FIP Visualization

- Kristina Hettne

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Ministero dell'Università e della Ricerca
Italiadomani

Why visualize?

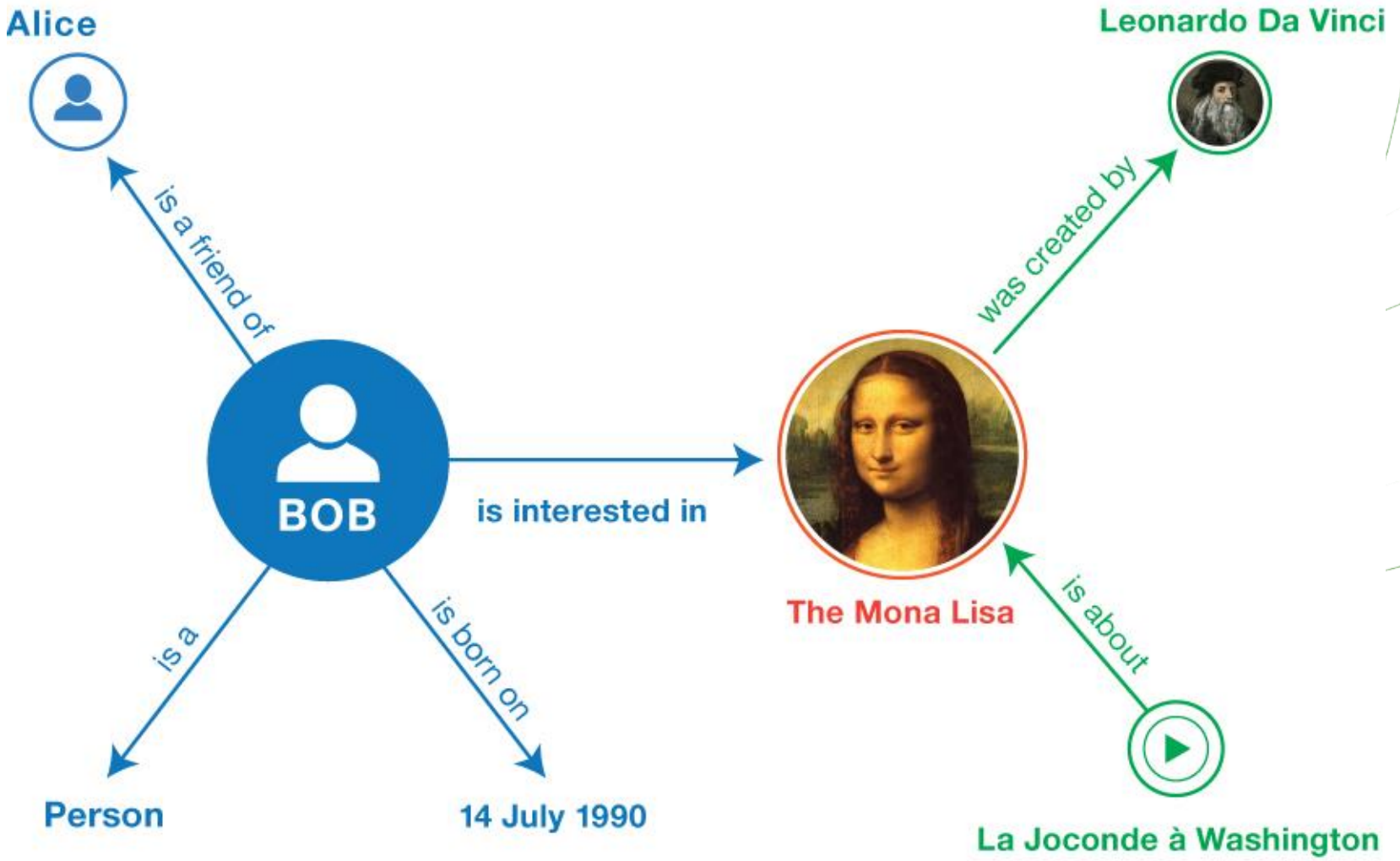
- Visualizations help humans find commonalities and gaps
  - Highlight aspects of interest
- Can function as a conversation starter around FAIRness and implementation of the FAIR principles

What to visualize?

- Connectivity and overlap of FICs, FERs, the FAIR Principles
- Important: think about what you want to know and formulate your questions before starting the visualization process

How to visualize?

- RDF graphs contain nodes and relationships between those nodes
- Any network analysis tool can work but one designed for semantic relationships is recommended



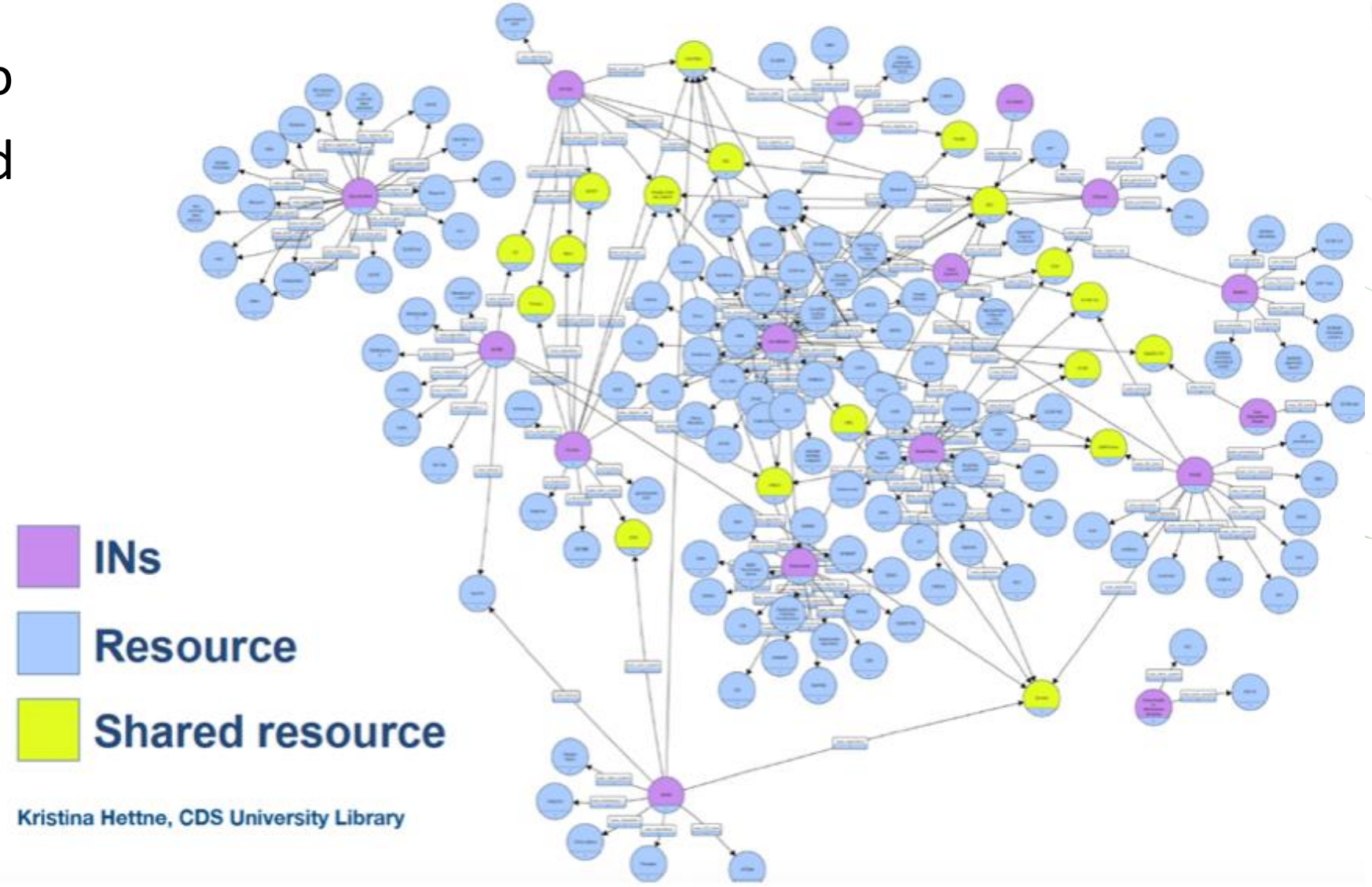
https://www.w3.org/TR/rdf11-primer/

Examples

https://www.w3.org/TR/rdf11-primer/

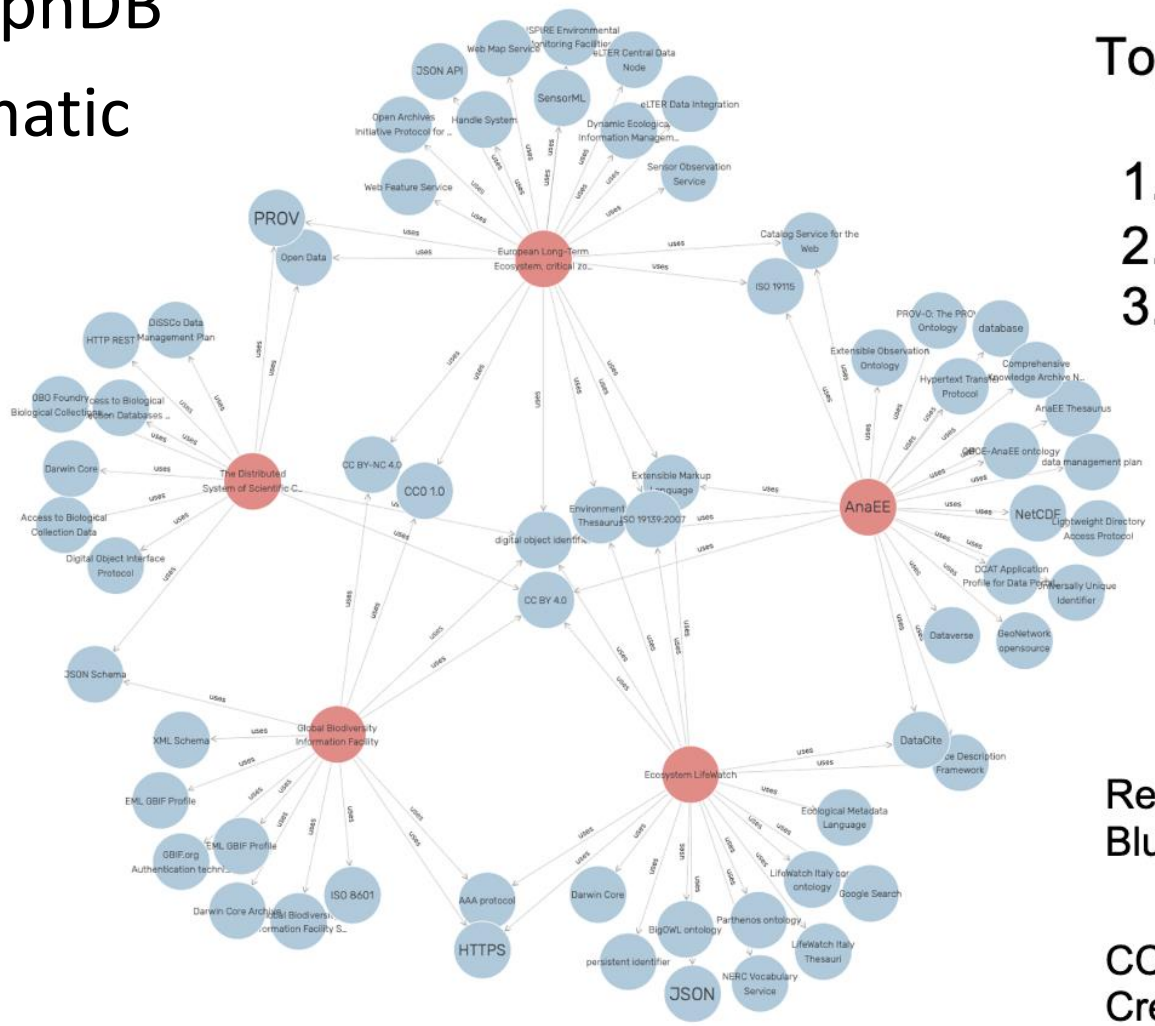
GO FAIR Implementation networks (INs) FER overlap

- In Grafo
- By hand



Biodiversity-ecosystem FER overlap

- In GraphDB
- Automatic



Biodiversity-ecosystem sciences

Top 3 shared resources:

1. Digital Object identifier (all)
2. CC-BY-4.0 (4)
3. Extensible Markup Language (3)

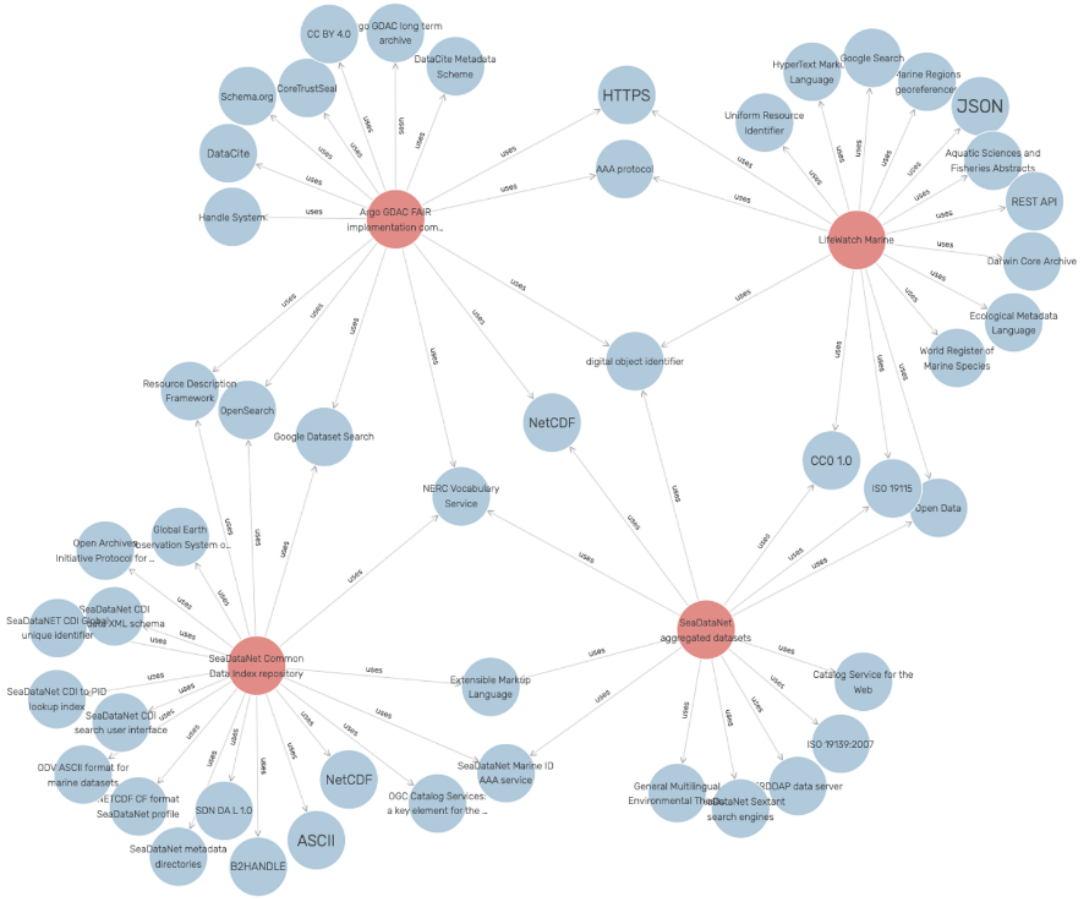
Generic resources

Red: communities
Blue: resources

CC-BY Kristina Hettne, Leiden University Libraries
Created with GraphDB

Marine sciences FER overlap

- In GraphDB
- Automatic



Marine sciences

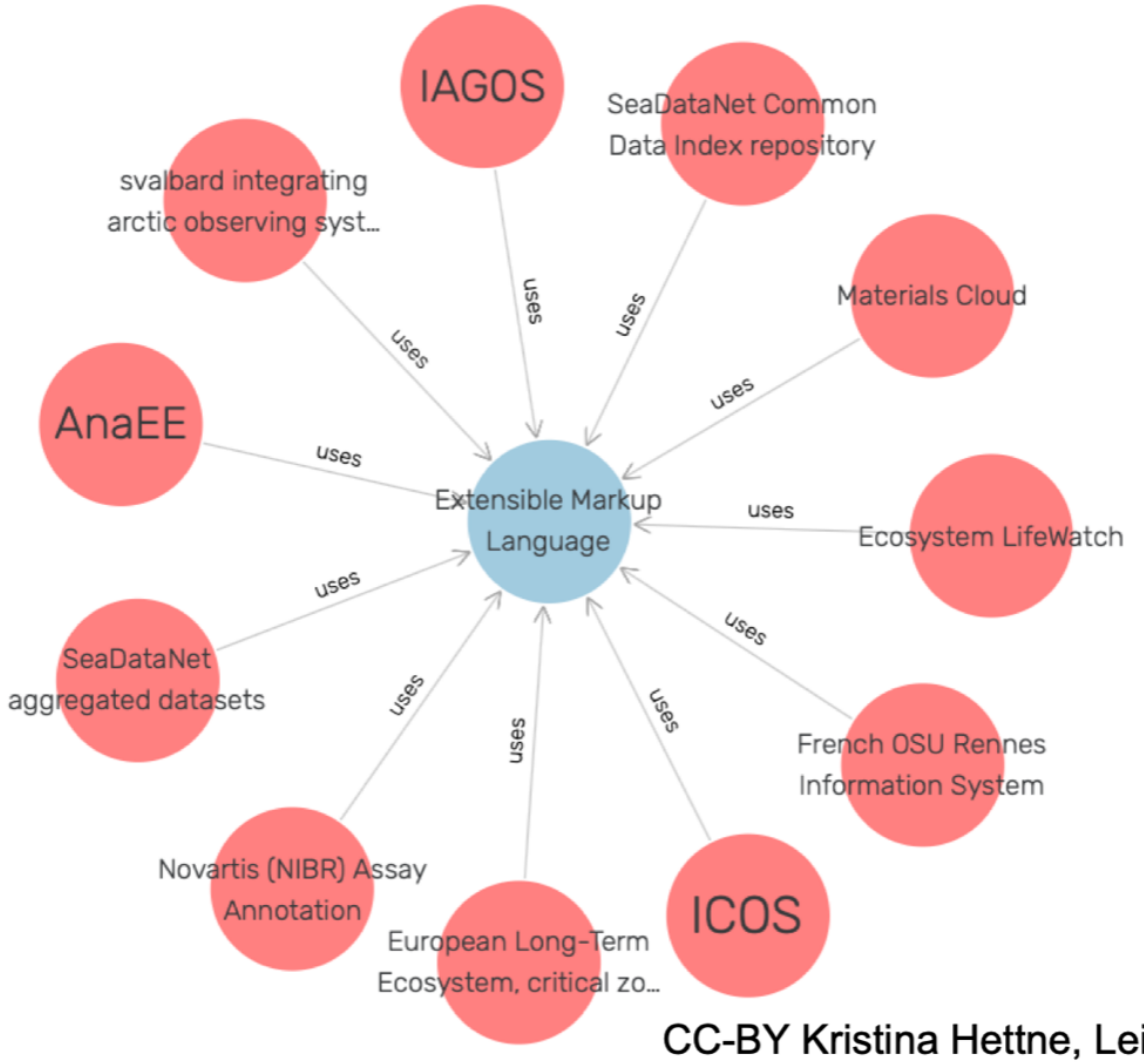
Top 3 shared resources:

1. Digital Object identifier (3)
2. NERC vocabulary service (3)
3. NetCDF (2)

Generic and domain-specific resources

Red: communities
Blue: resources

FER centric



Red: communities
Blue: resources

CC-BY Kristina Hettne, Leiden University Libraries
Created with GraphDB

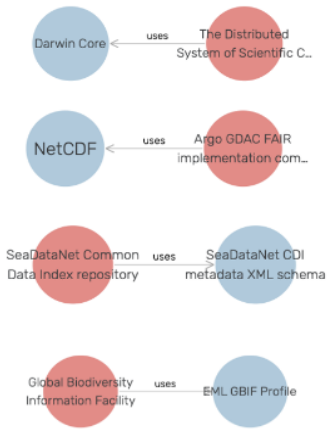
FIC centric

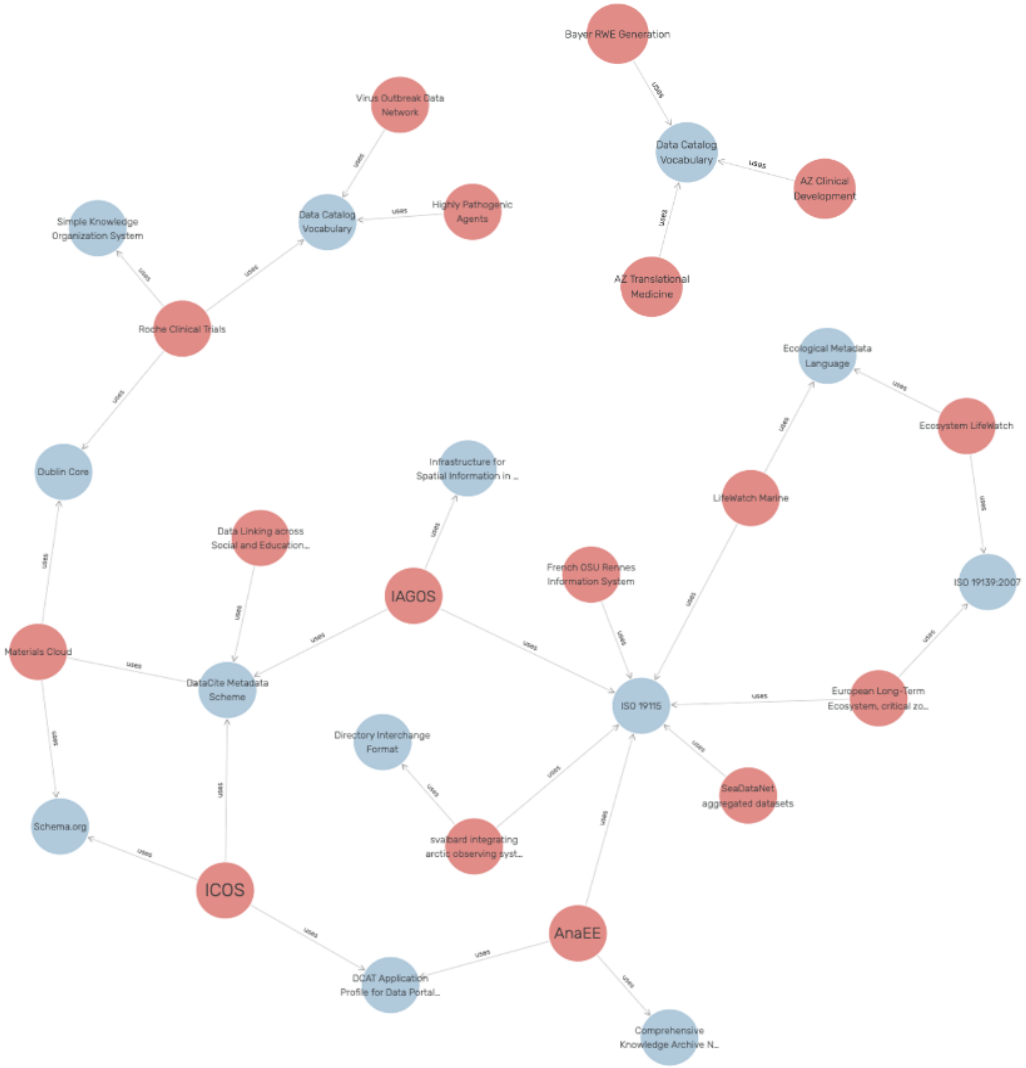
Red: community
Blue: resources

CC-BY Kristina Hettne, Leiden University Libraries
Created with GraphDB

FAIR Principle centric

F2: Which metadata schemas do you use for findability?





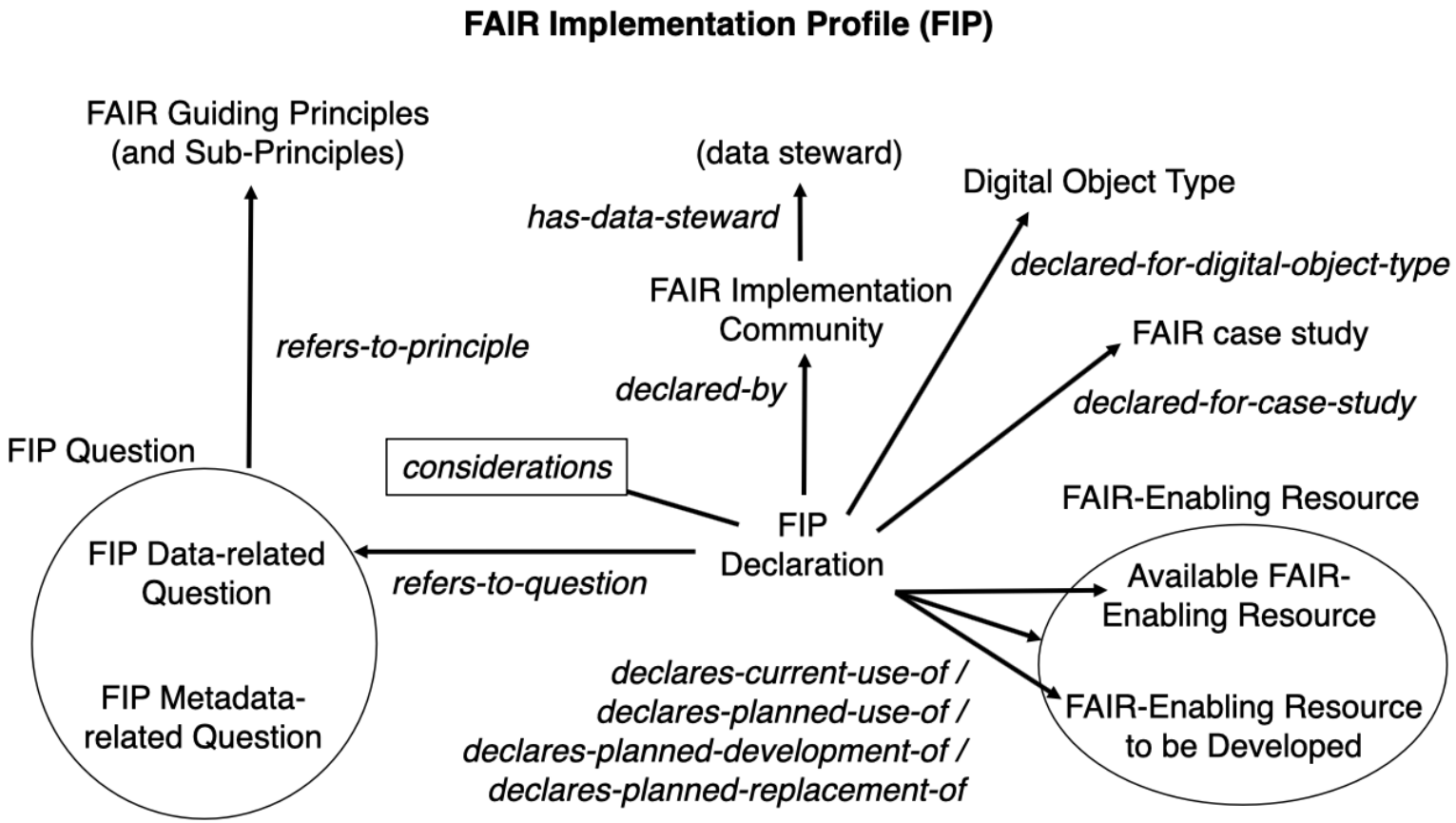
Red: communities
Blue: resources

Creating graphs in GraphDB

https://www.w3.org/TR/rdf11-primer/

Background knowledge: the FIP Ontology

- Need to understand the ontology to generate useful graphs



https://peta-pico.github.io/FAIR-nanopubs/fip/index-en.html

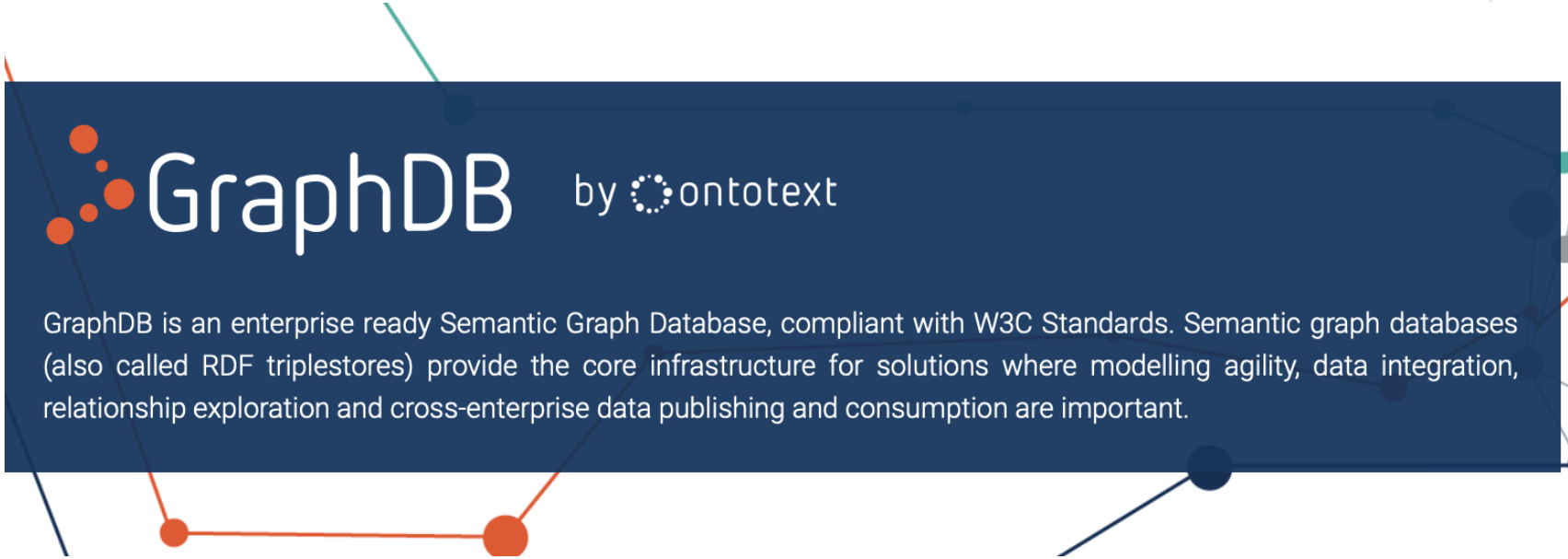
Example data

- FIPs in .trig format:
- Digital Repository of Ireland
  - WorldFAIR WP13. (2024). WorldFAIR WP13: repository-level FIP for Digital Repository of Ireland. Zenodo. https://doi.org/10.5281/zenodo.11386616
- Leiden University Digital Collections
  - Hettne, K., de Vos, M., van Wijk-Zielstra, L., Gambardella, A., & Verhaar, P. (2024). FAIR Implementation Profile for Leiden University Libraries Digital Collections. Zenodo. https://doi.org/10.5281/zenodo.14416614

GraphDB desktop application

GraphDB free:

- Free to use
- Download from: https://graphdb.ontotext.com

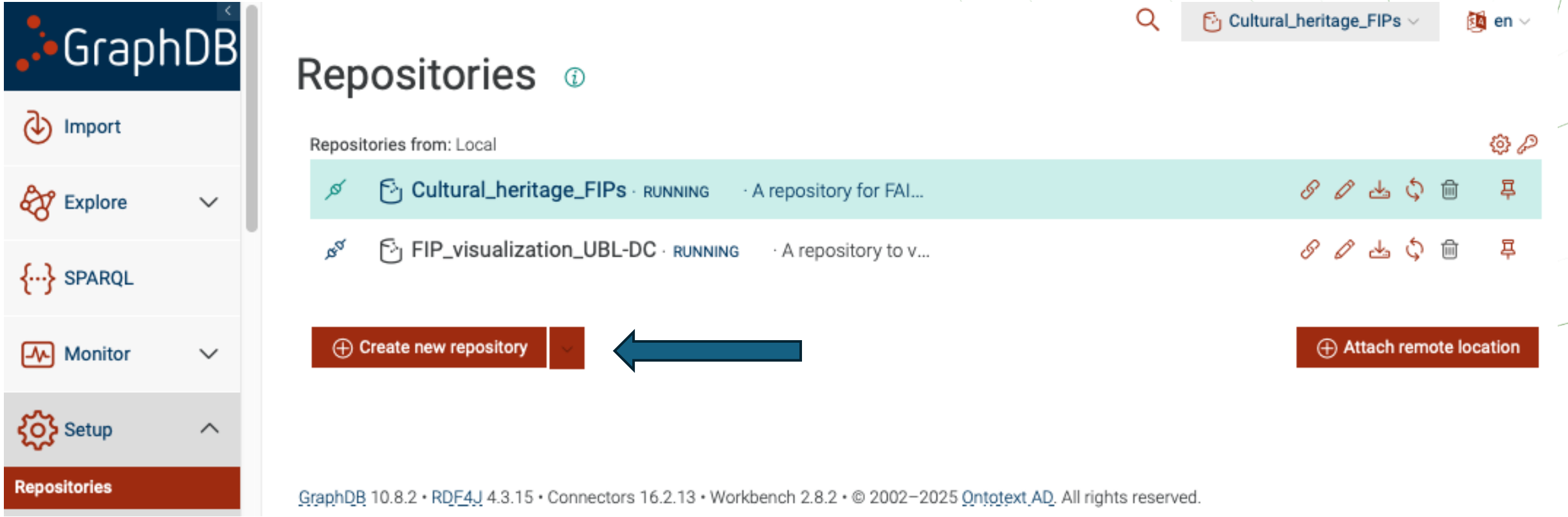


Setup instructions

- Register at https://graphdb.ontotext.com
- Download GraphDB free
- Install the download on your computer

Setting up a GraphDB database (or »repository») (1)

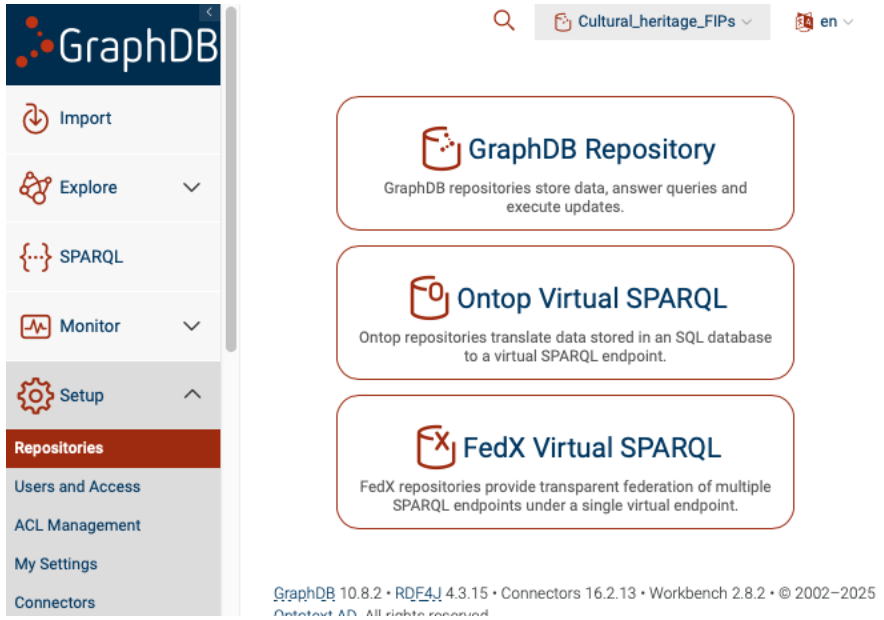
Create a new repository



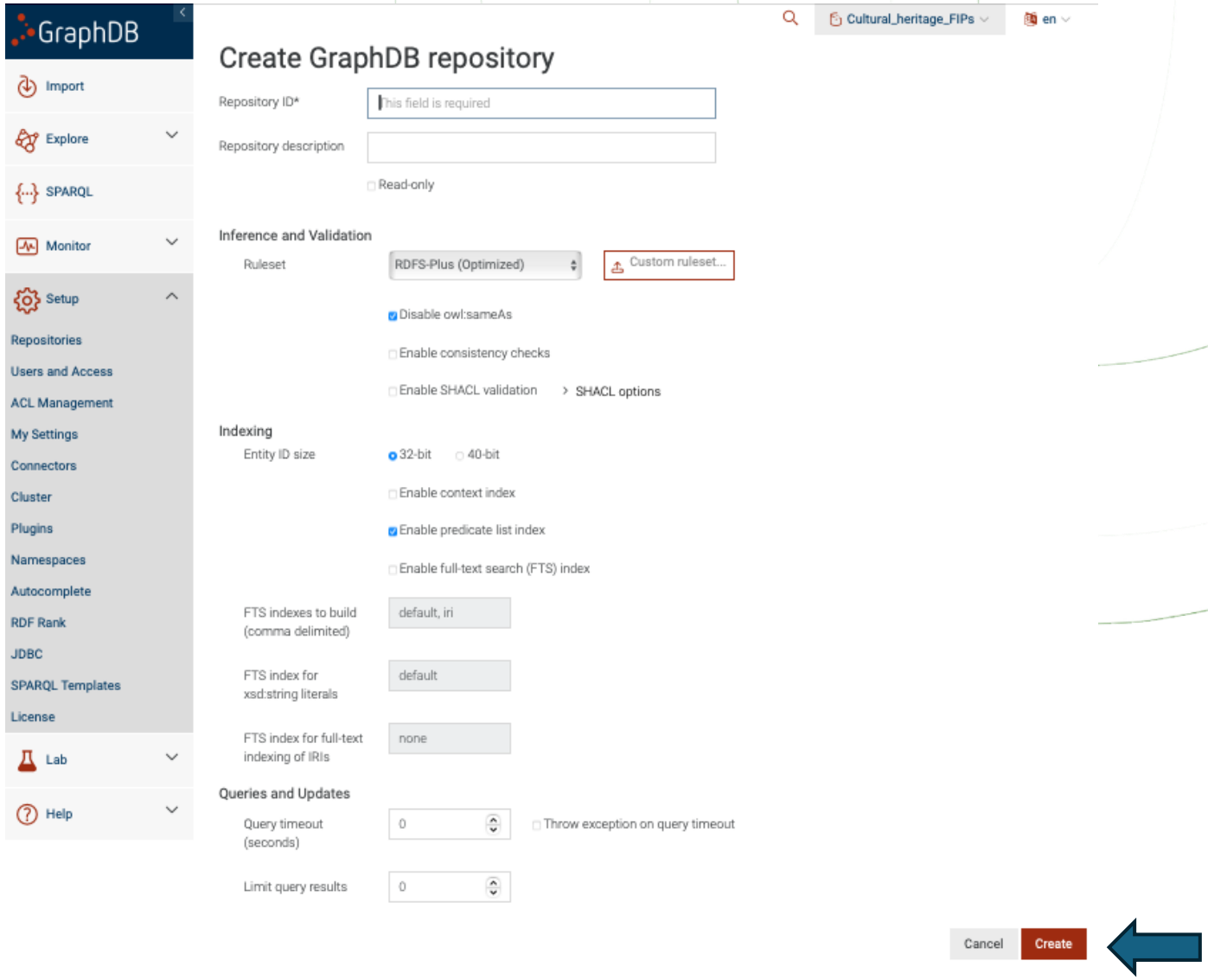
Setting up a GraphDB database (or »repository«) (2)

New GraphDB Repository

1)

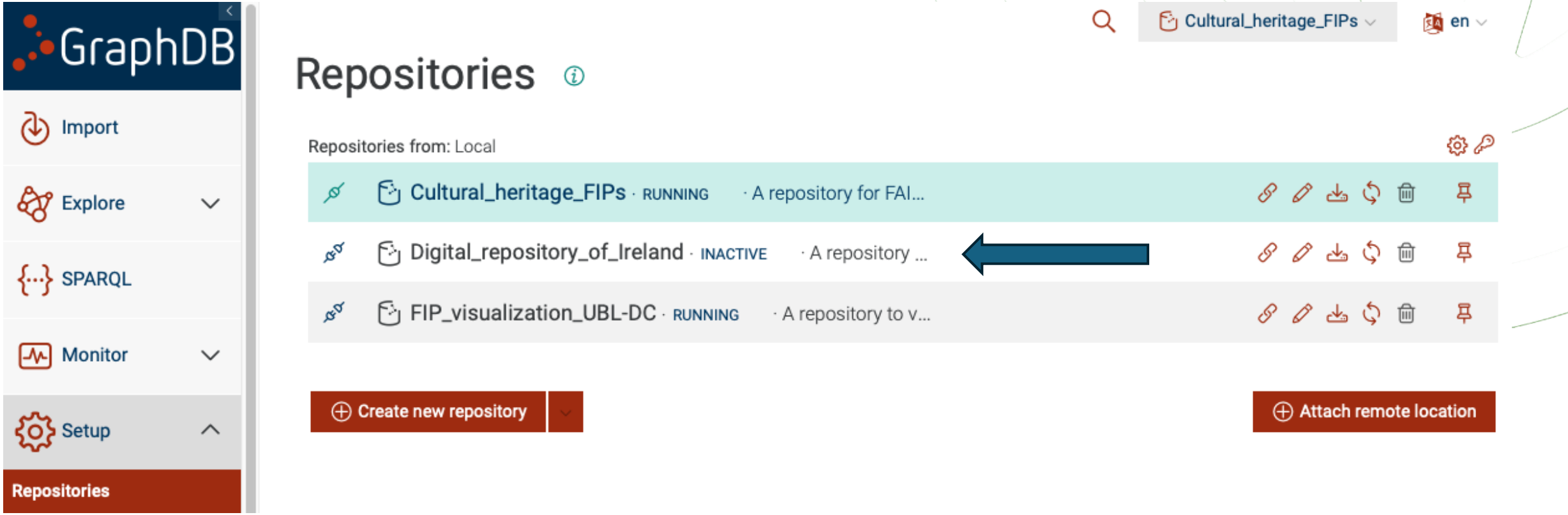


2)



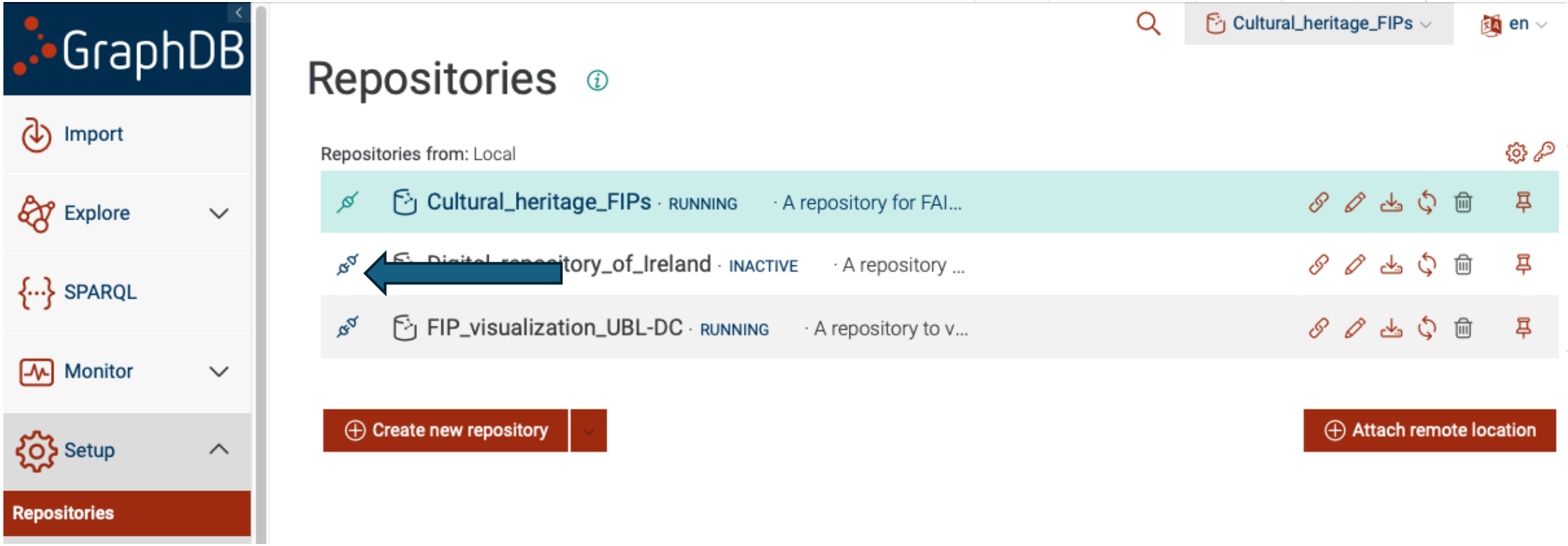
Setting up a GraphDB database (or »repository«) (3)

- New repository shows up in list as «inactive»



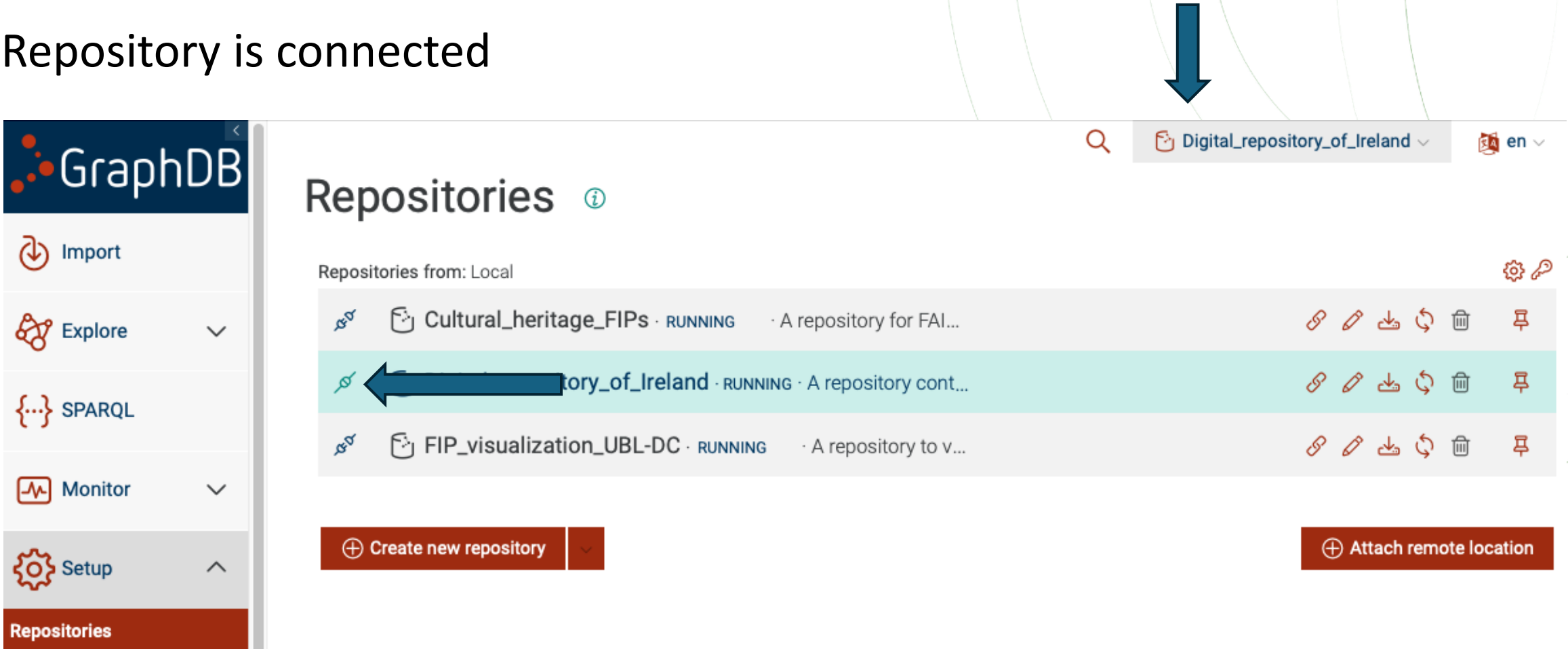
Setting up a GraphDB database (or »repository«) (4)

- Click on connect repository icon



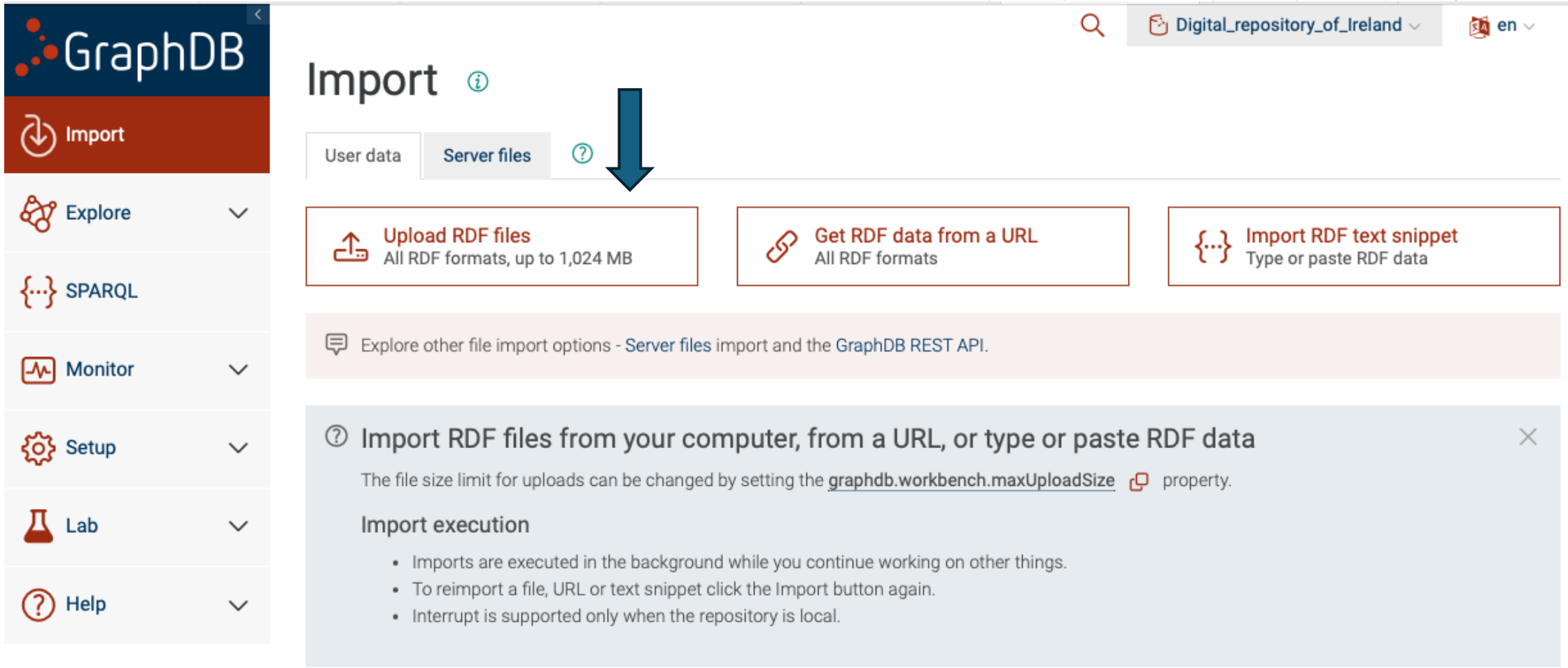
Setting up a GraphDB database (or »repository«) (5)

- Repository is connected



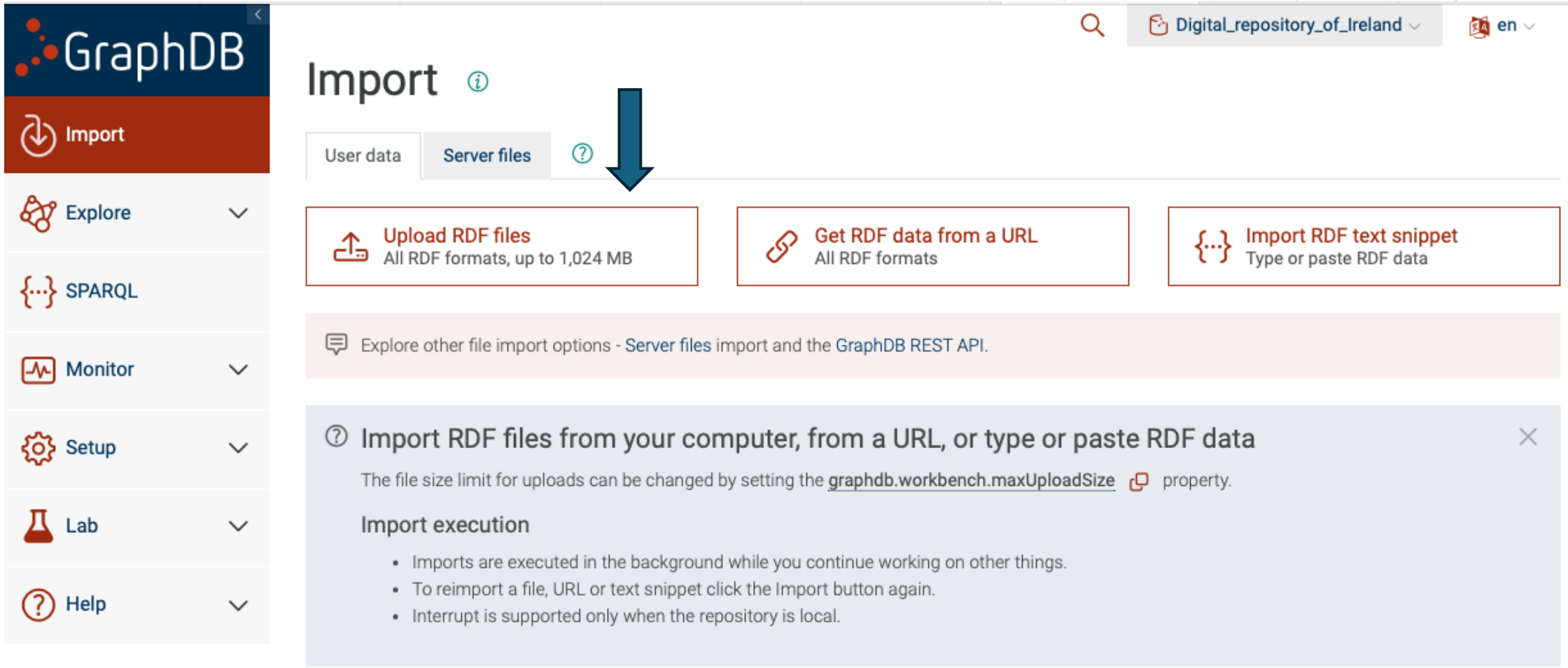
Setting up a GraphDB database (or »repository») (6)

Go to Import



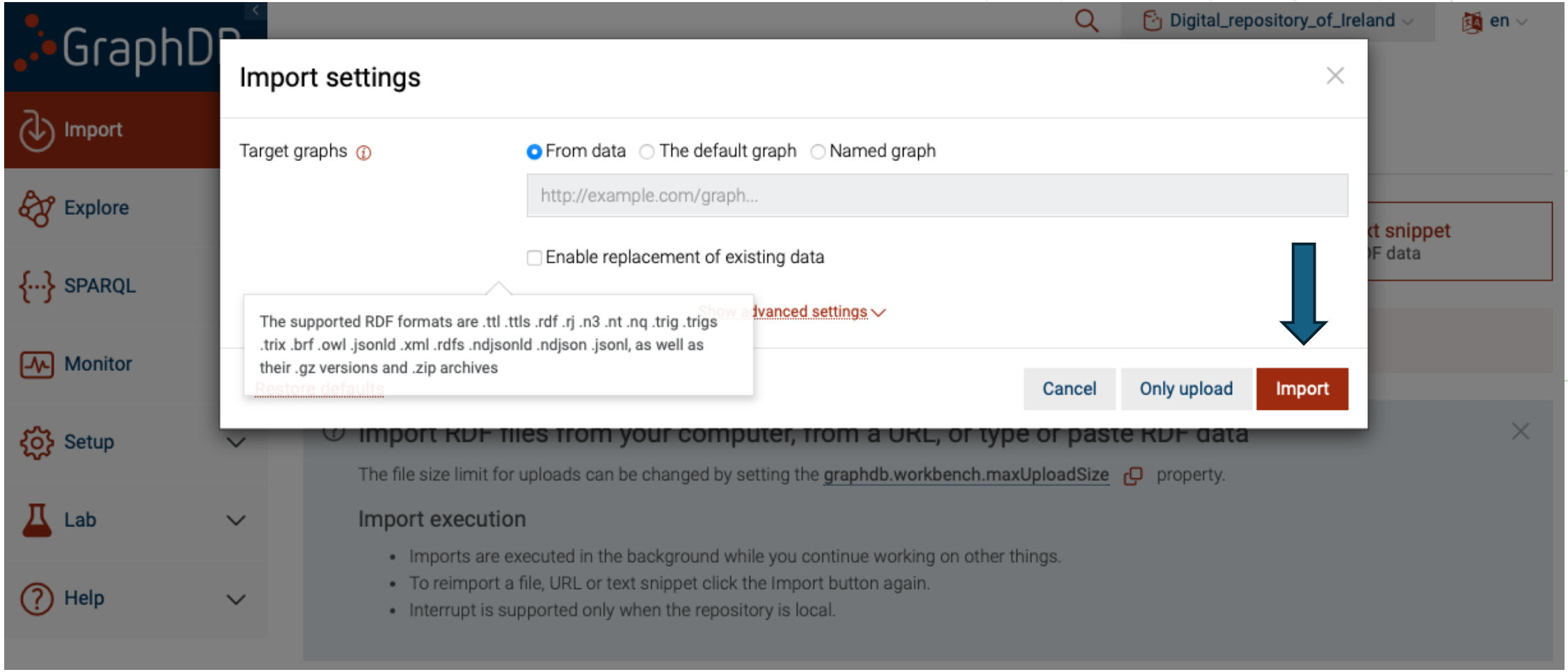
Setting up a GraphDB database (or »repository«) (7)

Select »Upload RDF files«



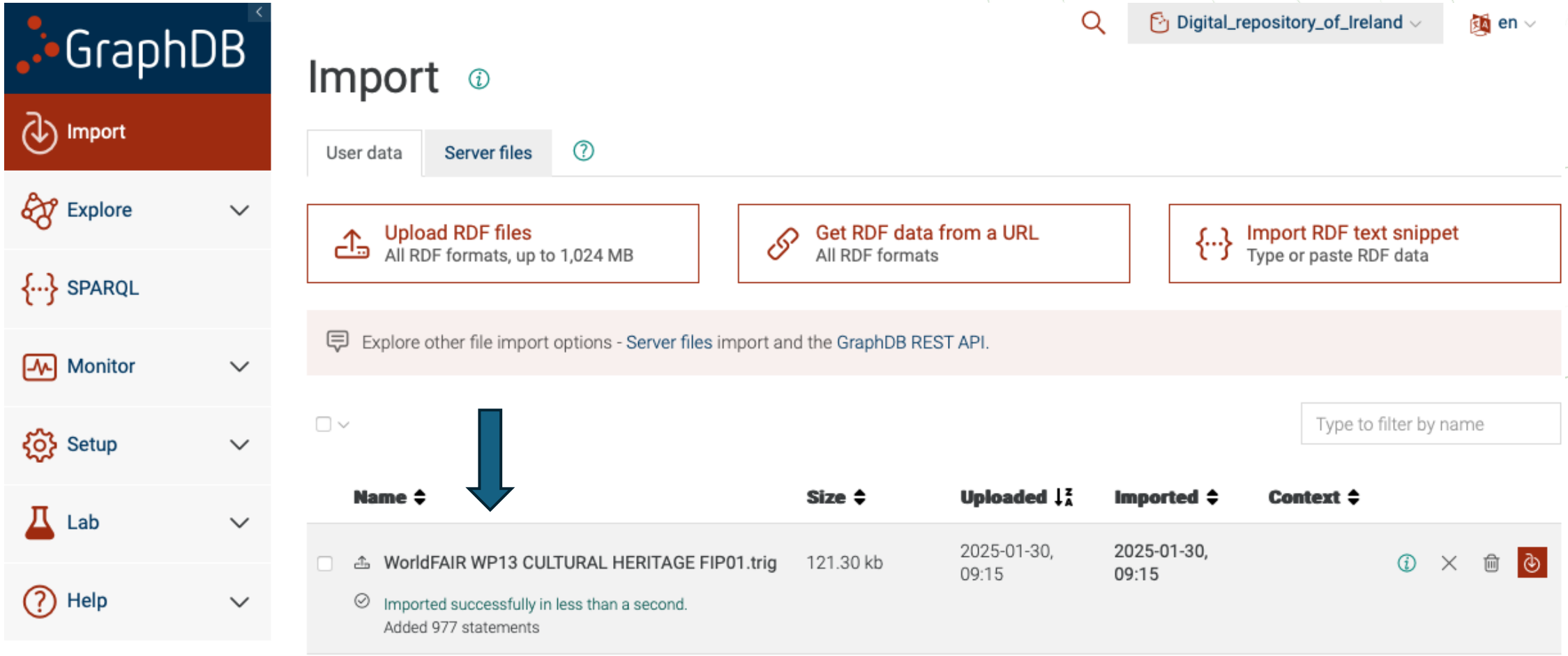
Setting up a GraphDB database (or »repository») (8)

Use default settings



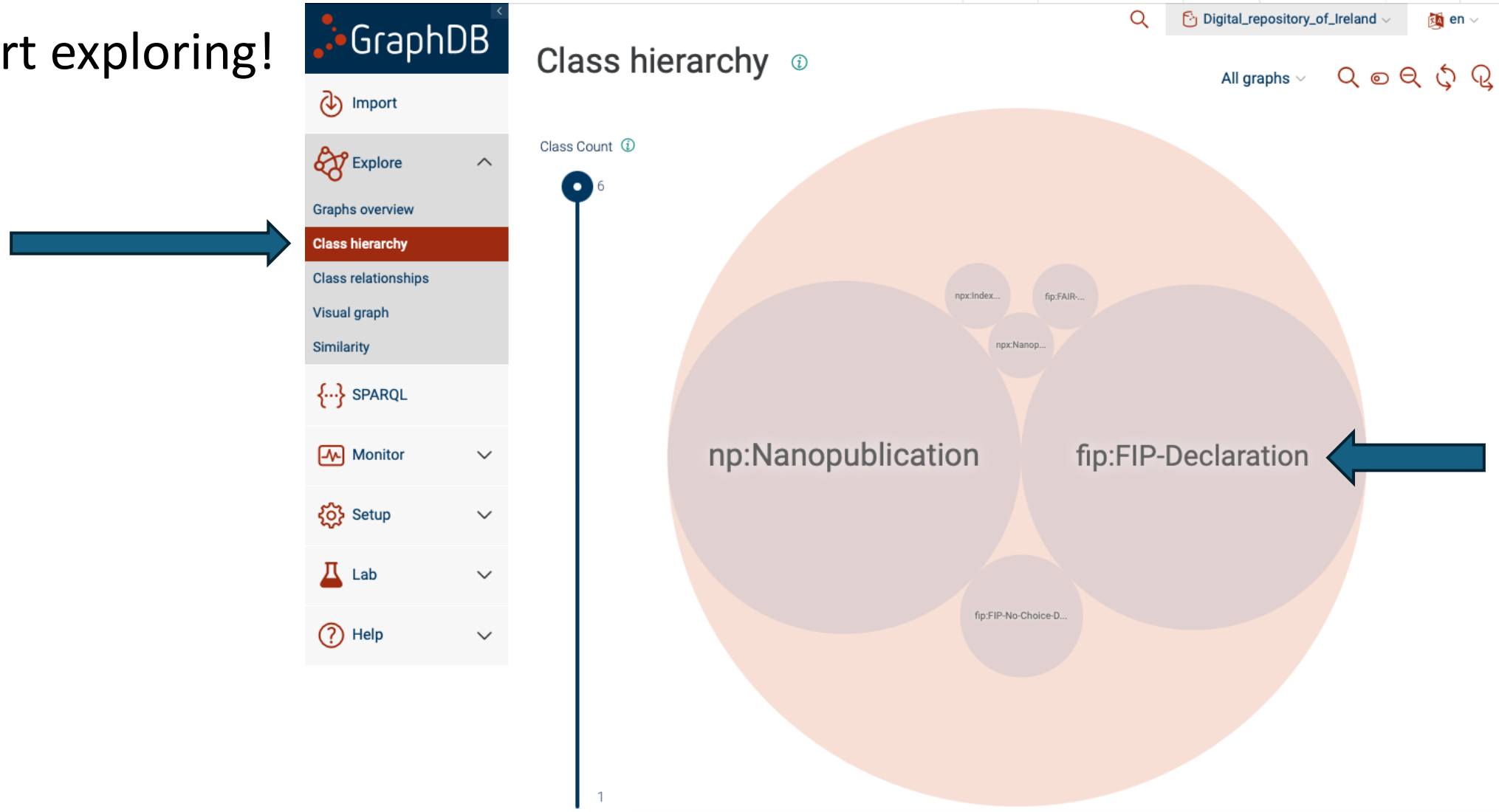
Setting up a GraphDB database (or »repository«) (9)

Imported file shows up



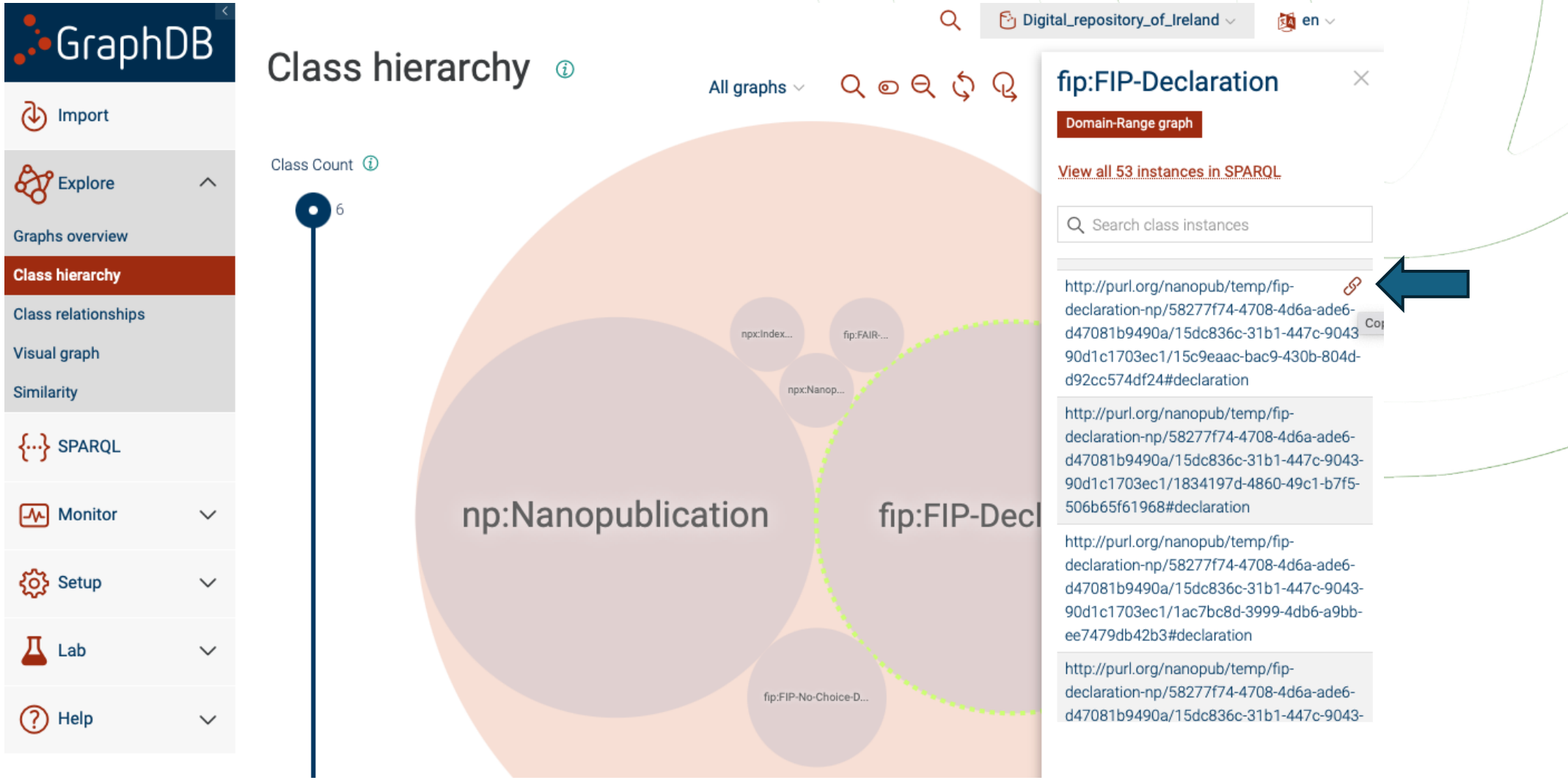
Exploring a GraphDB repository

Start exploring!



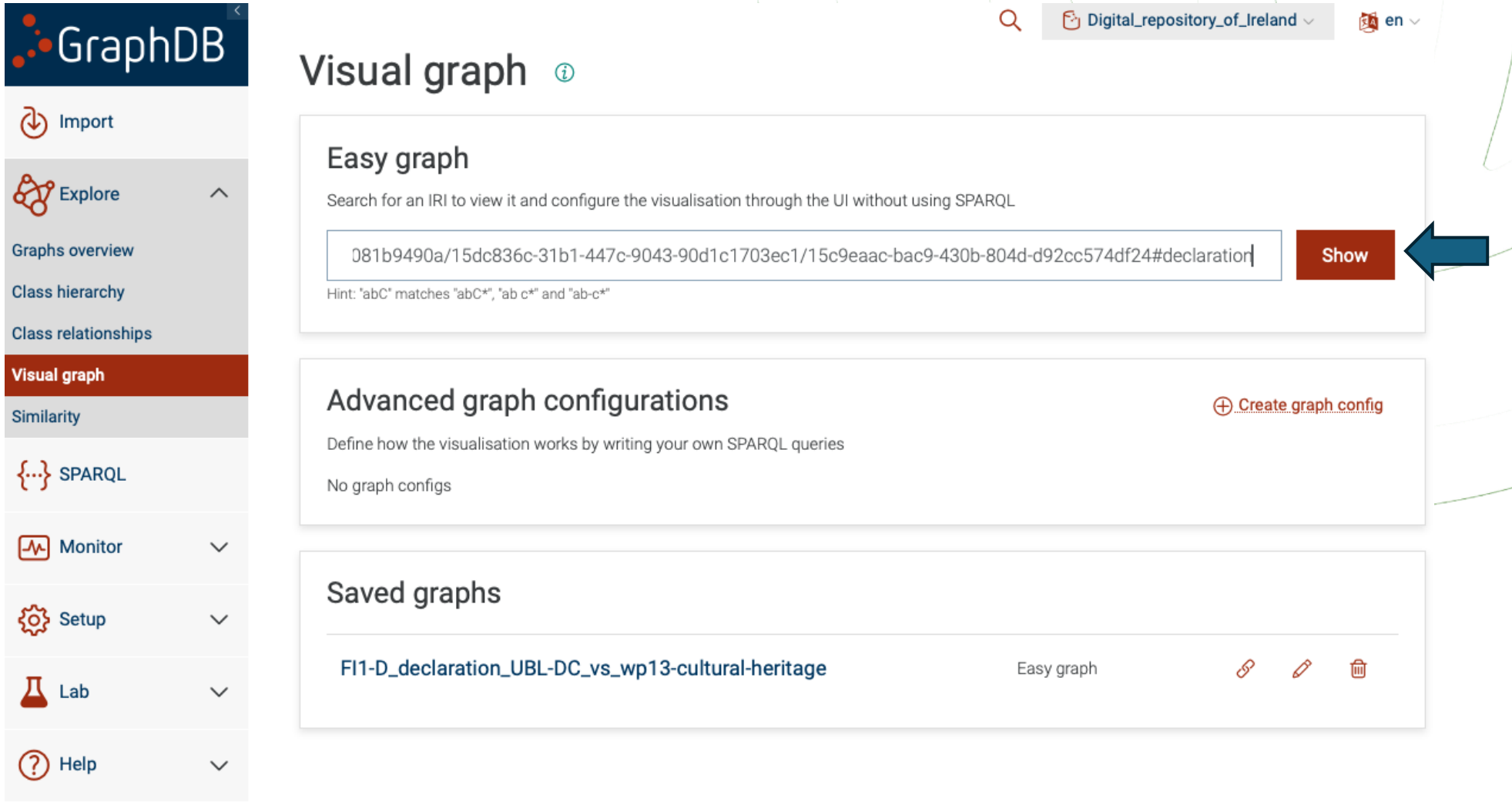
Exploring a GraphDB repository

Copy IRI



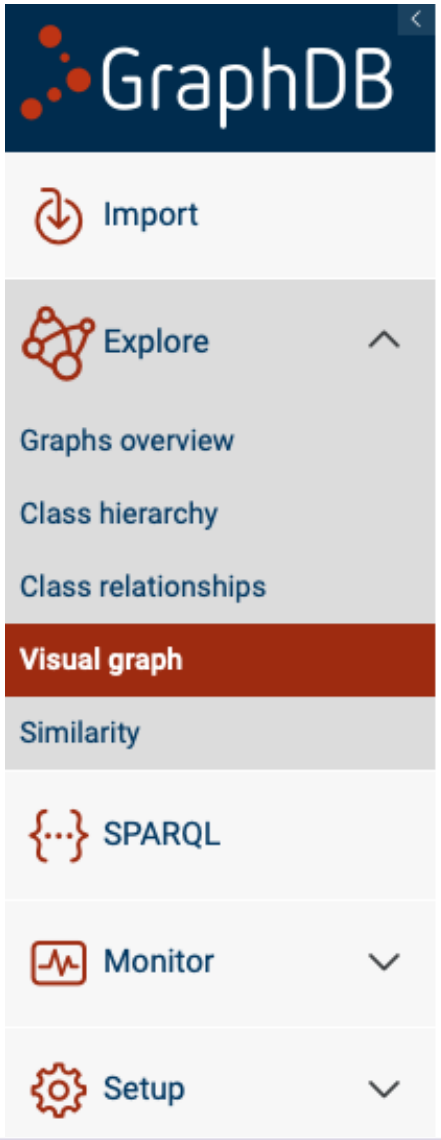
Create a visual graph

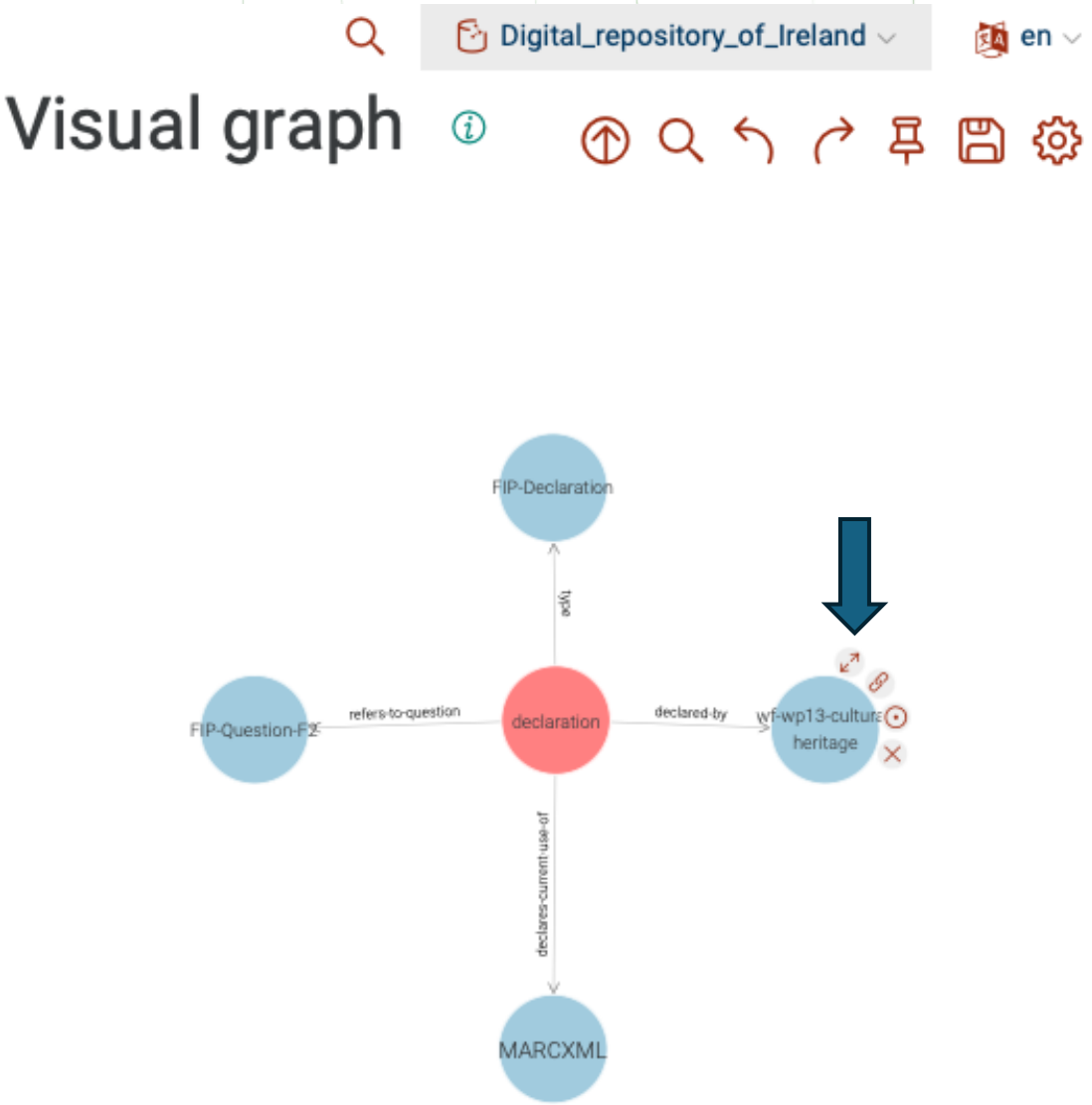
- Paste IRI
- Click «Show»



View and expand your start graph

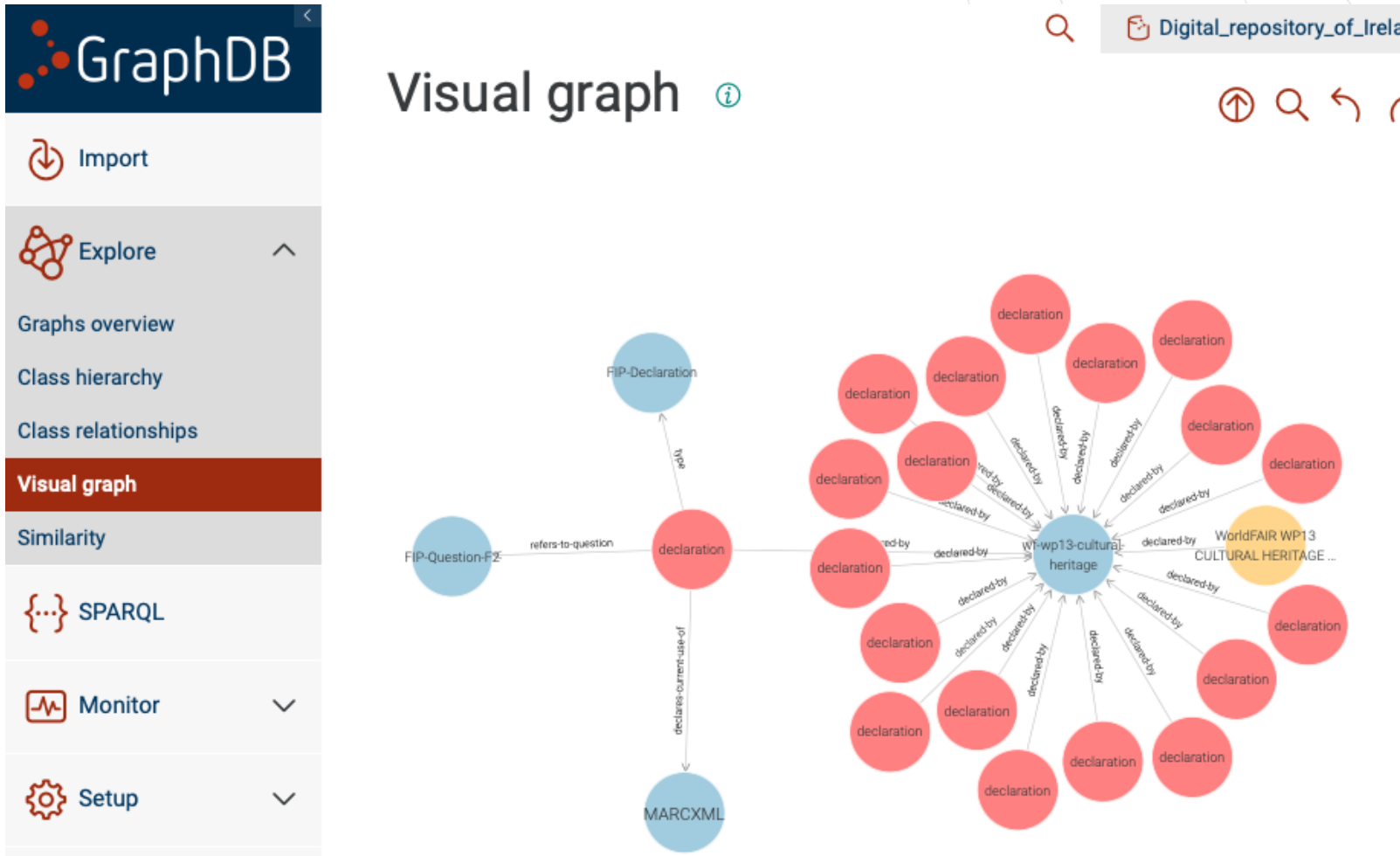
- View declaration
- Click expand icon





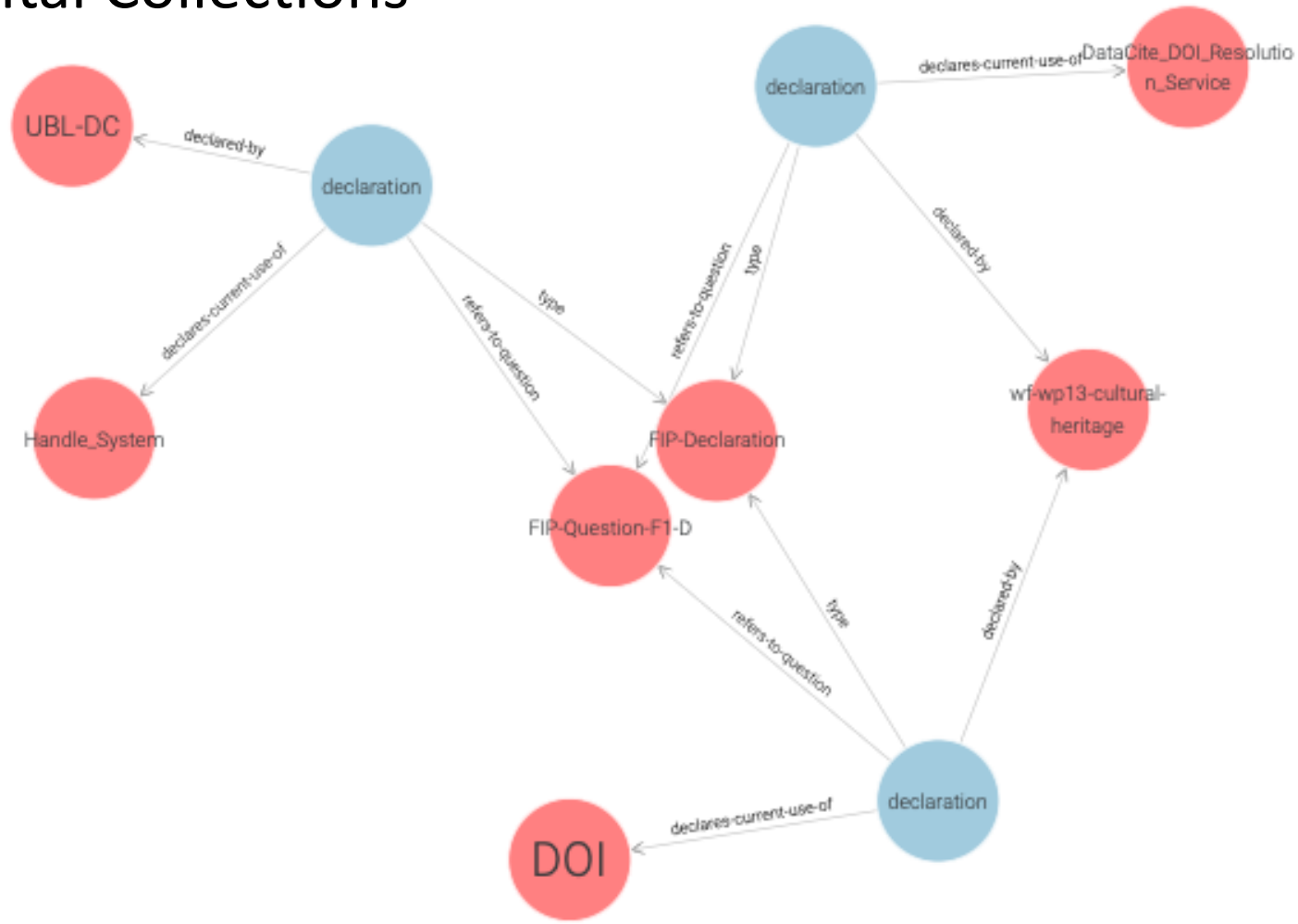
View and expand your start graph

Explore declarations further



Inspiration: use two FIPs and compare declarations

- Leiden University Libraries Digital Collections
- Digital Repository of Ireland
- FIP question F1-D (data)



Live demo (if enough time)

- Keep your questions in mind

Recap

- We visualize FIPs to help humans find commonalities and gaps
- FIPs are Nanopublications and can be visualized as RDF graphs
- GraphDB is a useful tool for visualizing RDF as graphs
- You need a dataset in RDF and GraphDB installed on your computer
- First create a repository in GraphDB, then fill with data and explore

THANKS!

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