Using APIs to customise repositories and engage audiences

Case studies from St. Edward’s University and the University of Sheffield

Megan Hardeman figshare
Jez Cope The University of Sheffield
Introduction to figshare

figshare is a cloud-based repository primarily used for storing, sharing, and discovering research data.

figshare helps academic institutions store, share, and manage all of their research outputs.

“duplication is reduced, money saved and discovery, sped up” — The Observer
Why do researchers use figshare?
To get a DOI

@hardemeg

https://doi.org/10.6084/m9.figshare.4535390.v1

Morphometric analysis of scoria cones: the potential for inferring process from shape

https://doi.org/10.6084/m9.figshare.4535390.v1
To preview their data
To track metrics

A Land Cover Atlas of the United Kingdom (Maps)

03.11.2017, 15:42 by Alasdair Rae

This set of maps accompanies my related publication, entitled ‘A Land Cover Atlas of the United Kingdom’, https://doi.org/10.15131/shef.data.5206495, which was published at the same time.

Some of the maps in this set feature in the Atlas, but at a lower resolution. I have deposited them here as high resolution images (300dpi PNG files) so that interested users can access and download them.

https://doi.org/10.15131/shef.data.5219956.v1
To collaborate securely with other researchers
To version DOIs

@hardemeg

https://doi.org/10.6084/m9.figshare.3761562.v530
R package

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https://github.com/ropensci/rfigshare
Python package

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https://github.com/rmcgibbo/figshare
What have institutions done with the API?
Swagger for the API

Public articles

**GET** /articles

Returns a list of public articles

**Parameters**

- **page**

**RESPONSE SAMPLE**

```json
[
  {
    "id": 1434614,
    "title": "Test article title",
    "doi": "10.6084/m9.figshare.1434614",
    "group": "1234",
    "url": "https://api.figshare.com/articles/1434614",
    "url_public_html": "https://figshare.com/articles/test_article_title/1434614",
    "url_private_api": "https://api.figshare.com/articles/1434614",
    "url_private_html": "https://figshare.com/account/articles/1434614",
    "url_private_api": "https://api.figshare.com/account/articles/1434614",
    "published_date": "2013-12-31T23:59:59.000Z",
    "thumb": "https://ndownloader.figshare.com/files/123456789/preview/123456789.png",
    "defined_type": 3
  }
]
```

**RESPONSE SCHEMA**

- **id**
- **title**
- **doi**
- **group**
- **url**
- **url_public_html**
- **url_private_api**
- **url_private_html**
- **url_private_api**
- **published_date**
- **thumb**
- **defined_type**
Migrated content

Discover research from Monash University Theses

@hardemeg
https://monash.figshare.com/theses
Twitter bot

@hardemeg

https://twitter.com/lborordm
St. Edward’s University
Austin, TX
The scope of their work with the API

- Headed up by Casey Gibbs, part of Munday Library
- Primarily use their instance of figshare to host raw data
Tropospheric Data

The Dean of Natural Sciences wanted to display his tropospheric data in a website. This had previously been done in PDF, TIFF, or JPG formats.

But St. Edward’s had figshare and wanted to use it to store the raw data and visualise it dynamically and interactively.
Future plans

- Similar visualisations with a PI who is collecting oral histories
- A command-line client using Elixir so that it will be concurrent to be used for real-time data. They hope to have an open source beta version of that available by Christmas.
ORDA: a custom figshare frontend for the University of Sheffield

Jez Cope, Research Data Manager, University Library

RDMF18, 20/21 November 2017
About the University
We’re a Russell Group University with big ideas and great ambition

We’re a leading UK University with a global reputation, ranked in the World Top 100 (QS World Rankings 2016–17)

We’re in the top 10 per cent of UK universities for research excellence
A global university

More than **27,000** students from all over the world

**19,000+** undergraduates

**8,000** postgraduates

Over **3,000** students from China, with large numbers from Malaysia, Hong Kong, Nigeria and India

Our collaborative work with global partners has an international impact. These include cutting-edge businesses such as Siemens, Rolls-Royce and Boeing and partnerships with universities like Tokyo, Cape Town and Sydney
World-class research

We are driven to make a difference through world-class research to solve big global issues.

86 per cent of our research submitted to the 2014 Research Excellence Framework was rigorously assessed as being world-leading or internationally excellent; we are in the top 10% of UK universities for research excellence.

We are committed to investing in life-changing research, supporting and nurturing innovative projects through our 2022 Futures programme.
How we use figshare
Research data expectations

In the UK, researchers must:

1. Write a data management plan before a project
2. Look after data during a project
3. Curate, preserve and share data after a project
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Online Research Data @ Sheffield

Registry for *all* datasets

Repository for long-tail data

Connected to Ex Libris Rosetta for preservation ← *Coming soon!*
Get your research data in ORDA powered by figshare

The hub for managing and sharing research data at Sheffield.

Learn more about looking after your data at: sheffield.ac.uk/library/rdm
or upload your data now at: sheffield.figshare.com
Any questions? email us: rdm@sheffield.ac.uk
ORDA frontend development
Why build a custom frontend?

What we had:

- User-friendly, robust data registry and repository (figshare)
- DOI minting
- Versioned records
- Options for metadata-only records and embargoes

What we needed:

- Look-and-feel consistent with University of Sheffield web presence
- Platform to build new functionality
  - Conference proceedings
  - Cross-faculty institute pages
  - Featured items
  - Citation style chooser
  - Data visualisation showcase
https://orda.shef.ac.uk/
Development process

Partnership between CiCS (IT Services) and Library

Product owner: Jez Cope (Library)
Scrummaster: Tim Snow (CiCS)
Developer: Marcelo Paulino (CiCS)
ORDA

What and How?

- Mobile-first application
- Bootstrap 4
- PHP
- Slim Framework
- Figshare API
ORDA

Main Features

- List of Publications
- Faculties
- Categories
- Conferences
- Full-text Search
- Citations
- Stats
All Items
List of all publications

- [https://api.figshare.com/v2/articles?{param}={value}](https://api.figshare.com/v2/articles?{param}={value})
  - List of articles
  - Parameters: [institution, page_size, order_direction, order]

- [https://api.figshare.com/v2/articles/{id}](https://api.figshare.com/v2/articles/{id})
  - Get article details

- [https://stats.figshare.com/{institution}/total/article/{id}](https://stats.figshare.com/{institution}/total/article/{id})
  - Get views and downloads stats
Lessons learned
Project management

Small, experimental project

Clear direction of travel but unclear specifics

∴ Ideally suited for agile development
Project management: scrum

2 week sprint cycle

Small, focussed development group

Broad stakeholder group for sprint reviews

Took some adjustment for all of us, but worked very well!
Collaboration between departments

New way of collaborating on development projects for us!

CiCS & Library personnel in the same team

Big success story for this way of working
figshare API development

The API hasn’t always done what we want

figshare have been very responsive

Quick response; 2–4 week turnaround wherever possible

Lesson: if it’s not available, just ask!
Work in progress

Only a few hundred deposits so far

Roll out and scale up

Data visualisation:

*Incentivise deposit through added value*

https://orda.shef.ac.uk/visualisations/
Any questions?