OMERO Workshop

The presentation and a PDF version of the workshop are available at
https://downloads.openmicroscopy.org/presentations/2026/Prague

Summary

Imaging workflows in OMERO:
Import into OMERO
- Cover the various import options
OMERO core concepts
- Data management - Metadata, Users and groups
- Viewers: OMERO.iviewer
- Import of metadata - CSV import scripts,
OMERO and BioFile Finder
OMERO figure
- How to use figure
Using OMERO with QuPath
Analysis of Images in OMERO
Analysis with 3rd party tools - principles
- Analysis with Fiji: manual
- Analysis with Fiji: scripting
Analysis environments & OMERO - case of Machine Learning tools:
- CellPose

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 https://omero-guides.readthedocs.io/en/latest/upload/docs/import-desktop-client.html and https://omero-guides.readthedocs.io/en/latest/upload/docs/import-desktop-client.html#import-for-another-user

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 https://omero-guides.readthedocs.io/en/latest/introduction/docs/data-management.html

Viewing images (OMERO.iviewer)

https://omero-guides.readthedocs.io/en/latest/iviewer/docs/iviewer.html

Annotate data and filter using annotations

https://omero-guides.readthedocs.io/en/latest/introduction/docs/annotate.html

Search

https://omero-guides.readthedocs.io/en/latest/introduction/docs/search-omero.html

OMERO and BioFile Finder

Group, Filter and Search using Key-Value pairs or tabular data

See https://github.com/ome/omero-biofilefinder#omero-biofile-finder

OMERO figure

Fast creation of publication figures using OMERO.figure

See https://omero-guides.readthedocs.io/en/latest/figure/docs/omero_figure.html

Addition of S3-based ome-zarr images:
In OMERO, open an image in Figure. Go to outreach.openmicroscopy.org. Then click onto Add Image and paste into the dialog
https://livingobjects.ebi.ac.uk/idr/zarr/v0.5/idr0062A/6001240_labels.zar

OMERO and QuPath

Analysis and management of large images

See https://omero-guides.readthedocs.io/en/latest/qupath/docs/index.html

Publication with OMERO

Publication in OMERO is tantamount to moving data into a "Public" group.

See https://omero-guides.readthedocs.io/en/latest/introduction/docs/data-publication.html
See https://omero-guides.readthedocs.io/en/latest/introduction/docs/data-management.html#move-data-between-groups-owners-of-data
To create a link to a Project/Dataset/Image in OMERO.web, click on the Project/Dataset/Image in the left-hand side tree. Then, in the right-hand pane, General tab, click on the "chain" icon  and copy the link from there.

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
https://omero-guides.readthedocs.io/en/latest/fiji/docs/installation.html
For the walkthrough in this workshop, see Fiji chapters
https://omero-guides.readthedocs.io/en/latest/fiji/docs/installation.html
https://omero-guides.readthedocs.io/en/latest/fiji/docs/threshold_manual.html
https://omero-guides.readthedocs.io/en/latest/fiji/docs/threshold_scripting_macro_language.html

Analysis with CellPose

For the basic setup for CellPose, either

- (easier, environment will be set up on the cloud) Click on the Google Colab badge in https://github.com/ome/EMBL-EBI-imaging-course-05-2023/blob/main/Day_4/setup.md
  or
- (more rewarding, local setup) Follow the instructions in https://github.com/ome/EMBL-EBI-imaging-course-05-2023/blob/main/Day_4/setup.md