University of Arizona OMERO Workshop

Summary

Day 1
Import into OMERO
- Cover the various import options
OMERO core concepts
- Data management - Metadata
- Search
- Viewer - 3D Viewer
Image Export
- Client export
OMERO parade (part 1)
OMERO figure
- How to use figure
End of Day 1

Day 2
Analysis with 3rd party tools
- Analysis with Fiji: manual
- Analysis with Fiji: scripting
- Image data resource (IDR) - source of image data using OMERO API
- Introducing the analysis environment & OMERO concepts
- Analysis in OMERO or IDR using Cellpose
- Analysis in OMERO or IDR using Cell Profiler
- Analysis in OMERO or IDR using StarDist
Server side analysis
- How to write script
- How to manage script
Data mining using OMERO.parade
Look into future: OME-NGFF (optional)

Content
Import

In this section we will cover the various import options such as the import with or without data transfer and synchronous vs. asynchronous.

**Desktop client install and import**

For these 2 workflows shown in the workshop, see

**Command line import, bulk import, in-place import**

These import sections not covered in the workshop can be found at

**OMERO core concepts**

**Data management and cooperation**


**Viewing images (OMERO.iviewer)**


**Annotate data and filter using annotations**


**Search**


**Viewing images (3D viewer: OMERO.FPBioimage)**


**Export**


**OMERO parade**

**Data mining using OMERO.parade on Projects and Plates**

OMERO figure

Fast creation of publication figures using OMERO.figure
See https://omero-guides.readthedocs.io/en/latest/figure/docs/omero_figure.html

Analysis
This part constitutes the core of the training and we will explore the different means OME provides to interact with image and non-image data and how to best integrate these into your workflows.

Analysis with Fiji
- Analysis with Fiji: Java
  - Fiji client side: manual Analysis via UI
  - Fiji client side: scripting: Groovy and Macro
  - Fiji: Analysis in the cloud: Java and Macro

For setup of the Fiji plugin see
For the walkthrough in this workshop, see Fiji chapters

Analysis with CellPose, StarDist, CellProfiler setup - analysis environments
For the basic setup for Cellpose, StarDist and CellProfiler OMERO bindings, either
  - (easier, environment will be set up on the cloud) Click on the Google Colab badge in
    or
  - (more rewarding, local setup) Follow the instructions in
- Analysis with CellProfiler - further reading:

Analysis in R
See for R analysis
Server side analysis

- Analysis server side
  - How to write a Python script
  - How to upload the script to the server

**Server-side scripts (python)**


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**Optional analysis (for you information only)**

See for Python scripts (for your information only) [https://omero-guides.readthedocs.io/en/latest/python/docs/simple-frap-example.html](https://omero-guides.readthedocs.io/en/latest/python/docs/simple-frap-example.html)