INSCOPER

User Guide

Viewer

v1.0

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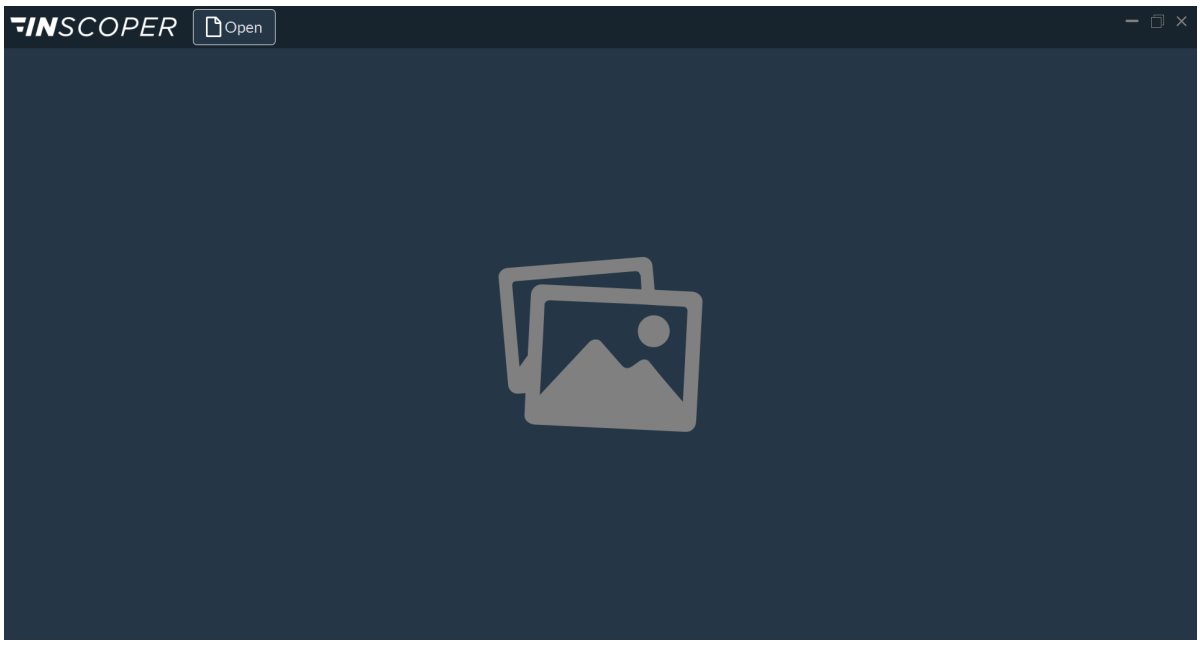
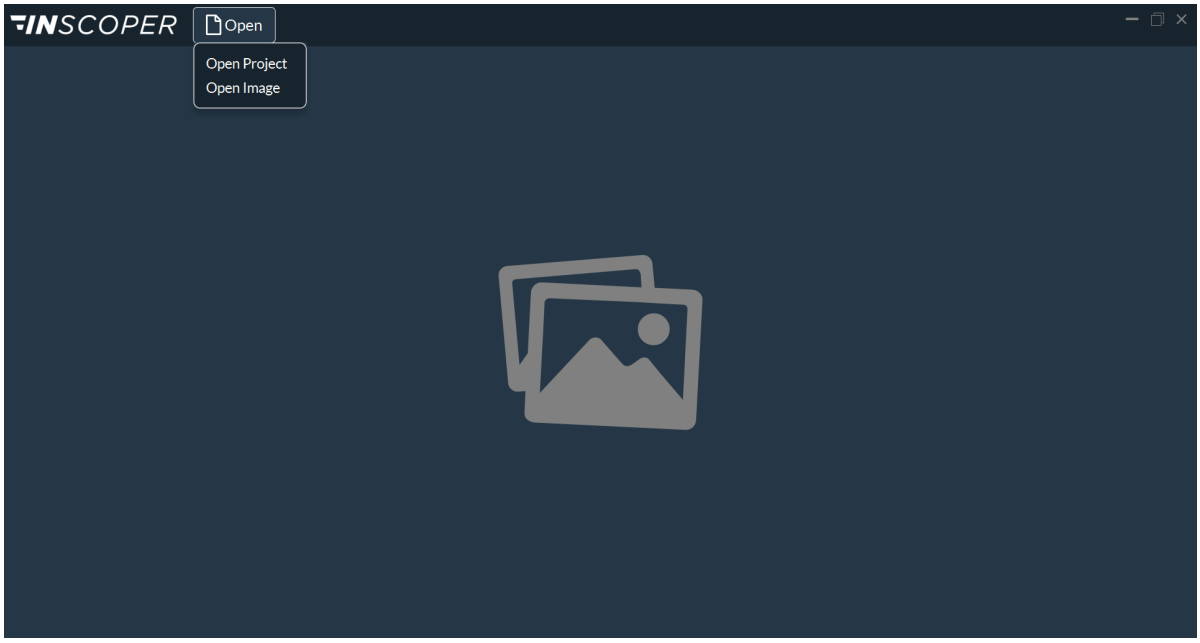
1. Viewer

1.1 Viewer

The Inscoper Viewer provides tools for visualizing data acquired with Inscoper I.S.



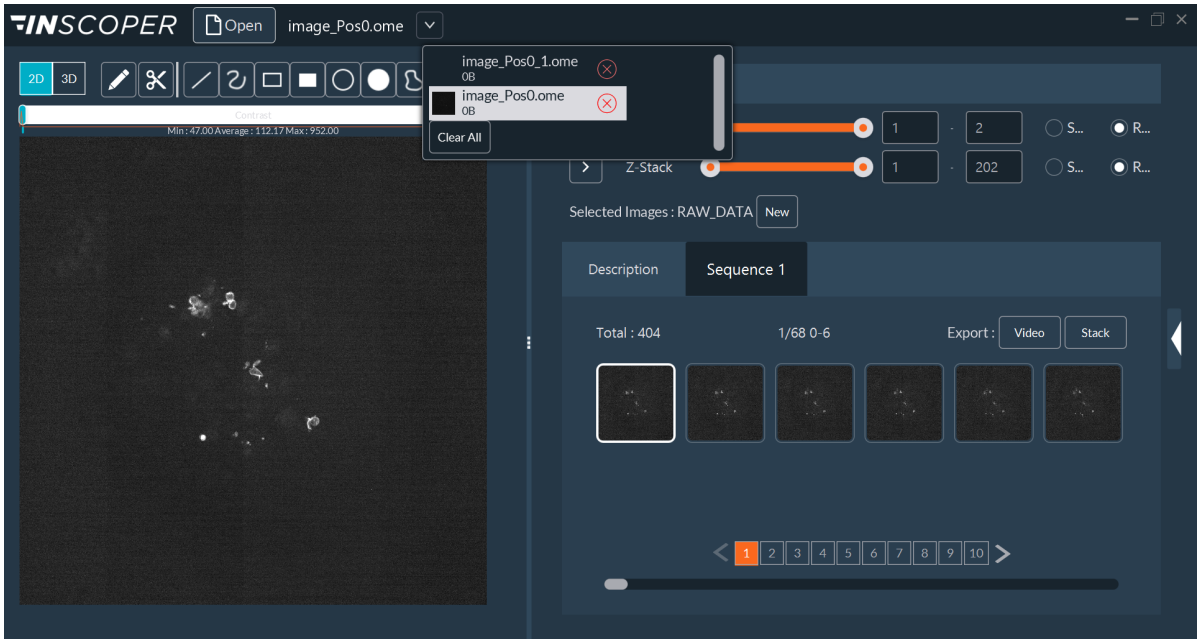
1.1.1 Open images



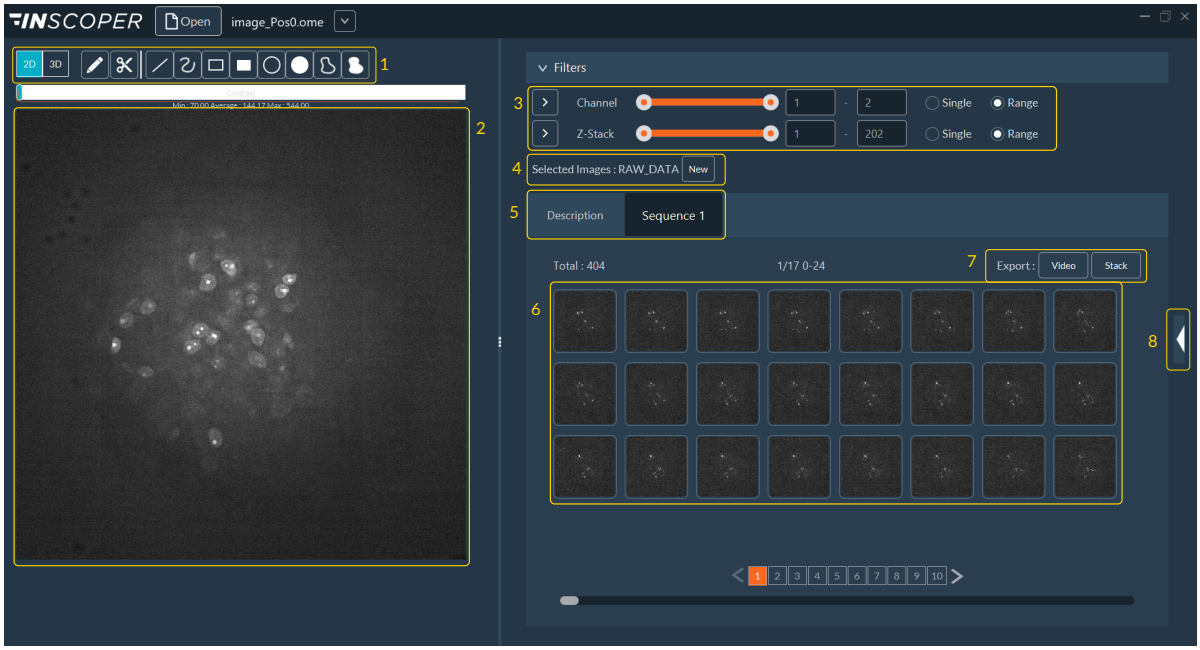
Two ways to open your images:

- **Open Project**: Select the directory where your project is saved.
- **Open Image**: Select the directory where your images are saved.

You can open multiple images and find them in the drop-down menu.

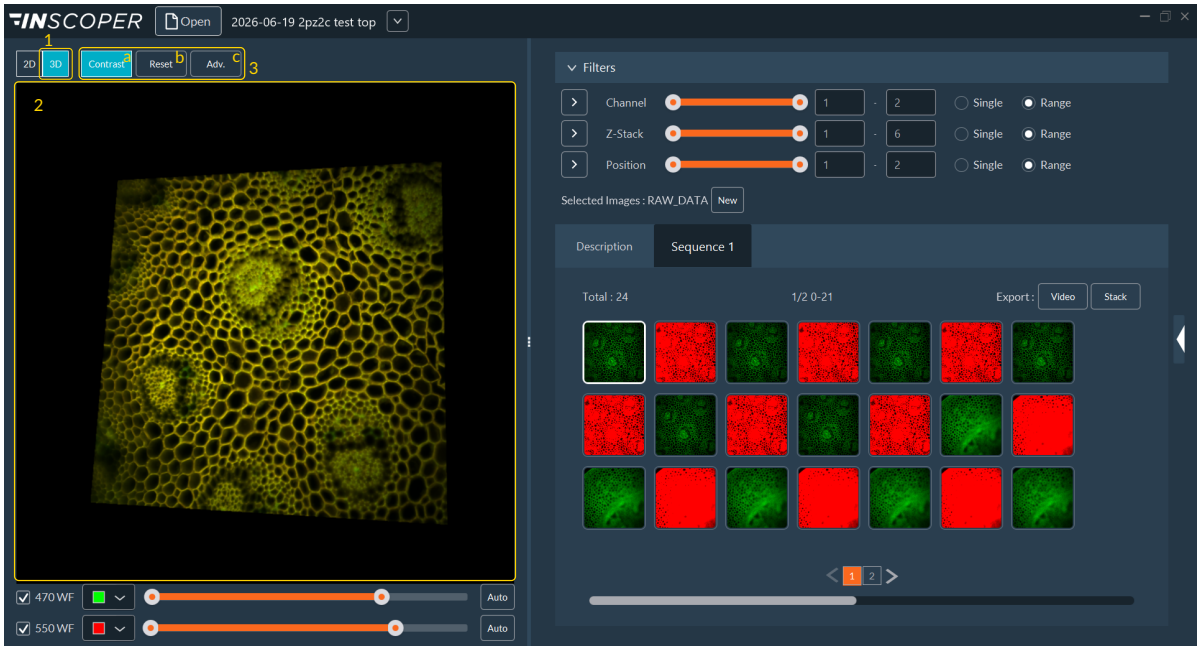


1.1.2 Interaction with Images

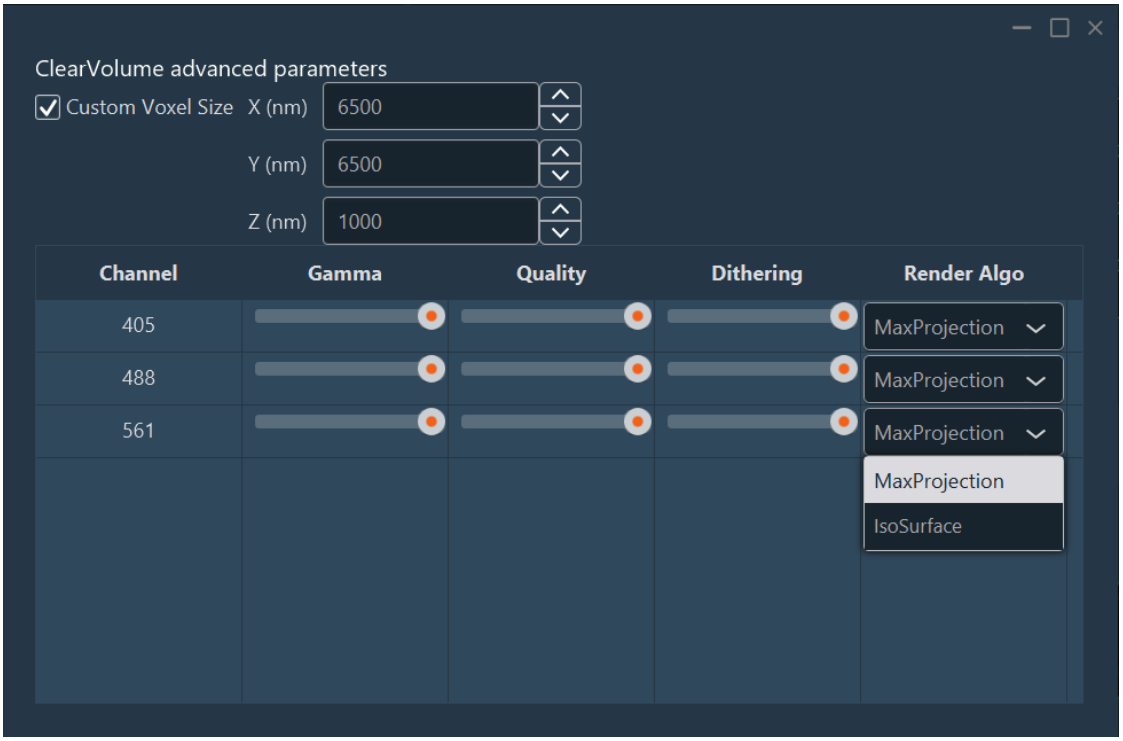


1. **ROI tool and 3D Viewer**
2. **Image Canvas**: View images in the viewer.
3. **Filters**: Use dimension-based filters to search your dataset. Select individual images or full groups. Click the **Play** button adjacent to a dimension name to animate the sequence.
4. **Data Processing**: Select output images for post-acquisition processing.
5. **Graphics Mode**: Switch viewing modes to visualize quantitative data charts.
6. **Thumbnail Gallery**: Browse miniature representations of all acquired images.
7. **Export Options**: Save the currently viewed sequence as an MP4 **Video** or a TIFF **Stack**.
8. **Metadata Access**: Reveal the hardware and experimental parameters tagged to the images.

3D Viewer



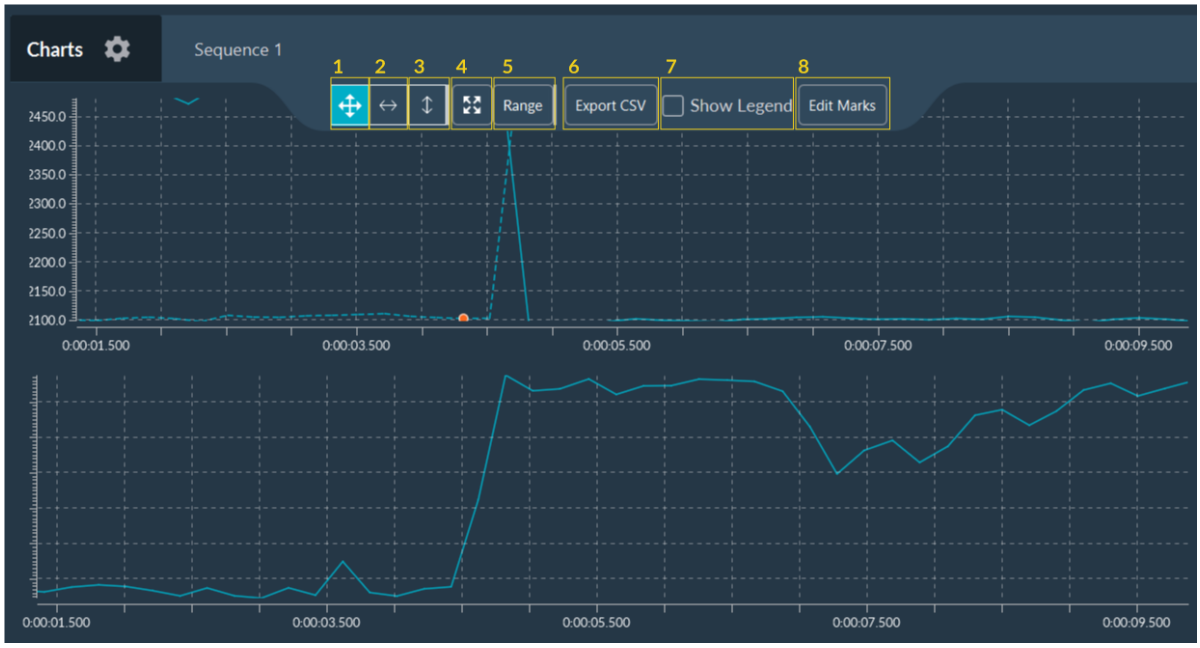
1. Click the **3D** button to launch the volumetric viewer.
2. 3D visualization canvas.
3. Adjust rendering options and parameters:
    1. **Contrast**: Display the LUT and adjust the contrast bar below the 3D view.
    2. **Reset**: Restore the default 3D camera view.
    3. **Advanced**: Access detailed rendering parameters per channel:
        - **Voxel Size** (nm).
        - **Gamma**: Apply a non-linear gamma curve to adjust contrast.
        - **Quality**: Adjust rendering quality for navigation.
        - **Dithering**: Reduce banding/aliasing artifacts.
        - **Render Algorithms**:
            - **MaxProjection**: Displays only the voxels with the maximum intensity encountered along the viewing ray.
            - **IsoSurface**: Renders a 3D surface connecting points of equal intensity value.



Interacting with Graphics

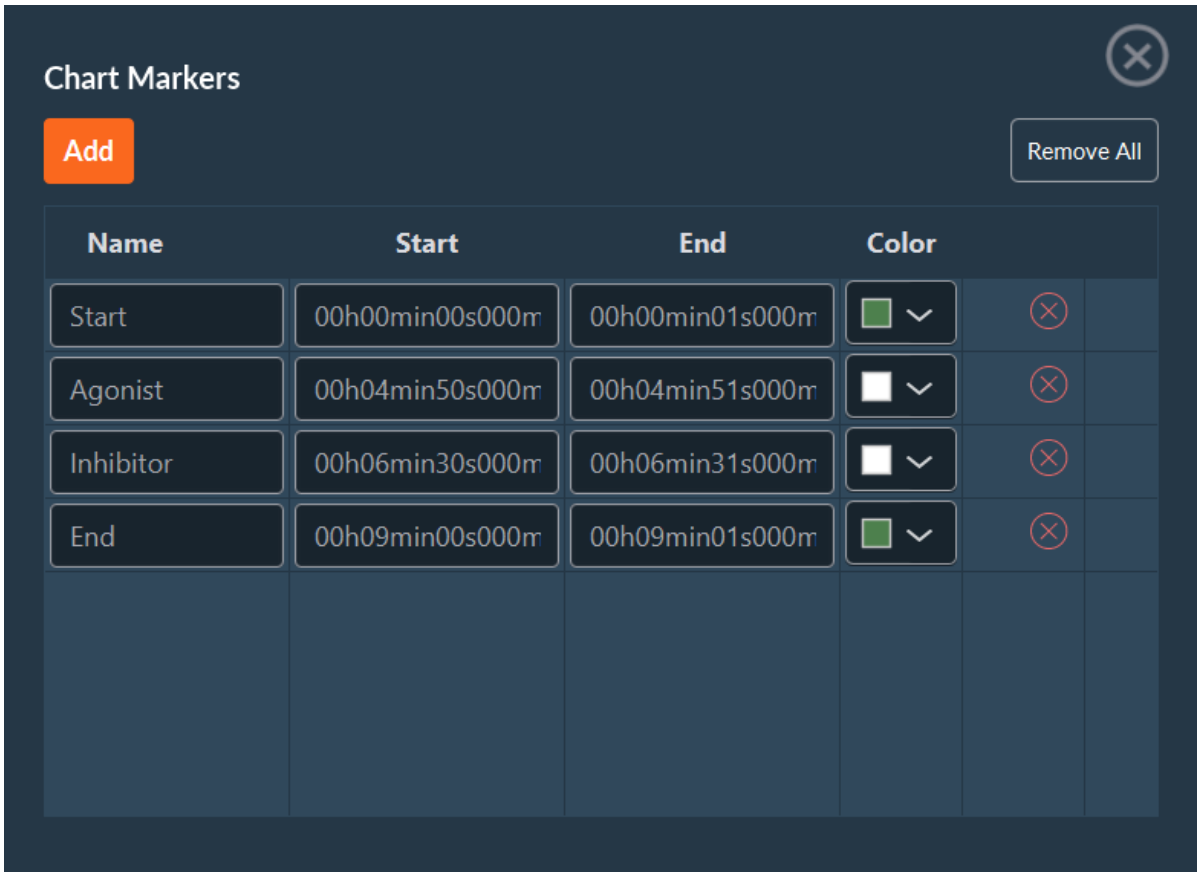
Interact with charts by adjusting their appearance, adding time markers, or exporting raw data. Hover over a graph to access its toolbars.

- **Pan**: Click and drag the mouse wheel (middle click) to pan across the graph.
- **Zoom**: Scroll the mouse wheel to zoom in and out. Click and drag to select a region to magnify.
- **Jump to Image**: Left-click a data point on the graph to view the corresponding image.
- **Reset View**: Right-click within the graph to restore the default axis scaling.



GRAPH TOOLS

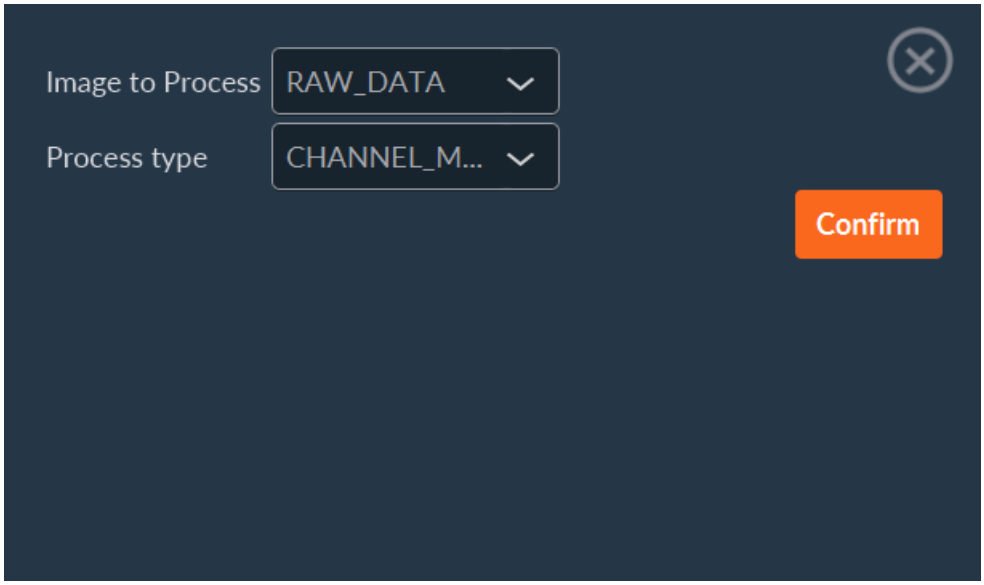
1. Enable the XY zoom mode
2. Enable the X zoom mode
3. Enable the Y zoom mode
4. Reset zoom or enable auto-ranging.
5. Manually override the axis ranges.
6. Export the raw graph data to a `.csv` file.
7. Toggle curve legends.
8. **Add Markers**: Annotate the timeline with event markers. Markers can be exported to a `.csv` file.



Use this window to add information about your experiment as markers. These fully customizable events can relate to the acquisition itself (start, pause, end), external events (addition of an inhibitor, medium supplementation), or others. Save these markers to a `.csv` file and reuse them at any time.

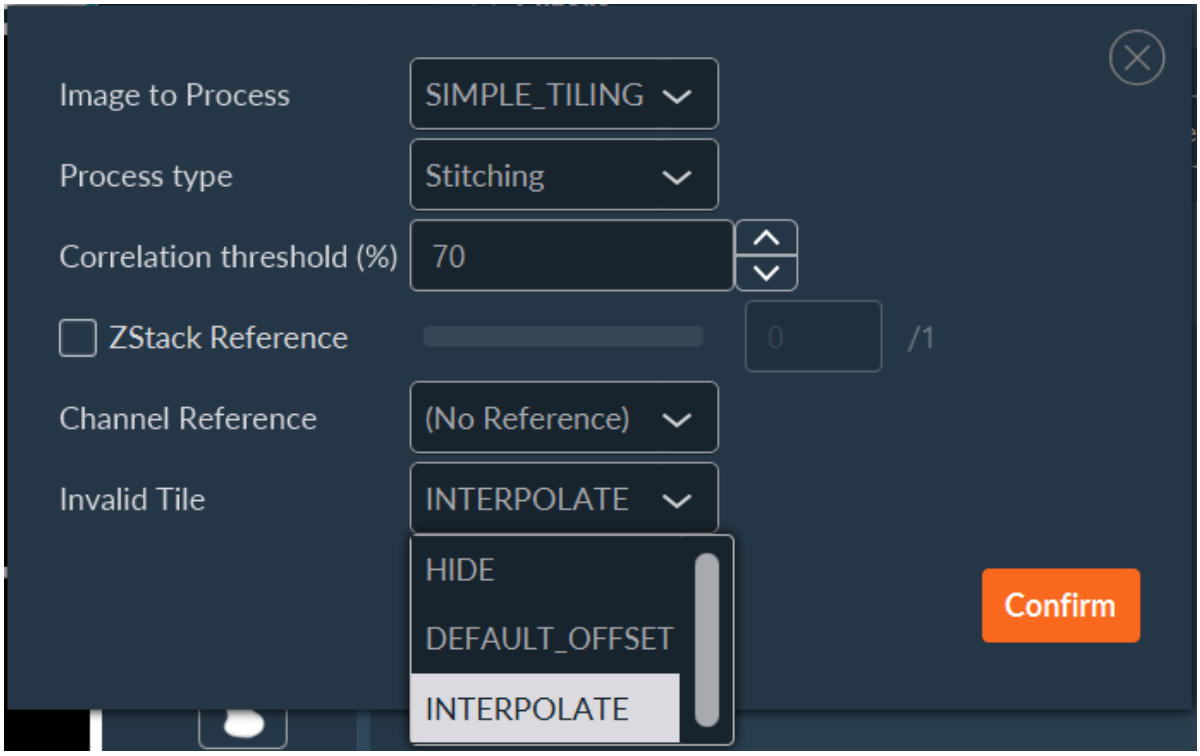
Image Processing

Apply post-acquisition data processing from the Visualization tab.



1. Select the target sequence from the image drop-down list.
2. Choose the desired data processor.
3. Click **Confirm** to execute.

EXAMPLE: TILING STITCHING



1. Select the **image to process**.
2. Select the `Stitching` **process type** (refer to the stitching algorithm for details on the registration and blending calculations).
3. Set the **correlation threshold (%)** for image stitching (the minimum correlation score, T_{corr}, required to validate the alignment between adjacent tiles; boundaries scoring below this threshold are flagged as invalid, triggering the configured fallback behavior).
4. Optional: Select a **Z-stack reference**, i.e. the focus plane used to calculate the stitching coordinates.
5. Optional: Select a **channel reference**, i.e. the channel used to calculate the stitching coordinates.
6. Define the fallback behavior for **invalid tiles** (uncorrelated):
    - `HIDE` : Discard the tile from the final image.
    - `DEFAULT_OFFSET` : Place the tile based solely on its recorded mechanical stage coordinates.
    - `INTERPOLATE` : Interpolate the tile's position based on the calculated offsets of surrounding valid tiles.
7. Click **Confirm**.

Data Export

Export sequences as MP4 videos or multidimensional TIFF stacks via the Export menu (Toolbar Item 7).

VIDEO EXPORT

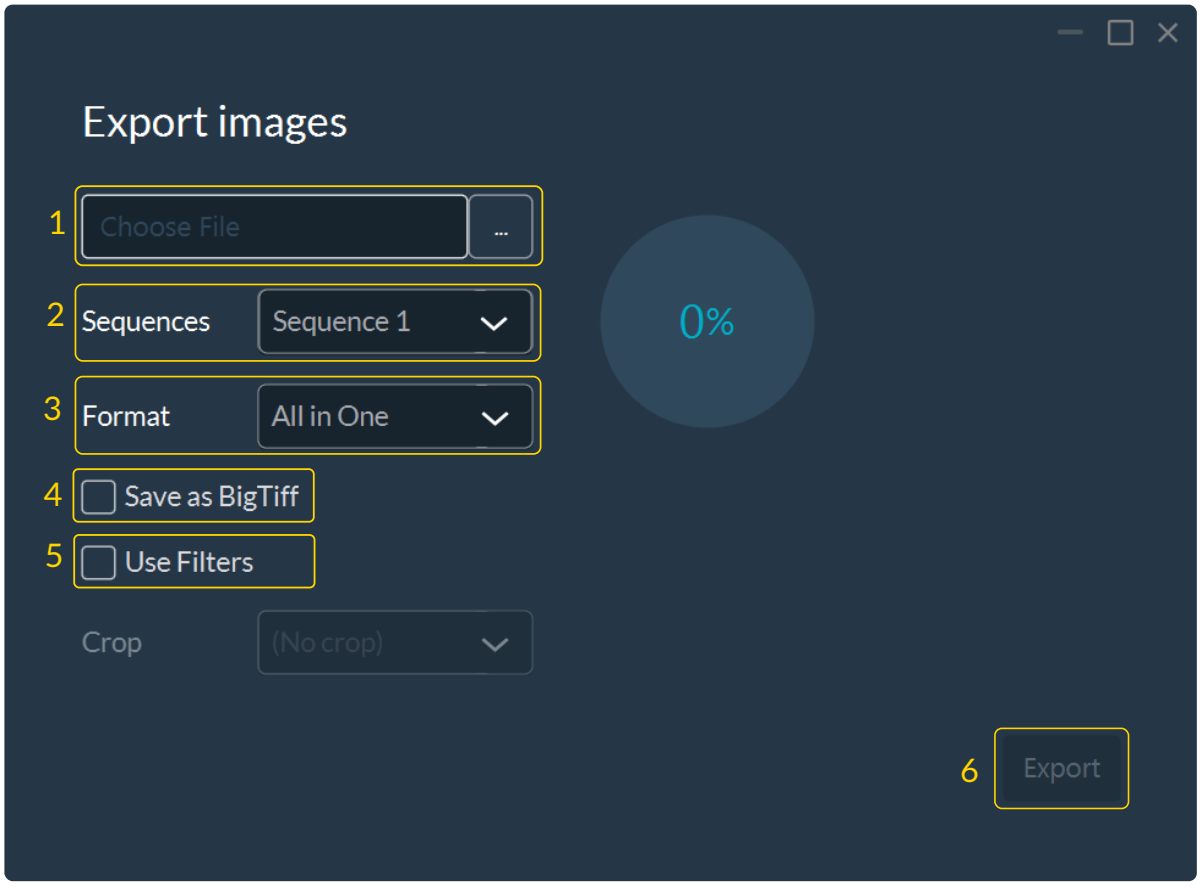
Use dimension filters to isolate the image sequence, then click **Video** from the Export drop-down menu.

To export a video:

1. Select the destination file path.
2. Verify the sequence to export.
3. Select the video format/codec.
4. Click **Export**.

STACK EXPORT

Use dimension filters to isolate images, then click **Stack** from the Export drop-down menu to generate a multidimensional TIFF.

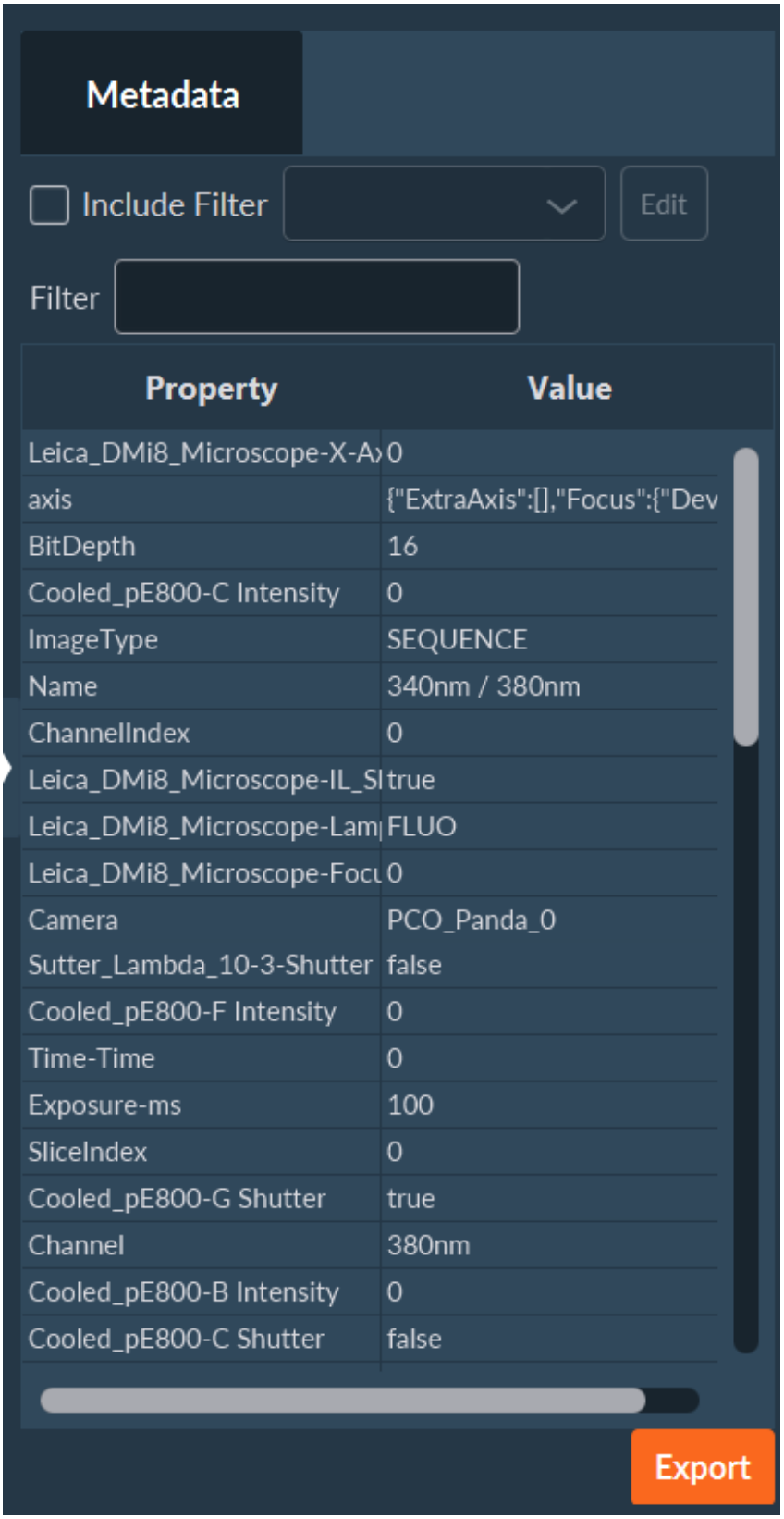


To export a stack:

1. Select the destination file path.
2. Verify the sequence to export.
3. Select the data format.
4. (Optional) Check **Save as BigTiff** if the expected file size exceeds 4 GB.
5. (Optional) Check **Use Filters** to apply your visualization filters to the export.
6. Click **Export**.

Metadata Access

A white triangle appears on the right side of the window. Click it to access all metadata, including the camera, light source, and microscope settings. Use the search bar and filters to locate specific parameters. To export the list, click Export at the bottom right of the screen. All metadata are Bio-Formats compatible.



1.2 Legal

1.2.1 FCC/IC certification

Any changes or modifications to this equipment not expressly approved by Inscoper may cause harmful interference and void the FCC authorization to operate this equipment.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device must be professionally installed.

1.2.2 Copyright

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- US Patent No. US10330911,
- EP Patent No. EP3123149,
- FR Patent No. FR3019324,

This product is updated periodically, and revisions will be incorporated into new editions of the user documentation.

1.2.3 Disclaimer

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