# The Griffith Scholars Hub VIVO Extensions

VIVO14 | Austin, Texas


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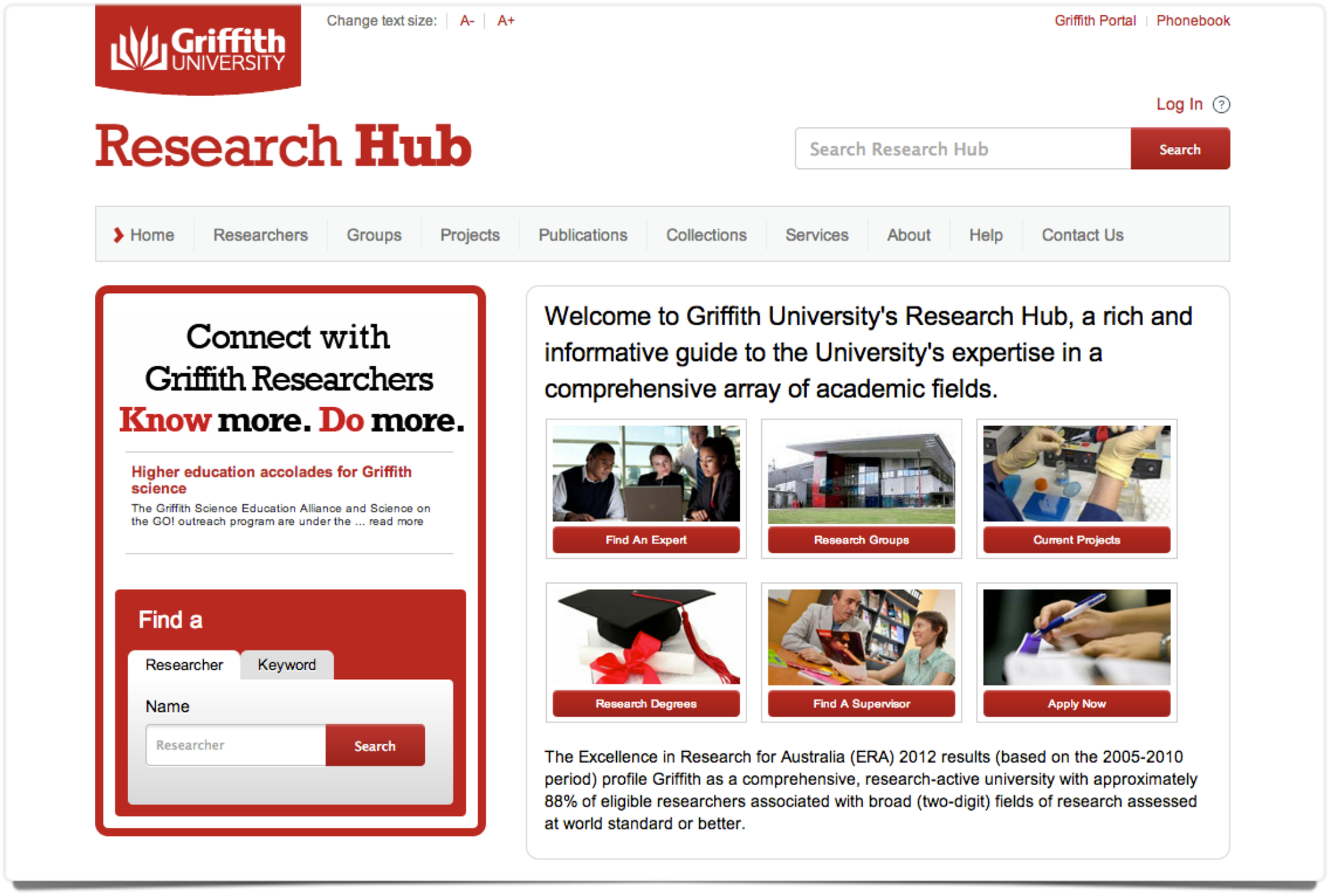
# Agenda

- Background
- The Griffith Scholars Hub Project
- Data Ingest
- External Data Linking
- Visualisations
- Edit Interface Changes
- Dynamic Micro Portal / Lenses
- Challenges
- The road ahead

# The Griffith Research Hub

http://research-hub.griffith.edu.au/



# The Research Hub

- Griffith University's VIVO instance
- Currently contains landing pages for:
  - 1200+ profiled researchers
  - 64000+ publications
  - 6400+ projects/grants
  - groups, data collections and services

# The Scholars Hub

- The Research Hub has been live since February 2012, and is currently running VIVO 1.5.1

- A project is underway to transform the current Research Hub into the Griffith Scholars Hub, which will generate profile pages for all scholars at Griffith University.

- This change will generate extra data volume and load on applications servers, so a range of optimisations and improvements are being implemented.

# Data Ingest

- The hub currently has nightly feeds from University source systems:
  - Research Data Repository (Equella)
  - Griffith Research Online research publications repository (DSpace)
  - Metadirectory (incl Human resources (people and groups) database)
  - Research Administration Database (Office for Research)

# Difference Model

- Nightly data ingest currently produces a end product of approx. 5.7 million triples, which are loaded into separate graphs in VIVO, based on their source system and data type.

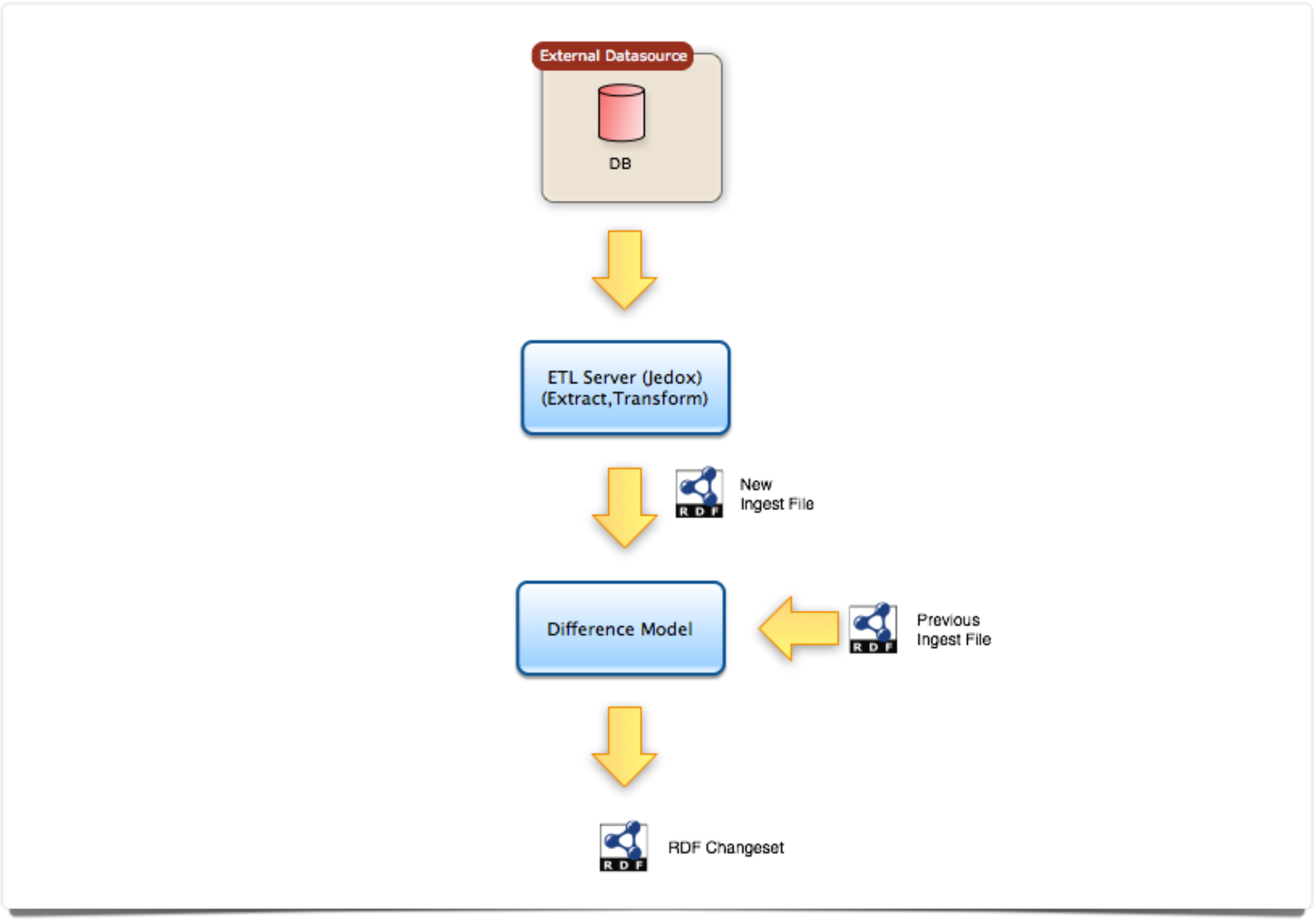
- To prevent high load on the application and database server during ingest, we created a python script that generates a difference model for each datasource.

- The python script compares two RDF files (current and yesterday's ingest files) and generates a set of changes.

- Only the changes from current ingest (normally 24 hours ago) is actually loaded into the triple store.

- Files with the generated RDF change sets are stored for traceability.

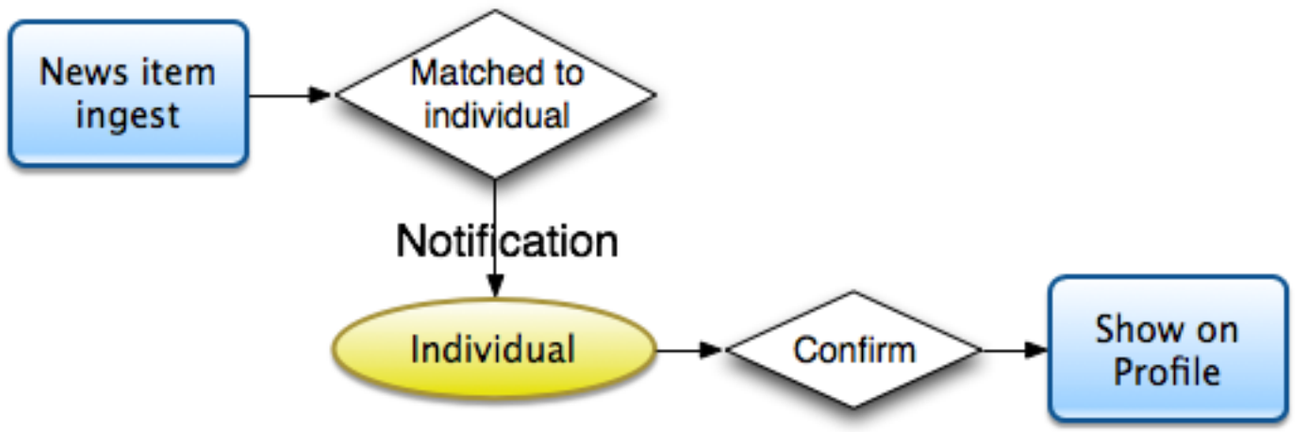
# Difference Model Flow



# External data linking

- As we have developed a news ingest module which can scrape news feeds and create possible relations to individuals in the hub, we need a way for the individuals to confirm that the relation is correct before we can show the news item on their profile.

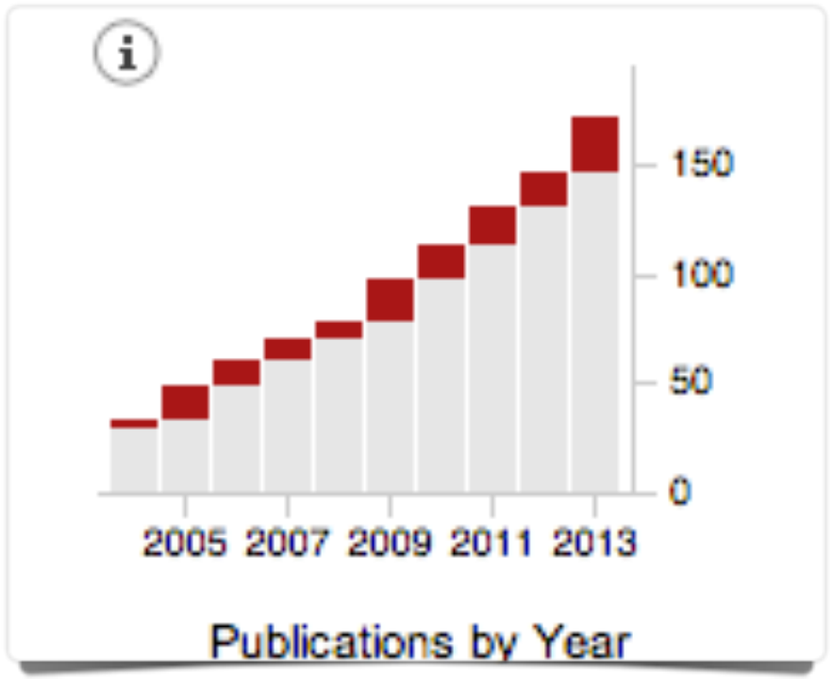
- A linked data notification workflow will be implemented, where the user will receive an email when new items are found, and also show alerts when the user is logging in, asking them to confirm whether the links are correct.



# Visualisations

- Some interactive visualisations created for a person, using the d3.js ( http://d3js.org/ ) javascript library.

Publications by field of research




Publication By Year

# Edit Interface Changes

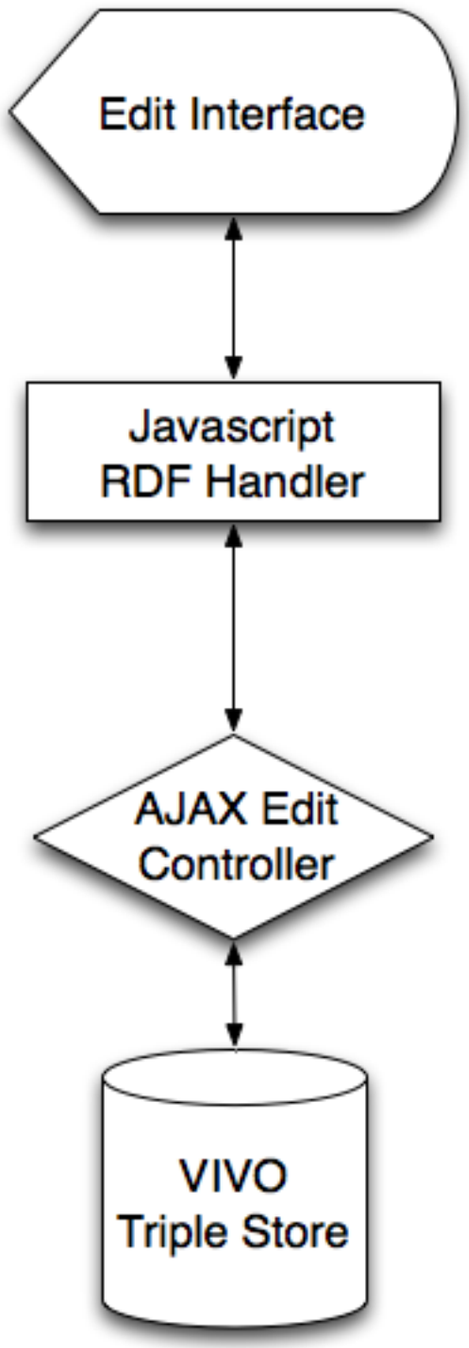
- As the standard edit interface for certain properties were taking a very long time to load (20sec+), we have changed how the edit interfaces load and save data.

- Now, the edit interfaces only loads the bare minimum of through the Java form generator. The rest of the data needed is 'lazy loaded" through one or more ajax calls after the initial page load.

- This ensures that the user gets a responding edit interface almost immediately.

- RDF structure of data sent and received to the edit interface is handled by a javascript middle layer.

- Data save requests are also handled by one or more ajax calls.



# Dynamic Micro Portals / Lenses

- Since we first implemented VIVO, we saw the potential for pages showing data from dynamic/aggregated queries.

- Now we have had direct business requirements to create pages within the hub which can display a select set of the data with particular interface functionality.

- We have call these dynamic pages a Micro Portal or a Lens.

- A lens within the Hub will be able to show dynamic results of a query, in a specified interface.

- The first lens developed for the hub was: "Griffith In Asia". This lens displays individuals in the hub that have some involvement in the Asia-Pacific region.

# Dynamic Micro Portals / Lenses

http://research-hub.griffith.edu.au/griffith-in-asia

Griffith In Asia Lens interface

# Dynamic Micro Portals / Lenses

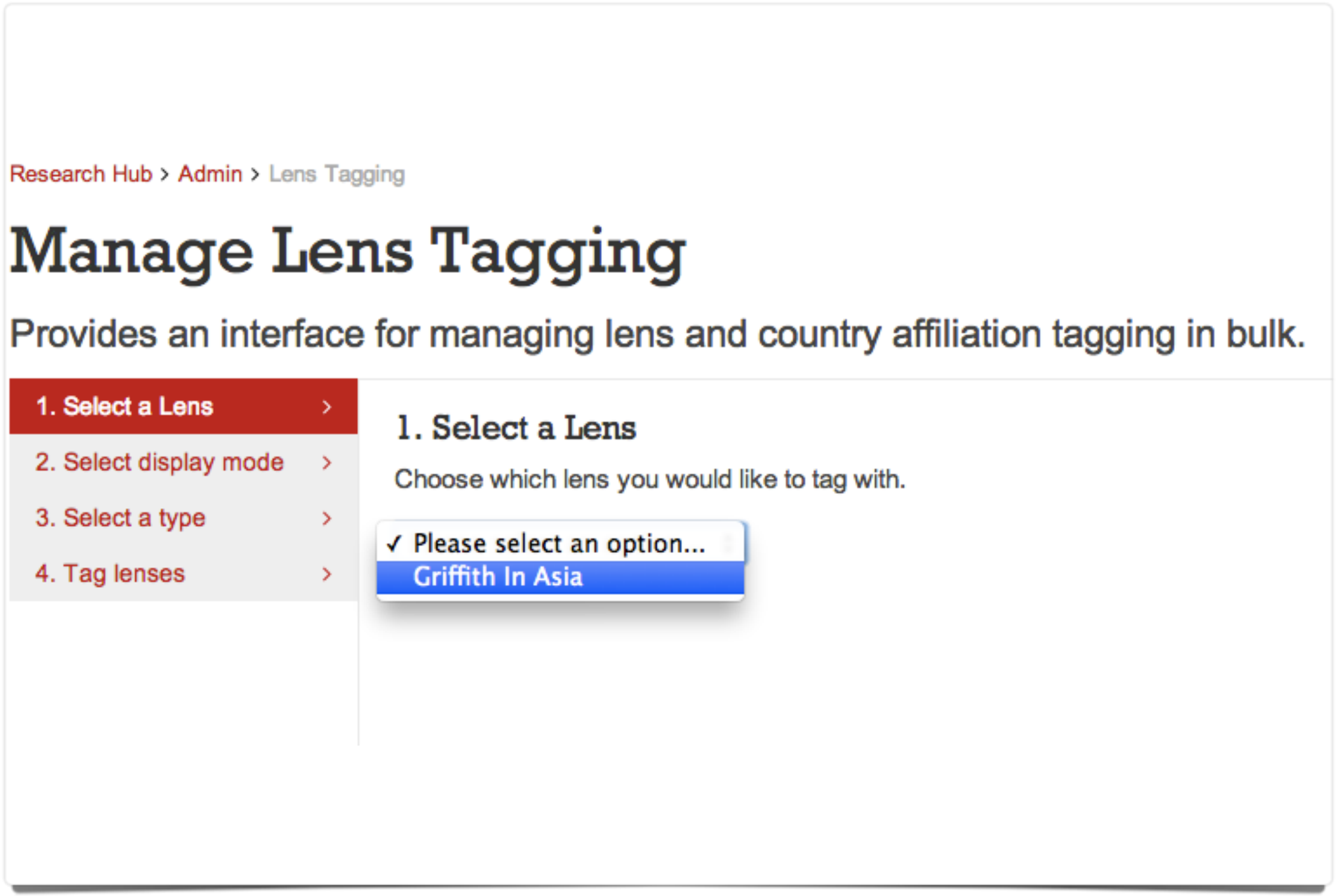
The Griffith In Asia lens has the following features:

- Interactive map that allows user to select a country to see related individuals.
- Page shows all individuals related to the lens, grouped by type (Experts, Groups, Projects, Publications etc)
- Search functionality allows user to perform keyword search within lens items.

Admin functionality

- Individuals can be ‘tagged’ to a lens either via automated queries, via direct edit of an individual, or through a bulk edit interface developed especially for the lens functionality.

# Dynamic Micro Portals / Lenses




Bulk Edit Interface for lenses - Step 1 - Select Lens

# Dynamic Micro Portals / Lenses

Research Hub > Admin > Lens Tagging

## Manage Lens Tagging

Provides an interface for managing lens and country affiliation tagging in bulk.

1. Select a Lens
2. Select display mode
3. Select a type
4. Tag lenses

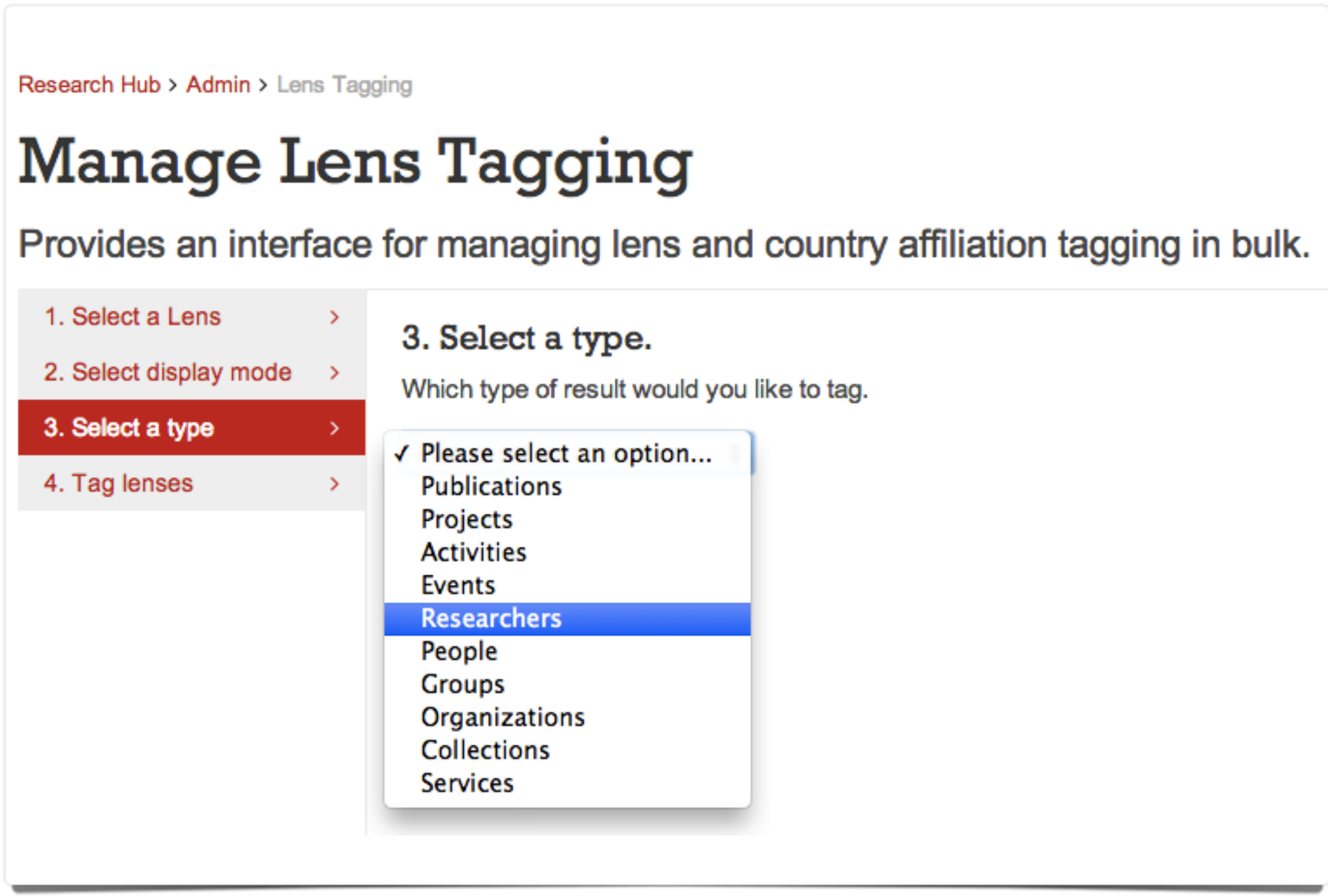
### 2. Select display mode.

Would you like to just see results currently tagged with or just those not tagged or both.

✓ Please select an option...
Tagged
Not Tagged
Both

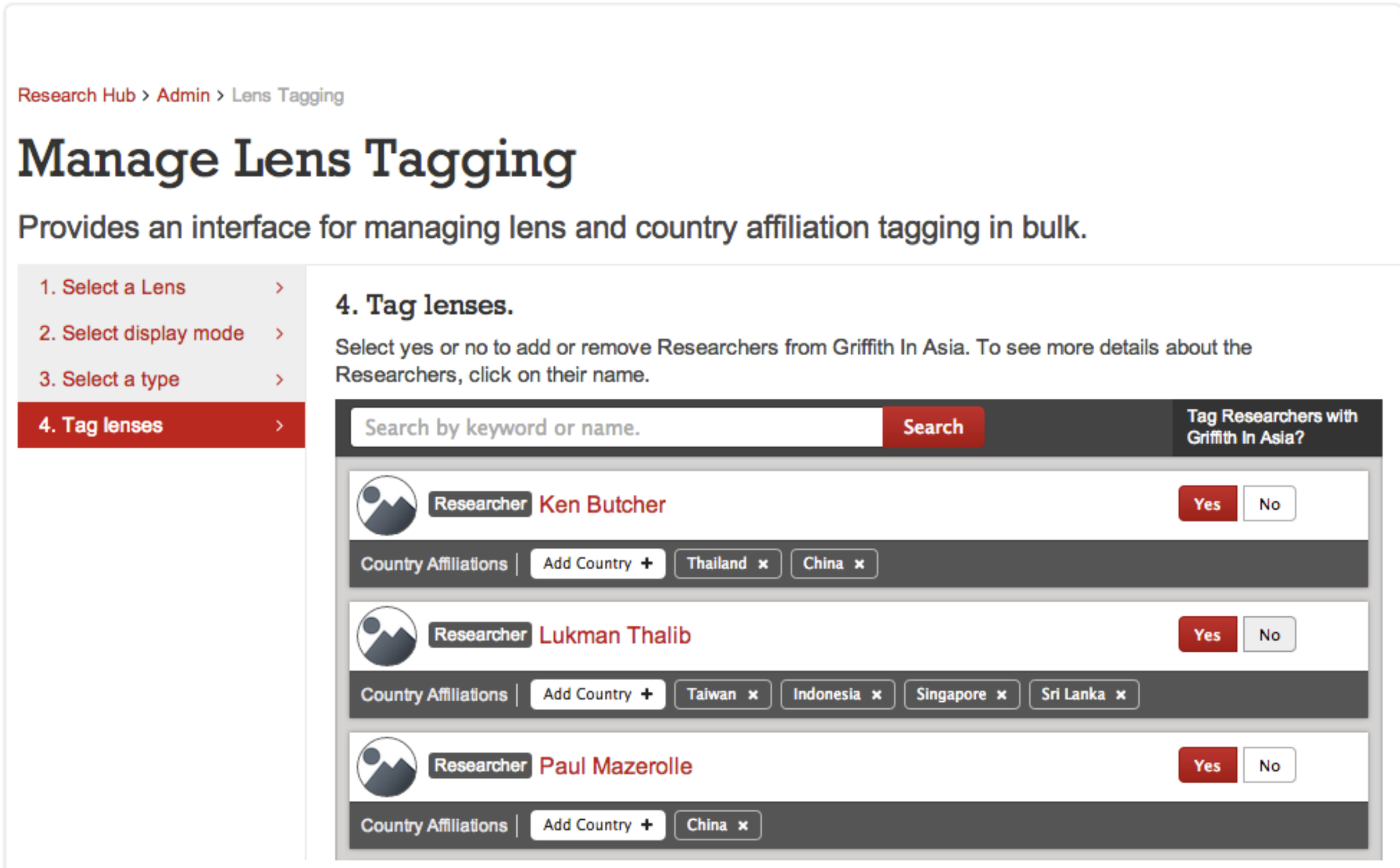
Bulk Edit Interface for lenses - Step 2 - Select Display Mode

# Dynamic Micro Portals / Lenses




Bulk Edit Interface for lenses - Step 3 - Select Type

# Dynamic Micro Portals / Lenses




Bulk Edit Interface for lenses - Step 4 - Tag Individuals

# Dynamic Micro Portals / Lenses

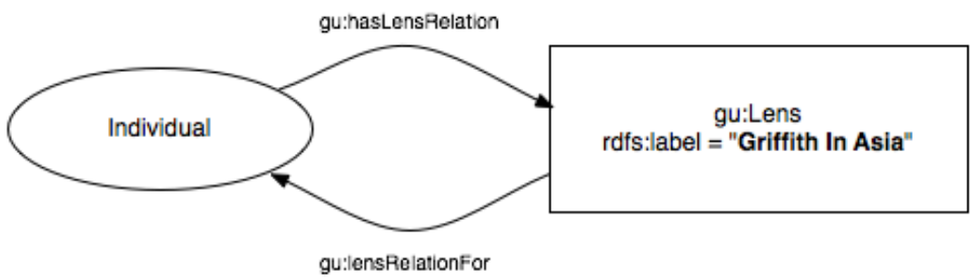
- We initially wanted to use the built in functionality in VIVO to create dynamic pages displaying the results of SPARQL queries.

- But when queries got complex, or query results got more than 1000 results, we ran in to performance issues. We just could not get a quick enough results back from the SPARQL queries when loading items on the page.

- By querying solr directly using filter queries, instead of using SPARQL queries, we ensure a near instant response and can render the items on the page much faster.

- The SPARQL queries that we needed could easily be replaced by one or more solr queries for much better performance, and also causing less load on the application server.

# Dynamic Micro Portals / Lenses




RDF Structure for lens relations

New Search facet for lenses

# Challenges

- VIVO 1.6 (VIVO-ISF) Upgrade
- SSO/https institution compliance
- Jena Mysql performance issues

# The Road Ahead

- VIVO 1.6 upgrade (VIVO-ISF)
- Redesign and restructuring of display template to create a fully responsive design.
- Improve SEO for all pages.
- Integrate linked data notification model.
- New and changed data sources.
- Further development of lenses/micro portals.
- Evaluate change of storage backend to a triple store such as 4store/Virtuoso.

# Questions ?

# Thank you