
Topic

Using Volocity 4.1 and Neurolucida 7.51 it is now possible to open Volocity TIFF files in Neurolucida and Neurolucida XML tracing files in Volocity.

Neurolucida, developed by MBF Bioscience, is an advanced application for neuroanatomical analysis. The Neurolucida plug-in, AutoNeuron, provides automatic neuron tracing.

The collaboration between Improvision and MBF Bioscience means that users may export image files from Volocity and use the tools for neuron tracing provided by Neurolucida to generate tracings that may be exported in a format supported by Volocity for visualization.

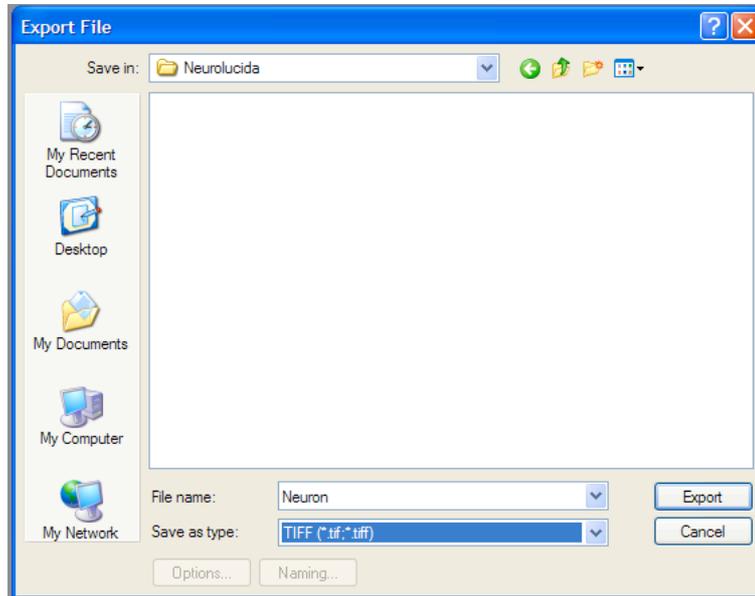
Volocity Quantitation is required to show the measurement item made from the XML tracing and Volocity Visualization to display the tracing as feedback into a 3D view of the image data.

This document describes the workflow for moving files between the two applications.

Discussion

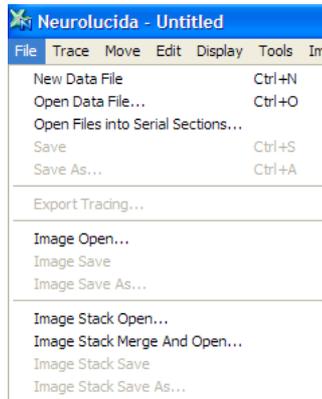
1. Select the image or image sequence in the Volocity library. Calibration information will be included in the exported file and read by Neurolucida. Select **Properties...** from the Edit menu and check the $\mu\text{m}/\text{pixel}$ properties for x, y and z.
2. From the File menu choose **Export...**

3. In the Export dialog select the TIFF Format. This will create a multi-layered TIFF file. The metadata for this file will contain image calibration information and the unique ID for the image which is essential for associating tracings with images in Velocity.



Velocity Export File dialog

4. To open the TIFF file in NeuroLucida go to the NeuroLucida File menu.



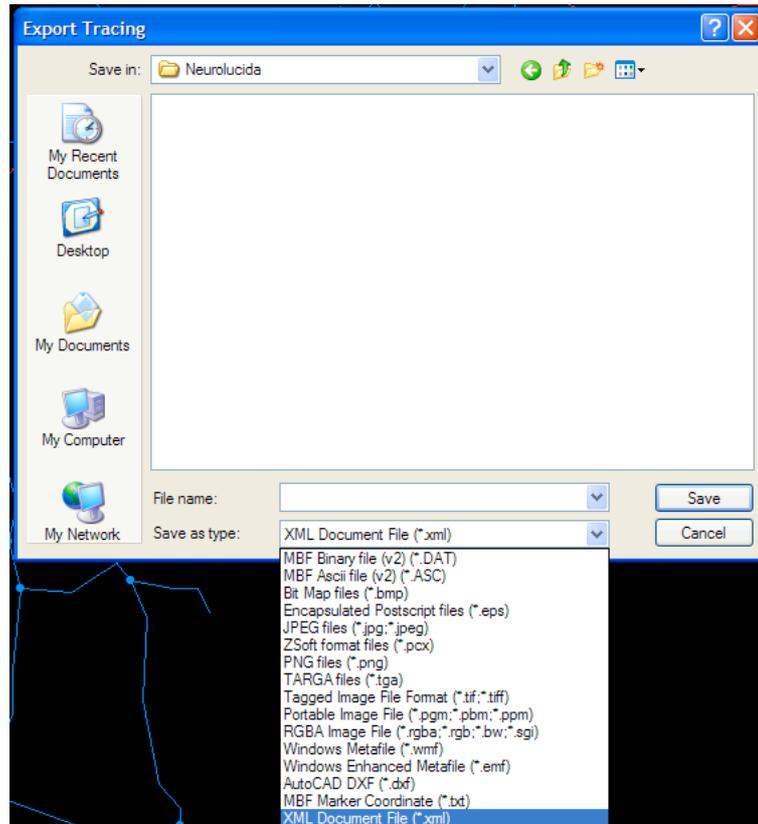
NeuroLucida File menu

- Select **Image Open...** if the file is a 2D image.
- Select **Image Stack Open...** if the file is a 3D stack.

Check and, if necessary, adjust the X,Y and Z scaling, the values displayed by NeuroLucida are read from the TIFF file.

5. Use the tools in NeuroLucida to generate a tracing.

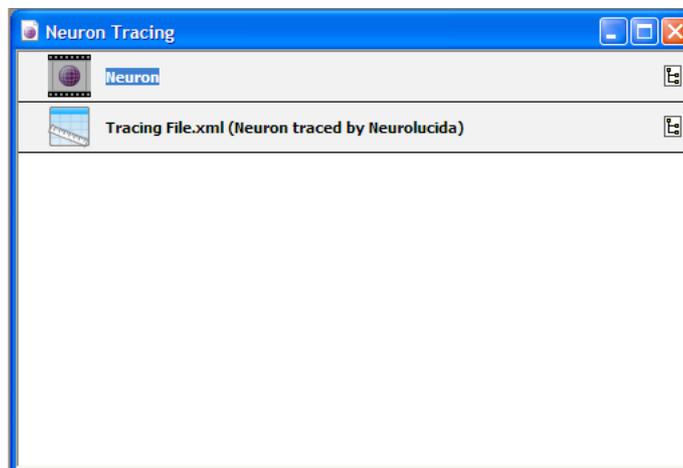
- Export the tracing XML Document File (.xml) for visualizing in Volocity. Select **Export Tracing...** from the File menu.



NeuroLucida Export Tracing dialog

To analyse a tracing using NeuroLucida Explorer use **Save As...** and select MBF Binary File (.DAT) or MBF Ascii File (.ASC) format.

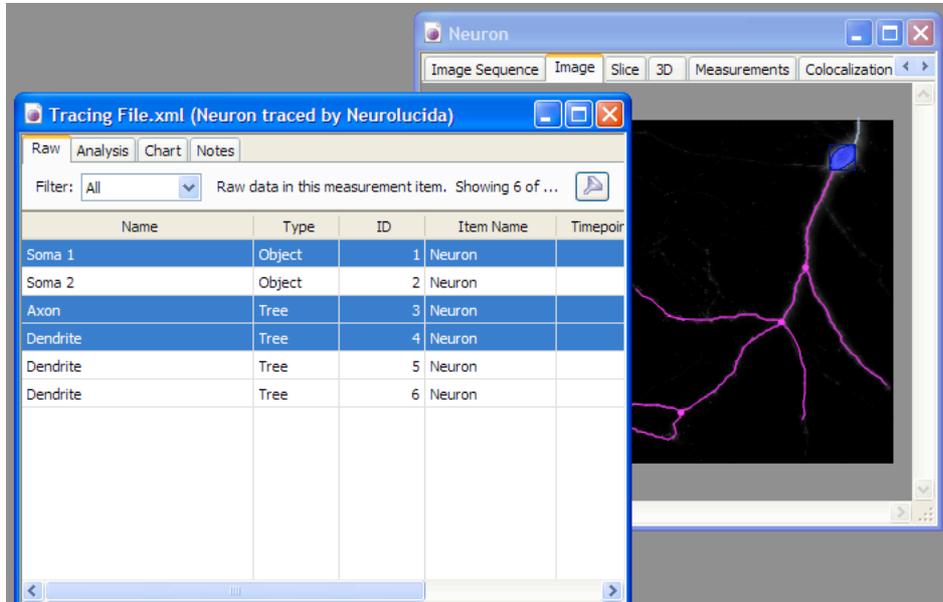
- To show the tracing as an overlay on the image in Volocity, return to the library containing the original image. Drag and drop the XML file into the library or use the **Import...** command from the File menu.
- The XML file will be imported as a Measurement Item.



Volocity Library view

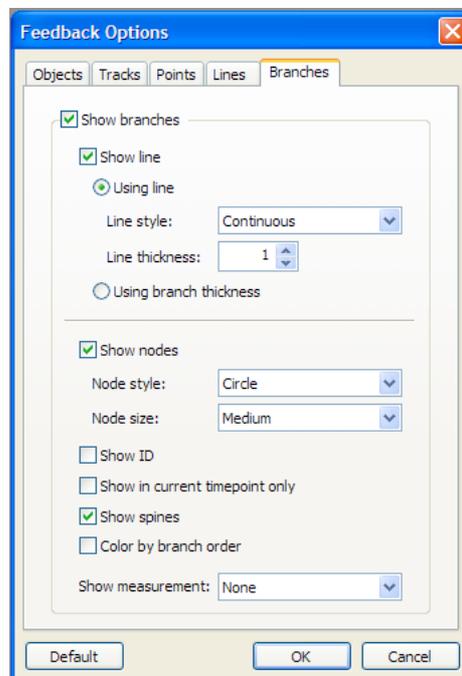
The measurement item name includes the name of the XML file, and the name of the item that was traced.

- Open the Measurement item and the image. Select rows in the measurement item to show the tracing as feedback in the Image view or 3D view of the corresponding image.



Velocity Measurement Item and Image Sequence

Use the feedback options for the Raw view of the measurement item to change how this feedback is displayed. Select **Feedback Options...** from the Raw menu.



Velocity Feedback Options

Explore the feedback in the 3D view, capture snapshots and make movies as required to generate output.

For further information about Volocity or Neurolucida please see the documentation for each product or visit the websites:

www.mfbioscience.com

www.improvision.com