

## I2K 2020 Workshop

The presentation and a PDF version of the workshop are available at <https://downloads.openmicroscopy.org/presentations/2020/I2K-Janelia/>

### Software versions used for this workshop:

- OMERO: 5.6.3
- OMERO.web: 5.8.1
- OMERO.insight: 5.5.14
- OMERO.insight-ij: 5.5.14
- OMERO.iviewer: 0.10.1
- OMERO.figure: 4.3.2
- 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

Import

- Cover the various import options

OMERO core concepts

- Data management - Metadata

- Search

- Viewer -3D Viewer

Image Export

- Client export

OMERO figure

- How to use figure

Analysis with 3rd party tools

- Analysis with Fiji: manual
  - Analysis with Fiji: scripting
  - Analysis in OMERO using Cell Profiler
  - Connection between and working with QuPath and OMERO
  - Analysis in OMERO using R
  - Analysis in OMERO using Matlab (optional)
  - Ilastik (machine learning, optional)
- Server side analysis
- How to write script
  - How to manage script
- Data mining using OMERO.parade

## 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**

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>

## Viewing images (3D viewer: OMERO.FPBioimage)

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

## Export

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

## Analysis with CellProfiler

- 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>

## Analysis in QuPath

See for QuPath analysis

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

## Analysis in R

See for R analysis

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

## Analysis with Ilastik

- 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>

## Server side analysis

- Analysis server side
  - How to write a Python script
  - How to upload the script to the server

## 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>

## 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)

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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>