Image Management

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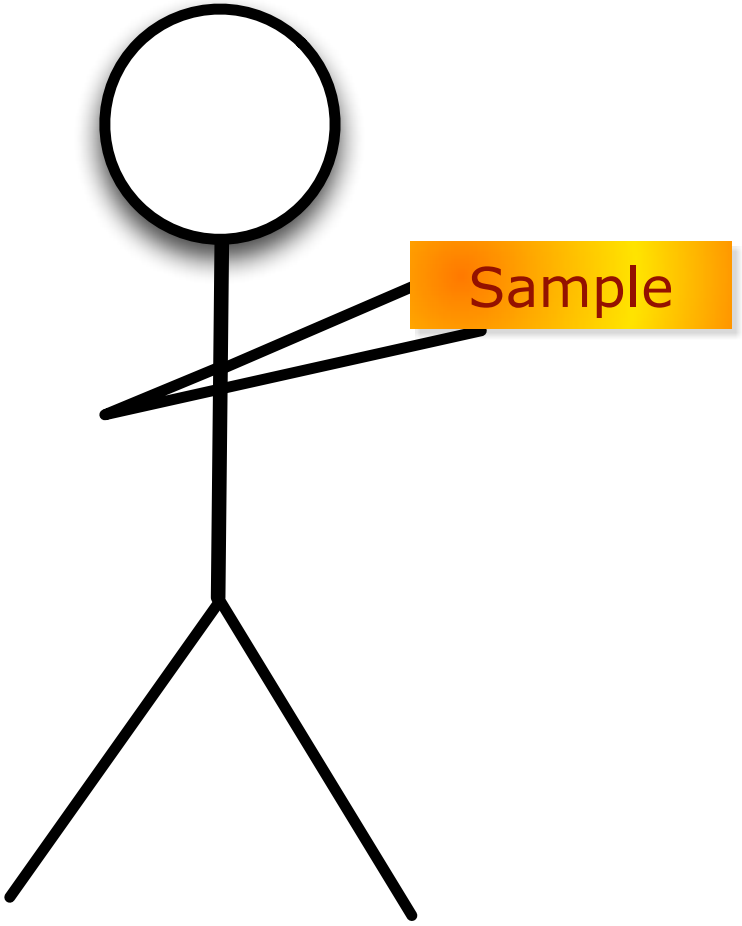
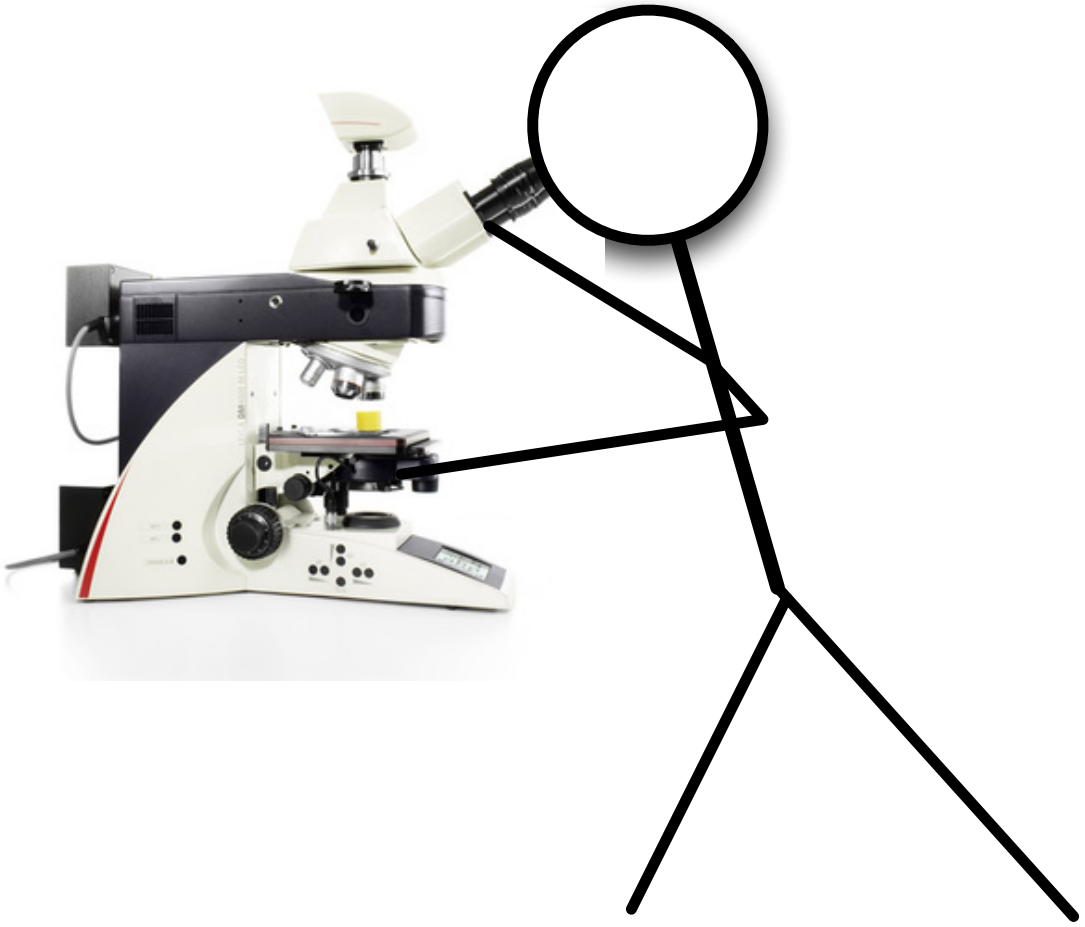
OME Satellite Developer

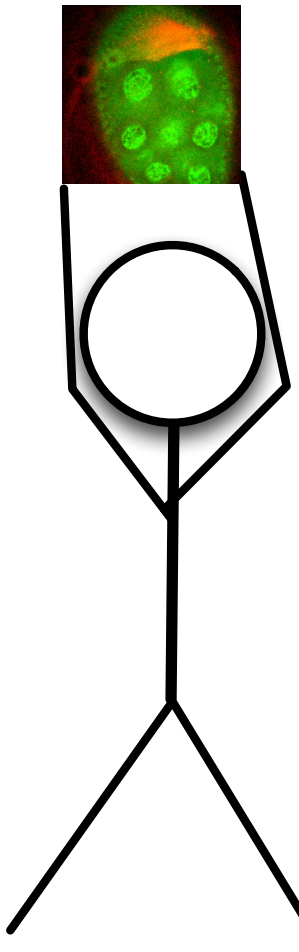
Biologist…



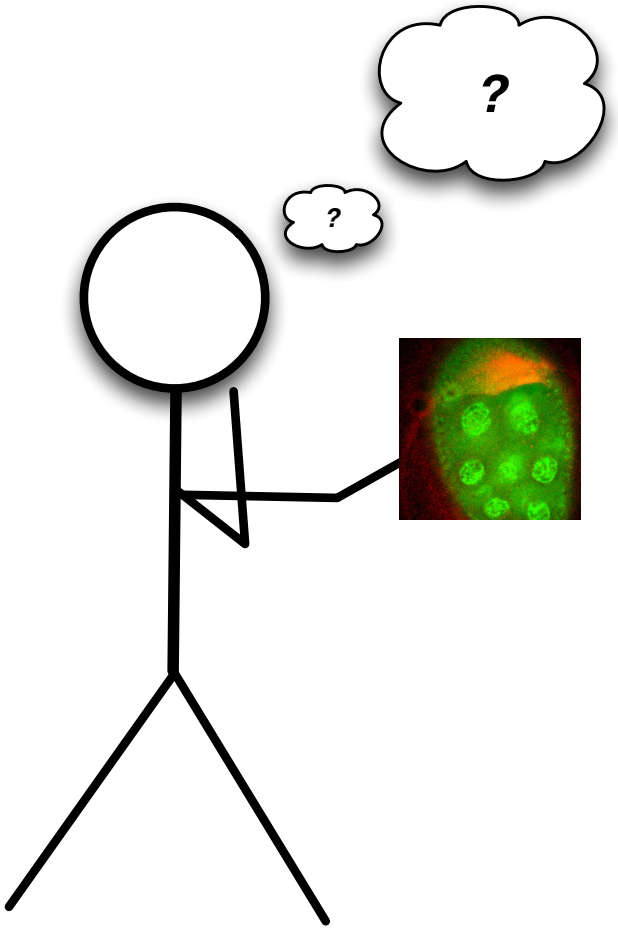
… and Microscope Operator



Results!

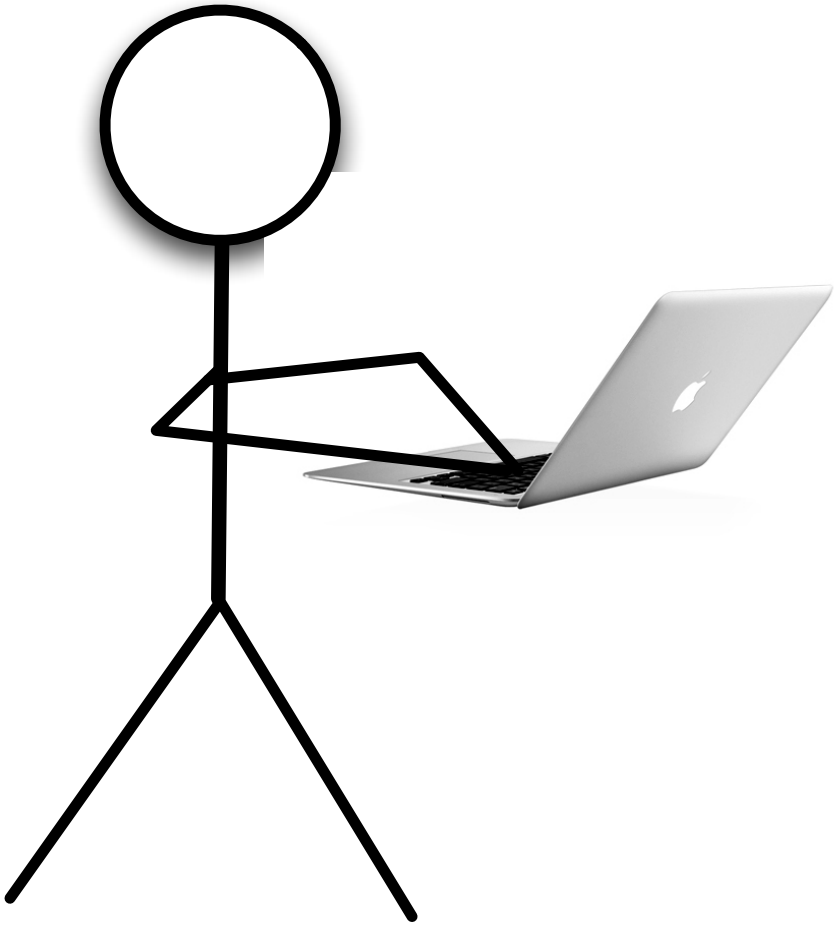


Now what?



Files

Computer User



External Hard Disks

- Portable?
- Convenient?
- Problem solved?

Uh oh!

- Broken
- Lost
- Overwritten

Rage!

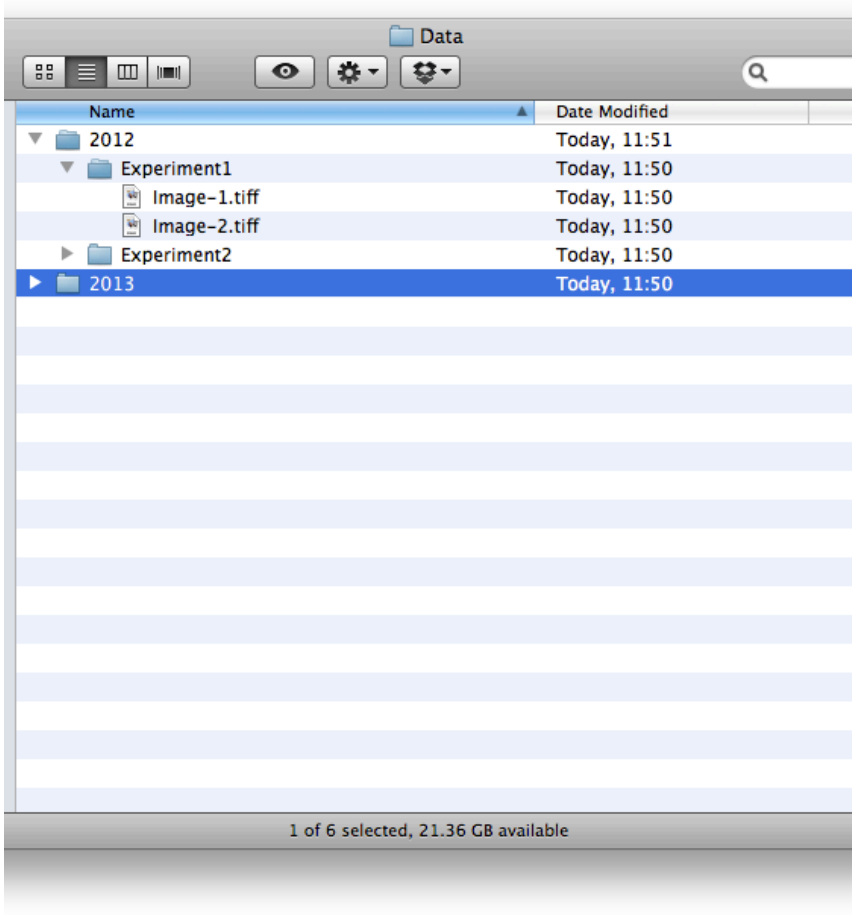
Backup

- Protect Against
  - Accidental Deletion
  - Malicious Viruses
  - Broken External Disk
  - Filesystem Failures
- Managed by Experts
- OUCS offer personal backups for all (limited by data volume)

Centralized File Systems

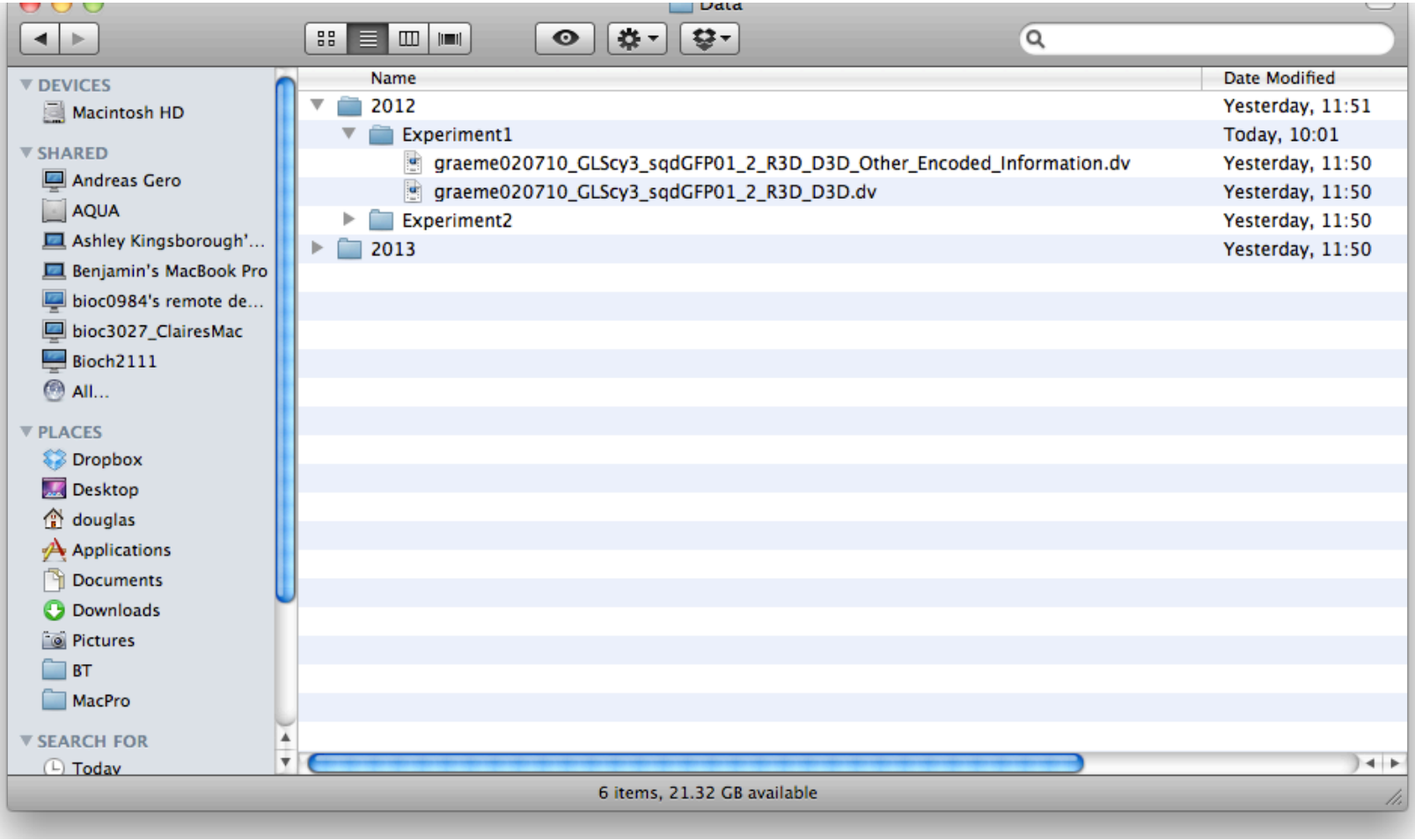
- Reliable
- Network Availability
- Managed by Experts

Organization - Hierarchy



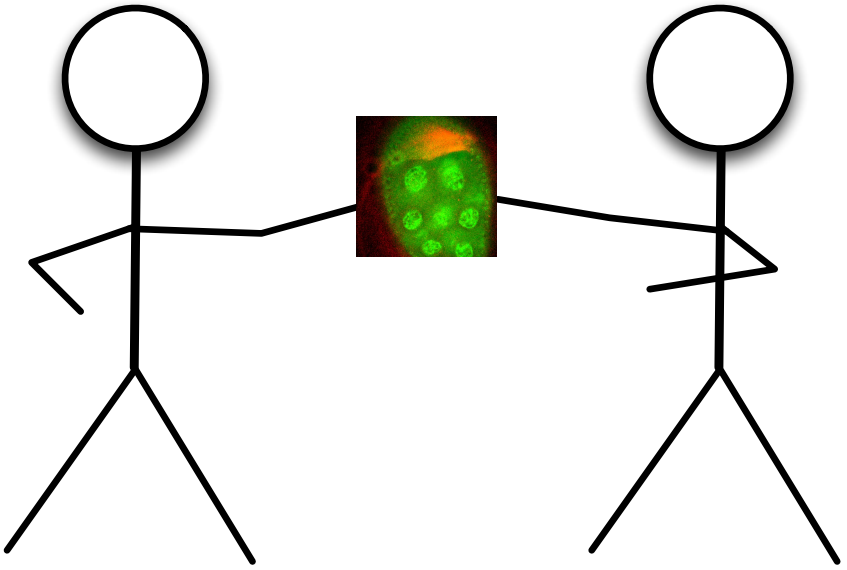
- Methodical
- Organized

Data linked directly to metadata



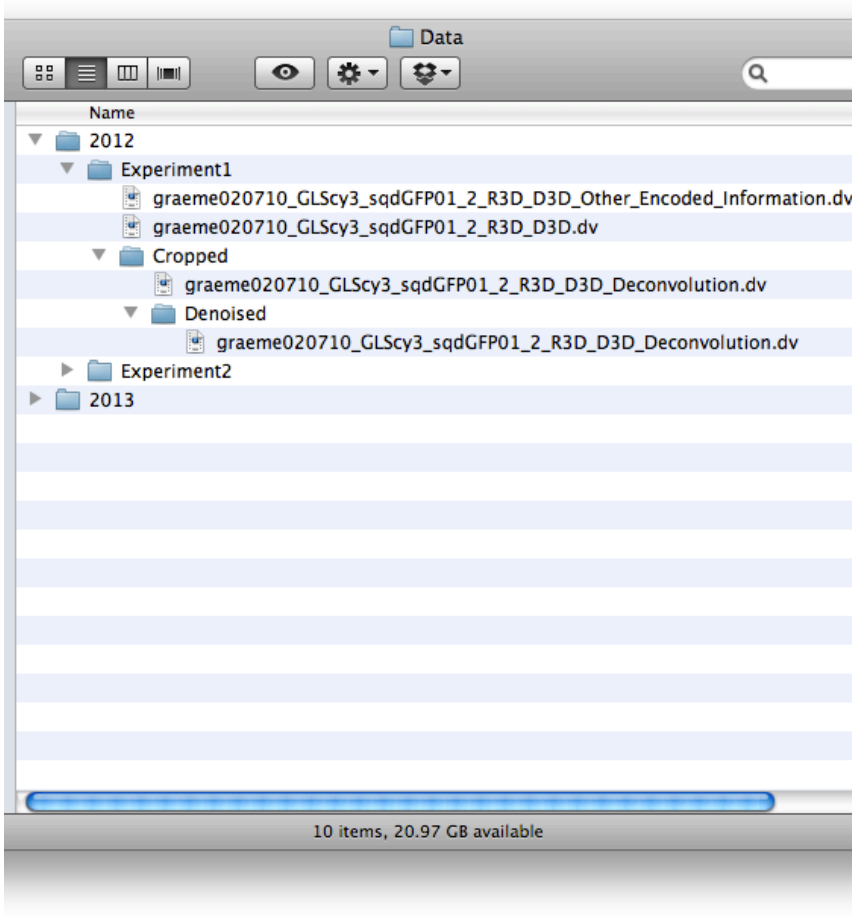
General Problems

- What if you want to share your data with others?



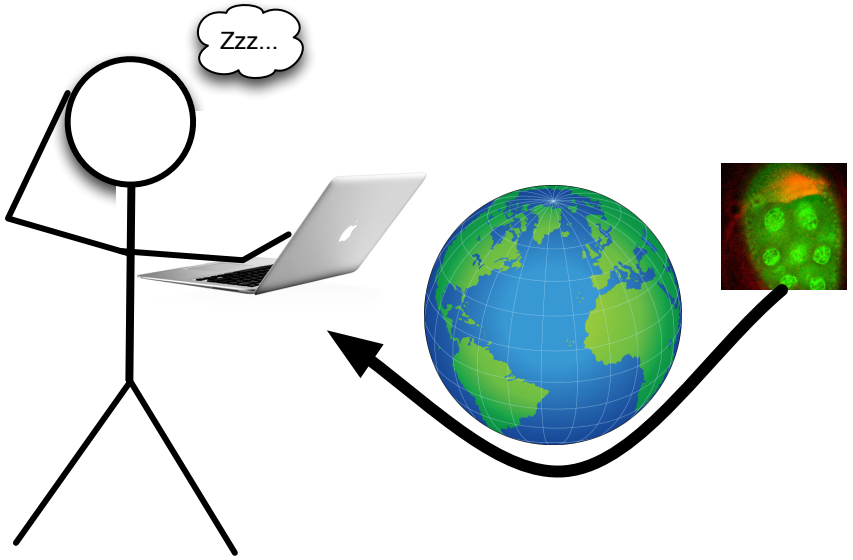
General Problems

- What if your organizational hierarchy begins to get unwieldy?
- Data duplication and re-duplication and re-duplication and re…



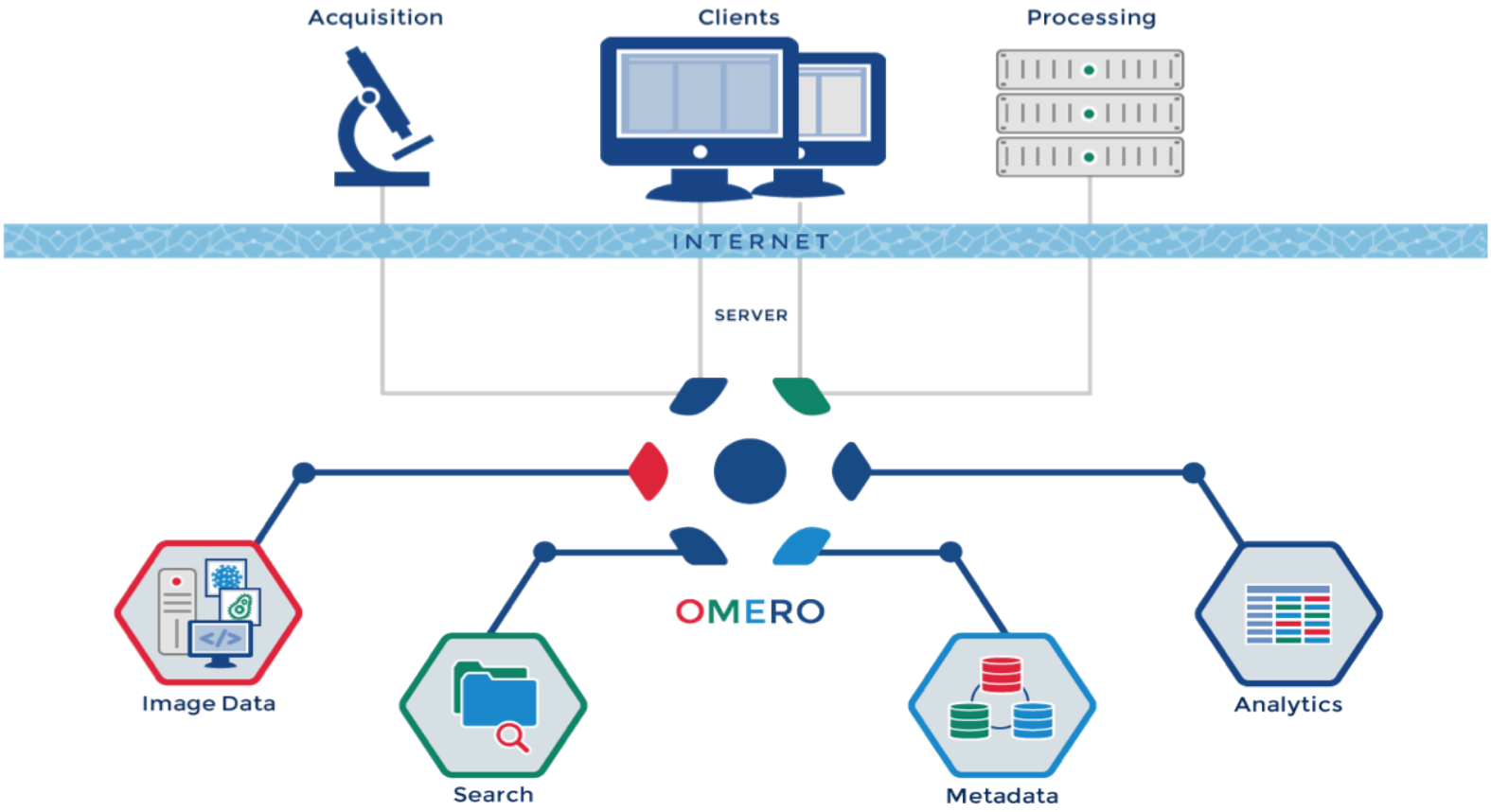
General Problems

- What if you're on the other side of the world from your data
  - Microscopy pixel data is BIG!
  - What about just metadata?

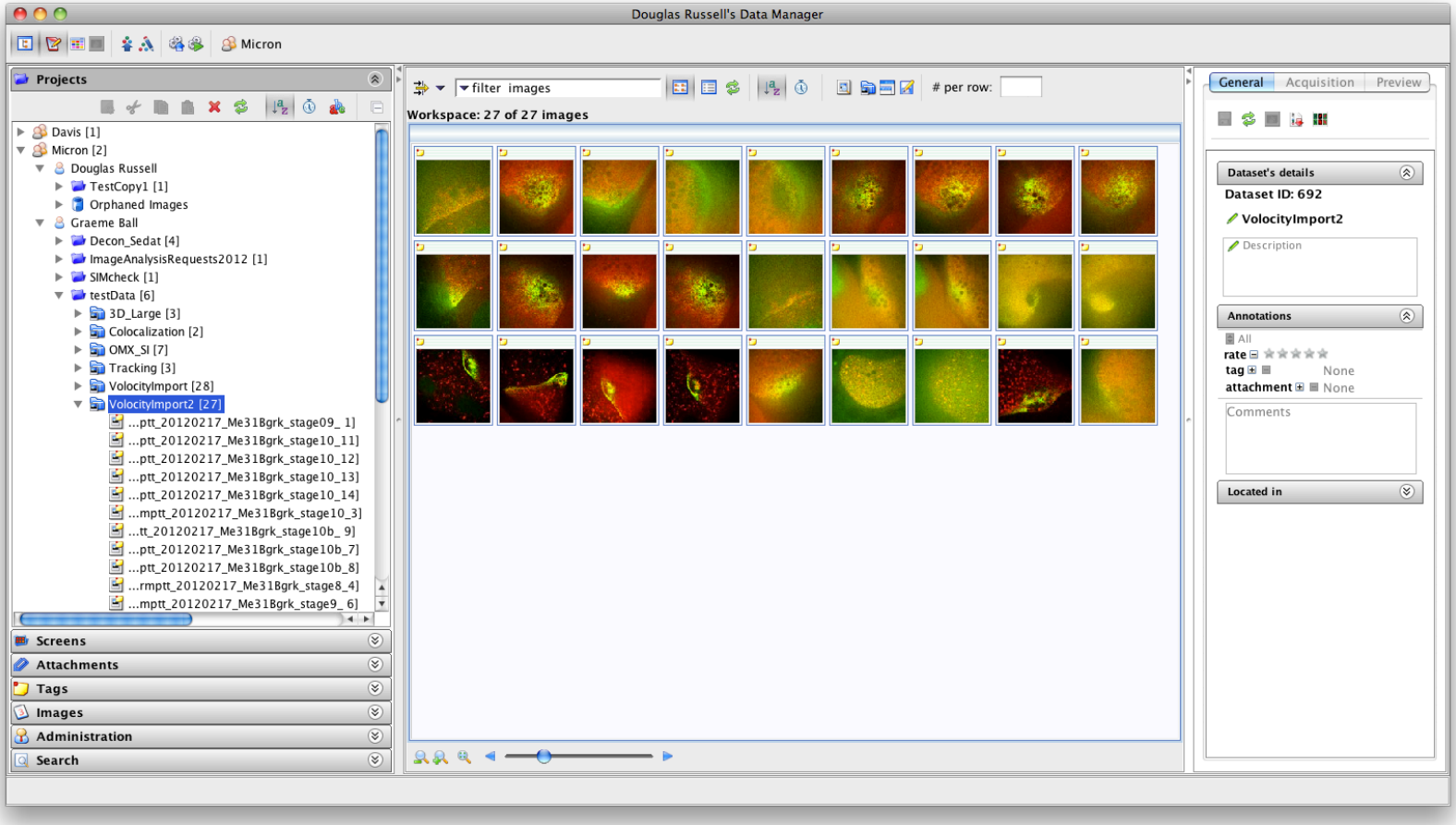


https://www.openmicroscopy.org

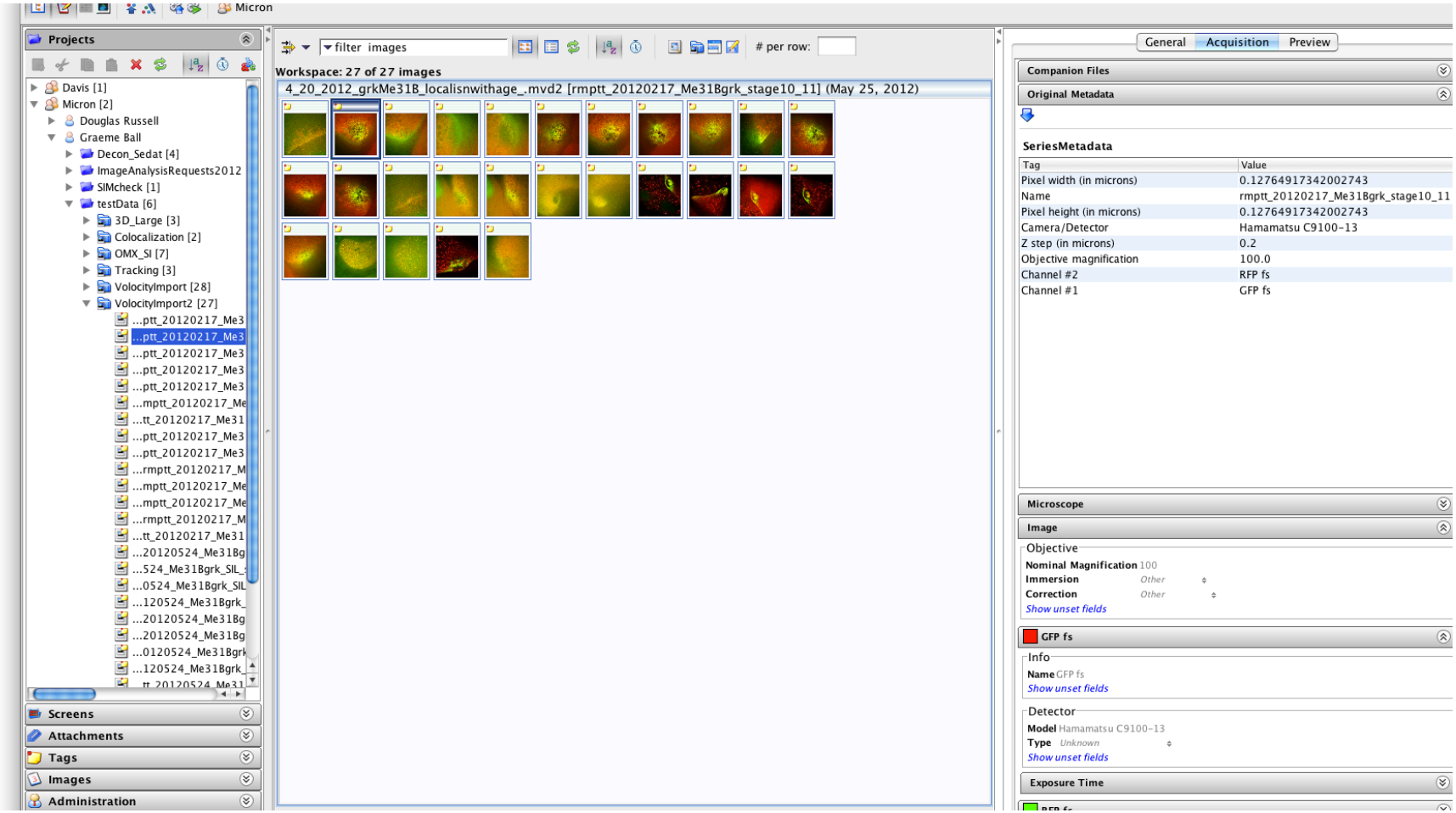
What is it?


Acquisition
Clients
Processing
INTERNET
SERVER
OMERO
Image Data
Search
Metadata
Analytics

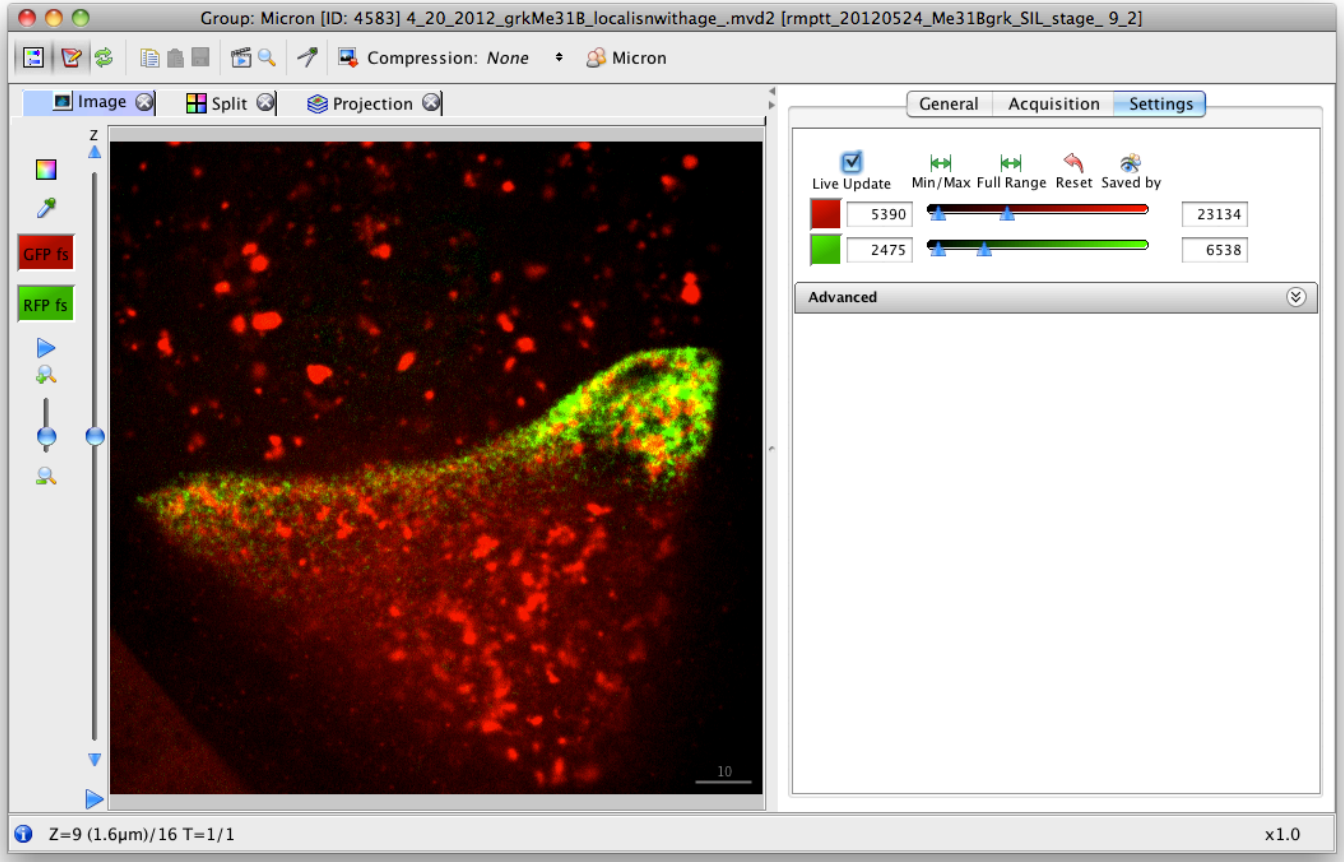
Data Visualization



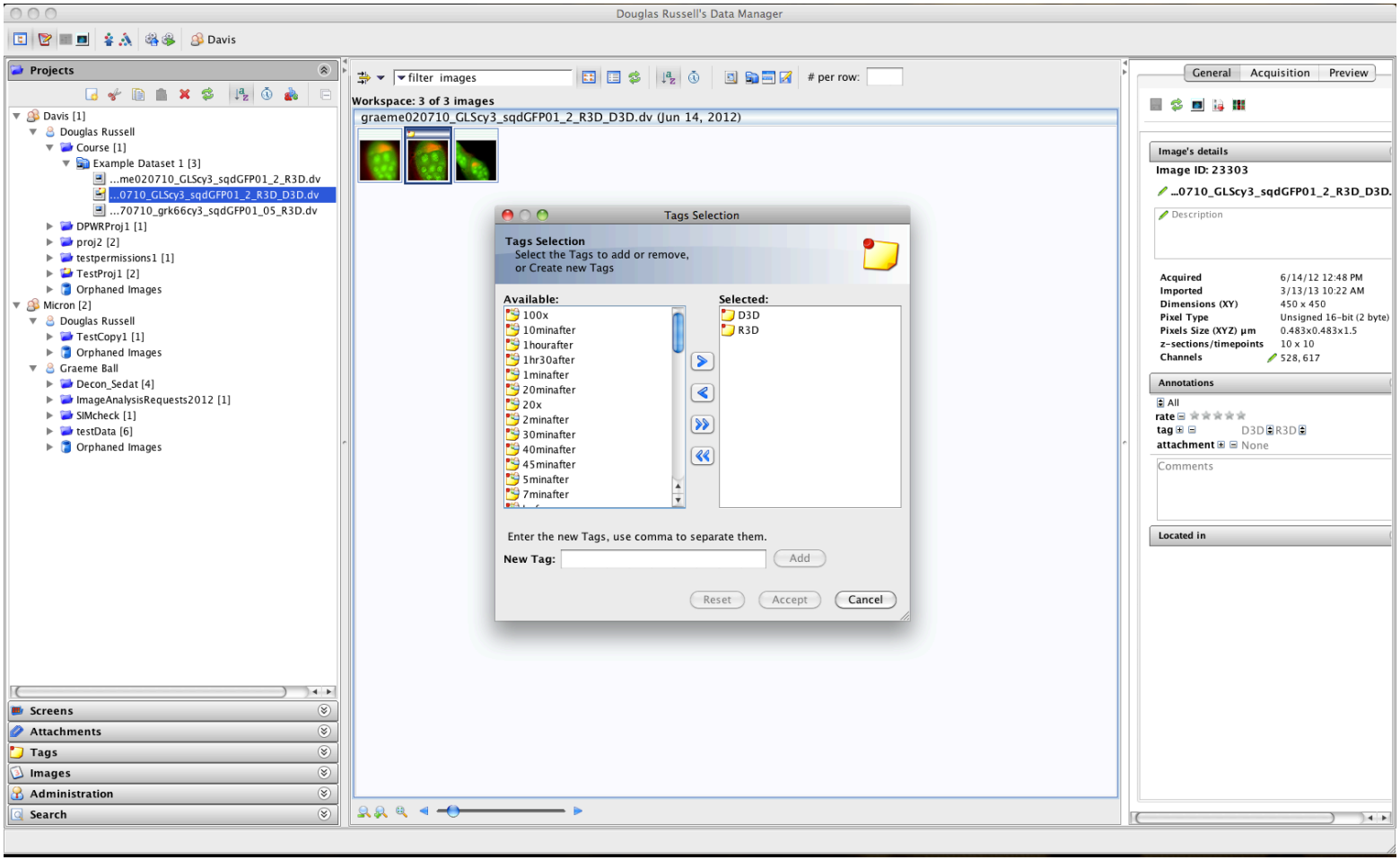
Embedded Metadata



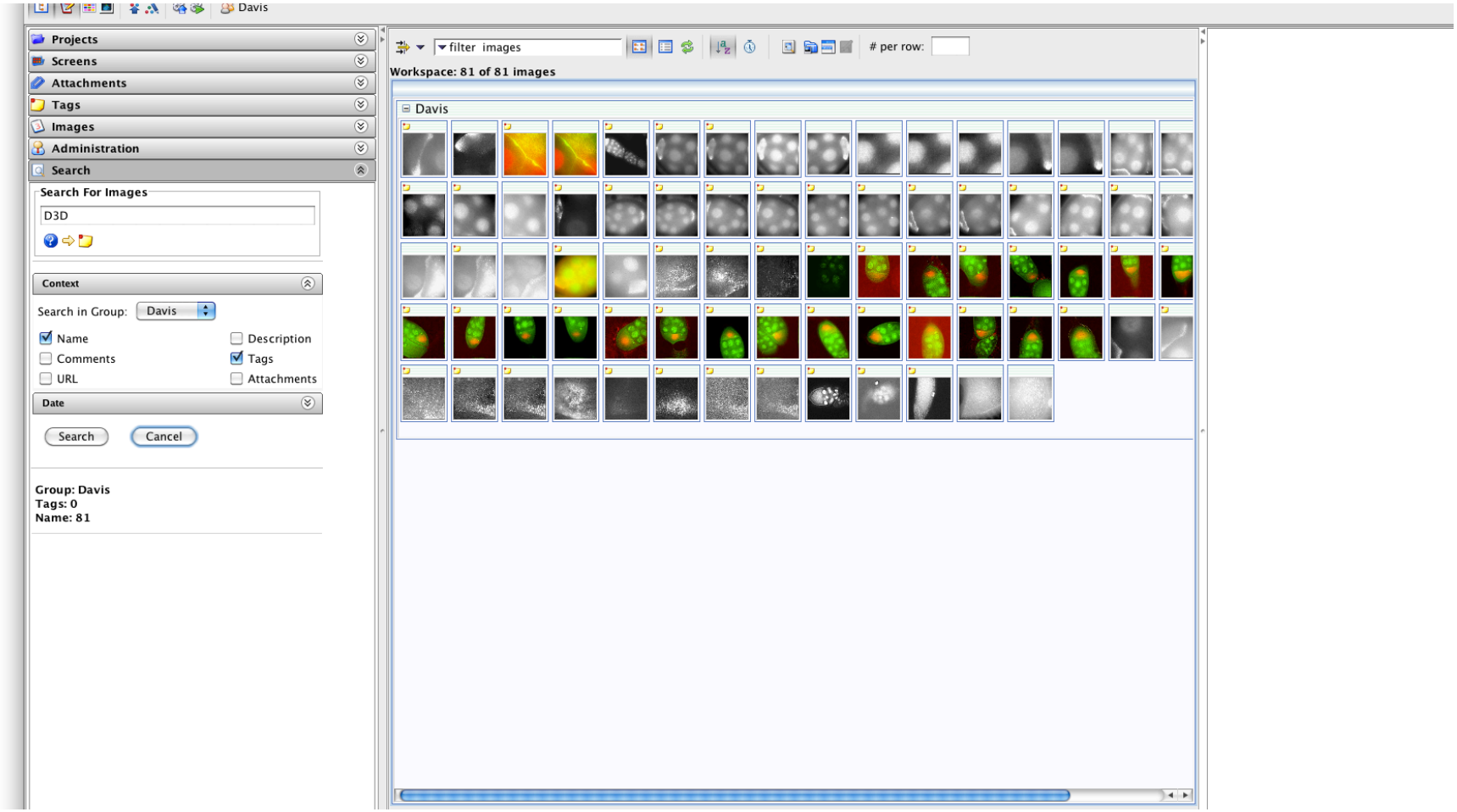
Data Visualization



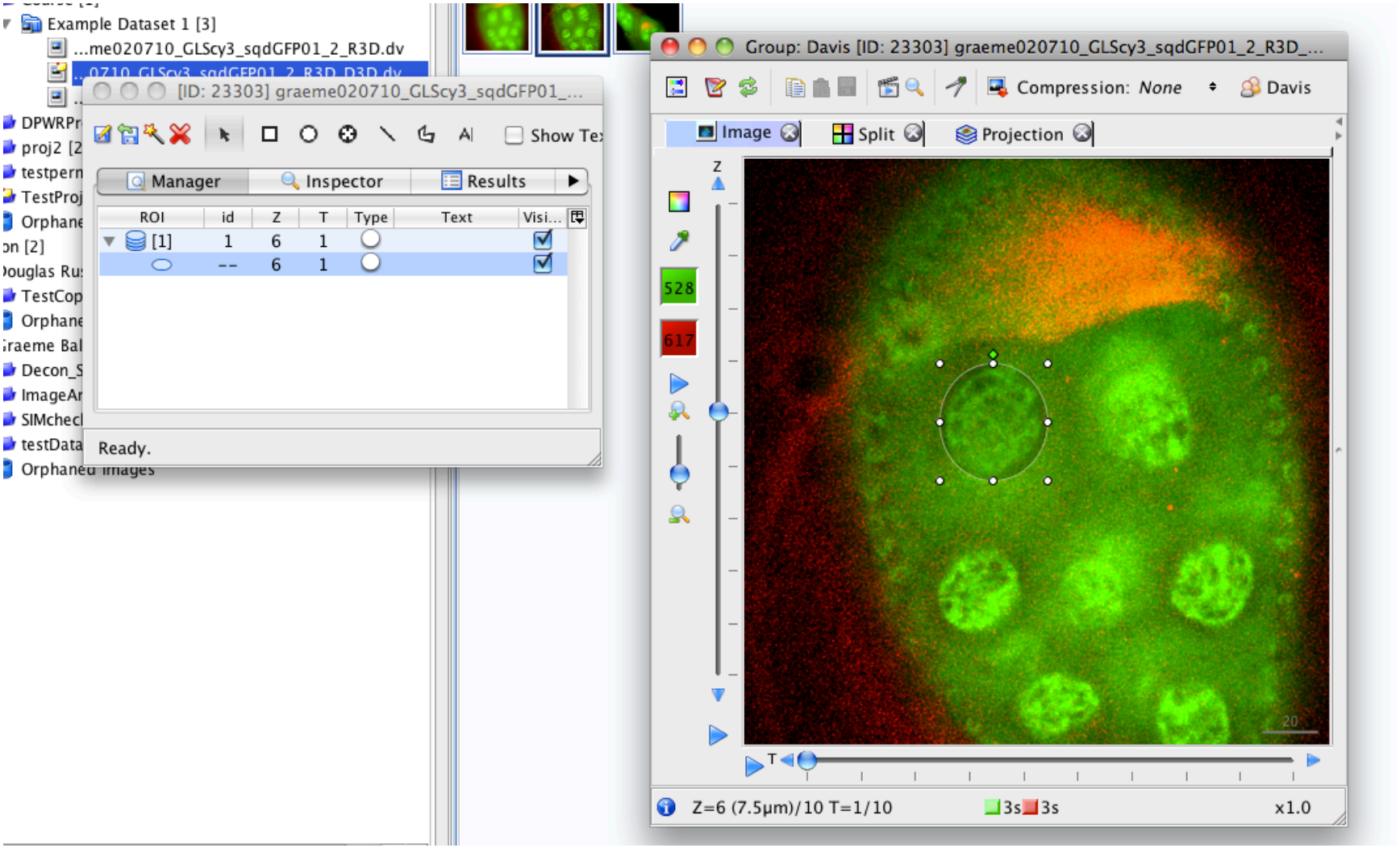
Metadata Annotations



Metadata Search



Region of Interest



The solution for reading proprietary microscopy data and metadata

http://loci.wisc.edu/software/bio-formats

Bio-Formats

- Currently reads 127 Formats
- Capable of writing several formats
- Uses standard OME Data model for all data – specifically OME-Tiff
- Used in OMERO, ImageJ and many other tools

OMERO Advantages

- Centralized data, but accessible from anywhere though lightweight interfaces
- Desktop (All platforms) and Web Clients
- Managed by Experts
- Original data always preserved
- APIs provided for writing customized tools
- Compatible with some tools already, e.g. ImageJ

OMERO Advantages

- Easier to share and collaborate with colleagues/group leader
- Searchable
- Homogeneous Organization - Data is accessible and organized even after user is gone
- Integration with analysis tools
- Scripting Services - can access annotations, ROI, pixels, etc.

Try it?

- Server – Linux/Windows/Mac
- Virtual Box ‘Virtual Appliance’
- Clients – Linux/Windows/Mac/Web
- Biochemistry and Dunn school – email me!