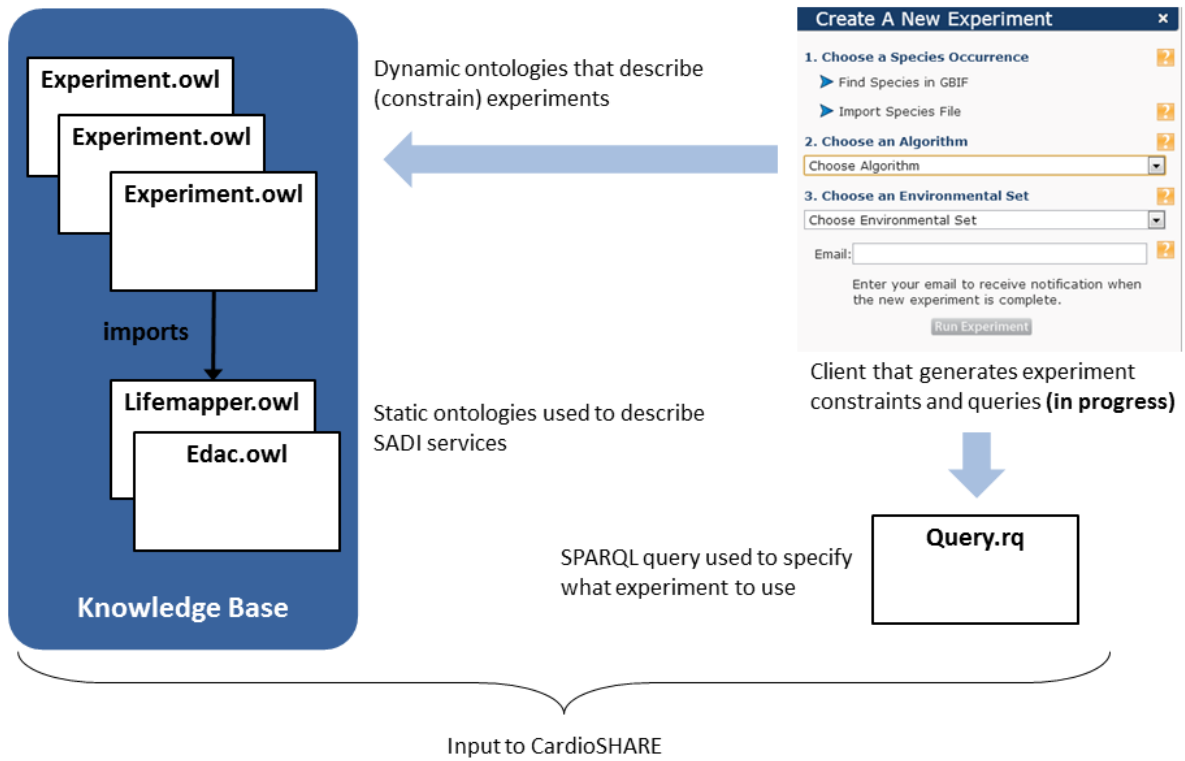


## 1. Goal

To demonstrate how semantic technologies can be used to streamline data from EDAC to Lifemapper

## 2. Semantic Infrastructure



### 3. Experiment.owl

An experiment in ELSeWeb is an ontology that specifies:

- Species occurrence set
- Lifemapper modeling algorithm to employ
- Environmental Scenario Layerset

In particular, the layerset is a stack of EDAC (or any) WCS coverage data. An experiment specifies the “relevant” data layers using OWL restrictions, for example data that:

- is sourced from MODIS or PRISM
- is of type Fractional Snow Cover or Minimum Temperature Normals
- has a certain spatial region (e.g., between -109 and -106 longitude) or a geographic region such as “WesternUnitedStates”
- has a certain duration (e.g., between December 1981 and December 2010)

## 4. Demo Experiments

### 4.1. Experiment Example: MODIS Data

Experiment Description:

- **Location:** <https://raw.githubusercontent.com/nicholasdelrio/ELSeWeb/master/documents/semantic-web/rdf/ontology/experiments/experiment-1-v3.owl>
- **Algorithm:** BIOCLIM
- **Occurrence Set ID:** 4024107
- **Scenario Layers:**
  - Layer1: (hasDuration some Duration1) and (hasSource value MODIS) and (hasRegion some WesternUnitedStates)
    - Duration1:
      - (hasEndDate value "06/18/2002"^^string)
      - and (hasStartDate value "06/18/2002"^^string)
  - Layer2: (hasRegion some Region2) and (hasSource value MODIS)
    - Region2:
      - (hasLeftLongitude some double[>= -108.0])
      - and (hasLowerLatitude some double[>= 34.0])
      - and (hasRightLongitude some double[<= -104.0])
      - and (hasUpperLatitude some double[<= 39.0])
  - Layer3: (hasDuration some Duration3) and (hasSource value MODIS)
    - Duration3:
      - (hasEndDate value "07/13/2002"^^string)
      - and (hasStartDate value "07/13/2002"^^string)

- Layer4: (hasDuration some Duration4) and (hasSource value MODIS)
  - Duration3:
  - (hasEndDate value "07/29/2002"^^string)
  - and (hasStartDate value "07/29/2002"^^string)
- Layer5: (hasDuration some Duration5) and (hasSource value PRISM)
  - Duration5:
  - (hasEndDate value "12/01/2010"^^string)
  - and (hasStartDate value "12/01/1981"^^string)
- **Initiation query:**  
<https://raw.githubusercontent.com/nicholasdelrio/ELSeWeb/master/documents/semantic-web/sparql/query-experiment-1-v3.rq>

## 5. Running an ELSeWeb Experiment

1. Login to Lifemapper to get session cookie (<http://lifemapper.org/login>)
2. Choose an experiment
3. Copy the initiation query
4. Paste the query into the ELSeWeb cardioSHARE instance (<http://iw.cs.utep.edu/cardioSHARE-elseweb-v3/>)
5. Click Run
6. On the results segment of the query execution, click on the “modelURL” link