Penn Libraries
Hybrid Linked
Data Updates

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LD4 Discovery Affinity
Group
4. Interoperability Focus

The implementations enumerated in the previous section are not meant to replace existing systems, but rather extend functionality by building on MARC data with linked data to enhance discovery. We can implement these services in a modular fashion, supported by independent and de-coupled APIs and standard web technologies. The modular implementation of a BibCard API aims for system stability by utilizing loosely coupled data sources implemented through web-based APIs.
Hybrid Linked Data Projects

• Blacklight 8
  • New catalog at Penn
    • Include Knowledge Panels / other Linked Data sources
• Share-VDE
  • Integrating SVDE Linked Data into New Catalog
Proof of Concept (Demo)
Several Modules

Modified SQID for Display of Linked Data in Catalog

API Microservices

LD-Microservices

SVDE GraphQL middleware
A fresh look at Wikidata

SQID is a fast way to browse and query Wikidata, the free knowledge base of Wikipedia. SQID is inspired by Magnus Manske’s Reasonator, but it has a different focus. In particular, it contains information about Wikidata classes and properties that are not present elsewhere, including detailed statistics and query results.

Example pages:
- Johann Sebastian Bach: classical example of a data-rich item page
- volcanic: Wikidata item that is used as a class
- galactic: Wikidata class that is part of the rather well-designed classification of astronomical objects
- sex or gender: a frequently used Wikidata property
- instrument: another interesting Wikidata property
- Wikidata property: the class of all Wikidata properties; shows how properties are organized in subsets

Properties are special Wikidata entities that are used for describing relationships between entities, and for assigning many types of values to entities. You can find all properties in SQID’s property browser.

Classes are Wikidata items that are used as the value in an instance of a statement, or that are subject or value in a sub-class of a statement. You can find all classes in SQID’s class browser.

Most data shown by SQID is live data taken from the Wikidata API or the Wikidata SPARQL query service. Complex statistics that cannot currently be computed live are pre-computed from the weekly data dumps using Wikidata Toolkit. Some complex statistics can be fetched from SPARQL, but they too long to compute in the browser. These are updated every hour. See the status page for more information and statistics on the current data.

Statistics based on data dump 4/1/2020 (details)

Powered by Wikidata Toolkit & Wikidata SPARQL Query
About SQID

SQID is a project of the Knowledge-Based Systems Group of TU Dresden. Developers include Markus Krötzsch, Michael Günther, Markus Damm, and Georg Wild.

SQID is programmed in JavaScript with additional server-side code in Java and Python to extract, query, and preprocess data.

What does SQID mean?

The origin of the name is unknown, but it seems to be an abbreviation of something. Current hypotheses include:

- Searching, Querying, and Interacting with Data
- Sweet QIDs
- SPARQL Querying Isn't Difficult
- Surprisingly Quick Information Display
- See Quality In Data

Another possible theory is that the name is indeed inspired by the high intelligence, amazing social skills, and sharp vision that are characteristic for many cephalopods and Wikidata editors alike.

Where can I make comments and contributions?

All code is found in our public repository. Bugs and wishes are best reported by submitting an issue there. Pull requests are welcome.
Frederick Douglass (Q215562)
Frederick Augustus Washington Bailey | Frederick Augustus Washington Baly | Fred Bailey | Freddie Bailey
African-American social reformer, writer, and abolitionist (c. 1818 – 1895)

Human relationships

<table>
<thead>
<tr>
<th>Own statements</th>
<th>From related entities</th>
</tr>
</thead>
<tbody>
<tr>
<td>number of children</td>
<td>5</td>
</tr>
</tbody>
</table>

relative

- Aunt Hester (Gender: Female; Life Dates: d. 1846; Types: African; American (US); Model of faith; piety; Servant; Slave, bondservant, former slave; Note: Entry refers to Aunt Hester as a "servant," but describes her "master" as buying and selling her (all told: sel)
  - kinship to subject: aunt (parent's sister or parent's sister-in-law)
- Fredericka Douglass Sprague Perry (American social welfare activist)
  - kinship to subject: granddaughter (female grandchild. Avoid using with "relative" (P1038): add item for child instead and list there (both with "child" (P40)))
- Joseph Douglass (American musician, grandson of Frederick Douglass)
  - kinship to subject: grandson (male grandchild. Avoid using with "relative" (P1038): create the missing generation instead)

spouse

- Helen Pitts Douglass (American suffragist (1838–1903))
  - start time: 1884
  - end time: 1895
- Anna Murray-Douglass (American abolitionist)
  - start time: 1838
  - end time: 1882

child

- Rosetta Douglass (African-American teacher and activist)
1. The hypothalamus of the cat; a cytoarchitectonic atlas in the Horsley-Clarke co-ordinate system.
Bleier, Ruth, 1923-
Baltimore : John Hopkins Press, [1961]
Book
Available for checkout
Oversize QF 937 B646 1961
Book - Veterinary Atwood Library (Campus) - Reserve Oversize

2. Leonard Bernstein at Harvard. Vol. 3:
Musical semantics.
The Norton lectures, 1973: The unanswered question
Metaphysics
First level of search results is using LD Microservice API to concatenate associations

```json
{
    id: "9913203433503681",
    qid: "Q18148474",
    svde_agent: "961654264330943"
}
```
LD Microservice API

- Run through Docker Compose:
  - Flask API
  - Postgresql DB
• ID from response creates association for QID or SVDE.
  • demo is using ID to QID.

• The QID from Wikidata is used in the SQID Module.
module Blacklight
  module Document
    class ThumbnailComponent < Blacklight::Component

      def initialize(counter:, presenter: nil, document: nil, image_options: {})
        @presenter = presenter
        @document = presenter&.document || document
        @counter = counter
        @qid = fetch_qid_from_api(@document.id)
        image_options = {} if image_options.nil?
        @image_options = {
          alt: '',
          width: '150px',
          height: '150px',
          data: {}.
        preview_url: "http://localhost:8080/entity/#{qid}"  You, 19 hours
      }
    end
  end
end
find > app > views > catalog > _author_knowledge_card.html.erb

```erb
<% creator_ss = @document['creator_ss'].first if @document['creator_ss'] %>
<% qid = fetch_qid_from_api(@document.id) %>
<% iframe_src = "http://localhost:8080/entity/" + qid unless qid.nil? %>

<!-- Display button if qid is present -->
<% if creator_ss.present? && qid.present? %>
  <!-- Button trigger modal -->
  <button type="button" class="btn btn-secondary mt-3 mb-3" data-bs-toggle="modal" data-bs-target="#knowledgeCardModal">
    Author/Creator: <%= creator_ss %>
  </button>

<!-- Modal -->
<div class="modal fade id="knowledgeCardModal" tabindex="-1" aria-labelledby="exampleModalCenterTitle">
  <div class="modal-dialog modal-dialog-centered">
    <div class="modal-content">
      <!-- Modal header -->
    </div>
  </div>
</div>
```

You, 19 hours ago | 1 author (You)
Modified SQID Module

- The SQID module will be containerized in Docker.

https://github.com/jimfhahn/SQID
Modifications to SQID

• Adding paths for API middleware service (Share-VDE GraphQL Middleware)
Share-VDE Middleware
Ruth Bleier
Ruth Harriet Bleier
American neurophysiologist and activist

Selected Works:
- Science and gender
- Hypothalamus of the guinea pig
- Hypothalamus of the rhesus monkey
- Feminist approaches to science
- Hypothalamus of the cat

Links:
- Wikidata page
- Reesonator (Wikidata-app)
Adding templating for Works in SQID

https://github.com/jimfhahn/SQID
• Use Opus2Works service to gather Works associated with Opus
• Get subjects from Works
Microservices Architecture

- LD-Microservices (API)
- Wikidata API / Wikipedia API
- Wikicommons
- Share-VDE Middleware (API)
- SVDE GraphQL + SVDE API
Still working on:

• Develop Airflow process to systematically curate PostgreSQL DB of IDs, QIDs, Share-VDE Agents.
• Design interactions for relationships among BF Works to what is available in the catalog
• Connecting Subjects to Works
• Subject Search
  • w/ SVDE API
Linked Data Strategy

https://guides.library.upenn.edu/linked-data