# UGM Yogyakarta OMERO Workshop

## Summary

**Day 1**
Imaging workflows in OMERO:
9.30 - 11.00
Import into OMERO
- Cover the various import options
11.15 - 12.45
OMERO core concepts
- Data management - Metadata, Users and groups
- Viewer -iviewer - concentrate on ROIs
- Search
13.45 - 15.15
OMERO figure
- How to use figure
15.30 - 17.00
- Usage of OMERO for teaching - basic setup
- Using OMERO with QuPath - pathologist use case
End of Day 1

**Day 2**
Analysis of Images in OMERO using Machine Learning and Deep Learning Software
Packages.
9.30 - 10.30
Analysis with 3rd party tools - principles
- Analysis with Fiji: manual
- Analysis with Fiji: scripting
- Data mining using OMERO.parade (Project/Dataset/Image)
10.45 - 12.15
Image data resource (IDR) - source of image data using OMERO API
Analysis environments & OMERO - case of Machine Learning tools:
- CellPose
- StarDist
End of Day 2

## 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 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
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

## OMERO parade

### Data mining using OMERO.parade on Projects and Plates

See https://omero-guides.readthedocs.io/en/latest/parade/docs/omero_parade.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

## Analysis with StarDist

For the basic setup for StarDist, either
- (more rewarding, local setup) Follow the instructions in https://github.com/ome/EMBL-EBI-imaging-course-05-2023/blob/main/Day_4/setup.md