McGill University 2021 OMERO Workshop

The presentation and a PDF version of the workshop are available at https://downloads.openmicroscopy.org/presentations/2021/McGill/

Software versions used for this workshop:

- OMERO: 5.6.3
- OMERO.web: 5.8.1
- OMERO.insight: 5.5.16
- OMERO.insight-ij: 5.5.16
- OMERO.iviewer: 0.10.1
- OMERO.figure: 4.3.2
- OMERO.parade: 0.2.1
- OMERO.duplicate: 0.4.0
- OMERO R gateway: 0.4.8
- omero-guides: 2020.05.27
- Bio-Formats: 6.5.1
- Fiji/ImageJ: 2.0.0-rc-69/1.52p
- Matlab R2019a
- QuPath 0.2.2
- omero-metadata: 0.5.0
- Ilastik 1.3.3 (pipeline), 1.4.0b5 (inside the docker)

Summary

Day 1
Import using Desktop application
  - Discussion about other import options
OMERO core concepts
  - Data management and cooperation
  - Viewing images: OMERO.iviewer
  - Metadata
  - Search
  - 3D Viewer: OMERO.FPBioimage)
Day 2
FIJI workflows and OMERO
- Manual workflow using FIJI graphical user interface
- Scripting workflow
- FIJI run headlessly in notebook

Data mining using OMERO.parade
Create quickly publication Figures using OMERO.figure

Programme

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, see
Video https://www.youtube.com/watch?v=U5rH7ZmylAI&t=149s

Command line import, bulk import, in-place import
These import sections not covered in the workshop can be found at https://omero-guides.readthedocs.io/en/latest/upload/docs/import.html

OMERO core concepts

Data management and cooperation
See:
Short video https://www.youtube.com/watch?v=v85YD4cORk4
Viewing images (OMERO.iviewer)

Annotate data and filter using annotations
See:
Short video https://www.youtube.com/watch?v=kW9O1M1obKc

Search

Viewing images (3D viewer: OMERO.FPBioimage)

Export

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 the four Fiji chapters
https://omero-guides.readthedocs.io/en/latest/fiji/docs/threshold_scripting.html and
OMERO parade

Data mining using OMERO.parade on Projects and Plates

OMERO figure

Fast creation of publication figures using OMERO.figure

Analysis with Ilastik (for your information only)
- Analysis with ilastik: Python
  - Manual Analysis via UI
  - Analysis in the cloud: Python

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

Server-side scripts (python) (for your information)

Analysis with CellProfiler (for your information only)
- Analysis with CellProfiler: Python
  - Analysis in the cloud: Python and using CellProfiler API
Note that [https://mybinder.org/](https://mybinder.org/) will be used for CellProfiler setup as described in [https://github.com/ome/omero-guide-cellprofiler](https://github.com/ome/omero-guide-cellprofiler)
Analysis in QuPath (for your information only)

See for QuPath analysis

Analysis in R (for your information only)

See for R analysis

Optional analysis (for your information only)

See for Python scripts (for your information only)
See for Java scripts (for your information only)