I2K 2020 Workshop

The presentation and a PDF version of the workshop are available at https://downloads.openmicroscopy.org/presentations/2020/I2K-Janelia/

Software versions used for this workshop:

- OMERO: 5.6.3
- OMERO.web: 5.8.1
- OMERO.insight: 5.5.14
- OMERO.insight-ij: 5.5.14
- 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

Import
- Cover the various import options
OMERO core concepts
- Data management - Metadata
- Search
- Viewer -3D Viewer
Image Export
- Client export
OMERO figure
- How to use figure

Analysis with 3rd party tools
- Analysis with Fiji: manual
- Analysis with Fiji: scripting
- Analysis in OMERO using Cell Profiler
- Connection between and working with QuPath and OMERO
- Analysis in OMERO using R
- Analysis in OMERO using Matlab (optional)
- Ilastik (machine learning, optional)

Server side analysis
- How to write script
- How to manage script

Data mining using OMERO.parade

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 shown in the workshop, see
https://omero-guides.readthedocs.io/en/latest/upload/docs/import-desktop-client.html and

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

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
Analysis with CellProfiler

- Analysis with CellProfiler: Python
  - Analysis in the cloud: Python and using CellProfiler API
See for all CellProfiler workflows
Note that https://mybinder.org/ will be used for CellProfiler setup as described in
https://github.com/ome/omero-guide-cellprofiler

Analysis in QuPath

See for QuPath analysis

Analysis in R

See for R analysis

Analysis with Ilastik

- Analysis with ilastik: Python
  - Manual Analysis via UI
  - Analysis in the cloud: Python
See for both setup and workflows

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 further information about how to write and manage server-side scripts see

OMERO parade

Data mining using OMERO.parade on Projects and Plates

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Optional analysis (for you information only)
See for Python scripts (for your information only)
See for Java scripts (for your information only)