

# ELMI 2021 OMERO Workshop

The presentation and a PDF version of the workshop are available at <https://downloads.openmicroscopy.org/presentations/2021/ELMI/>

## Software versions used for this workshop:

- OMERO: 5.6.3
- OMERO.web: 5.9.2
- OMERO.insight: 5.5.19
- OMERO.insight-ij: 5.5.19
- OMERO.iviewer: 0.11.0
- OMERO.figure: 4.4.0
- 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

### 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)**

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 (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**

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>

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

<https://omero-guides.readthedocs.io/en/latest/fpbioimage/docs/fpbioimage.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](https://omero-guides.readthedocs.io/en/latest/parade/docs/omero_parade.html)

## OMERO figure

### **Fast creation of publication figures using OMERO.figure**

See [https://omero-guides.readthedocs.io/en/latest/figure/docs/omero\\_figure.html](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 the four 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_manual.html)

[https://omero-guides.readthedocs.io/en/latest/fiji/docs/threshold\\_scripting.html](https://omero-guides.readthedocs.io/en/latest/fiji/docs/threshold_scripting.html) and

[https://omero-guides.readthedocs.io/projects/fiji/en/latest/headless\\_notebook.html](https://omero-guides.readthedocs.io/projects/fiji/en/latest/headless_notebook.html)

## Server side analysis

### **Server-side scripts (python)**

[https://omero-guides.readthedocs.io/en/latest/scripts/docs/execute\\_scripts.html](https://omero-guides.readthedocs.io/en/latest/scripts/docs/execute_scripts.html)

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

<https://omero-guides.readthedocs.io/en/latest/cellprofiler/docs/index.html>

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)**

<https://omero-guides.readthedocs.io/en/latest/download/docs/index.html>

## **Analysis in R (for your information only)**

See for R analysis

<https://omero-guides.readthedocs.io/en/latest/r/docs/index.html>

## **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

<https://omero-guides.readthedocs.io/en/latest/ilastik/docs/ilastik.html>

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## **Optional analysis (for you information only)**

See for Python scripts (for your information only)

<https://omero-guides.readthedocs.io/en/latest/python/docs/simple-frap-example.html>

See for Java scripts (for your information only)

<https://omero-guides.readthedocs.io/en/latest/java/docs/index.html>