SLS 2022 Workshops

The presentation and a PDF version of the workshop are available at [https://downloads.openmicroscopy.org/presentations/2020/SLS](https://downloads.openmicroscopy.org/presentations/2020/SLS)

**Software versions used for this workshop:**

- OMERO: 5.6.4
- OMERO.web: 5.14.1
- OMERO.insight: 5.7.1
- OMERO.insight-ij: 5.7.1
- OMERO.iviewer: 0.11.3
- OMERO.figure: 4.4.3
- OMERO.parade: 0.2.1
- OMERO.duplicate: 0.4.0
- OMERO training scripts: 0.7.3
- OMERO training notebooks: 0.7.2
- omero-guides: 2020.05.27
- Bio-Formats: 6.5.1
- Fiji/ImageJ: 2.0.0-rc-69/1.52p

**Summary**

**Workshop 1 (Intro to OMERO):**

**OMERO core concepts**
- Import using OMERO.insight
- Data management
- OMERO.iviewer
- Search

Data mining using OMERO.parade

OMERO figure

**Workshop 2 (Sharing and publishing):**

Sharing in OMERO - groups and users
- Data management: Cooperation
- Groups and Users setup
- Sharing of OMERO.figures
- Specifics of SLS OMERO server - “My Data” group
- Moving data between groups - publishing

**Analysis with 3rd party tools**
- Analysis with Fiji: manual
- Browser-based analysis using Deep Learning Segmentation tool
- Publish your segmentation ROIs in OMERO.figure

**OMERO figure hands-on & publishing**
- In depth practical: publish your own images and Figure

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**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**


**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](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

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
Segmentation with Deep Learning app
The data in Project idr0062 will now be reanalyzed using a python environment and StarDist.
  a. Find the omero-guide python
  b. Follow the README instructions as indicated in the video to build the analysis environment.
  c. Start your environment and select and run idr0062_prediction_save.ipyb notebook following the instructions in the video. You have to adjust the notebook name (video is talking about idr0062_prediction.ipyb, but you will use idr0062_prediction_save.ipyb). Also, unlike in the video, you will be able to save the results of segmentation back to the OMERO.server.

Moving images between groups

Moving figures between groups

Server-side scripts (python)
For further information about how to write and manage server-side scripts see https://omero-guides.readthedocs.io/en/latest/scripts/docs/index.html

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

Optional analysis (for you information only)

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