Image-Pro 3D Module
Powerful Multi-Dimensional Image Analysis
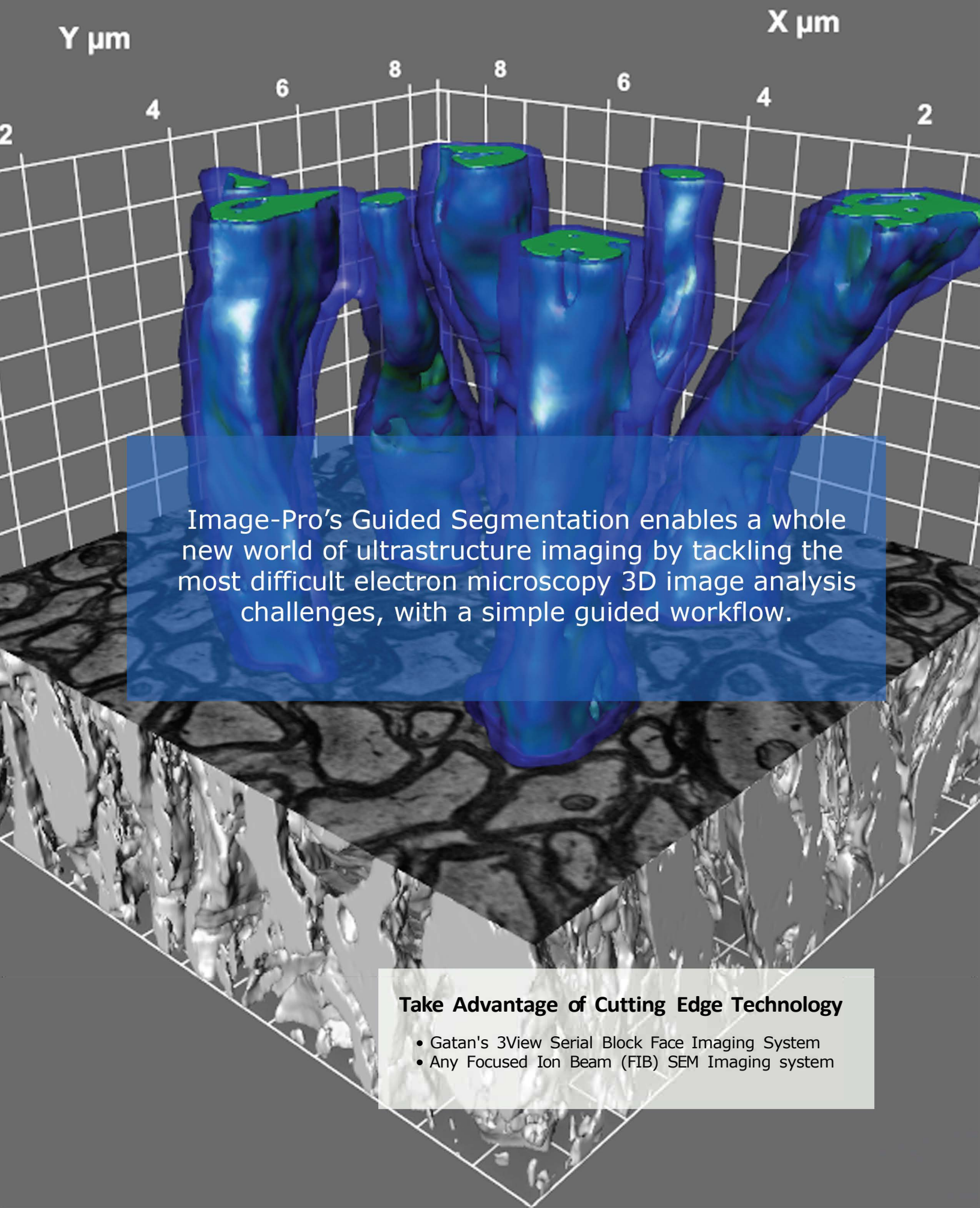
Product Brochure

MEDIA

CYBERNETICS

Image-Pro's Guided Segmentation enables a whole new world of ultrastructure imaging by tackling the most difficult electron microscopy 3D image analysis challenges, with a simple guided workflow.

**Take Advantage of Cutting Edge Technology**

- Gatan's 3View Serial Block Face Imaging System
- Any Focused Ion Beam (FIB) SEM Imaging system
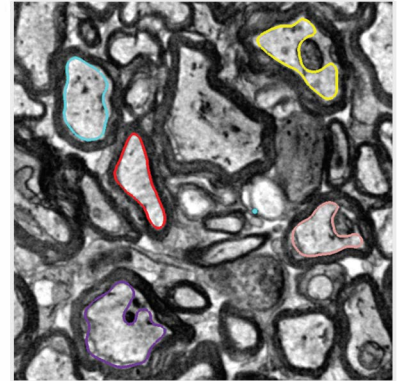
Guided Segmentation
Measure Complex 3D Objects

Guided Segmentation is designed to enable the identification and measurement of complex 3D objects that cannot be easily pinpointed using standard 3D segmentation techniques. Define object outlines on select 2D planes using semi-automatic object segmentation techniques and then generate your 3D objects for measurement.
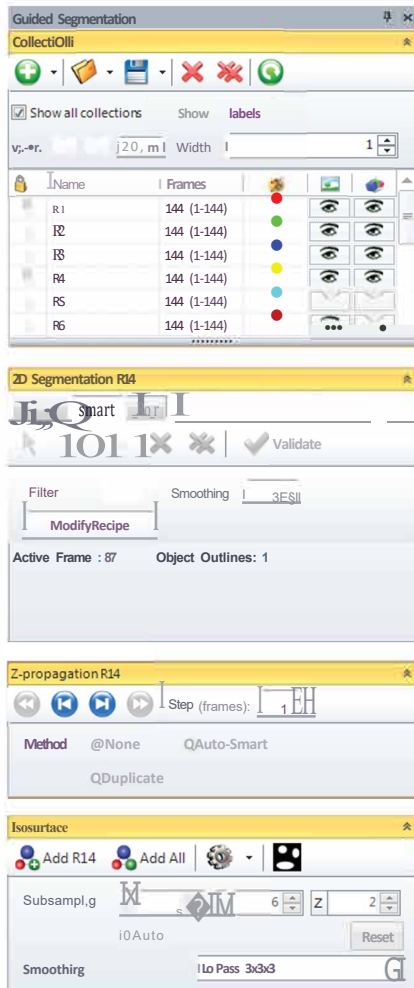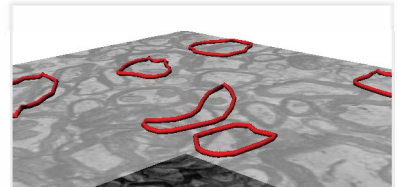

Generate Outlines

Using any 2D frame throughout the stack users can define objects as unique collections of outlines, named and color coded for clarity. Use a semi-automated region wand, pixel classification algorithm like smart segmentation, or even draw an ROI outline manually to define custom initial object boundaries.


Z Propagation

Once an outline is defined, the propagation throughout the stack occurs by auto-populating the segmentation up or down through the stack, allowing the user to review the edit as needed.

Isosurface Creation

Automatically generate isosurfaces from your collection(s) of outlines for the purposes of volume, surface, intensity, and unique morphological object measurements. Over 60+ measurements available.
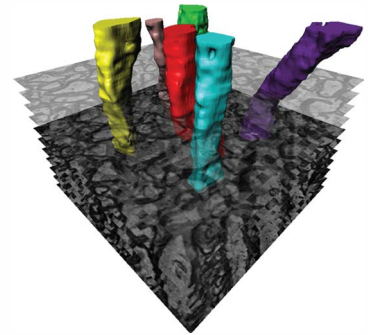
Objects generated by Guided Segmentation behave like any other object with visualization and style properties at your disposal. Save your 3D views and settings for using later or even save your original outline collections to be combined with another users' collection.

Once the objects are measured, interactive data tables are populated and are accesible from the 3D Measure ribbon. Here you can sort, select, rename, show statistics, and hide/show objects. You can also copy to clipboard, export to Excel, and even send your table to one of your predefined customized reports.
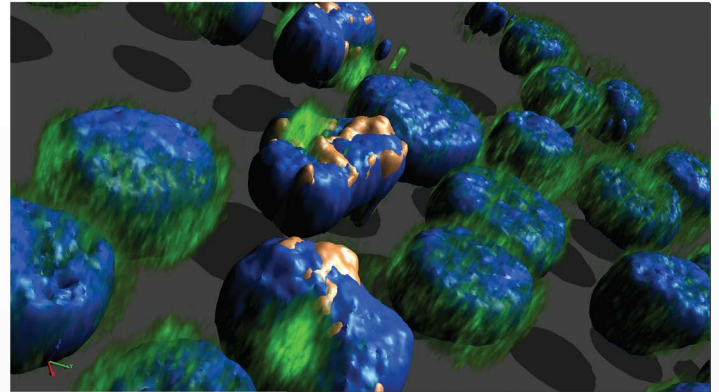
Superior Visualization
## Interactively display data sets in 2D, 3D or 4D with stunning results

Image-Pro breaks new ground for your volume viewing and rendering needs. Input a variety of datasets such as confocal 3D stacks or 4D timelapses and visualize in the highly functional 3D/4D, Slicer or Gallery Views.

High Quality Visualize tools

Exceptional visualization made easy.

Blend, MIP, and Sum Projections
Spread, Opacity, Specularity
Color Palette Editor & Presets
Light Sources and Shadows
Orthogonal and Oblique slicing
Wireframe & Isosurface Renderings
Pseudo-Surface and Stereo Views
Slice Density, and Edge Coloring
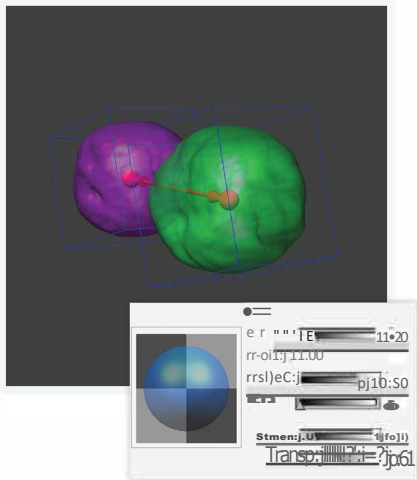
Intuitively adjust object properties by double-clicking on the object of interest. View additional objects or even measurements within.

Simplified Channel controls

Made for Multi-Channel complexity

Retain native metadata of channels
Retain AutoQuant metadata
Retain channel coloring
Toggle or Blink each Channel
Opacity weighted auto blending
Independent histogram edits
Channel-specific Isosurfaces
Channel Extraction or Merging
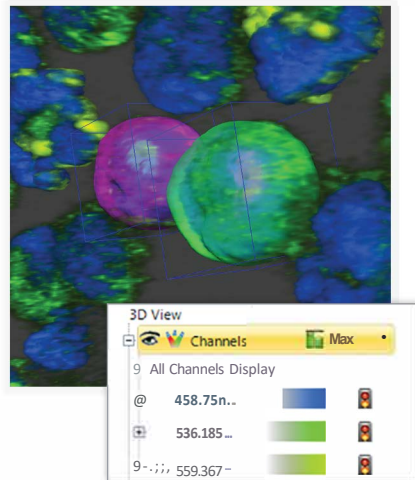
Selectively display the channels and objects of interest with simple to navigate controls and settings.

Intuitive settings only a click away

Volume visualization and measuring is already complex enough, so simple but powerful controls for each channel, slice, and isosurface are are located conveniently beside each image set.
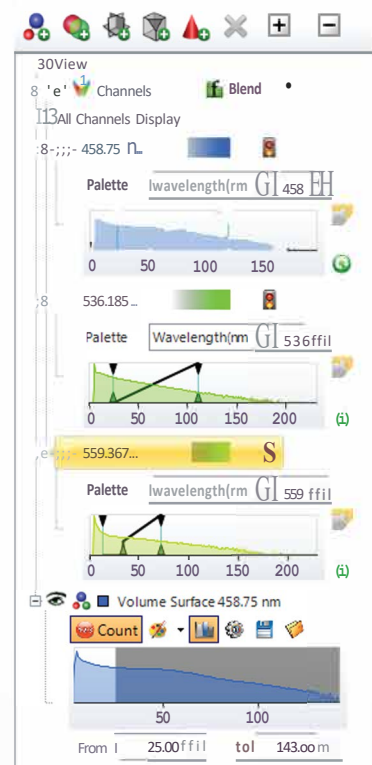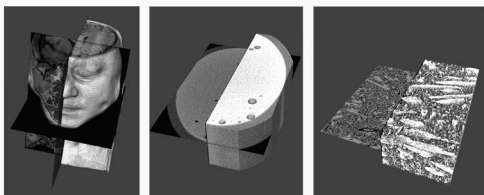
MRI   Micro-CT   SBF-SEM   **Multi-Modality techniques**

Simplify your life with a single software platform to handle various imaging modalities such as computed x-ray micro-tomography, Light and Fluorescense microscopy, MRI, TEM tomography, Focused Ion Beam FIB-SEM, Serial Block Face SEM, and many other imaging modalities. With flexibility and ease of use, Image-Pro enables advanced 3D/4D imaging workflows for specialists in research areas ranging from molecular and cellular biology to neuroscience and bioengineering.
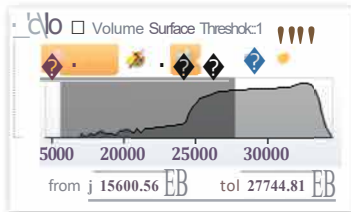
Measurements
Broad Range of Powerful Analytical Tools

Image-Pro delivers the very best in volume measurements, object counts, 3D manual measurements, data interaction, statistical comparison, multi-image data collection, batch processing and custom reporting using proven methods from over 30 years of expert imaging experience.
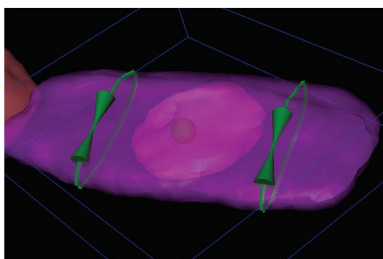
Automatic
Object Segmentation

- Real-Time Threshold and Render
- Count & Measure object volumes
- Render unlimited channels
- Compare volumes, measure Vol %
- Object naming, coloring, and editing
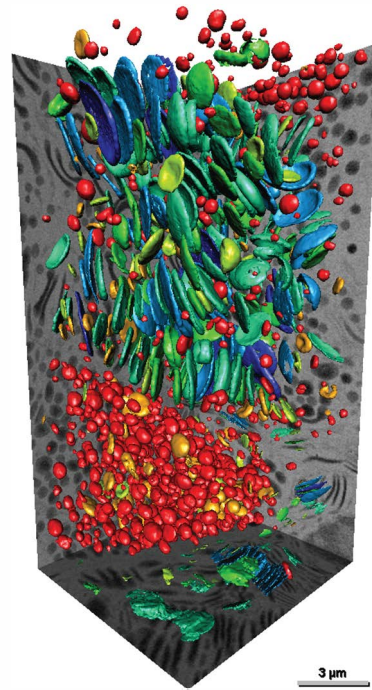- Object Auto-Splitting

- Measure Size and Shape
  Object Volume, Box Volume, Depth
  Diameter, Radii, Feret Ratio,
  Surface Area
- Measure Intensity
  Object Intensity, Density,
  Integrated Optical Density, and
  Intensity over Time

Automatic
Object Classification

- Auto Classify (color code) objects
  by a given measurement
- Sort objects in the smart data table
  and group by similar characteristics
- Data tables & objects linked for
  quick reference to an object
- Sortable Tables and Charts able to
  be grouped to view class statistics
- 60+ measurement types for
  object values
- Statistics per Measurement and
  per class are available

Automate your Analysis with 1-2-3 Batch Processing

1- Record your workflow in a macro
2- Apply existing macro or App to an entire folder of image sets
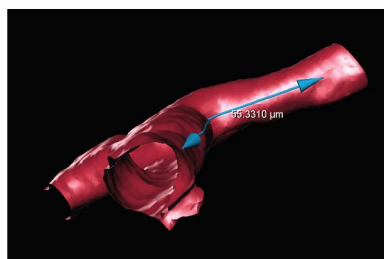3- Start!

Manual Measurements

3D object contours using 2D polylines on slices
X,Y,Z Size, Shape, Orientation, and Intensities
X,Y,Z coordinates at any 3D location
3D Centroids, Surface Area, Circumferences
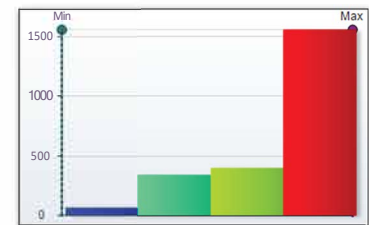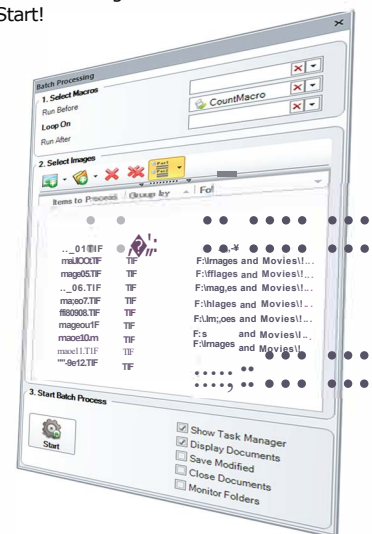Distance between objects, and merge/split.

3D lengths from surface to surface
3D lengths from surface to center
3D lengths following along an object's surface
Relative angles between lines
Relative angles to reference vectors

Use only 2 points and the viewing angle to measure the circumference around any object.

Use only 2 points and the viewing angle to measure the distance on the surface or along the surface.

Key Frame Animations

Powerful animation tools enabling the creation of realistic movies comprised of complex movements & renderings.

Pre-loaded Templates
- Circular Animation
- Fly-Around Animation
- See-saw Animation

Sharing
- Save & Load Animation
- Paths for future use
- Generate identical movies
- Save as WMV, AVI & MP4

Custom Animations
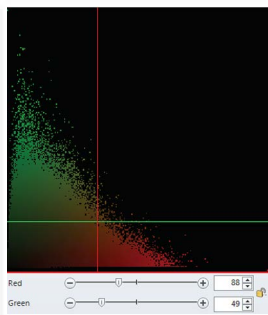- Record camera position, angle and zoom
- Add & Replace positions
- Record volumes, surfaces, and object counts
- Record Oblique or Ortho clipping planes
- Improve quality with smoothing and Anti-Aliasing options

3D Colocalization
Optional Module

Independently threshold each channel on full volume or use Region of Interest

- Count colocalized 3D objects
- Show resultant voxels in 3D
- Colocalization Measurements:

- Pearson's Correlation
- Overlap Coefficient
- Overlap Coefficients k1 & k2
- Coloc Coefficients m1 & m2
- Coloc Intersection
- Coloc I1 & I2

2D Live Capture
Optional Module

Capture high quality images directly from a scientific camera

- Instant Acquisition
- Record Time-lapse
- Stream to Disk
- HDR Capture
- Live Tiling
- Live EDF
- Live Measurements
- Intensity Over Time
- Live Image Comparison
- Crosshair Grid

Recommended System Requirements

- OS: Windows 7 or 8.1, 64-bit
- Processor: 2.8 GHz CPU Intel quad-core 64-bit processor (Core i7 Series) or better
  RAM: 16GB memory or higher
- Free Disk Space: Multiple High Speed SATA Hard Disks or SSDs; 8 GB free on installation drive + free space for images (500+ GB)
  Graphics Card: nVIDIA GeForce GTX Cards with 4GB graphics memory & Open GL 4.2 or higher
- DVD-ROM drive
- USB port required for hard licenses and offline license activation
  Internet Explorer version 9 or higher
  Internet connection required for online services*

For users who want the best possible experience and product performance, we recommend that you review the requirements above and follow up with a review of the hardware priorities to understand how the whole system plays a part in achieving higher performance.

For more information and for High Performance requirements, please visit mediacy.com

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