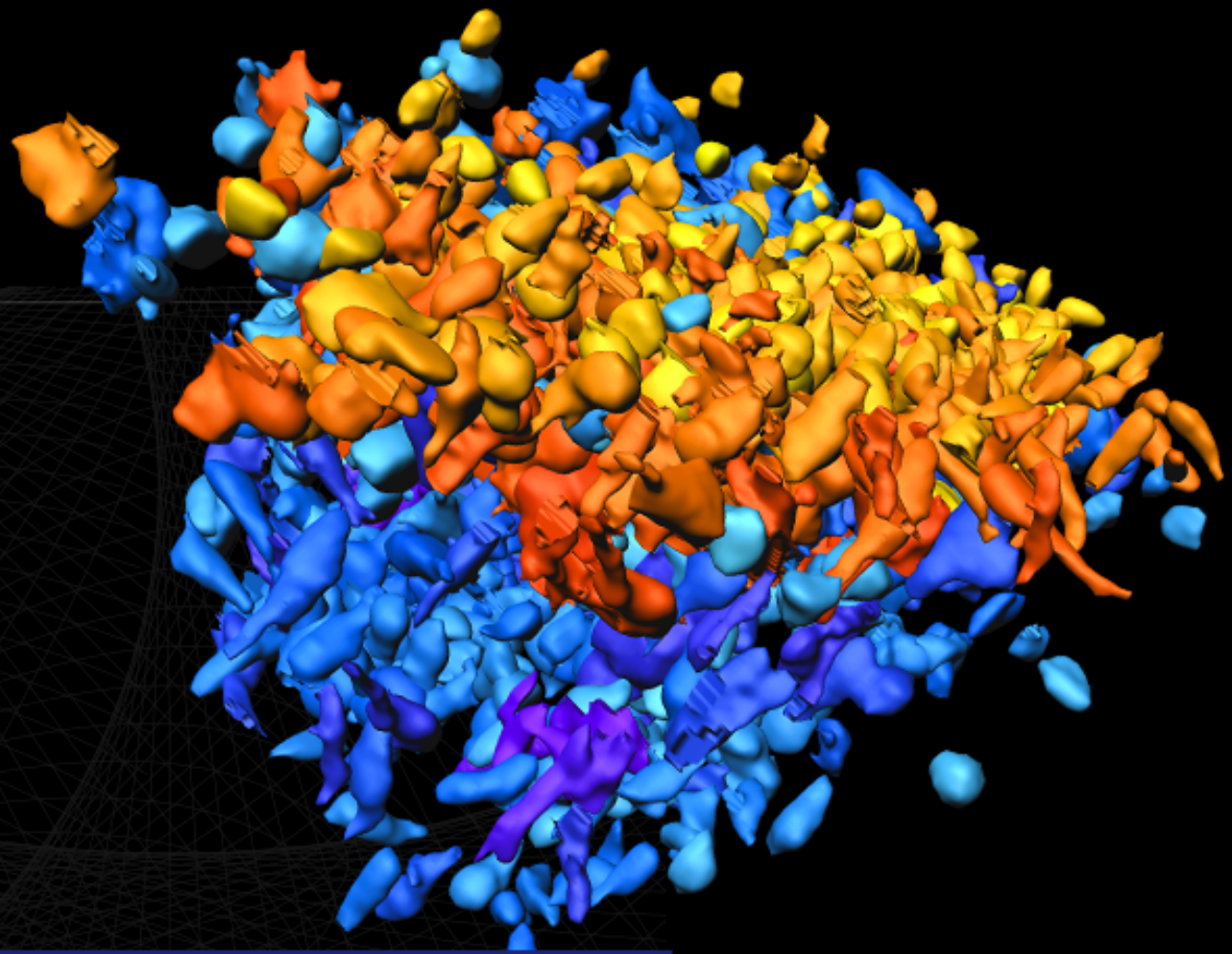
Introduction to

Imaris



Imaris x64
9.0.2 [Oct 10 2017]
Build 44695 for x64

www.imaris.com
welcome@imaris.com

BITPLANE
an Oxford Instruments company

7th November 2017

Course Schedule

09:30-10:30	**Session 1 – Understanding the Basics**
10:45-12:30	Session 2 – Initial Scene Objects, Taking Snapshots and Making Movies
13:30-15:00	Session 3 – Creating Spots and Surfaces, Annotation
15:30-17:00	Session 4 – Creating Cells

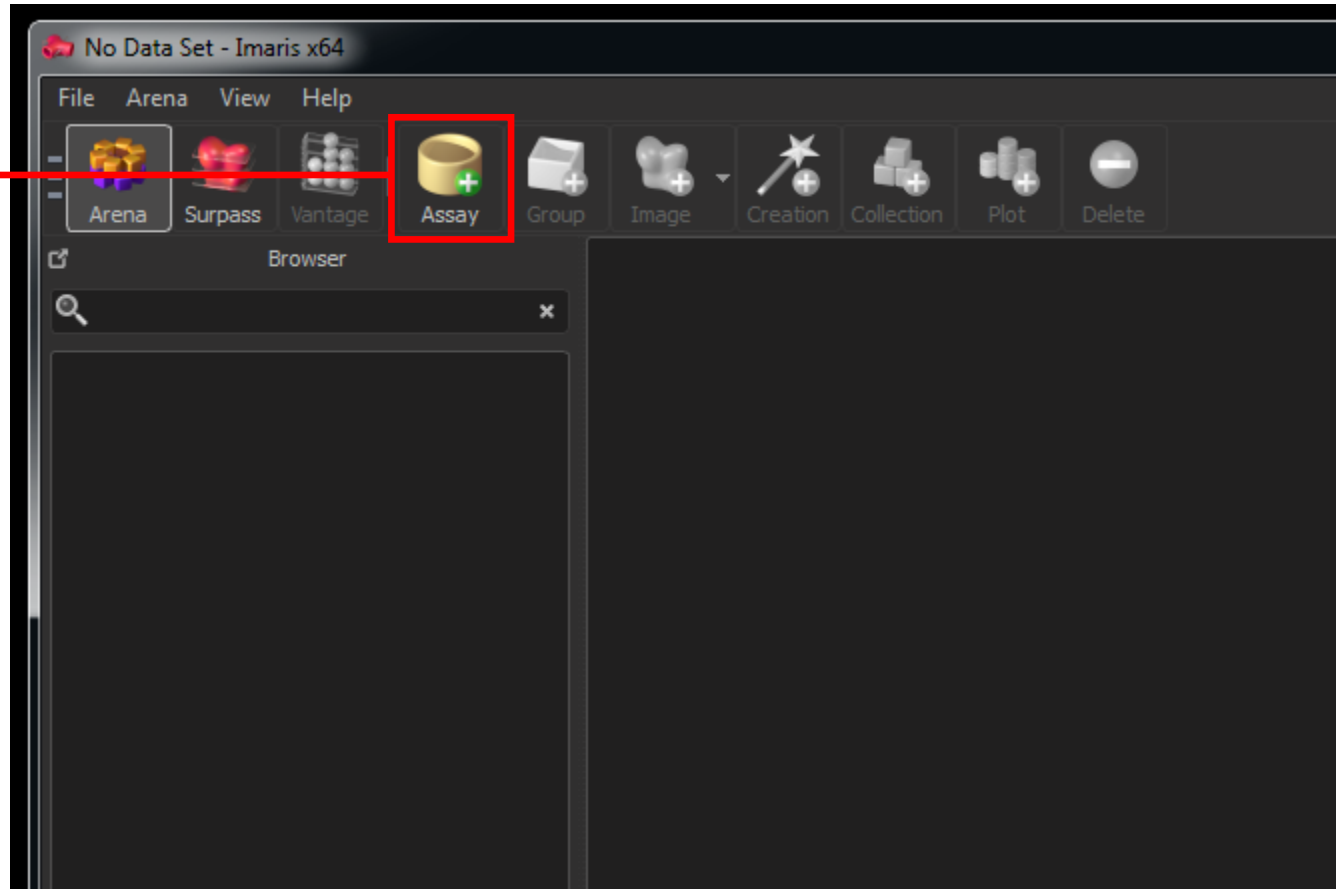
Session 1 – Understanding the Basics

1. Using Arena to upload and organise your images
2. Understanding the basic interface
3. Adjusting brightness and contrast
4. Editing look-up tables
5. Checking image parameters
6. Group Exercise

	 Imaris Start	 Imaris for Adv. Tracking	 Imaris Single Full	 Imaris for Neuroscience	 Imaris for Cell Biologists	 Imaris Whole Slide
Imaris Core Render 3D/4D images, detect objects, snapshot & animation	✓	✓	✓	✓	✓	✓
Imaris MeasurementPro Report and interact with detected object measurements	✓	✓	✓	✓	✓	✓
Imaris Coloc Visualize and quantify colocalized regions	✓	✓	✓	✓	✓	
Imaris Vantage Plot in 1D-4D, compare groups with statistical tests	✓	✓	✓	✓	✓	✓
Imaris TrackLineage Track motion in 2D/3D, detect divisions, create lineage tree		✓	✓	✓	✓	
Imaris Filament Tracer Trace filamentous structures, neurons, vessels, detect spines			✓	✓		
Imaris Cell Segment and analyze cells and their compartments			✓		✓	
Imaris XT Customize analysis with Matlab, Python, Java, R			✓	✓	✓	
Imaris Batch Utilise saved protocols for batch analysis			✓			

Getting Your Images Into Imaris

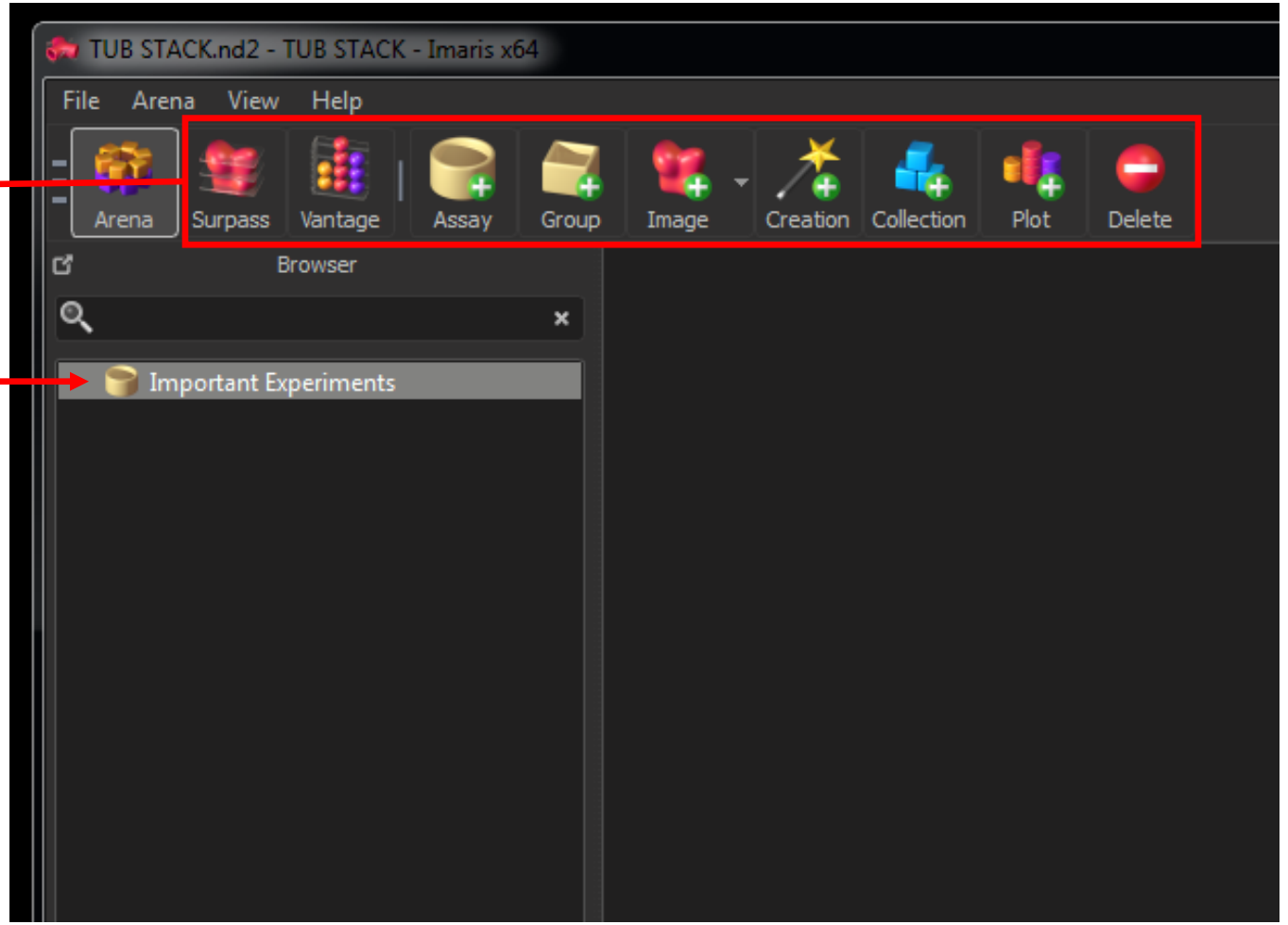
Create an Assay as the top level of your image database



Getting Your Images Into Imaris

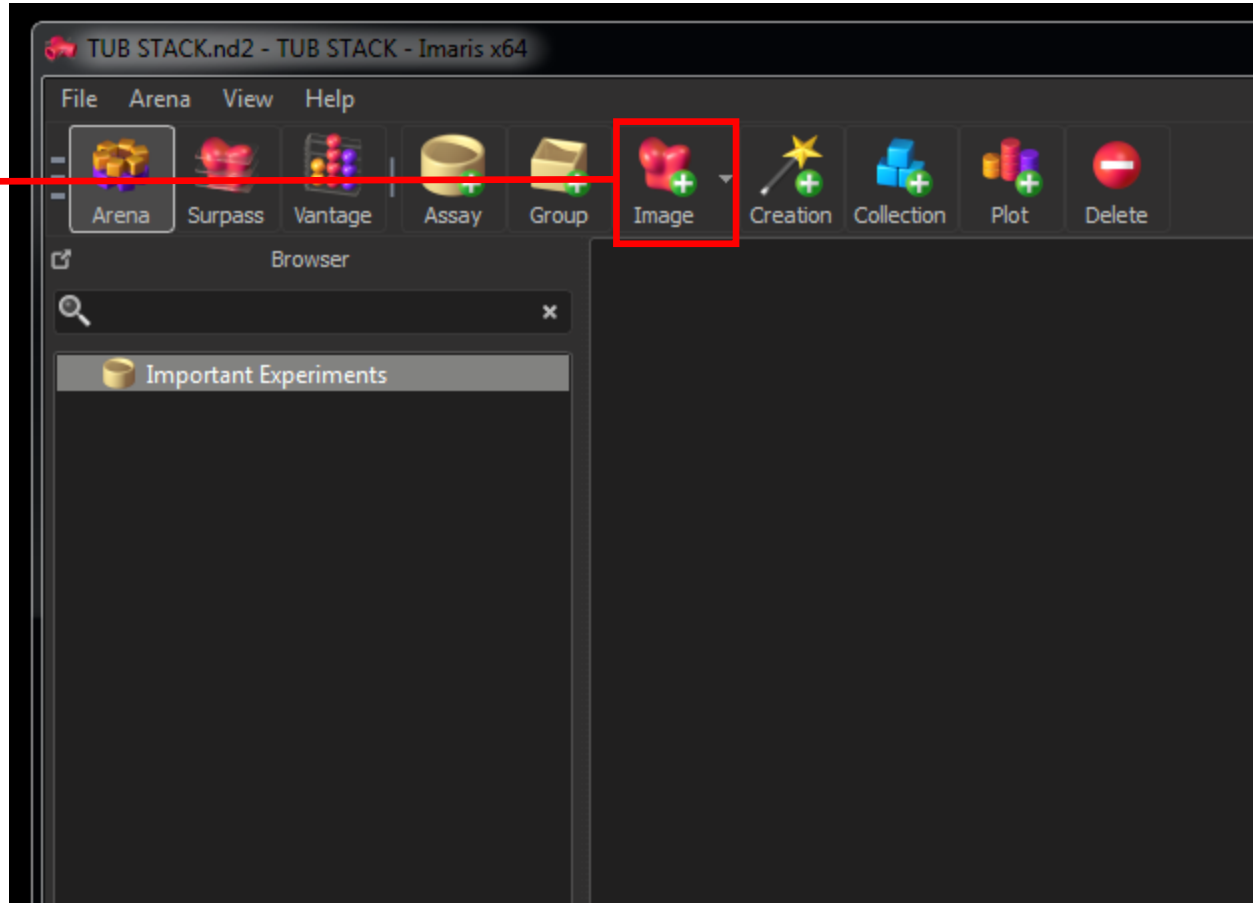
Other menu options available

New item in the Arena Tree

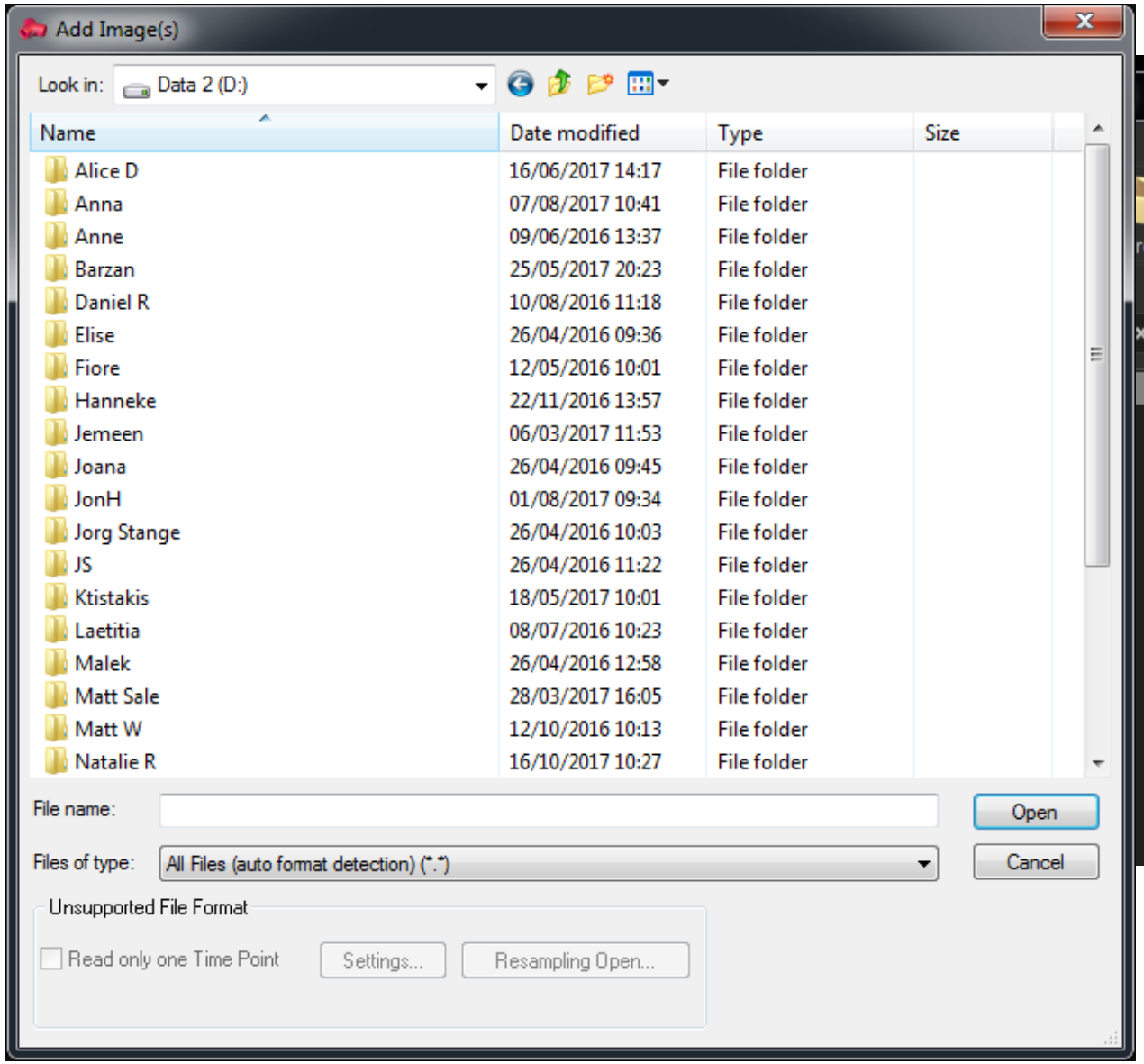


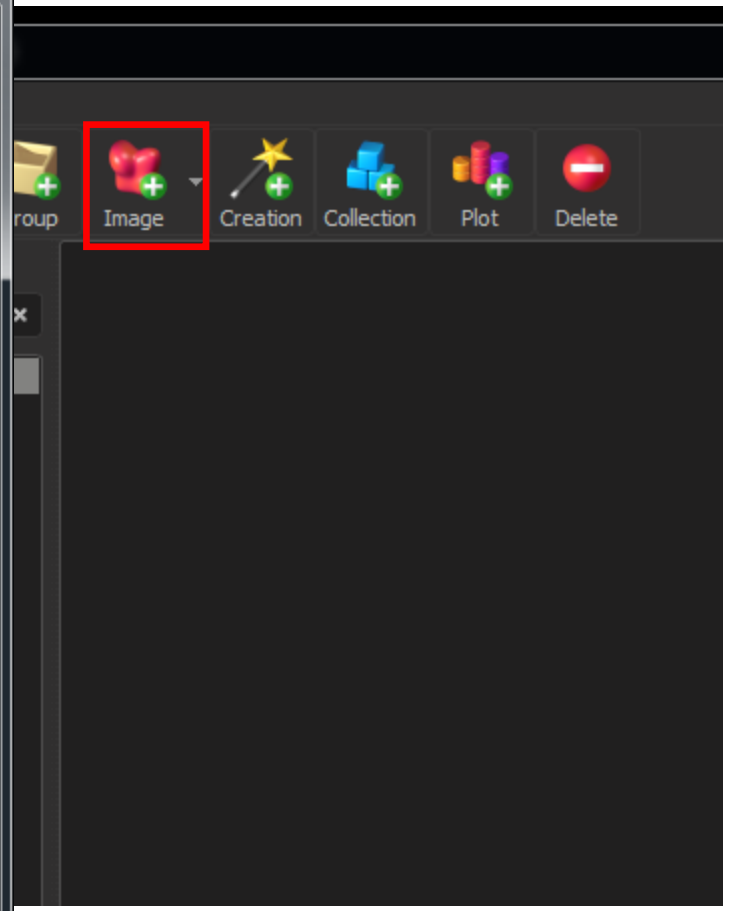
Getting Your Images Into Imaris

Click on Image

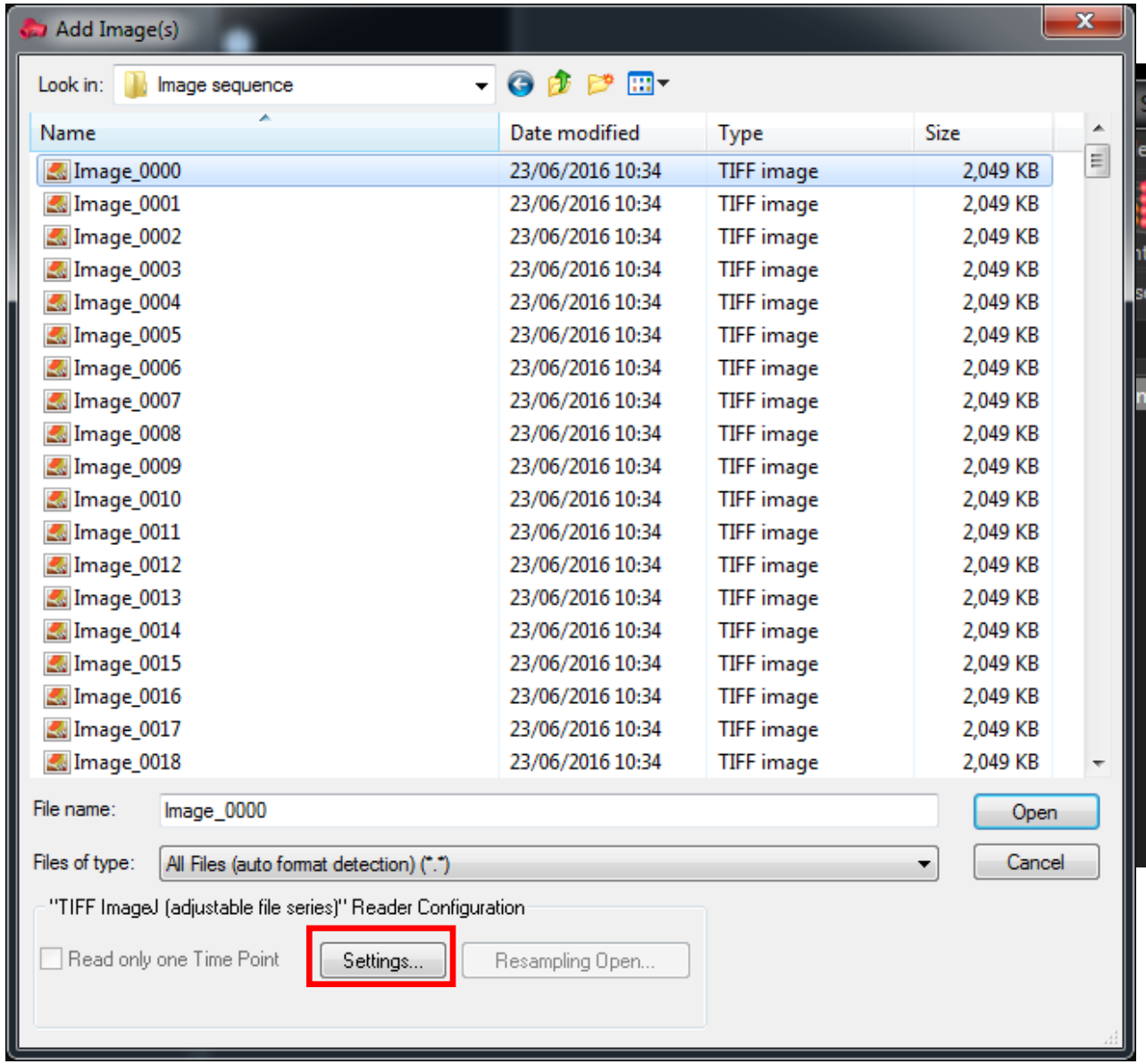


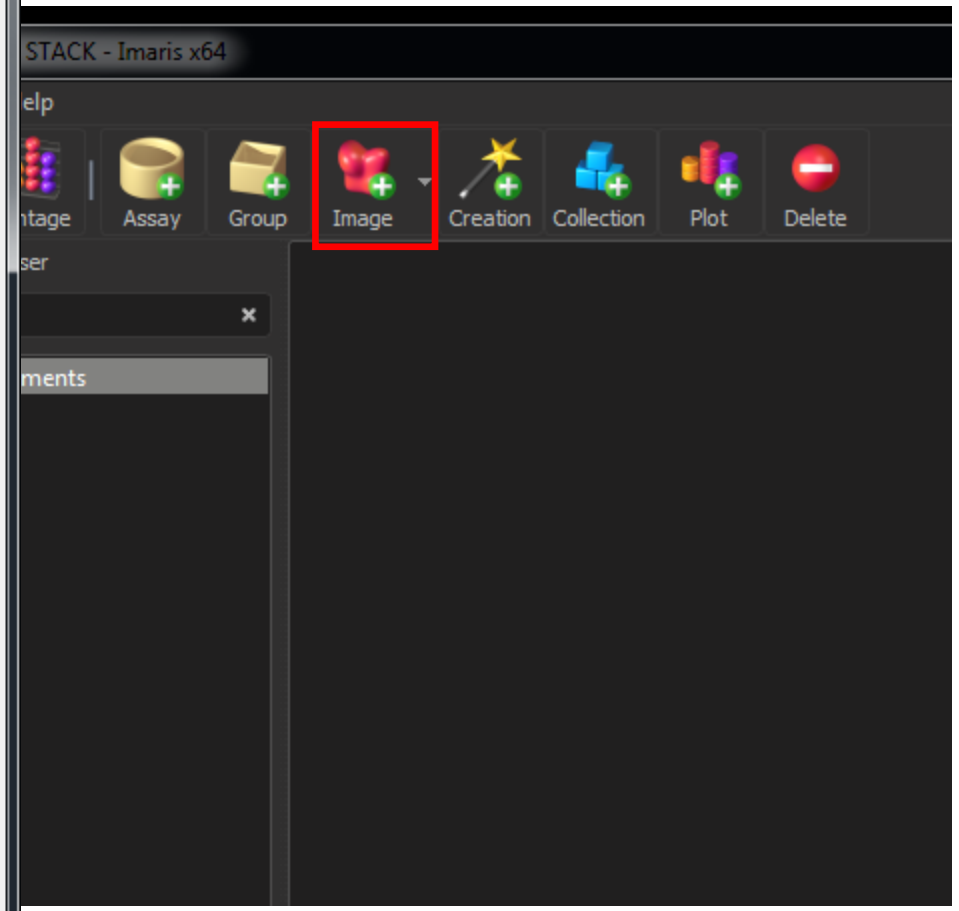
Getting Your Images Into Imaris



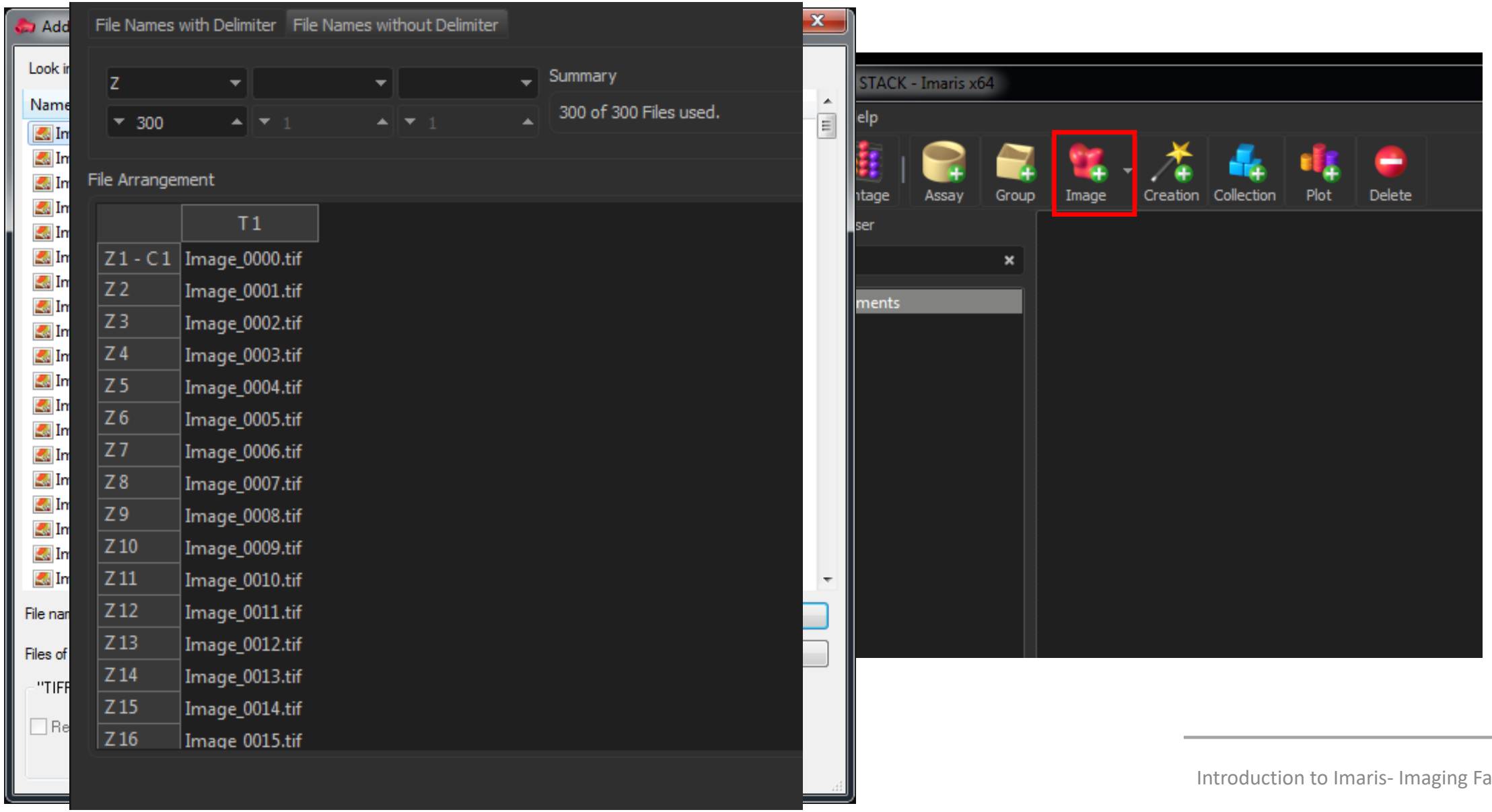


Getting Your Images Into Imaris





Getting Your Images Into Imaris

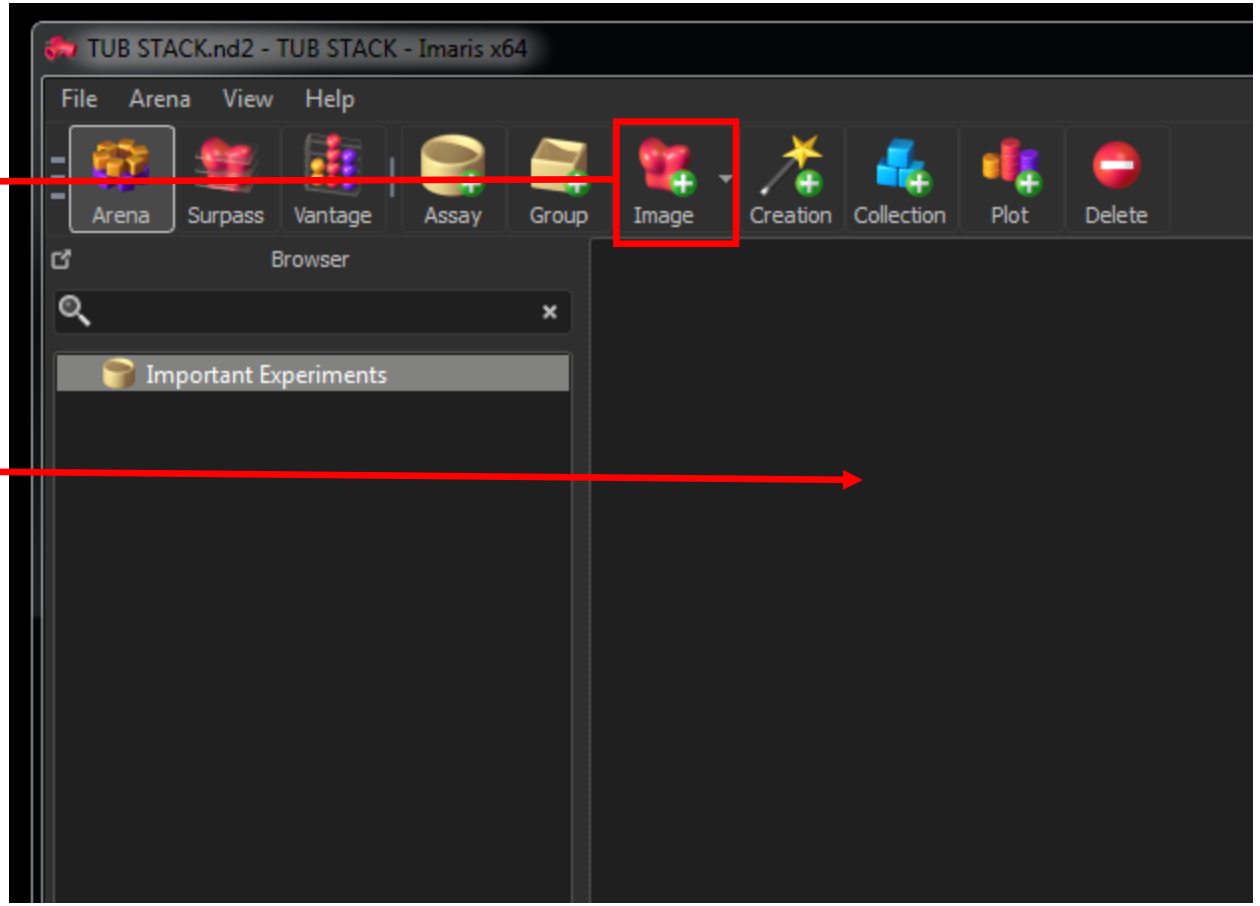


Getting Your Images Into Imaris

Click on Image

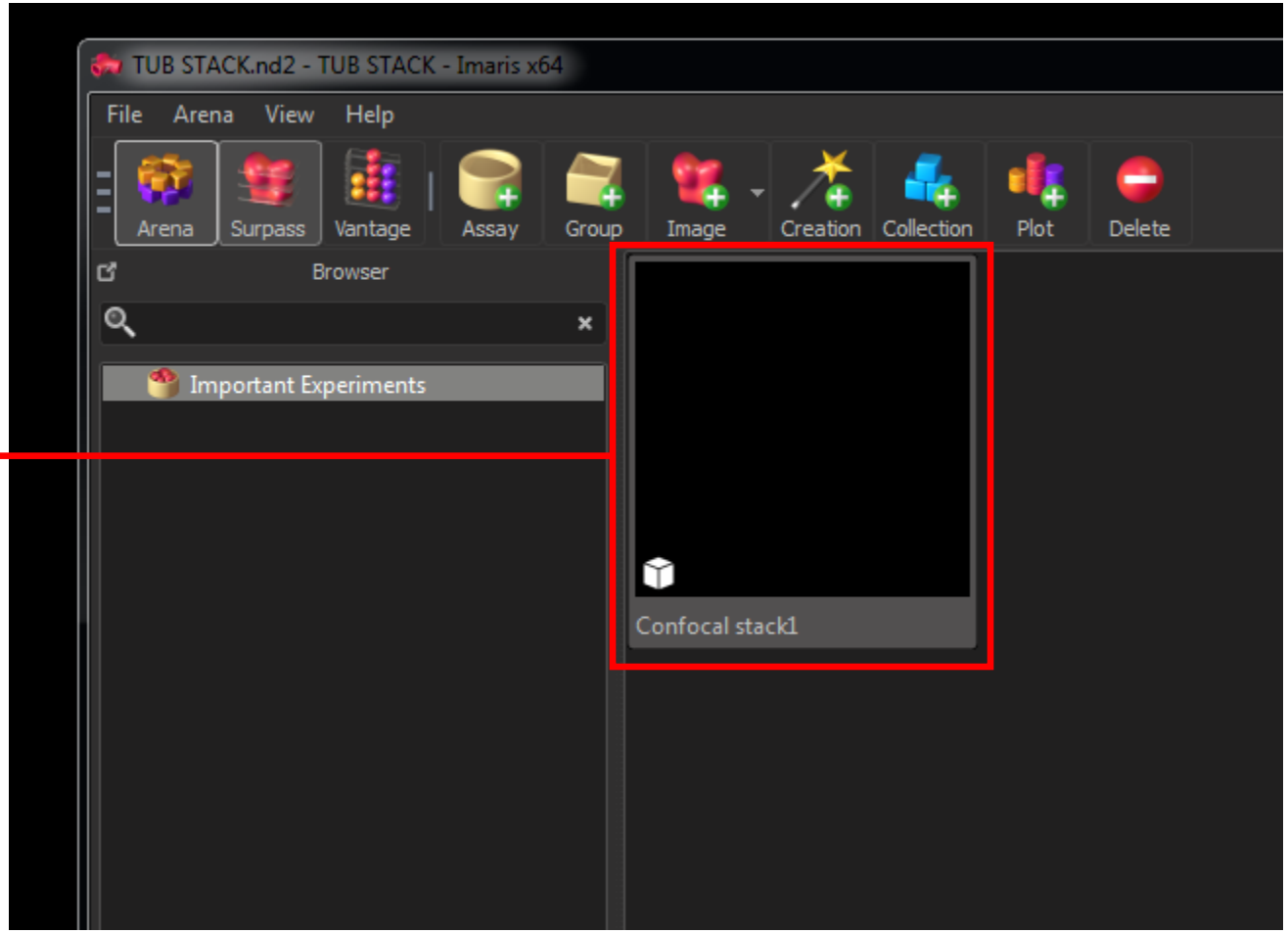
or

Drag file directly into Arena View



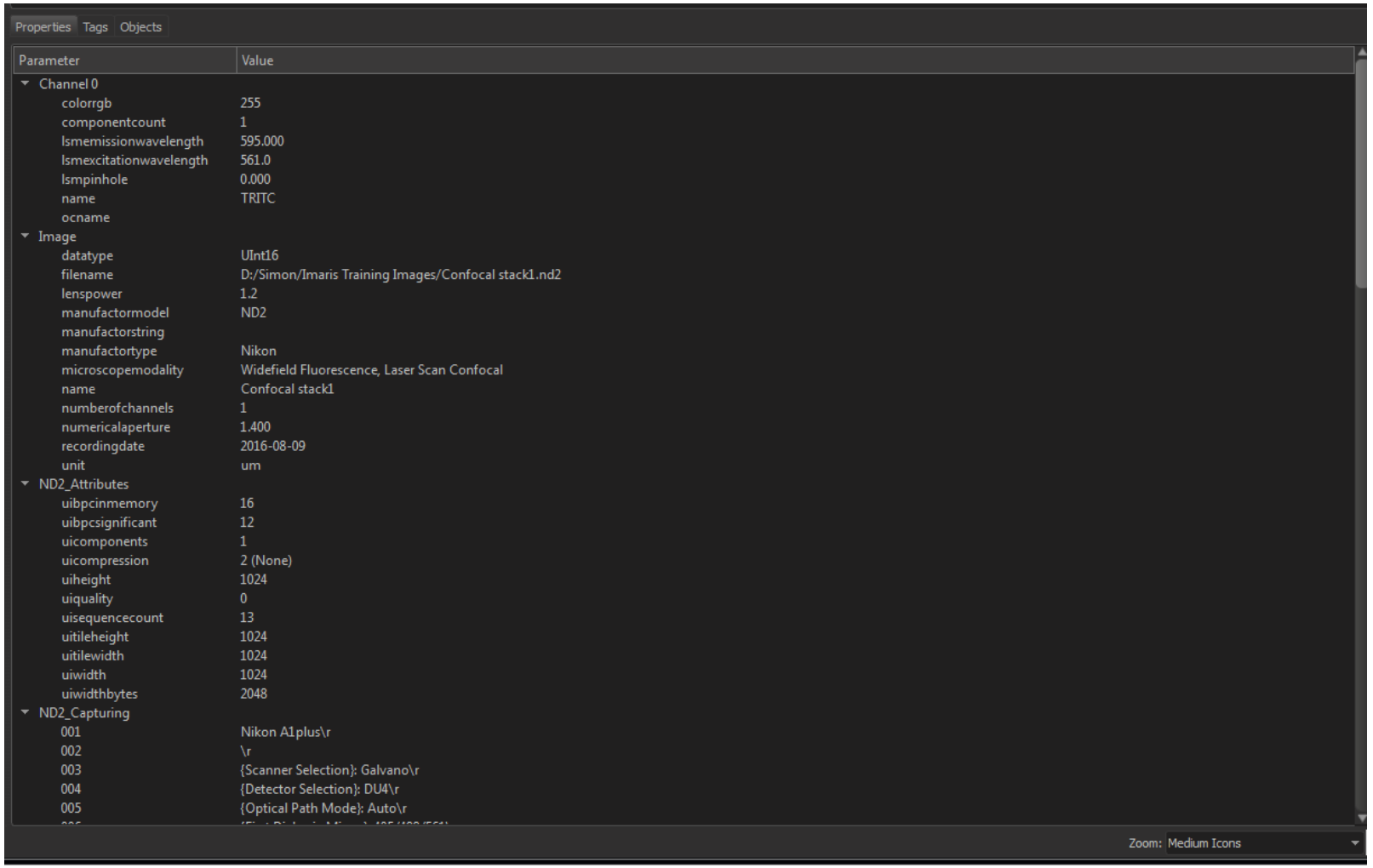
Getting Your Images Into Imaris

New item in Arena View



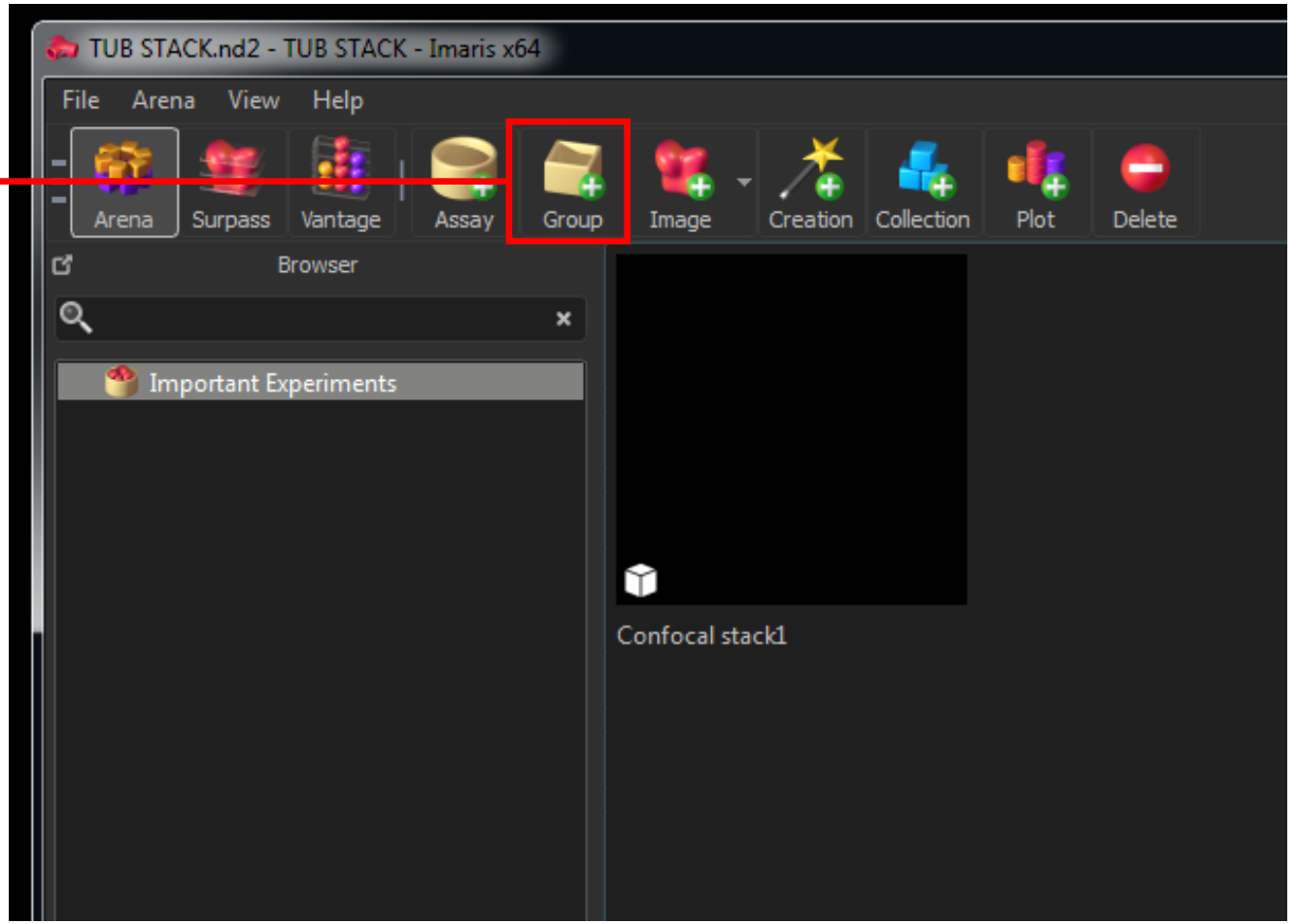
Getting Your Images Into Imaris

Single left-click on thumbnail to see image properties



Organising Your Images In Arena

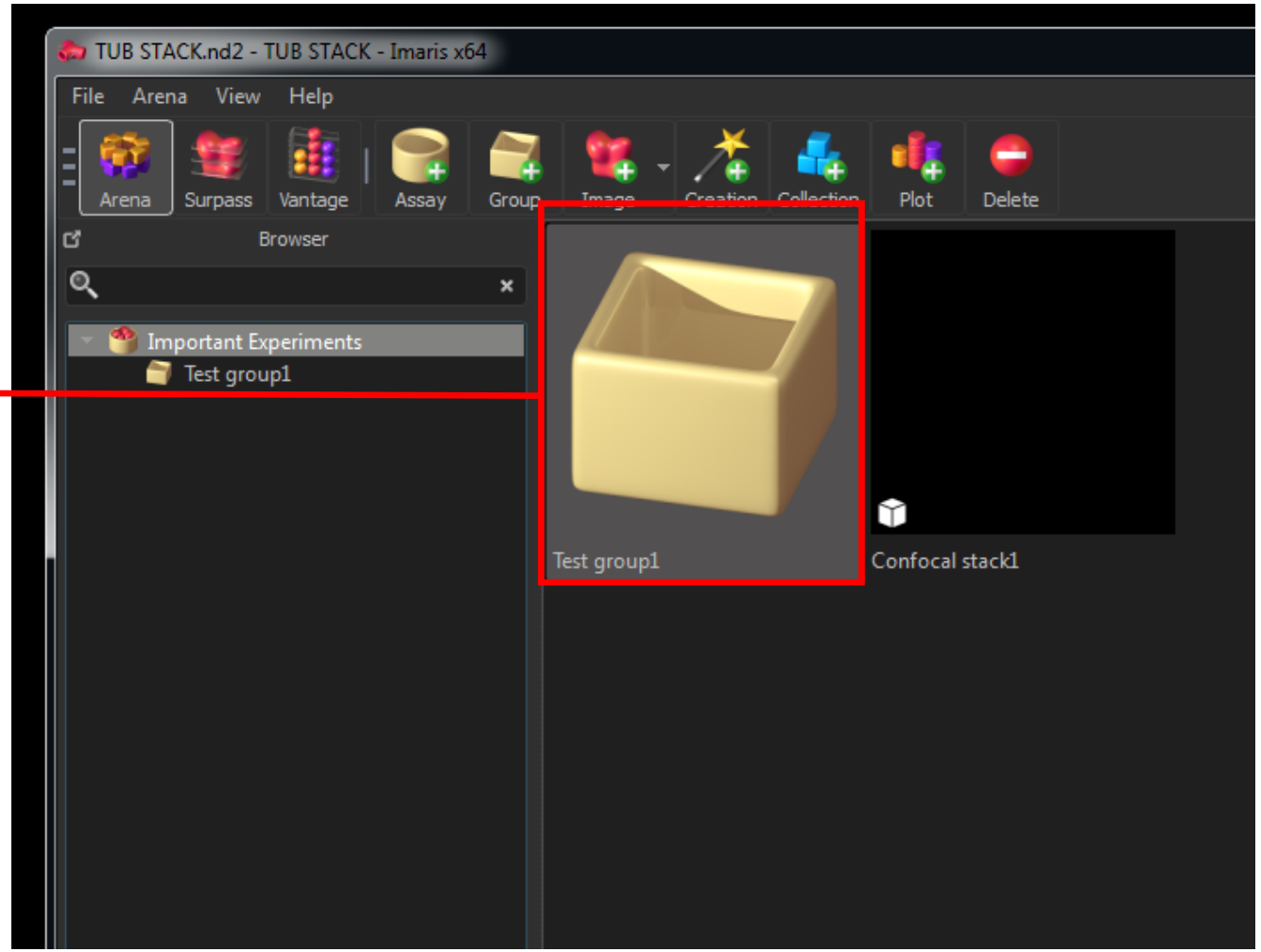
Create a Group as a sub-folder within your assay



Organising Your Images In Arena

New empty container

- Double-click to see contents
- Drag in image files to create new entries
- Drag in thumbnails from Arena View to duplicate

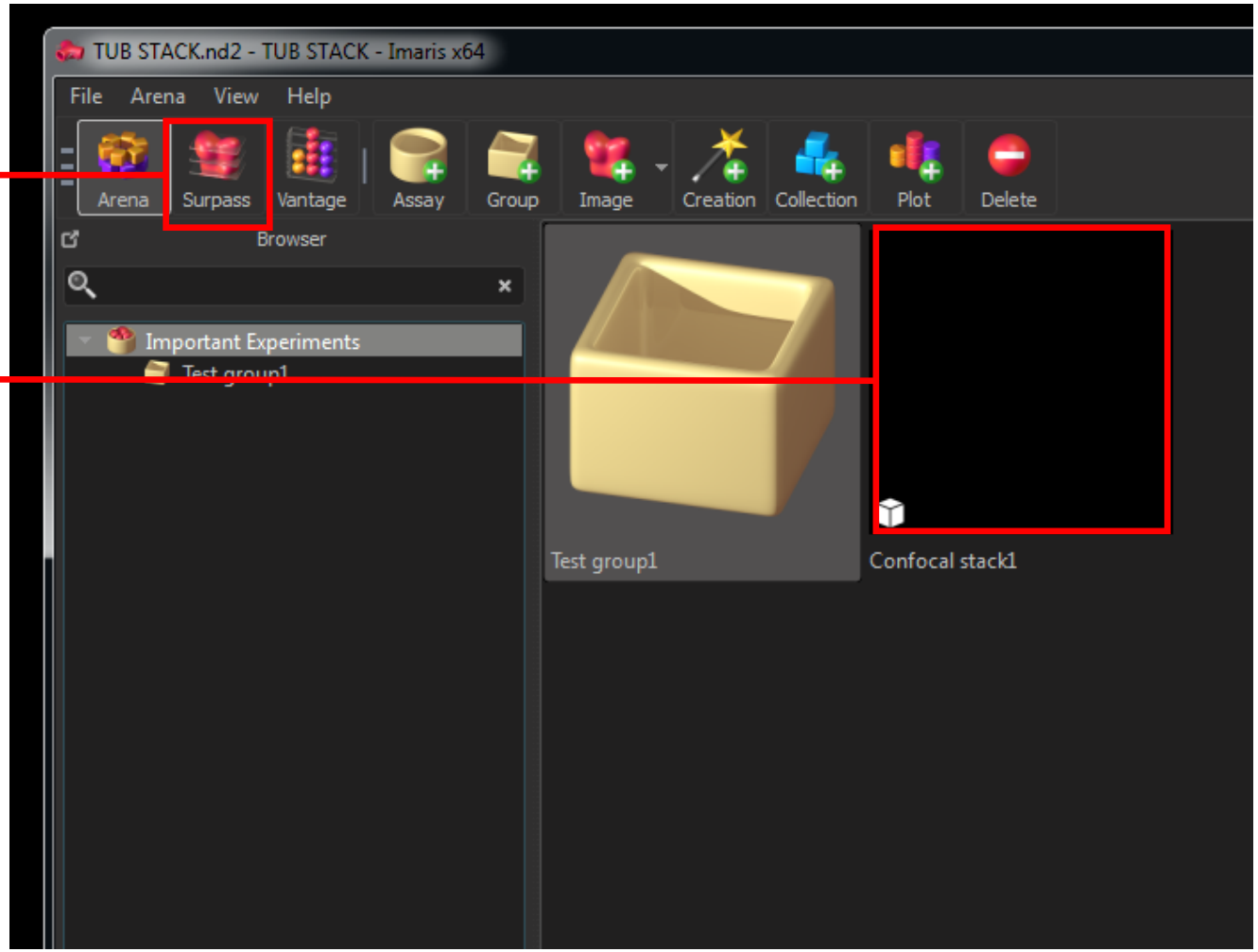


Viewing Your Image Data

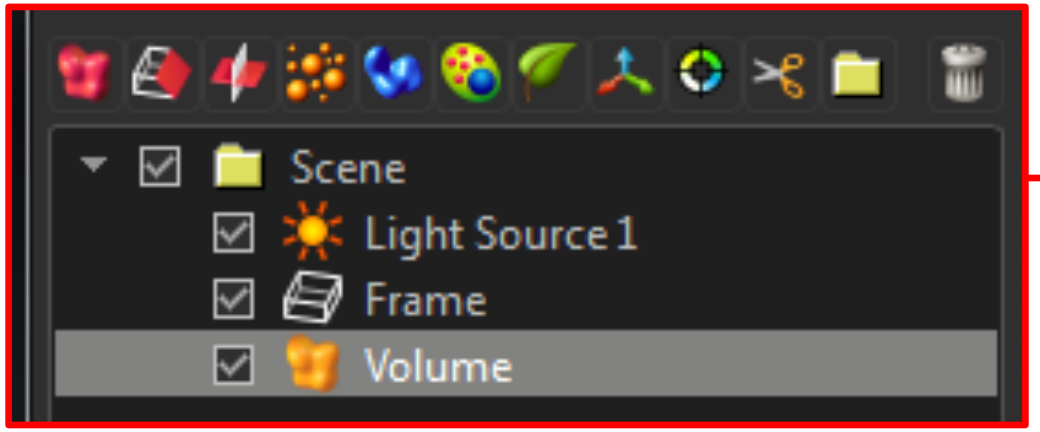
Click on ‘Surpass’

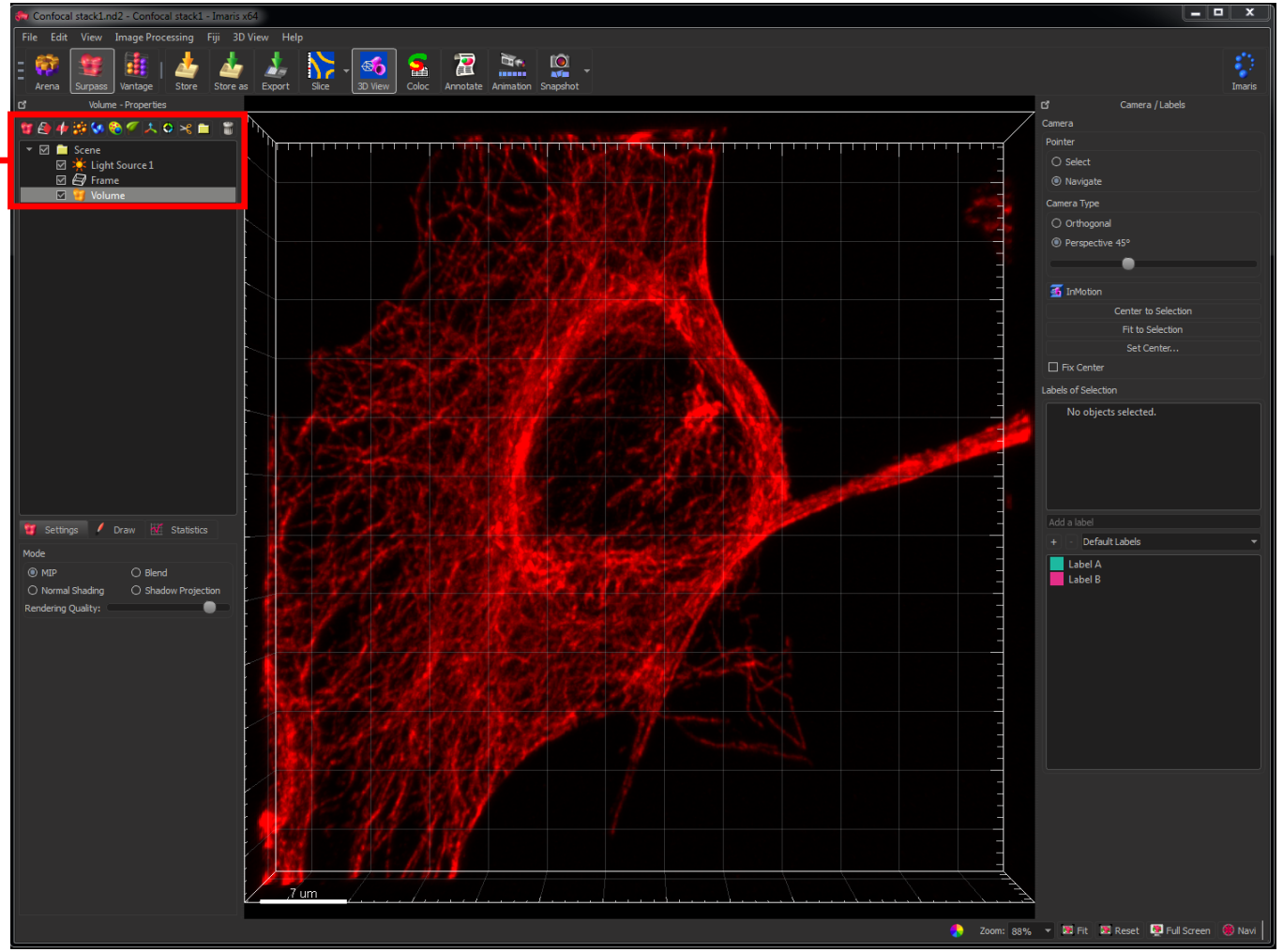
or

Double click on image thumbnail



Viewing Your Image Data



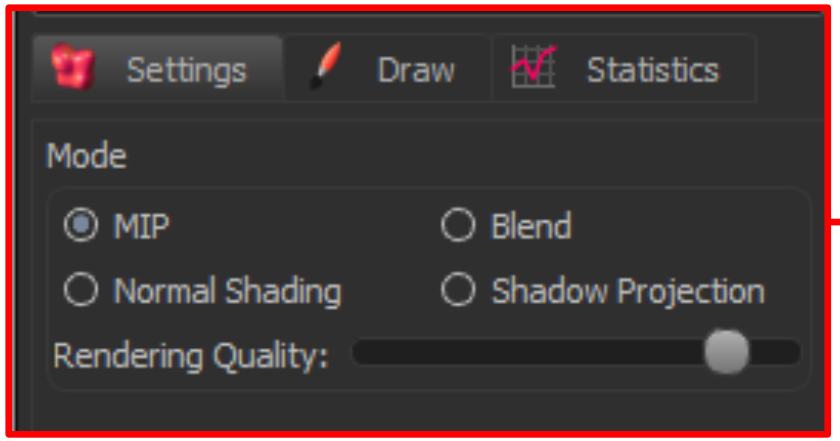


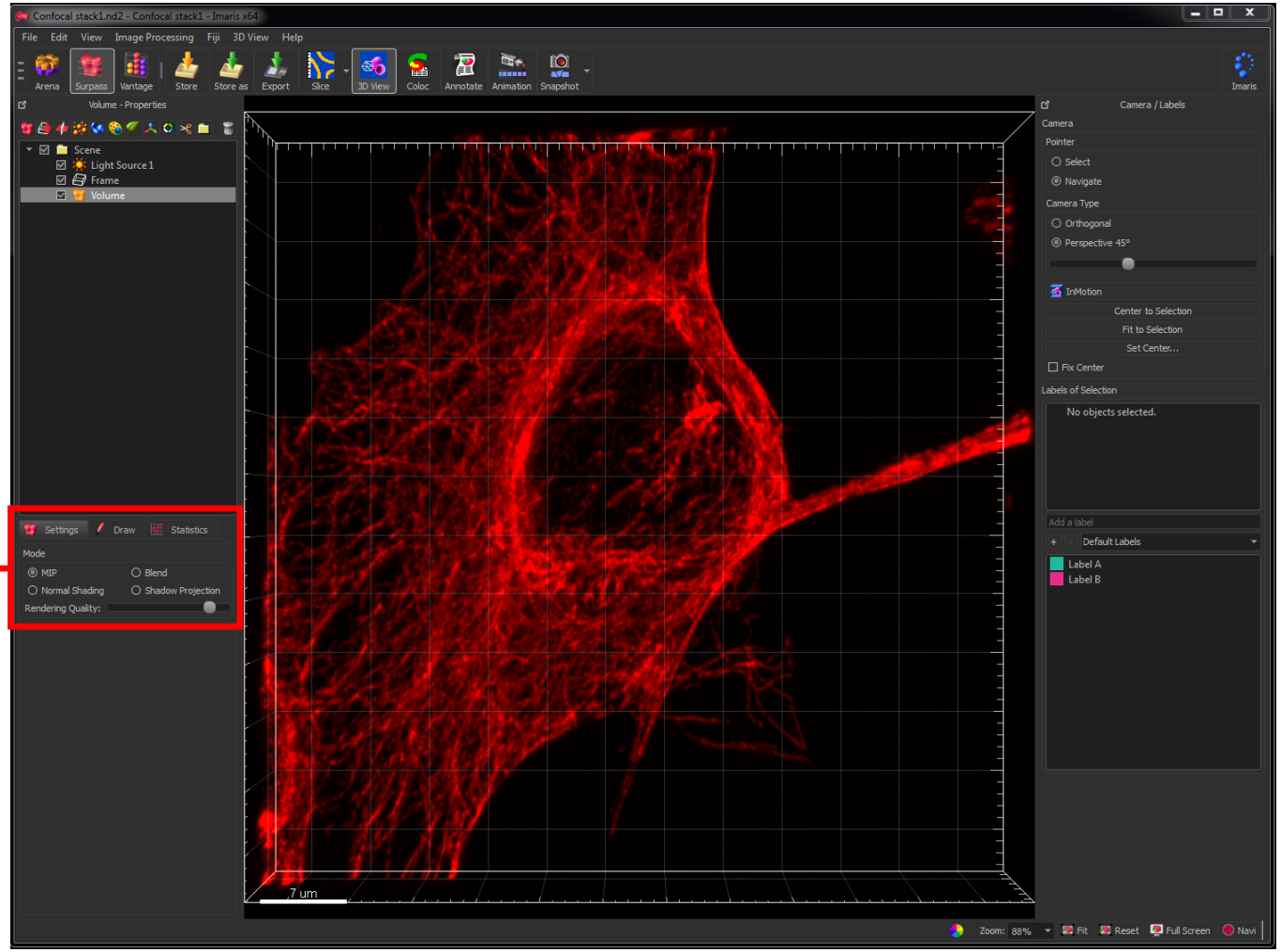
Object List

All components in the scene are shown

Viewing Your Image Data

Object Properties
Details relating to the selected object are shown



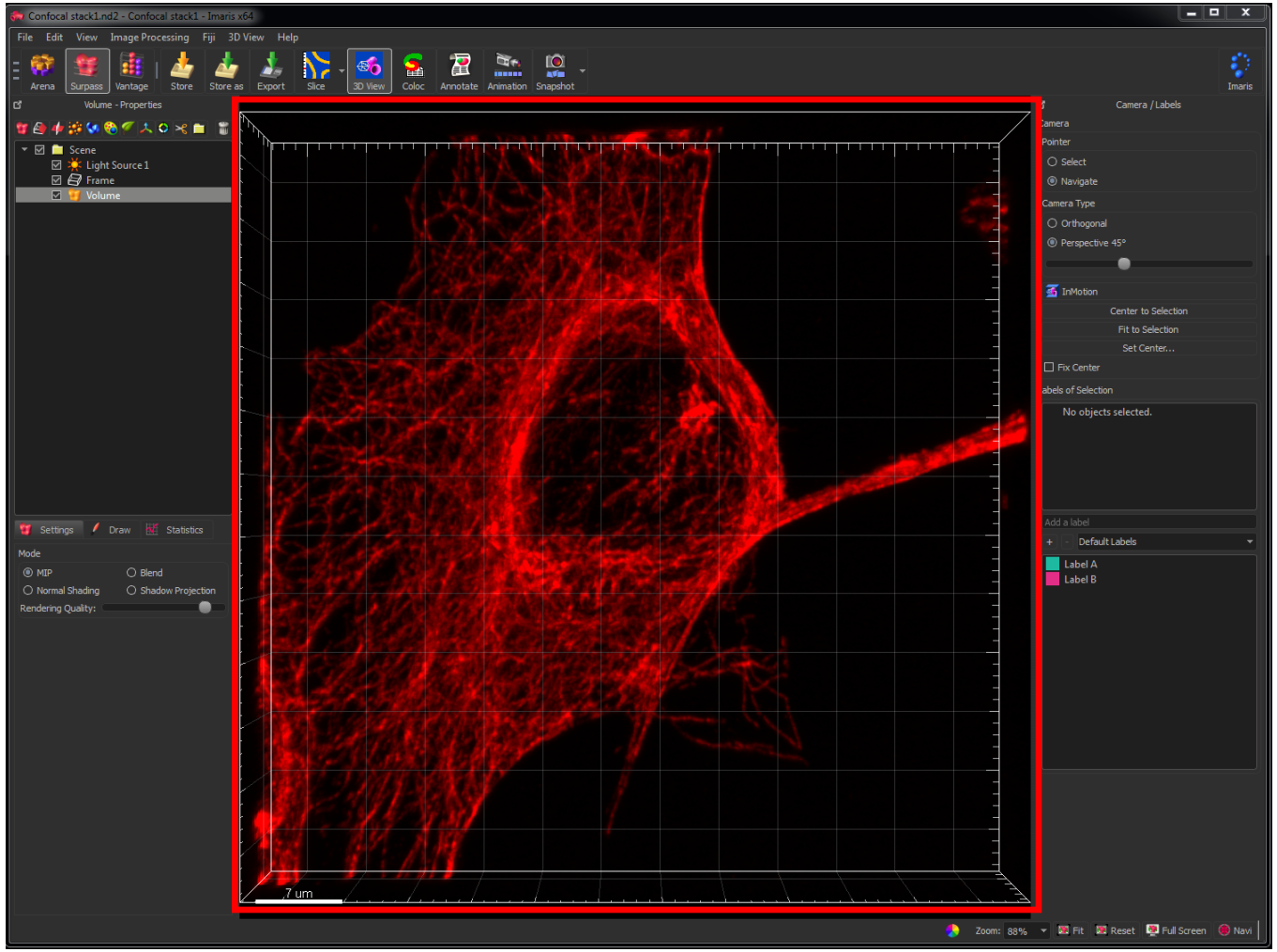


Viewing Your Image Data

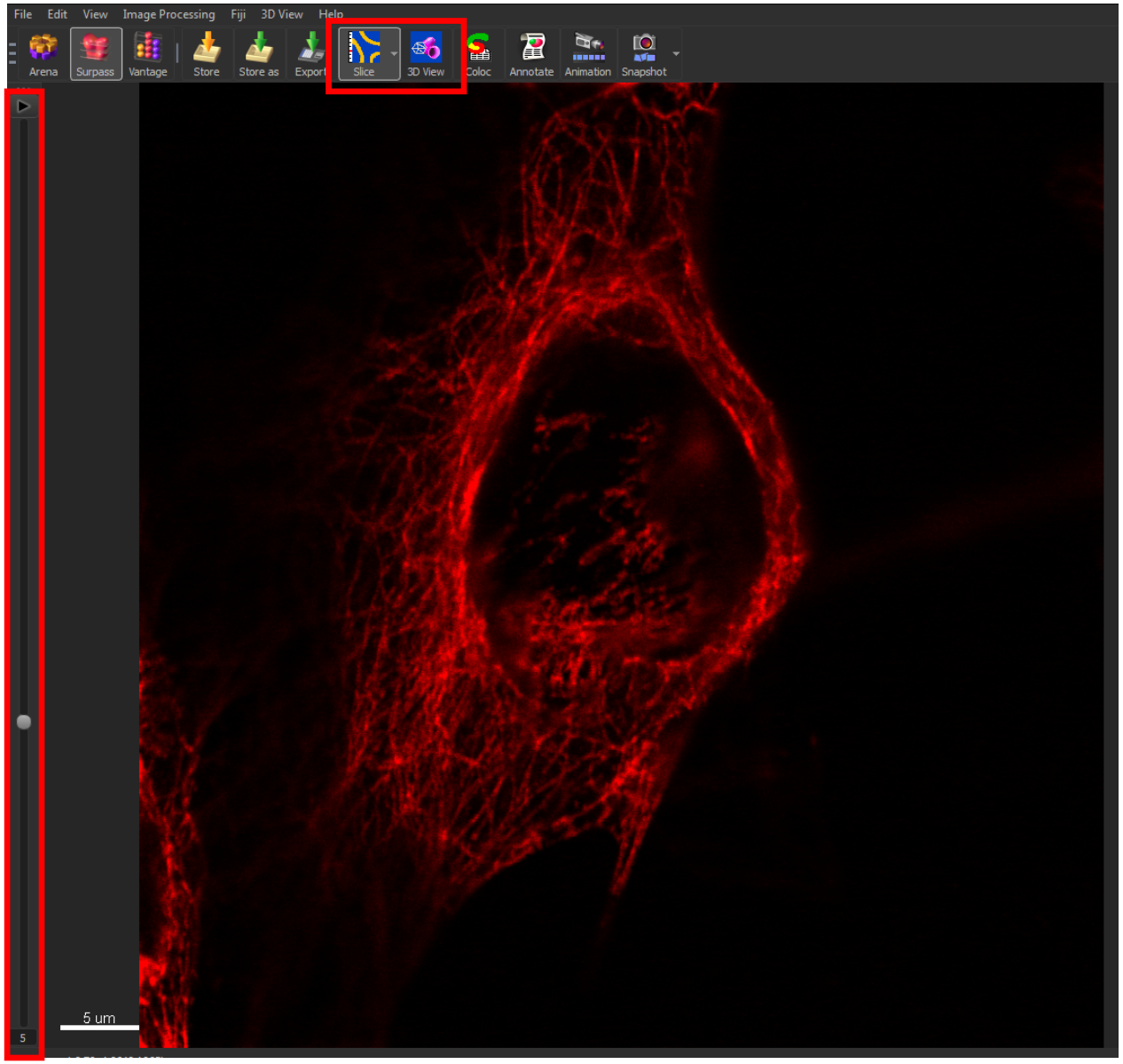
View Area

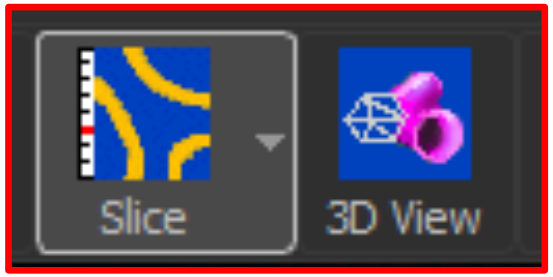
Display/interaction area for images and objects.

- Left-click to rotate 3D view
- Right-click to pan
- Mouse wheel to zoom in/out



Viewing Your Image Data

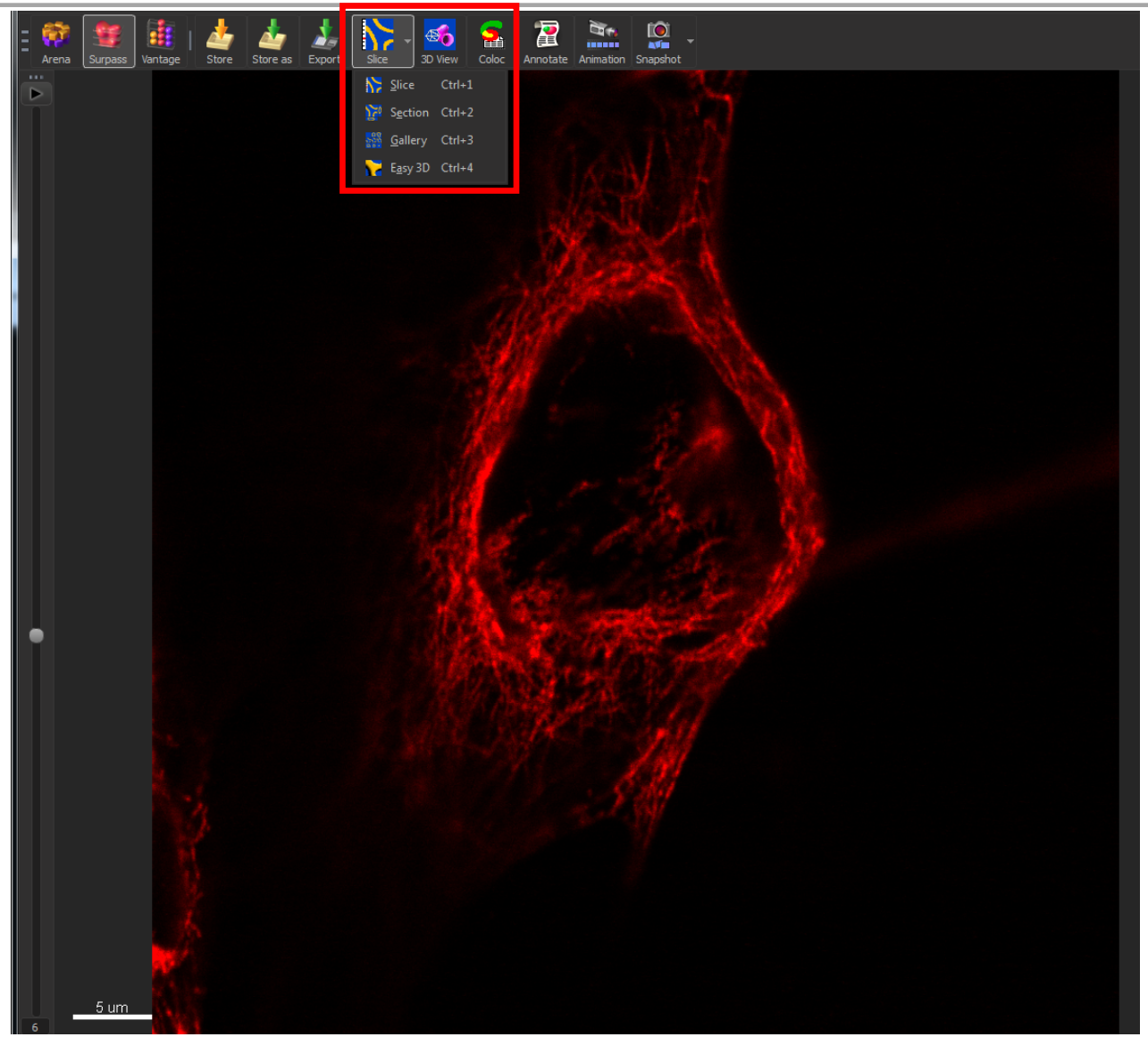


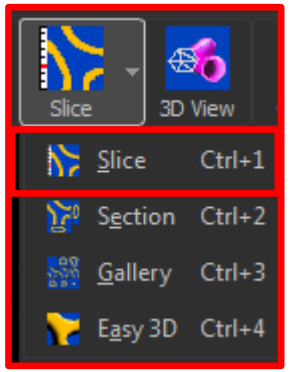


Slice View

- Switch to slice view to see raw image data
- Click and drag on the left hand slider to move between the image slices
- Click on the  icon to play the image sequence

Viewing Your Image Data

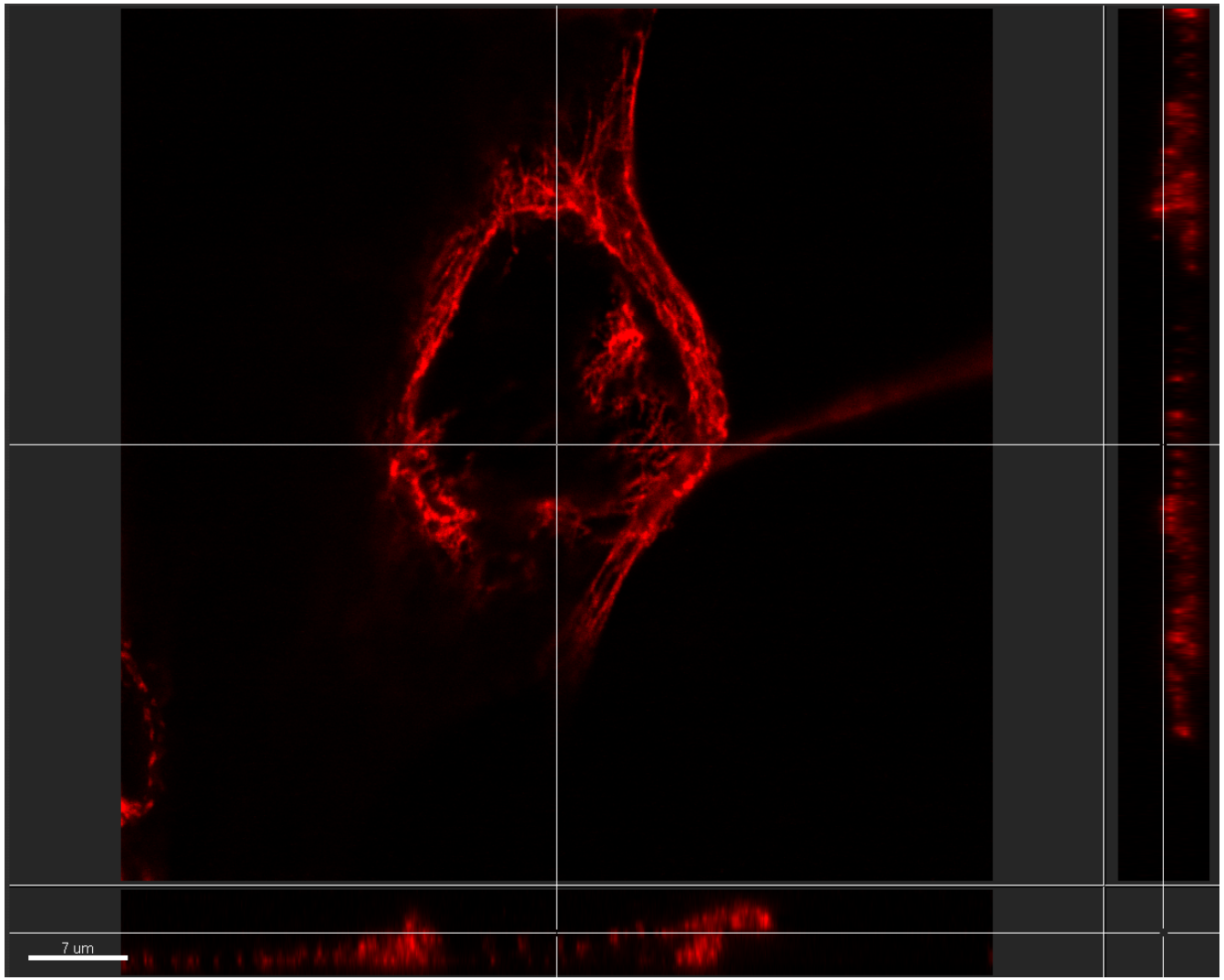


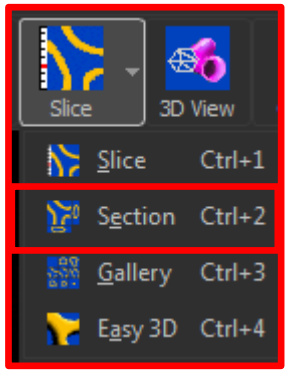


Slice View Options

- Slice view shows individual images
- Section shows Orthoganol views
- Gallery shows section thumbnails
- Easy 3D shows maximum intensity projection

Viewing Your Image Data





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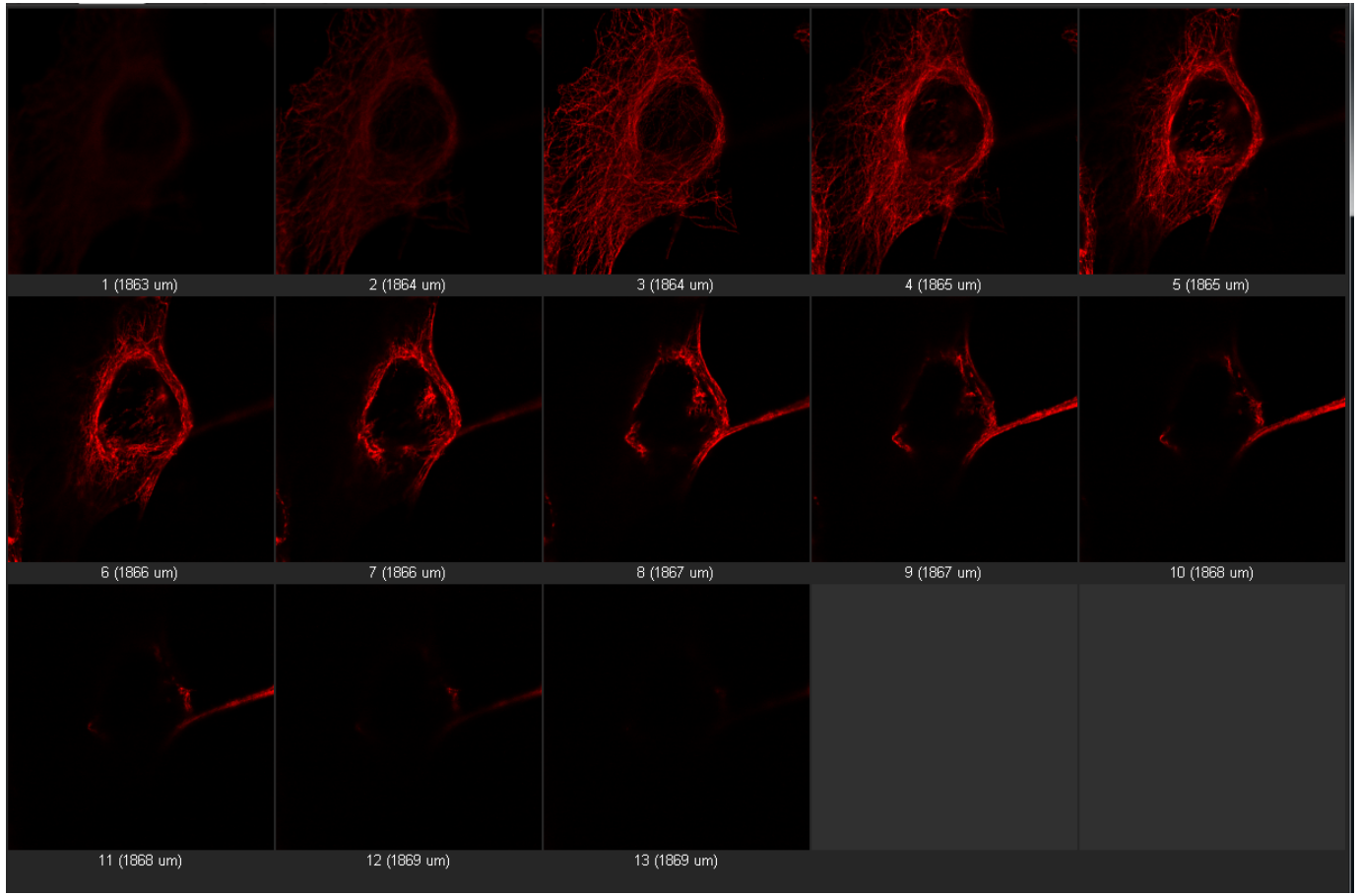

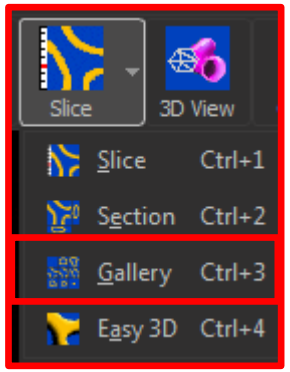

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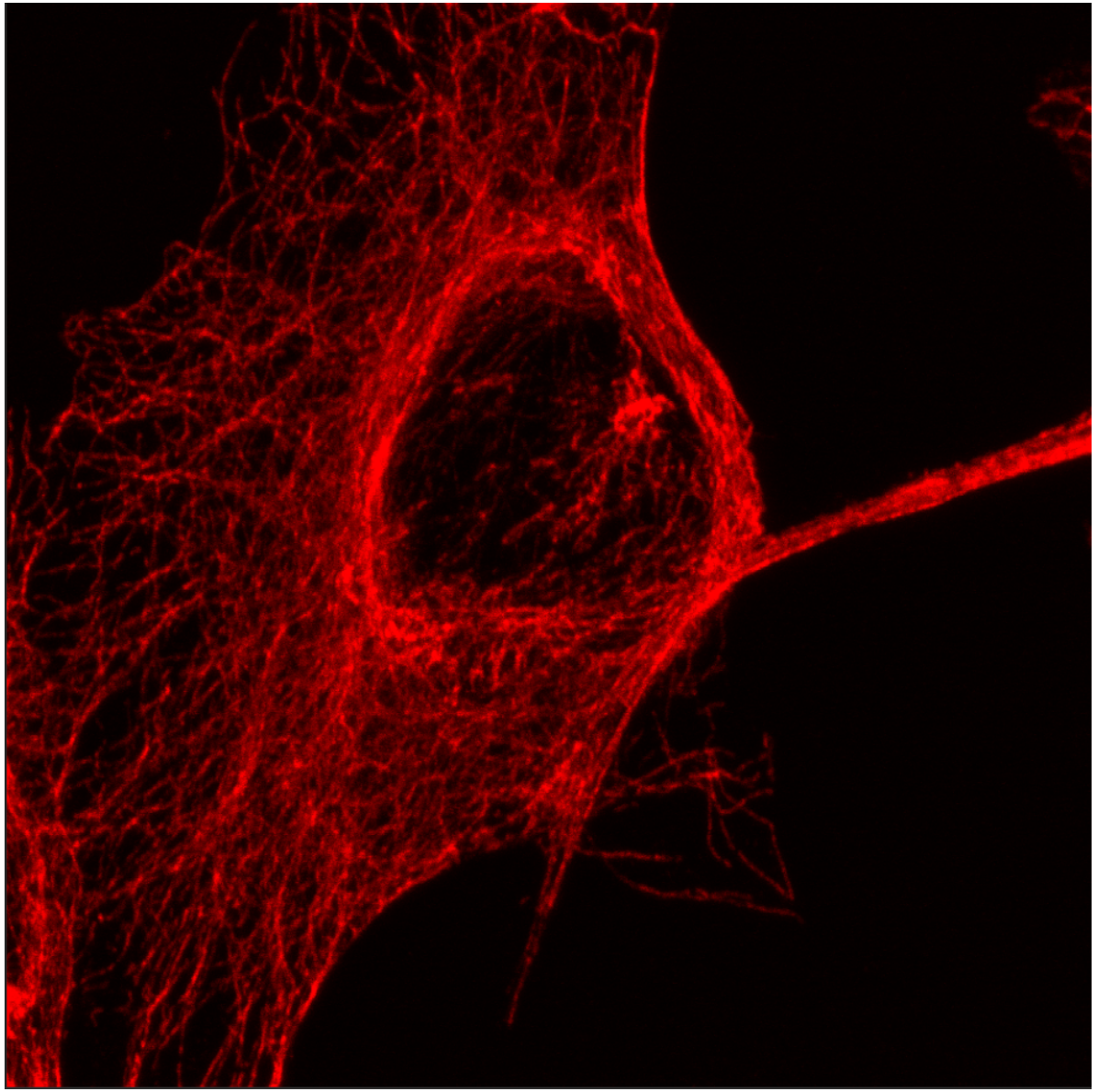

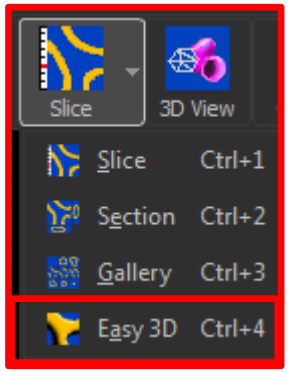

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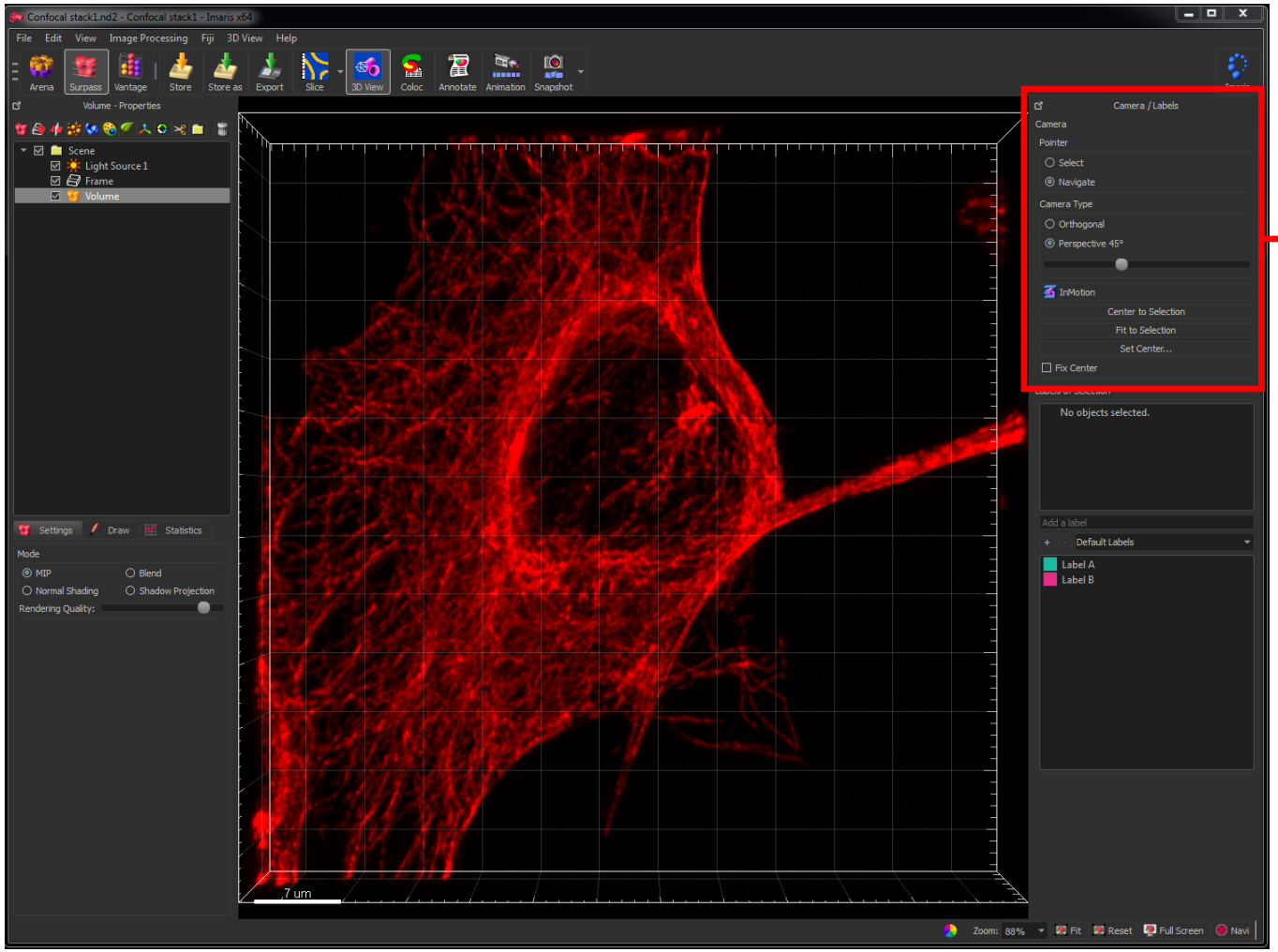
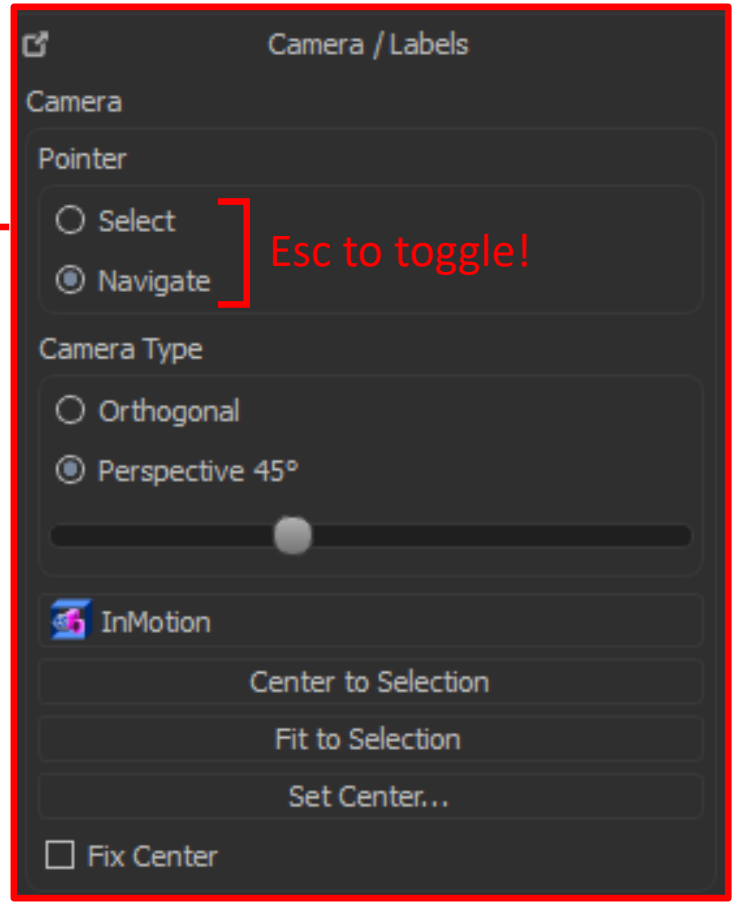
Viewing Your Image Data

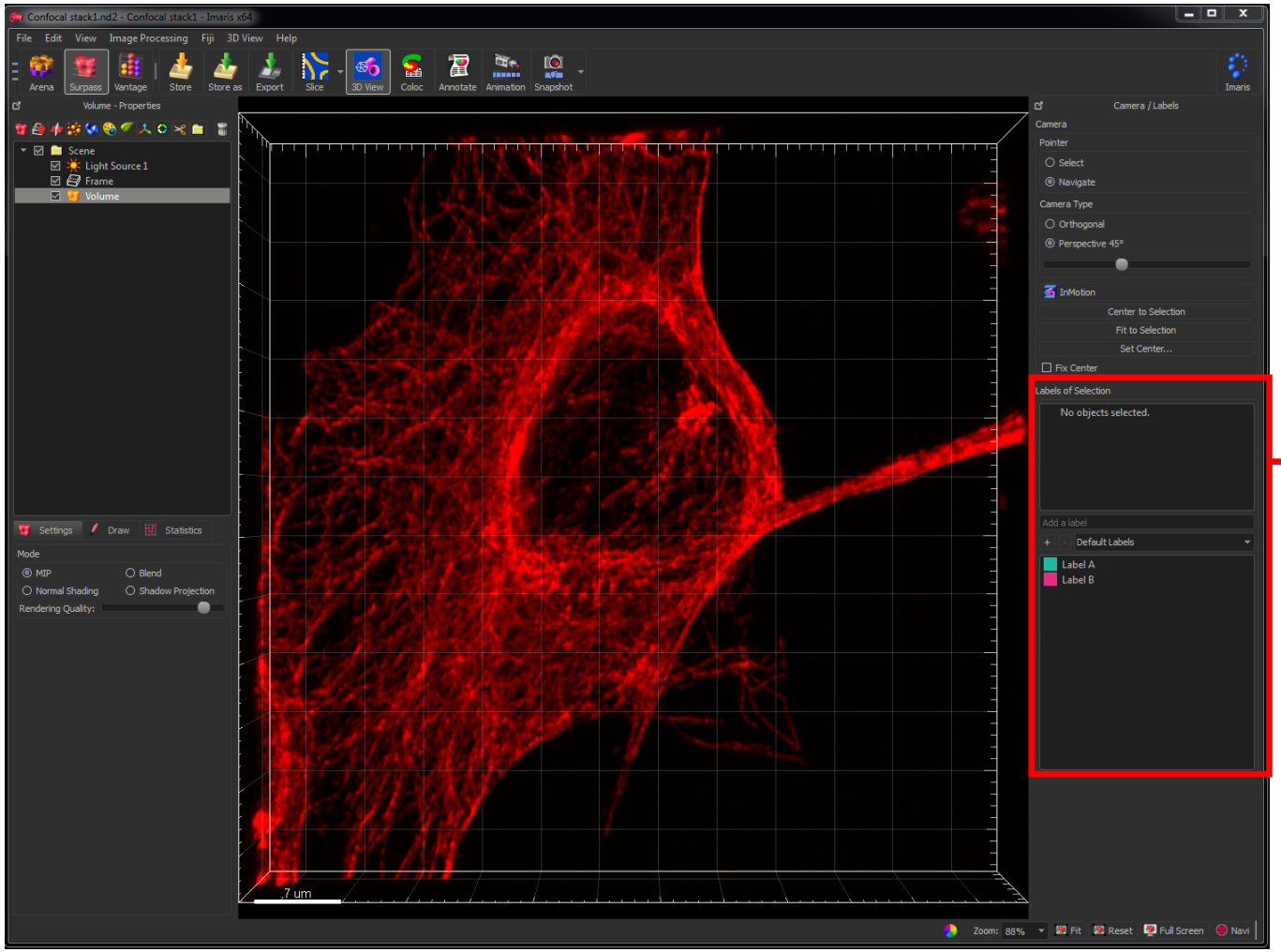


Camera/Pointer

Display and selection options

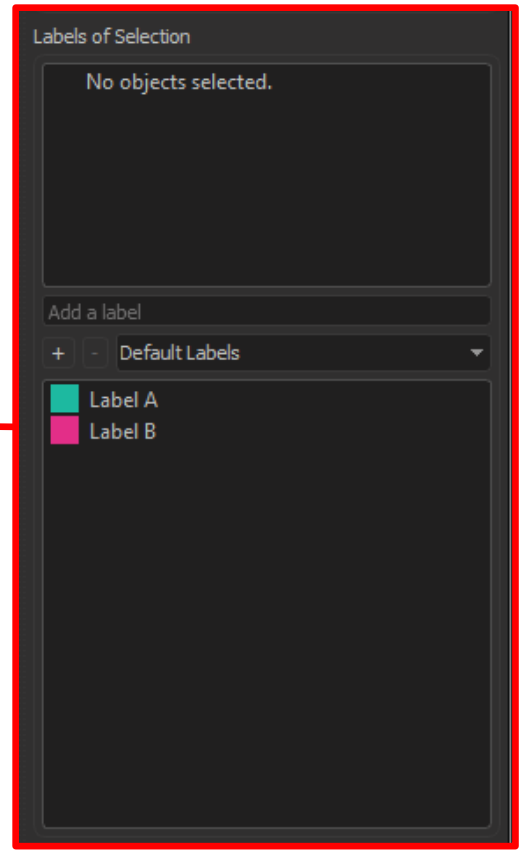


Viewing Your Image Data

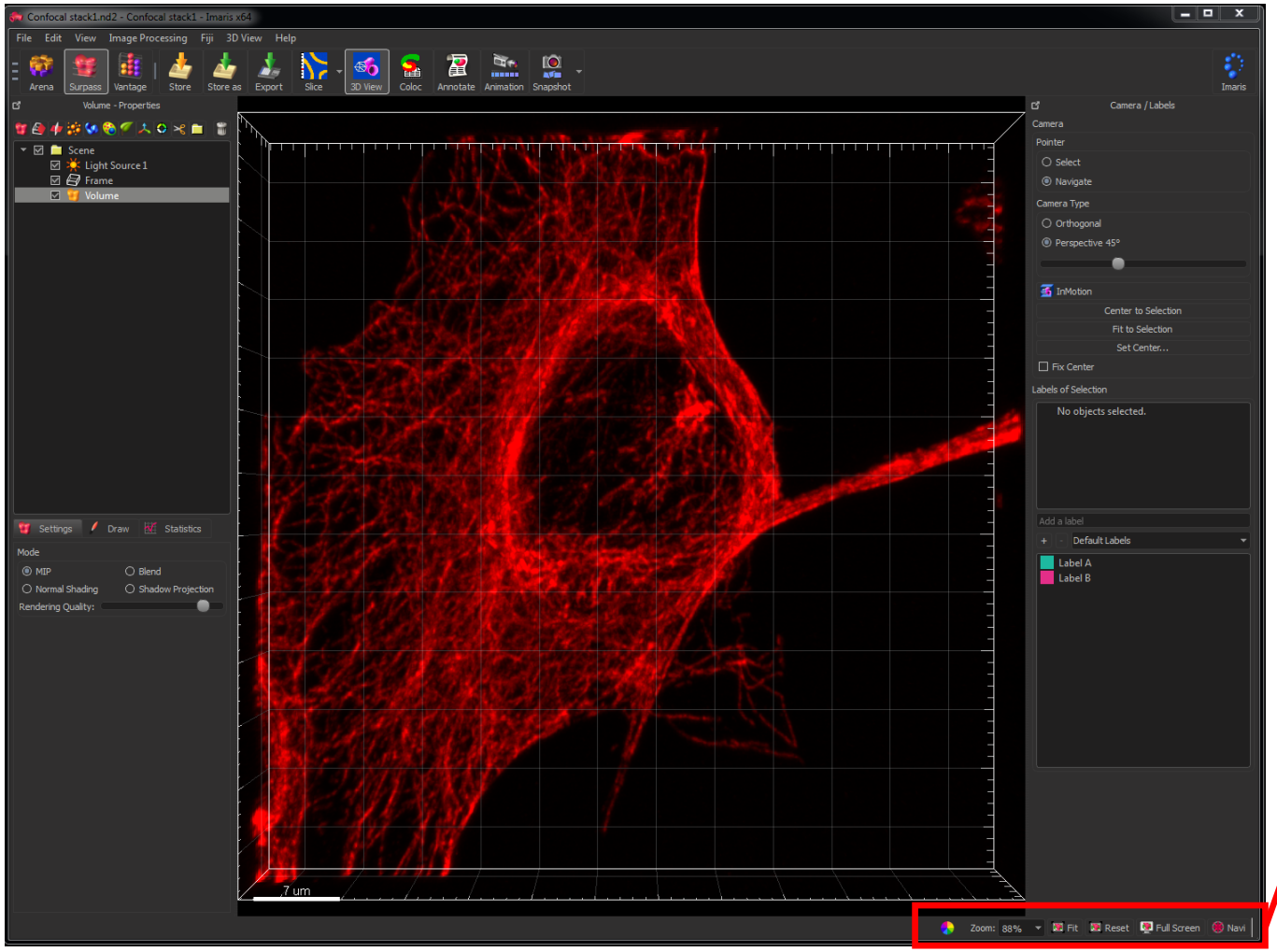


Labels

Options for labelling information

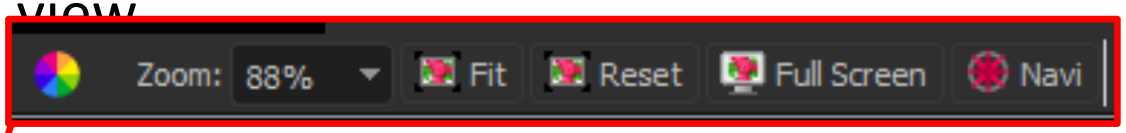


Viewing Your Image Data



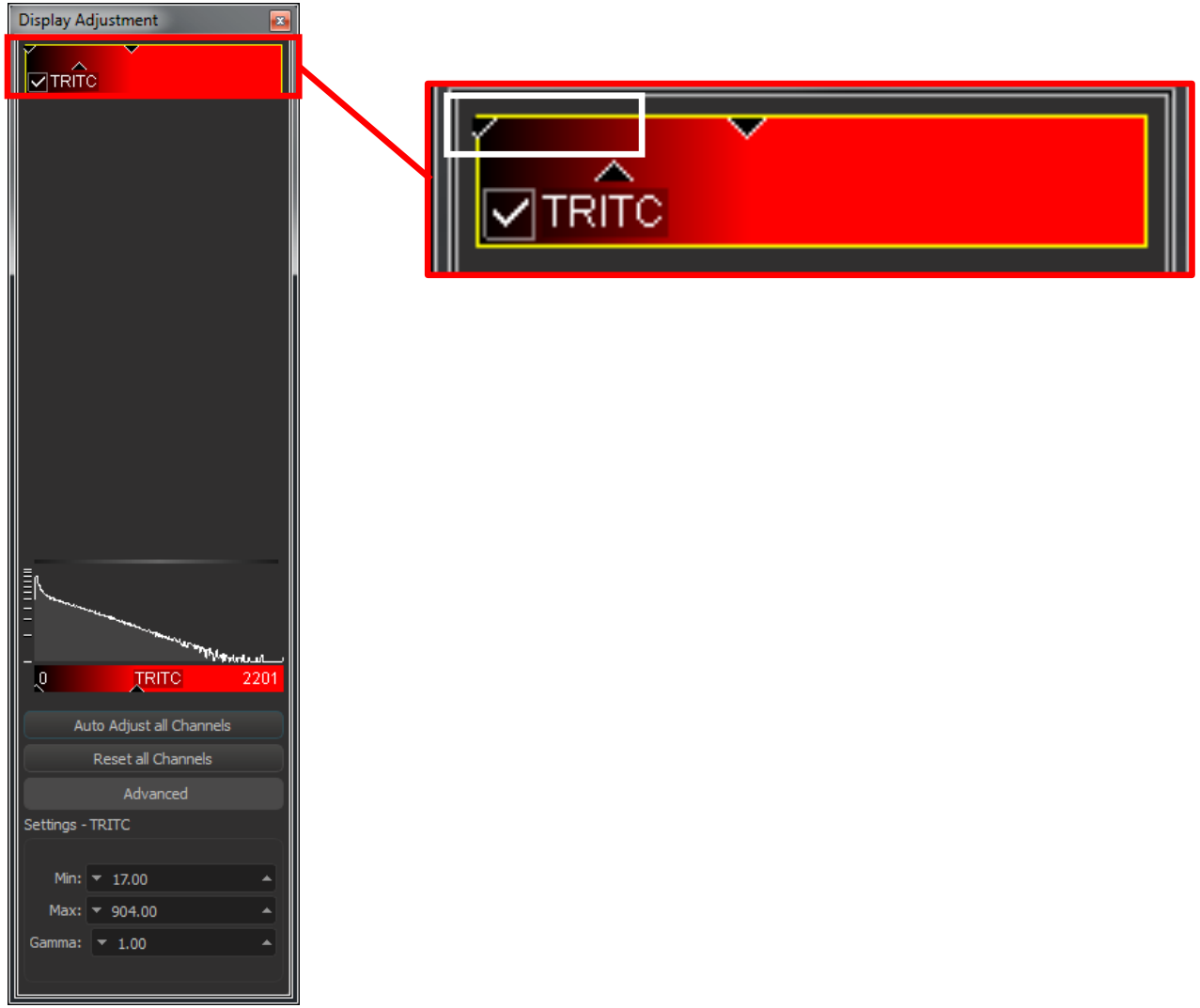
Display Options

Use to e.g. re-size and reset view



Viewing Your Image Data

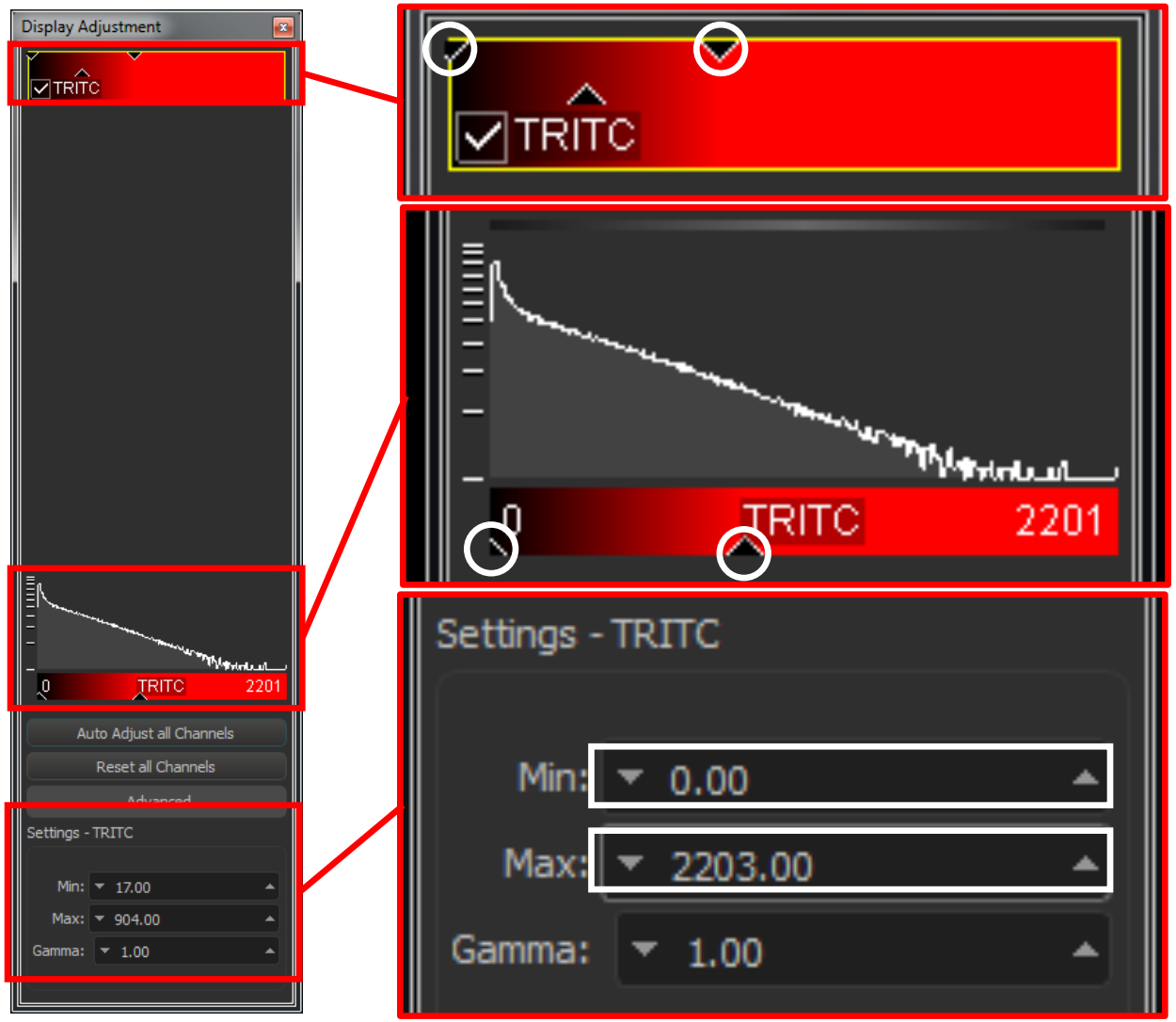
Display Adjustment Window (Edit>Show Display Adjustment, Ctrl D)



- Channel name shown
- Tick indicates channel is displayed
- Background colour indicates assigned Look-Up Table (LUT)

Viewing Your Image Data

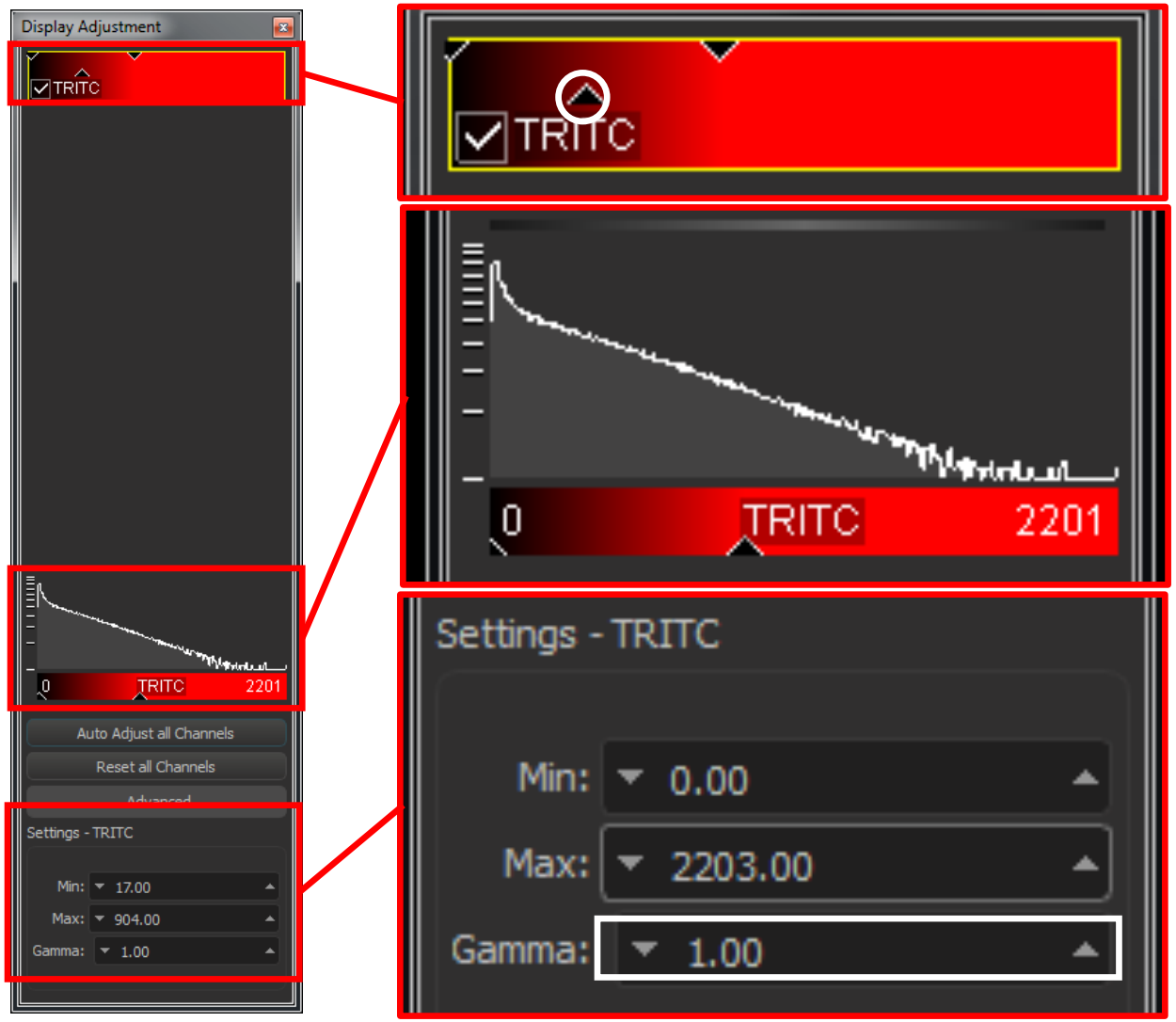
Display Adjustment Window



- Use left side slider to adjust minimum intensity threshold
- Use right side slider to adjust brightness
- Type in numbers to set specific intensity levels to view

Viewing Your Image Data

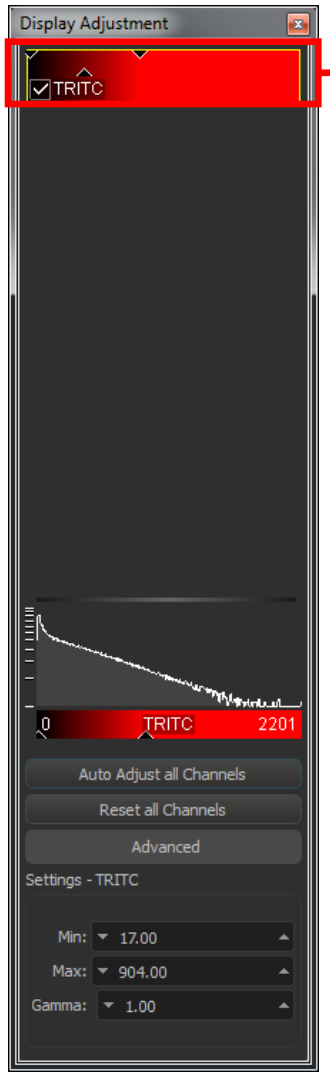
Display Adjustment Window



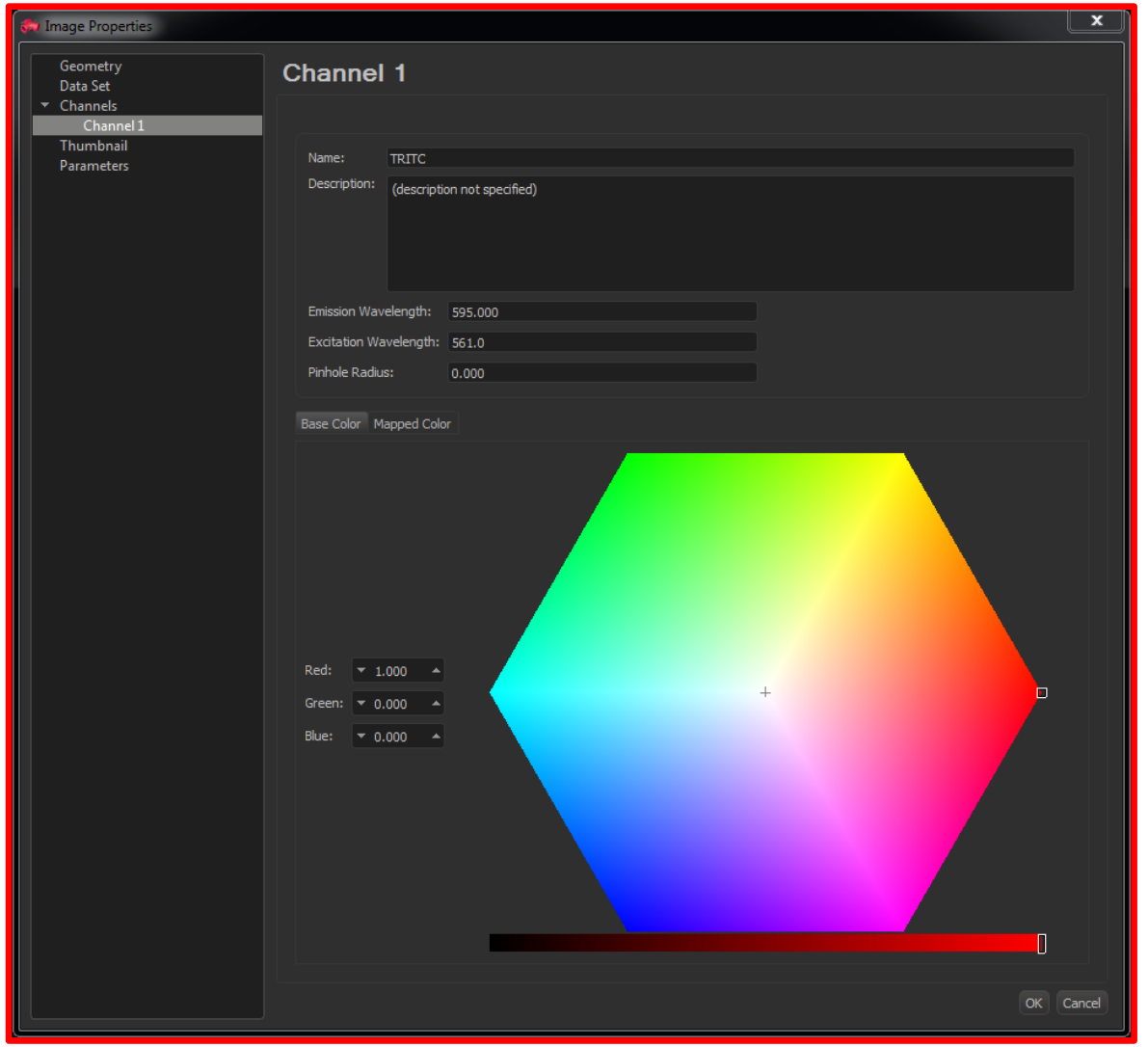
- Use left side slider to adjust minimum intensity threshold
- Use right side slider to adjust brightness
- Type in numbers to set specific intensity levels to view
- Use middle slider or Gamma field for non-linear adjustment

Viewing Your Image Data

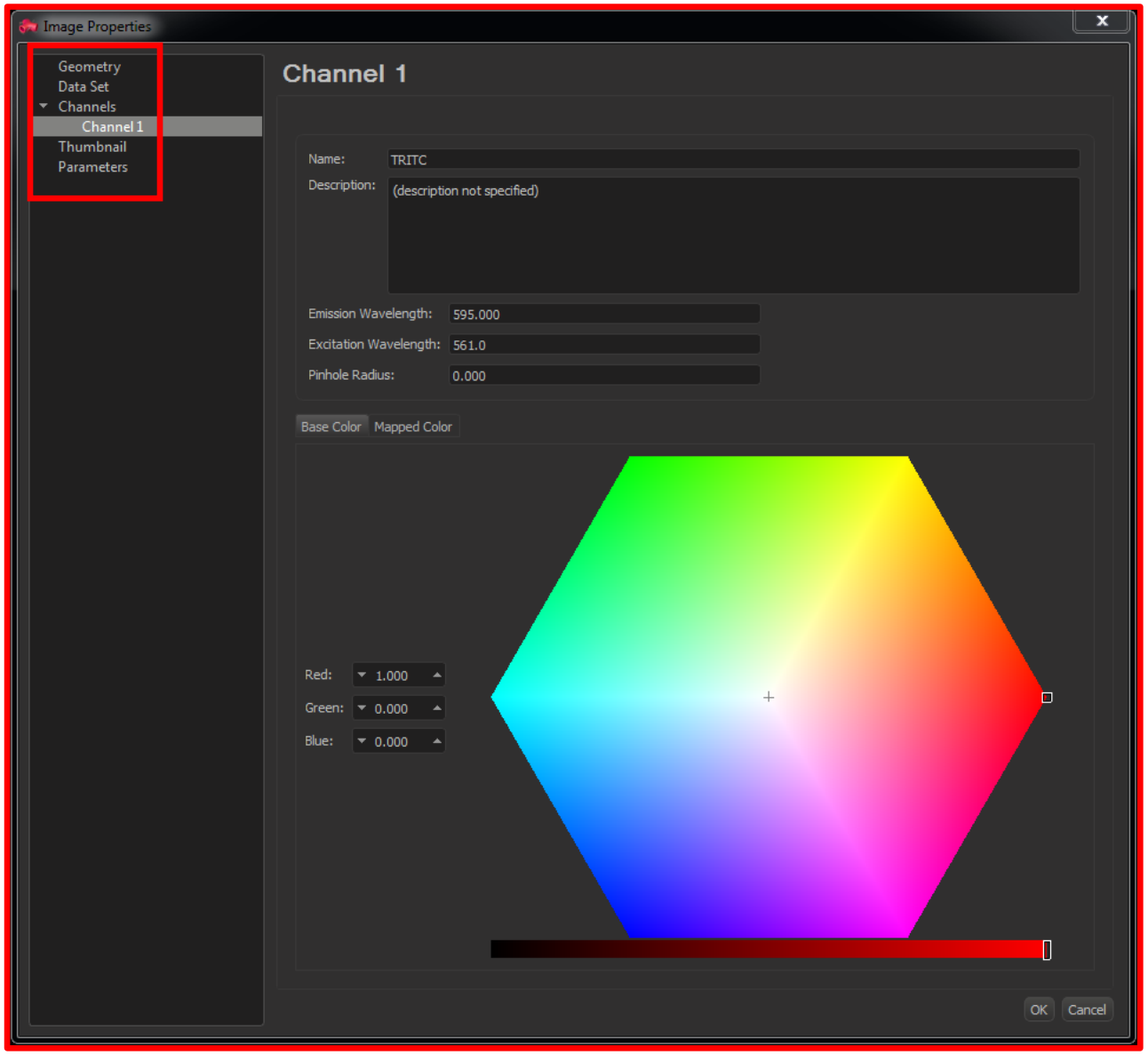
Display Adjustment Window

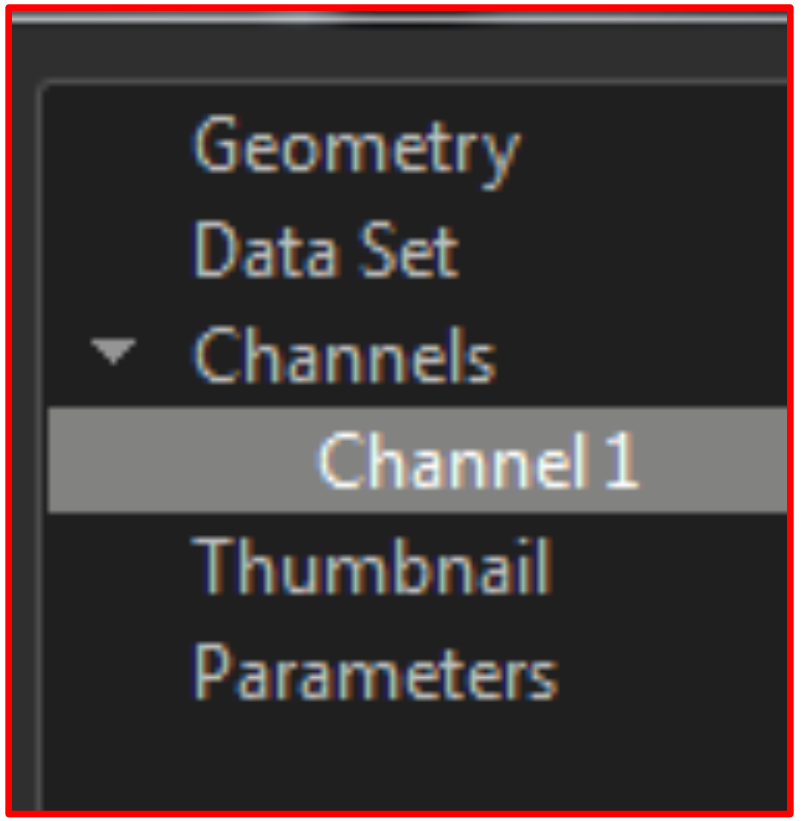


Click on channel name to edit display properties



Viewing Your Image Data





Viewing Your Image Data

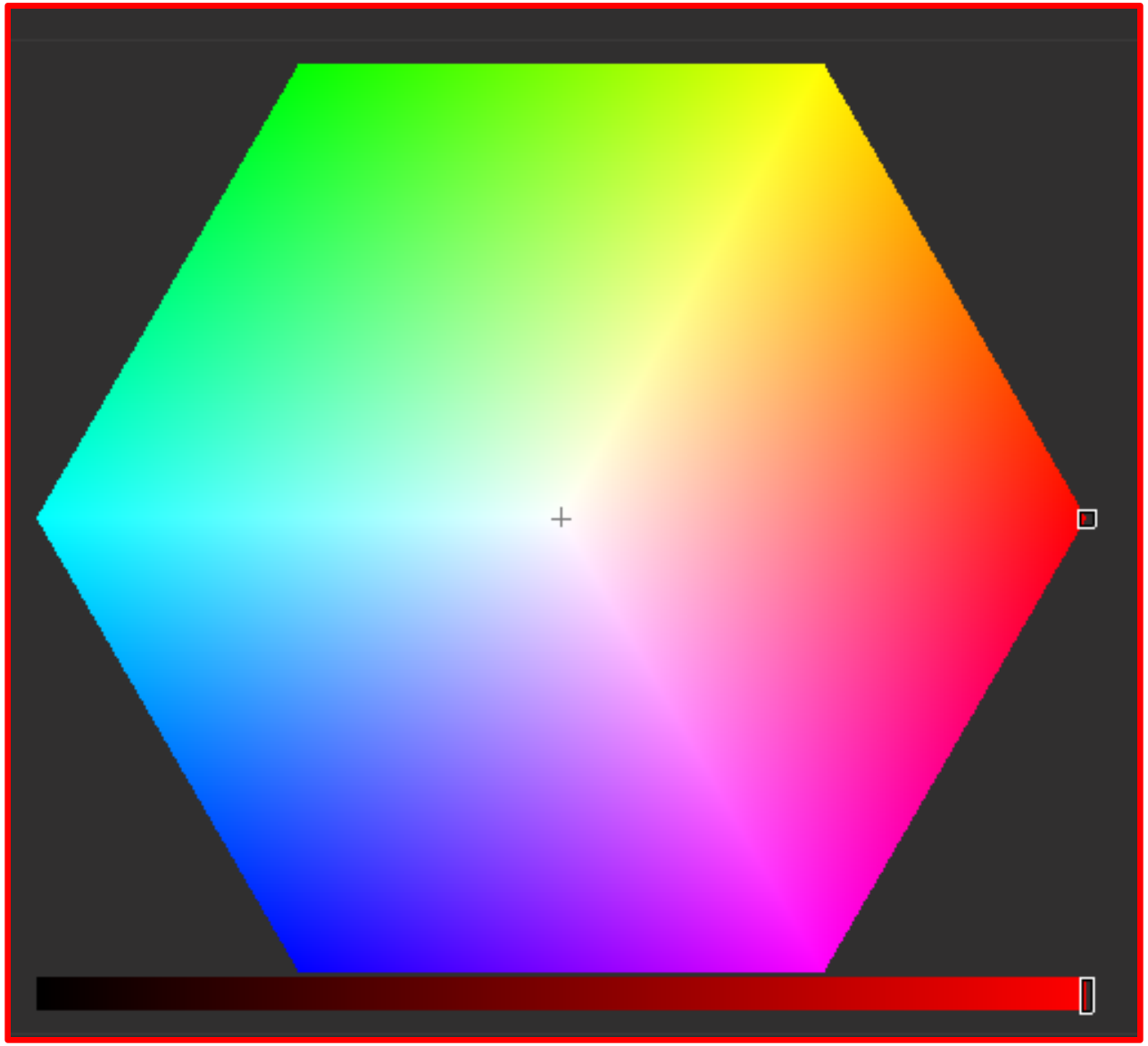
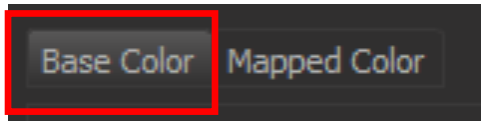


Image Properties Window



- Slide the small box to adjust the colour Look-Up table (LUT)
- Dragging the small box to a corner of the hexagon will set one or two of the Red, Green and Blue (R,G,B) values to 1
- Set one of the R, G or B values to 1 and the remaining two colour values to 0 for a ‘pure’ LUT
- Set R, G, B values to 1 for white LUT
- Use the lower slider to set the intensity range

Viewing Your Image Data

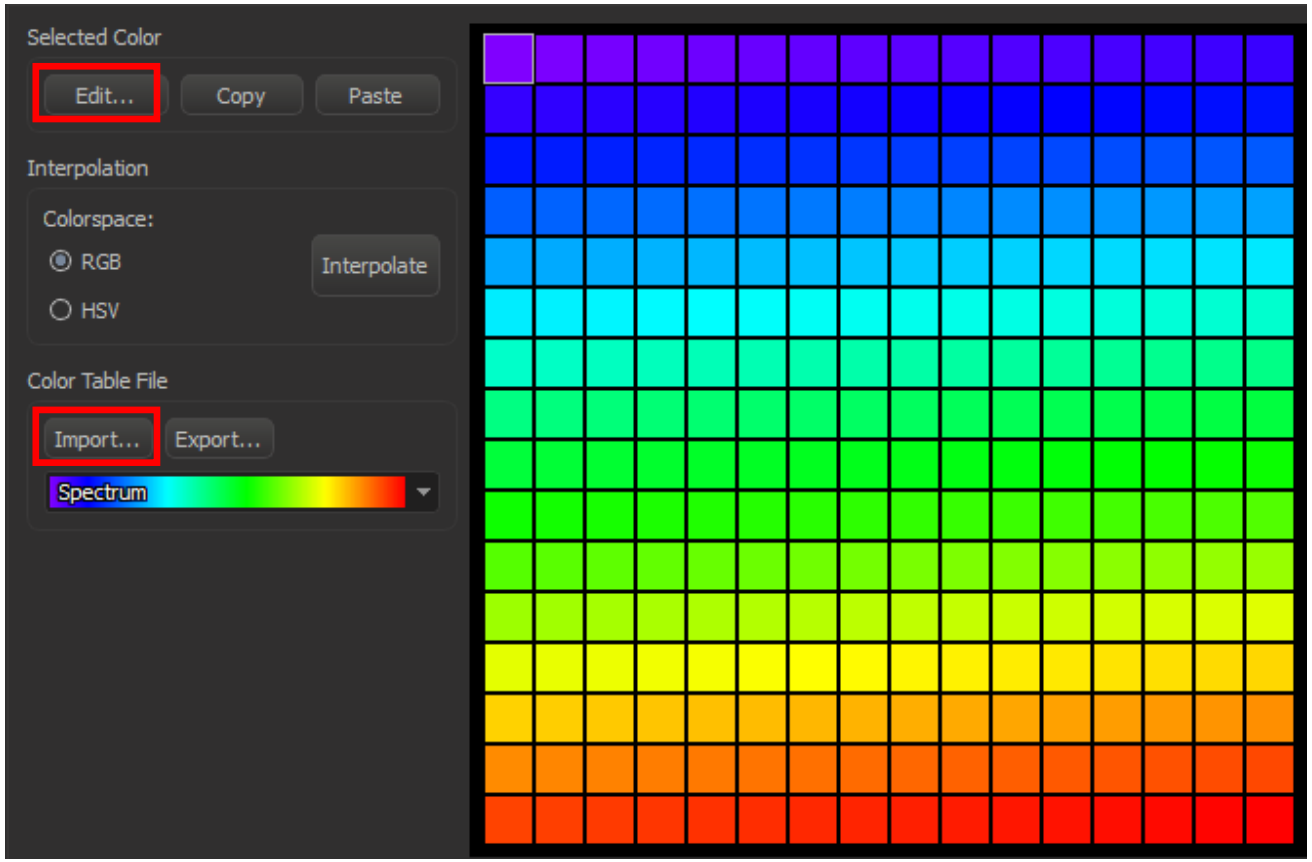
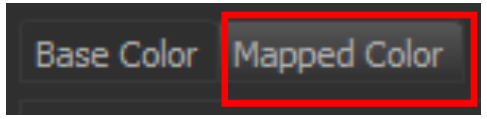
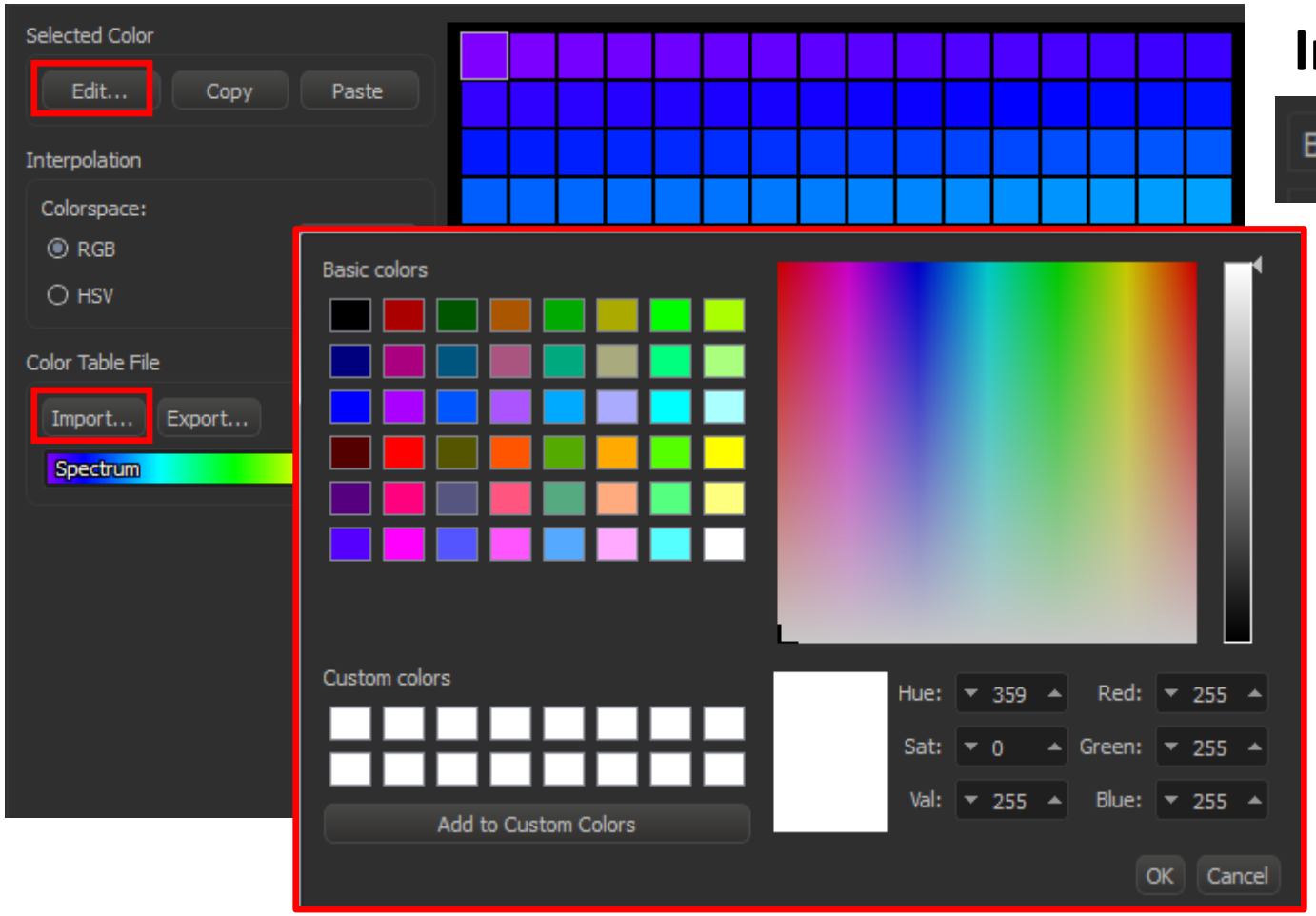


Image Properties Window



- Create a custom LUT by selecting individual coloured boxes and then Edit.. (or double-click on the box)
- Export to save
- Use Import… or the drop-down list to load a pre-defined multi-colour LUT

Viewing Your Image Data



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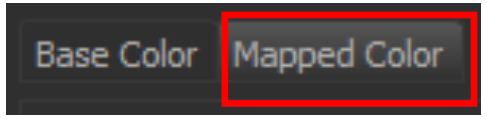

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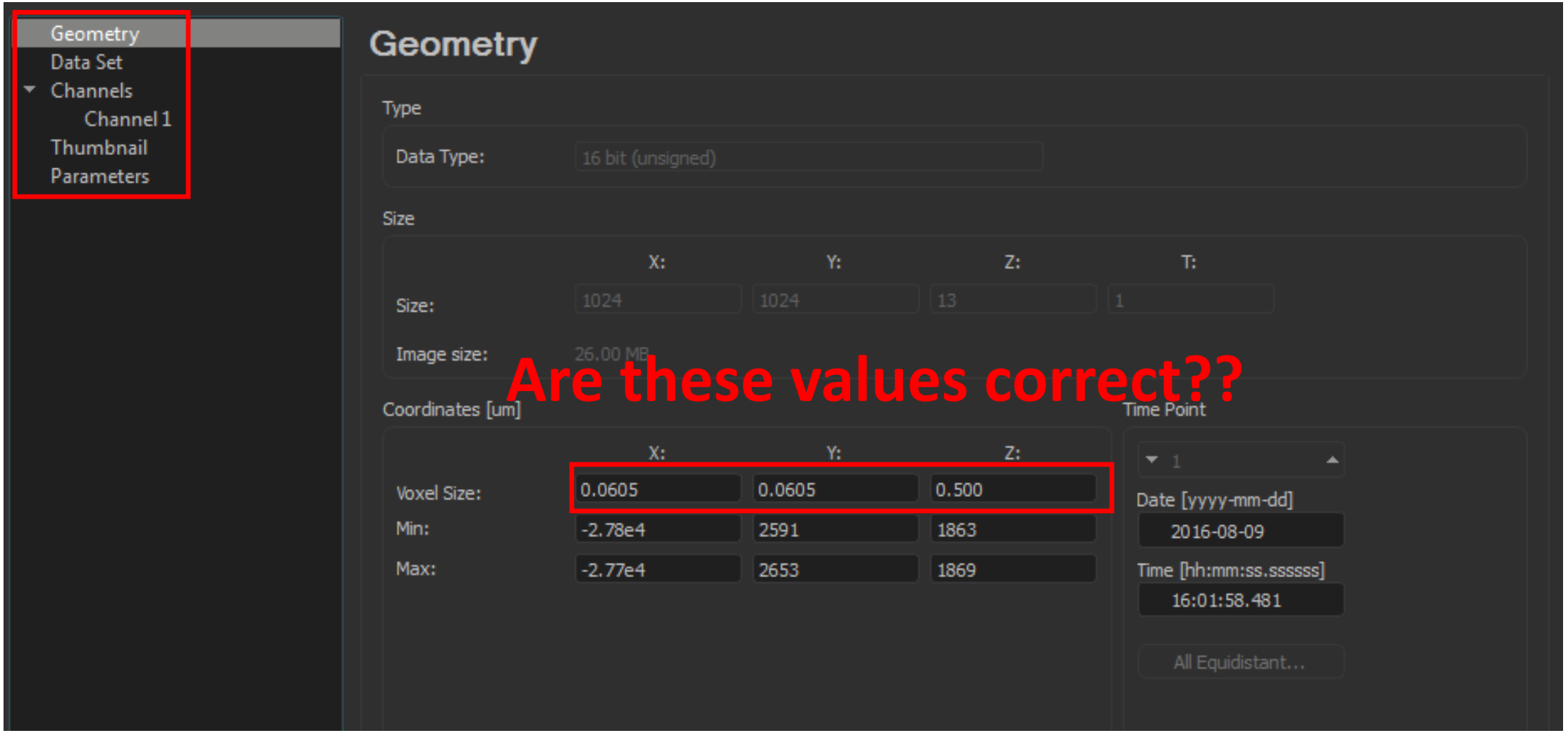
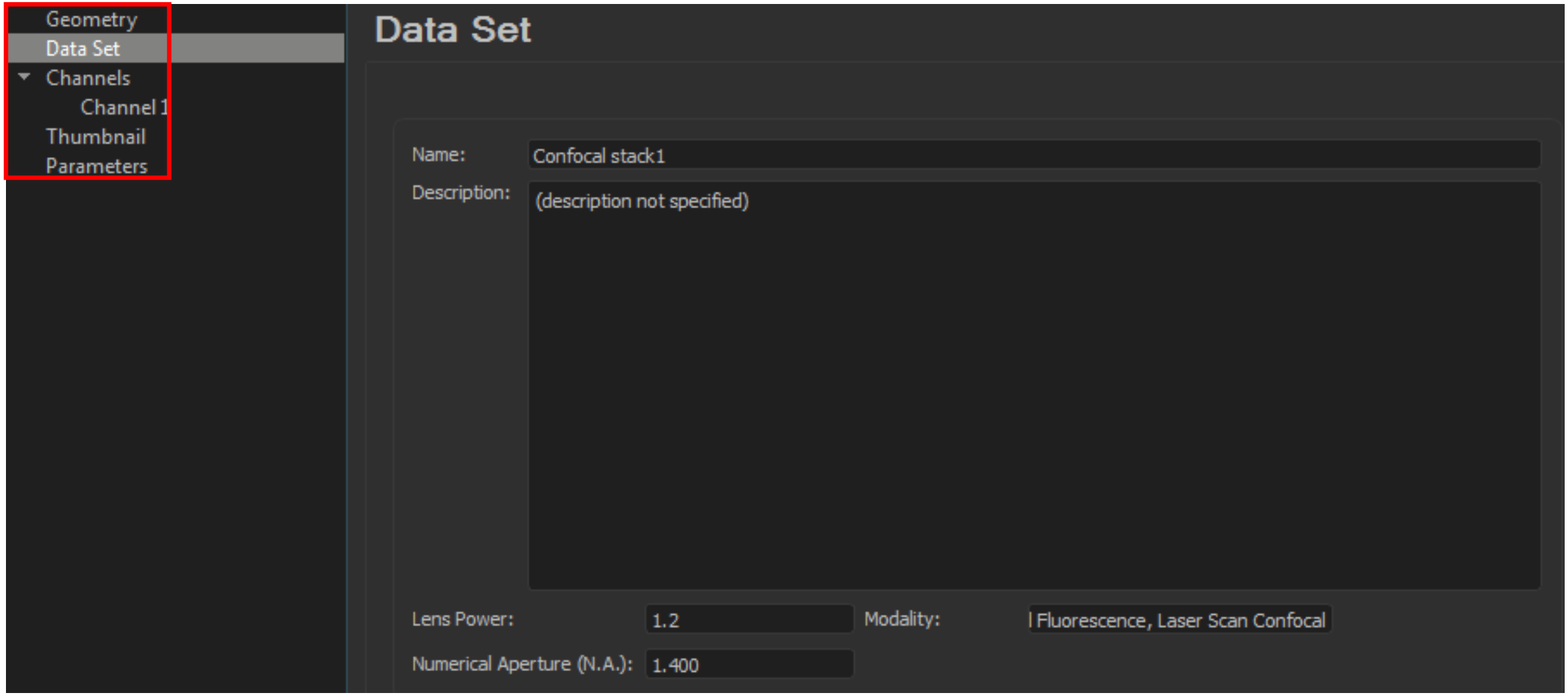
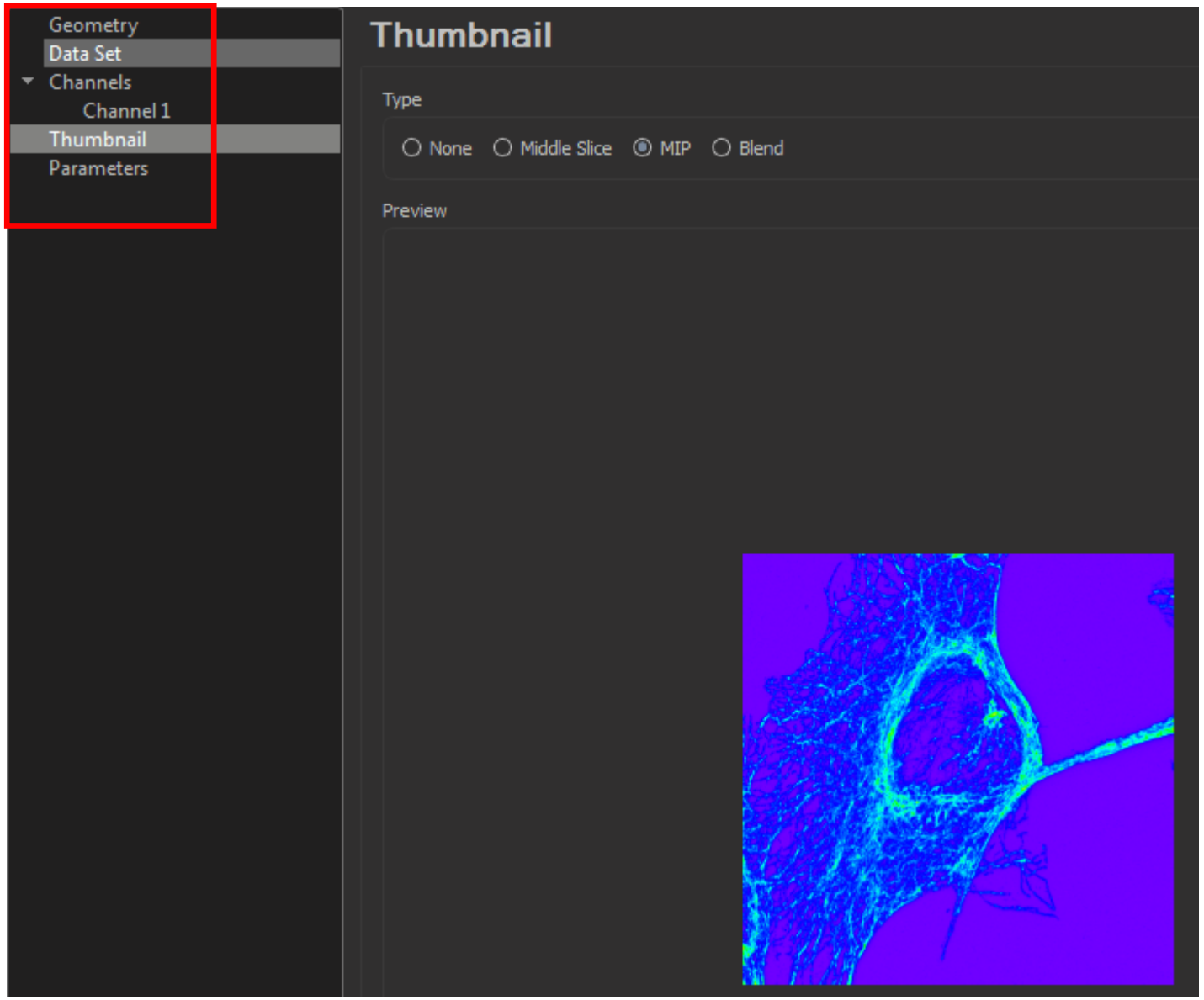


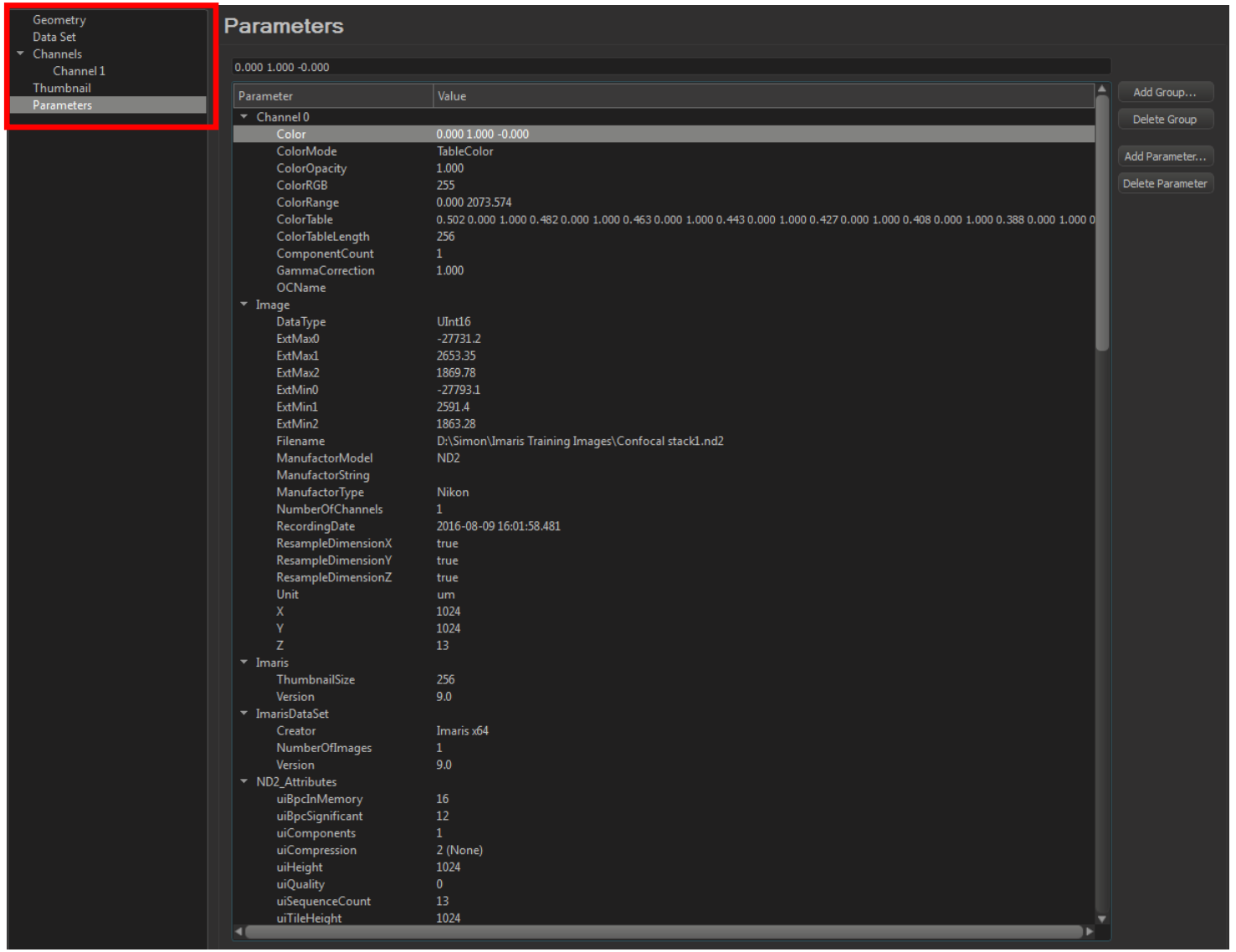
Viewing Your Image Data



Viewing Your Image Data



Viewing Your Image Data



Viewing Your Image Data

Group Exercise 1 (easy)

- Import File ‘Zeiss 4-channel confocal stack1’ into Arena
- Adjust display settings
- Create new LUT on Channel 2

Group Exercise 2 (not so easy)

- Import data series in folder ‘Confocal z t tiff stack’ into Arena
- Reconstruct time/z series (126 time points, 24 z planes)
- Assign correct dimensions (0.16 μm in x&y, 0.5 μm in z)
- Create new LUT