

Distributed Static Repositories



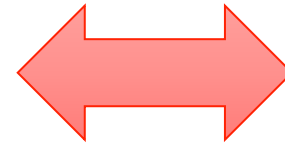
Using DataCrate and the Oxford Common
File Layout

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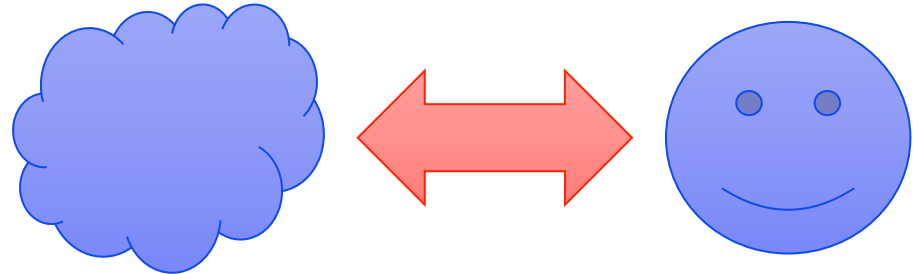
Research Data: The Problem

- We want to get data in
- We want to get data out



APIs are great

- JSON!
- http! (s!)
- Streams!
- BUT



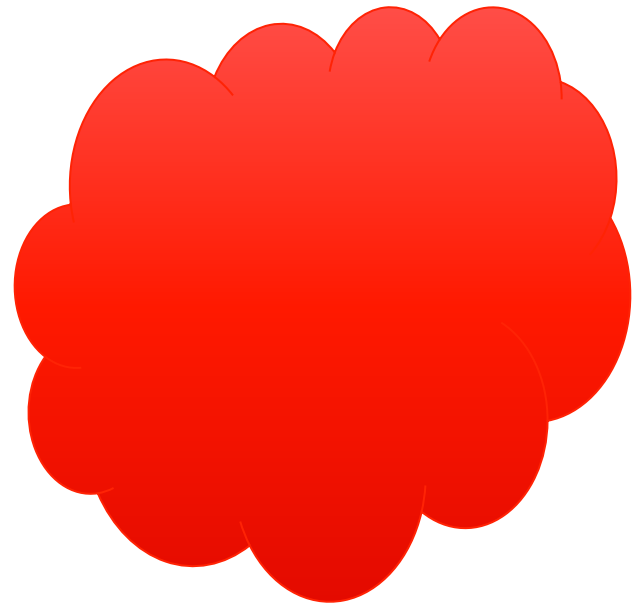
Size limits

- Research data will be too big
- Sooner than you think
- All disciplines have big data



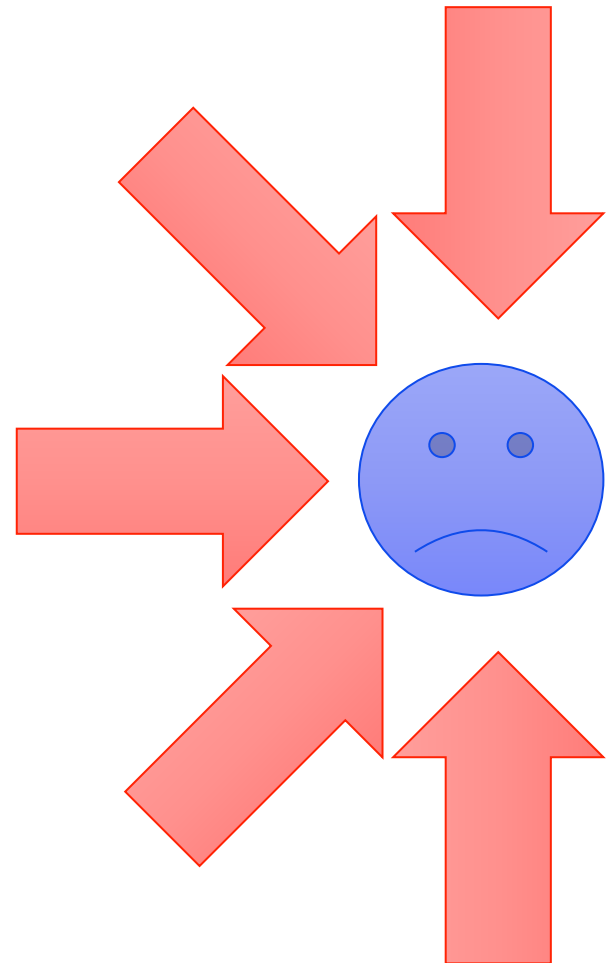
APIs can be expensive

- Behind that REST endpoint, they can do all sorts of things
- Like spin up a headless Chrome or three to generate a PDF
- Or 14 http requests for one landing page



Your security team hates them

- Research apps not designed to high security standards
- If it's public, it's an attack point
- Even internal apps need to pass pen tests



The ultimate API

- We asked our data viz team “what API would you prefer as a way to get researchers’ data?”
- “An NFS mount”
- We laughed, but they were right

FILES

- They scale
- Fewer hidden costs
- Platform-independent
- Interoperable



FILES

- Easy to write code against
- Easy to allow access by HPC, ImageJ, etc
- Can be left in place – bring the compute to the data



FILES

- Secure and trusted access tools
- ssh, rsync, nfs, nginx
- Devops tools and techniques
- Backup and DR are simple



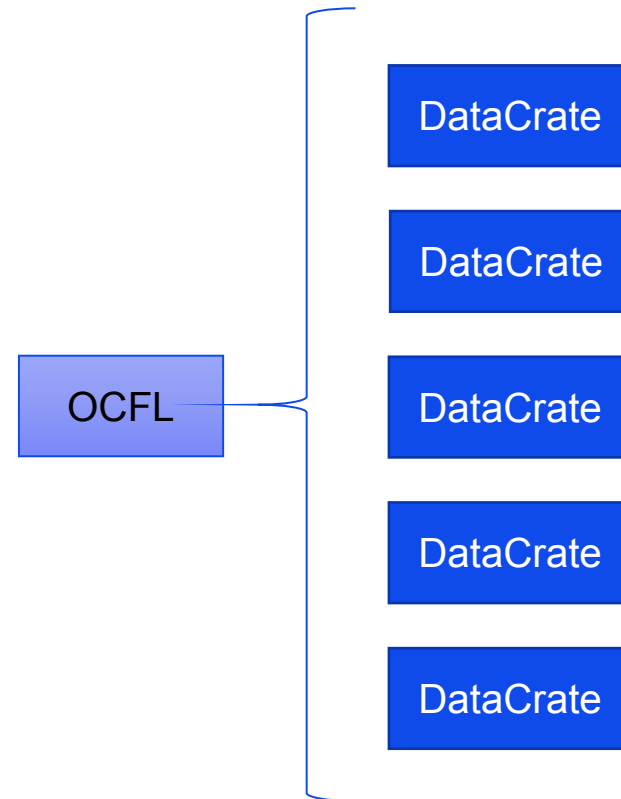
Our repository: OCFL

- Oxford Common File Layout
- The top level
- Versions (compulsory)
- inventory.json – a manifest with digests for contents

A blue rectangular box containing the text "OCFL" in white, sans-serif, uppercase letters.

Our repository: datasets

- Datasets are DataCrate
- Home-grown, we're trying to align with international efforts such as Research Object
- HTML landing pages
- JSON metadata



Our repository: equipment and context

← → ↻ <https://code.research.uts.edu.au/MIF/microscope-instructions/wikis/Nikon-Ti/Nikon-Ti-inverted-epifluorescent-microscope>

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M Microscope-instructions

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MIF > Microscope-instructions > Wiki > Nikon ti inverted epifluorescent microscope

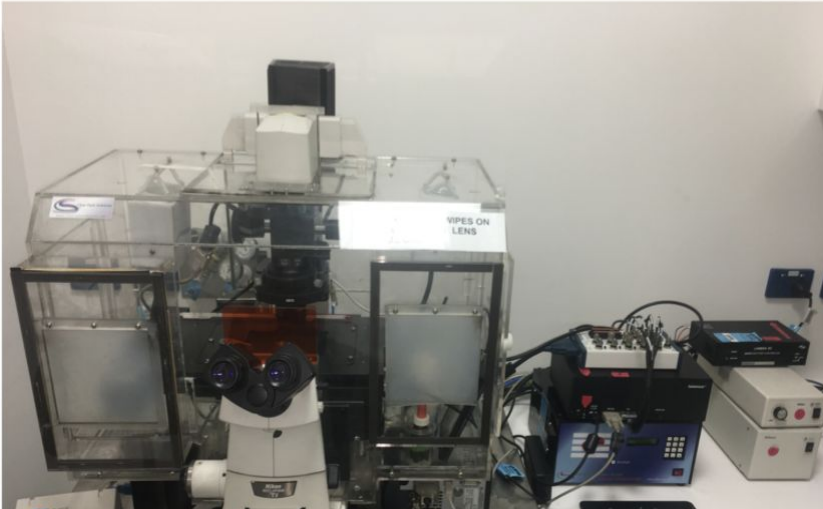
Nikon ti inverted epifluorescent microscope

Last edited by **Christian Evenhuis** 1 month ago

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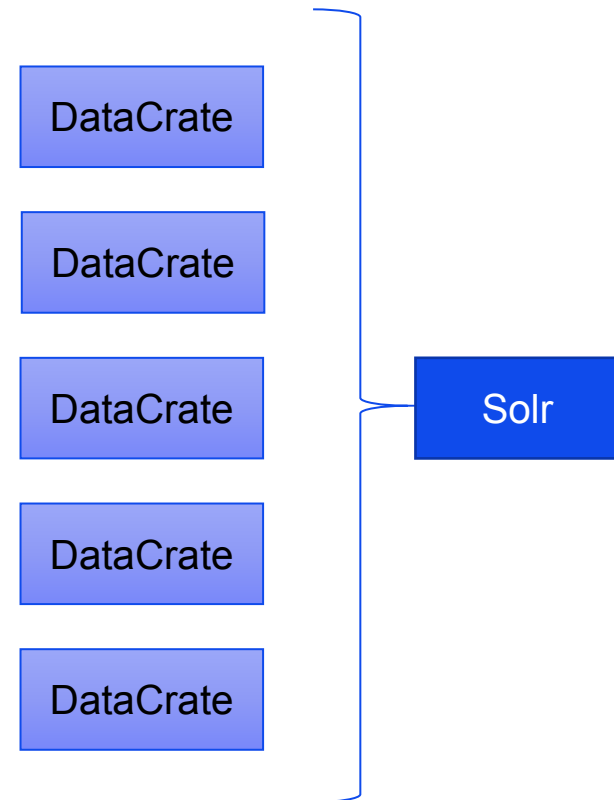
This Nikon Ti is an in inverted fluorescence microscope which is setup for live cell experiments. It equipped with:

- Lumencor LED light engine
- Lamp for transmitted light
- Temperature controlled incubation chamber with controllable CO₂



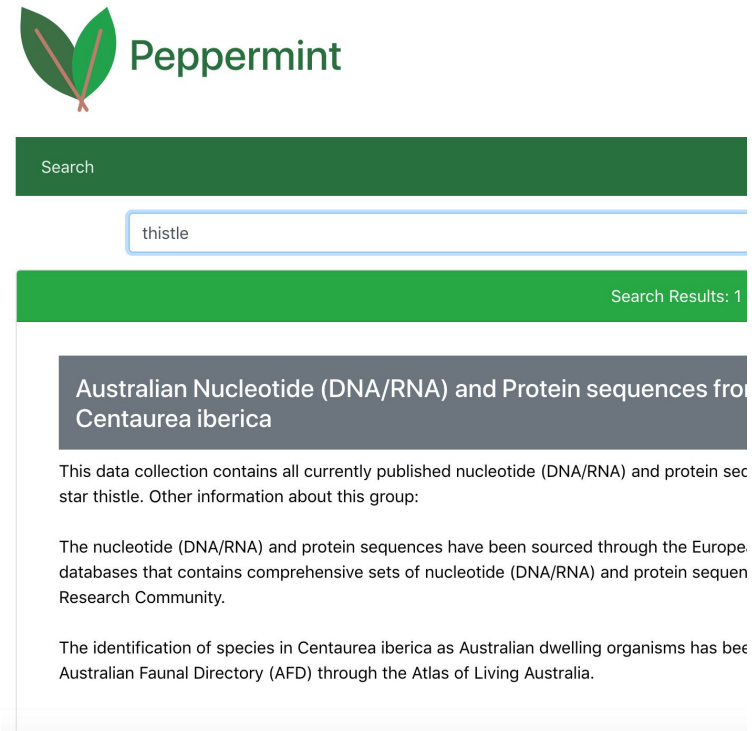
Our repository: Solr

- Gets everything from the filesystem and DataCrate catalog files
- For internal repository will have group access control
- Can index multiple file-based OCFL repositories + other resources



Our repository: discovery

- A single-page app using Angular querying Solr
- All runs in the browser
- The 'web app' for this is just Solr and nginx
- no other moving parts outside the firewall



Thank
you

