EastBio Demo/Workshop

The presentation and a PDF version of the workshop are available at https://downloads.openmicroscopy.org/presentations/2022/Eastbio

Software versions used for this workshop:

- OMERO: 5.6.5
- OMERO.web: 5.15.0
- OMERO.insight: 5.7.2
- OMERO.insight-ij: 5.7.2
- OMERO.iviewer: 0.11.3
- OMERO.figure: 5.0.0
- OMERO.parade: 0.2.3
- OMERO.duplicate: 0.4.0
- OMERO R gateway: 0.4.8
- omero-guides: 2021.11.09
- Bio-Formats: 6.5.1
- Fiji/ImageJ: 2.0.0-rc-69/1.52p
- Matlab: R2019a
- QuPath: 0.3.2
- qupath-extension-omero: 0.3.0
- omero-metadata: 0.5.0
- Ilastik 1.3.3 (pipeline), 1.4.0b5 (inside the docker)

Summary

OMERO core concepts
- Data management: Cooperation and Metadata
- OMERO.iviewer
- Search

Data mining using OMERO.parade

OMERO figure

Analysis with 3rd party tools
- Analysis with Fiji: manual

Server side scripts

Programme

Import (not shown, for your information only)

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 your information only)


Command line import, bulk import, in-place import (for your information only)

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


Viewing images (OMERO.iviewer)


Annotate data and filter using annotations


Search

Viewing images (3D viewer: OMERO.FPBioimage, for your info only)

OMERO parade (not shown in demo)

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

Server side analysis

Server-side scripts (python)
For further information about how to write and manage server-side scripts see
Analysis with CellProfiler (shown depending on time)

- 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

Export (for your information only)

Analysis in R (for your information only)
See for R analysis

Analysis with Ilastik (for your information only)

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

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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)