

19th Nov 2019:

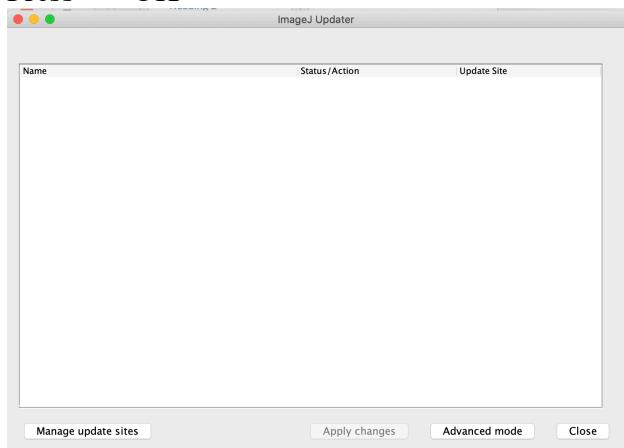
Instructions to run the image denoising Fiji/ImageJ plugin. (includes installation of the TensorFlow manage site)

Steps:

1. Fiji -> Help -> Update -> ImageJ updater -> Manage update sites



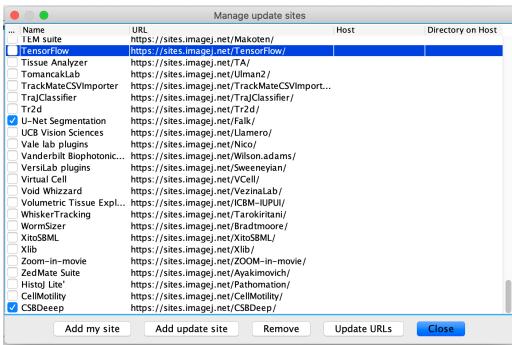
Press -> "OK"



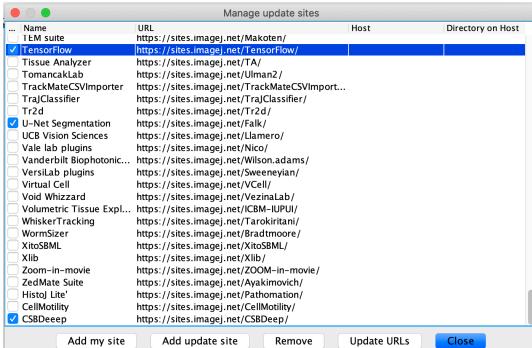
2. Goto Manage update sites ->

Manage update sites				
Name	URL	Host	Directory on Host	
<input type="checkbox"/> T EM suite	https://sites.imagej.net/Makoten/			
<input type="checkbox"/> TensorFlow	https://sites.imagej.net/TensorFlow/			
<input type="checkbox"/> Tissue Analyzer	https://sites.imagej.net/TA/			
<input type="checkbox"/> TomancakLab	https://sites.imagej.net/Ulman2/			
<input type="checkbox"/> TrackMateCSVImporter	https://sites.imagej.net/TrackMateCSVImport...			
<input type="checkbox"/> TrajClassifier	https://sites.imagej.net/TrajClassifier/			
<input type="checkbox"/> Tr2d	https://sites.imagej.net/Tr2d/			
<input checked="" type="checkbox"/> U-Net Segmentation	https://sites.imagej.net/Falk/			
<input type="checkbox"/> UCB Vision Sciences	https://sites.imagej.net/Lamero/			
<input type="checkbox"/> Vale lab plugins	https://sites.imagej.net/Nico/			
<input type="checkbox"/> Vanderbilt Biophotonic...	https://sites.imagej.net/Wilson.adams/			
<input type="checkbox"/> Versilab plugins	https://sites.imagej.net/Sweeneyian/			
<input type="checkbox"/> Virtual Cell	https://sites.imagej.net/VCell/			
<input type="checkbox"/> Void Whizzard	https://sites.imagej.net/VezinaLab/			
<input type="checkbox"/> Volumetric Tissue Expl...	https://sites.imagej.net/ICBM-IUPUI/			
<input type="checkbox"/> WhiskerTracking	https://sites.imagej.net/Tarokirtiani/			
<input type="checkbox"/> WormSizer	https://sites.imagej.net/Bradmoore/			
<input type="checkbox"/> XitoSBML	https://sites.imagej.net/XitoSBML/			
<input type="checkbox"/> Xlib	https://sites.imagej.net/Xlib/			
<input type="checkbox"/> Zoom-in-movie	https://sites.imagej.net/ZOOM-in-movie/			
<input type="checkbox"/> ZedMate Suite	https://sites.imagej.net/Ayakimovich/			
<input type="checkbox"/> HistoJ Lite'	https://sites.imagej.net/Pathomation/			
<input type="checkbox"/> CellMotility	https://sites.imagej.net/CellMotility/			
<input checked="" type="checkbox"/> CSBDeep	https://sites.imagej.net/CSBDeep/			

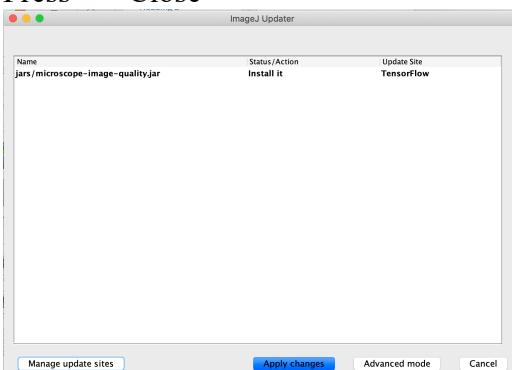
search for the site with Name: TensorFlow and URL is <https://sites.imagej.net/TensorFlow/>



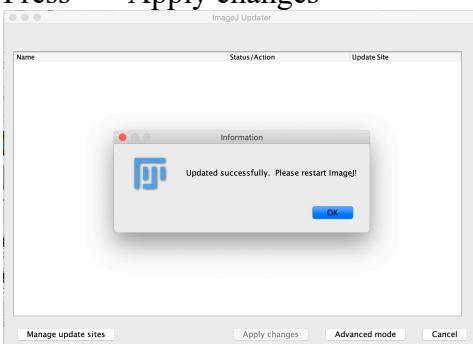
3. Select TensorFlow site.



Press -> "Close"

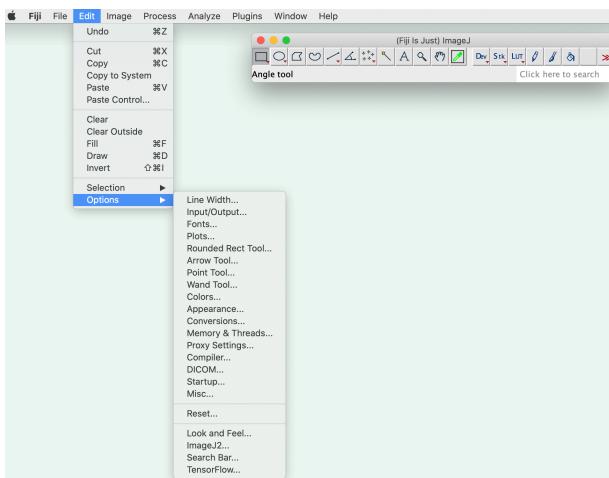


Press -> "Apply changes"

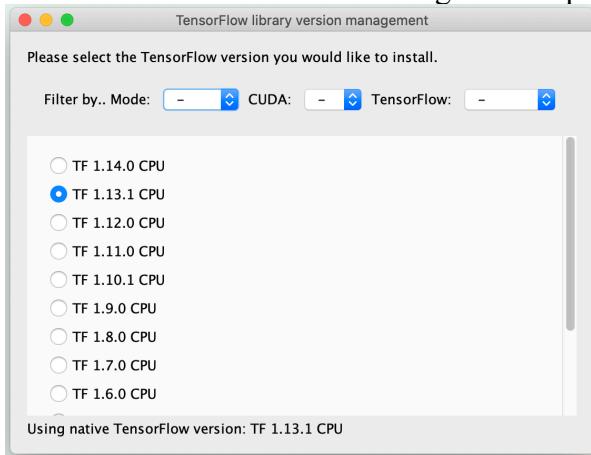


Press -> "OK"

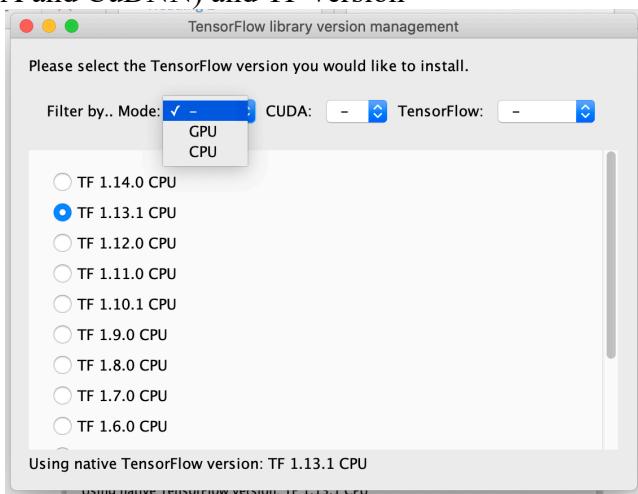
4. Restart the Fiji/ImageJ -> You can see the TensorFlow in the following section
5. Fiji -> Edit -> Options -> TensorFlow

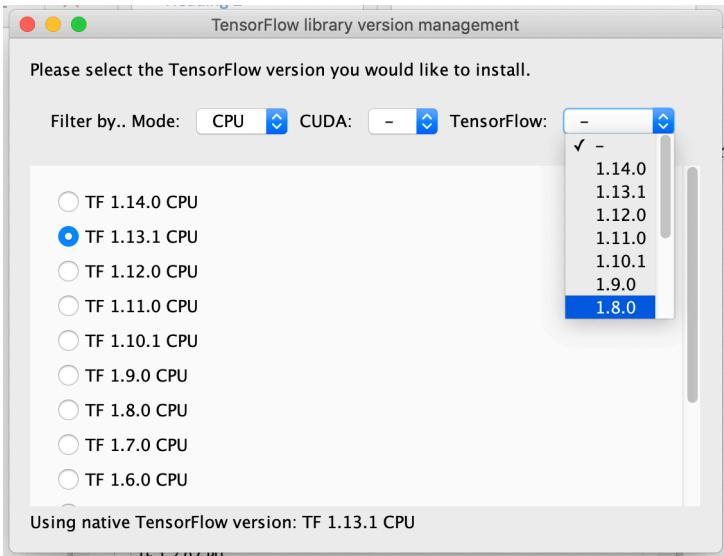


Select TensorFlow here. We will get a new pop-up



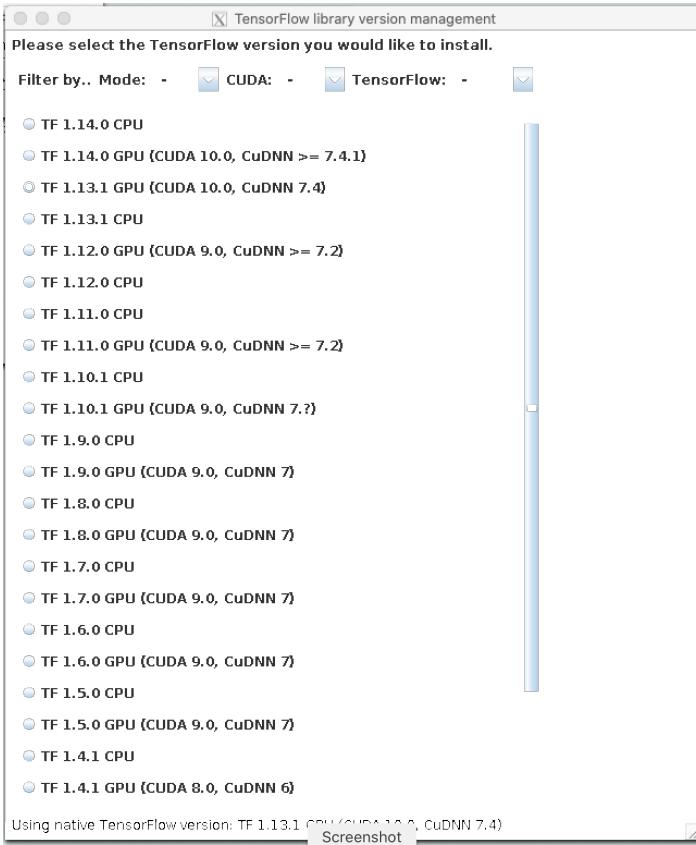
Select TF version as either TF 1.12.0 or TF 1.13.1 for CPU processing and choose the proper TensorFlow version based on Mode (either CPU/GPU), CUDA (driver version based on CUDA and CuDNN) and TF version





Note: Mac only support TF CPU version only.

in Linux/Windows machine with GPU:



Select the combination of TF GPU CUDA and CuDNN drivers combination to get the correct TF version.

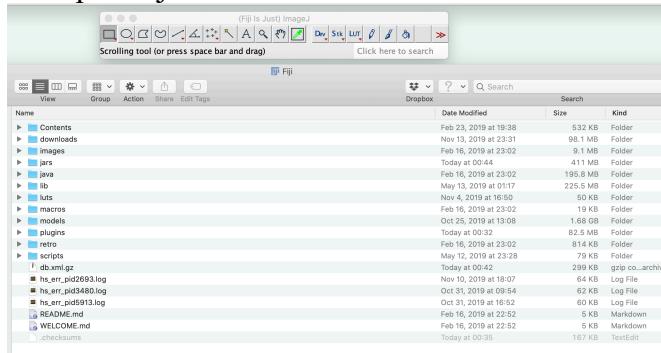
For image denoising using U-Net deep neural network inference model.

1. Install the Image denoising plugin from the GitHub location

https://github.com/varunmannam/Image_denoising/tree/master/Image_Denoising_Plugin

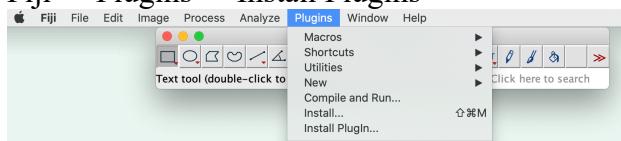
Either place this .jar file in the Fiji -> Plugins location

example: Fiji installed location

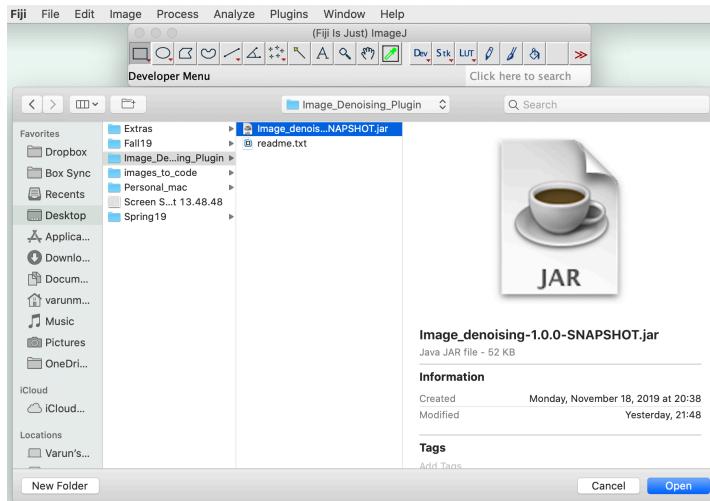
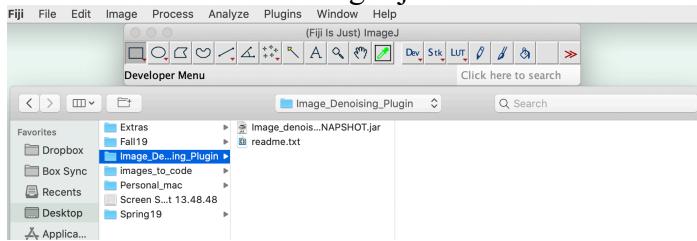


or Install this downloaded plugin directly in Fiji.

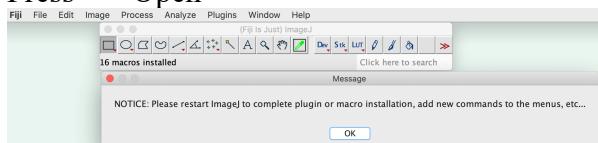
Fiji -> Plugins -> Install Plugins



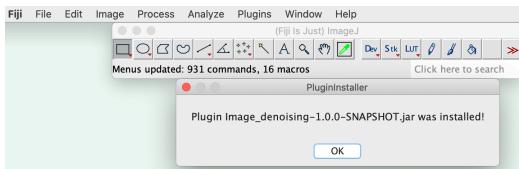
select the downloaded ImageJ jar file folder location



Press -> "Open"

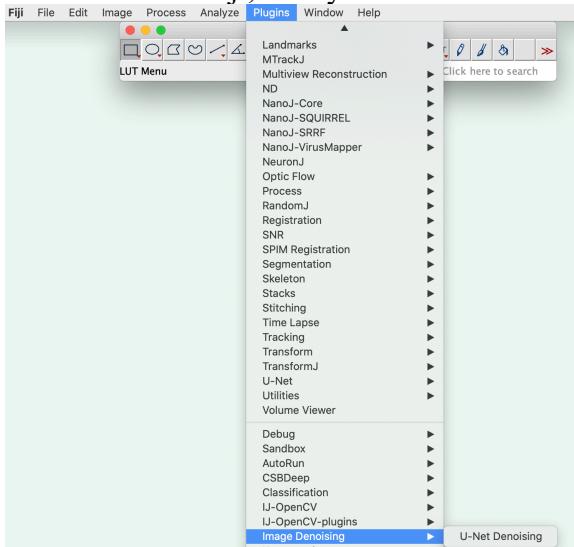


Press -> "OK"



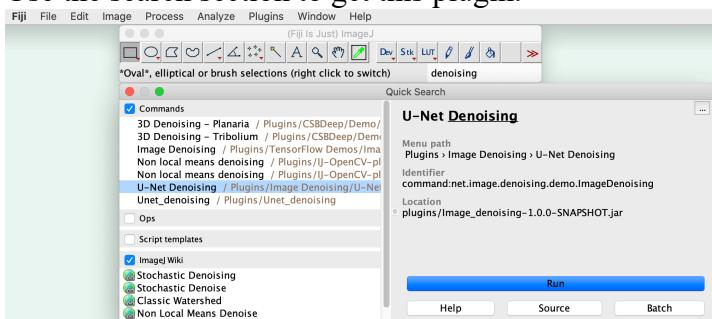
Press -> "OK" and restart the Fiji.

After restart of Fiji, now you can see the image denoising plugin in the Plugins section.



location: Fiji -> Plugins -> Image denoising -> U-Net Denoising.

Use the search section to get this plugin.



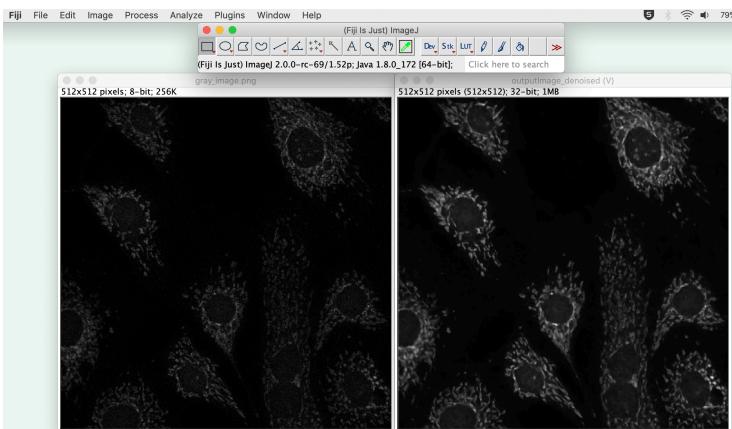
To test image denoising plugin:

Select an image in Fiji

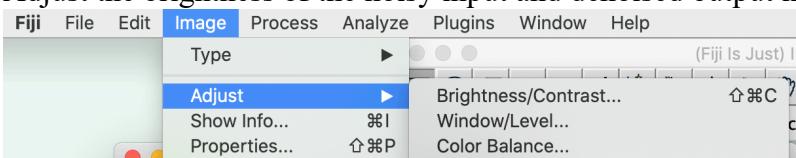
Now run this plugin U-Net Denoising.

Example:

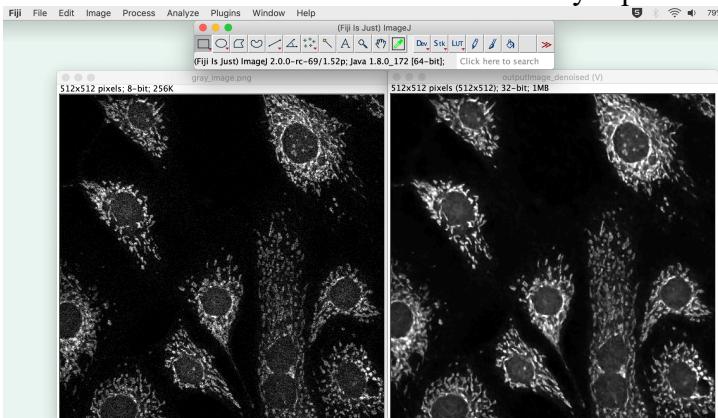
2D gray scale noisy microscopy image



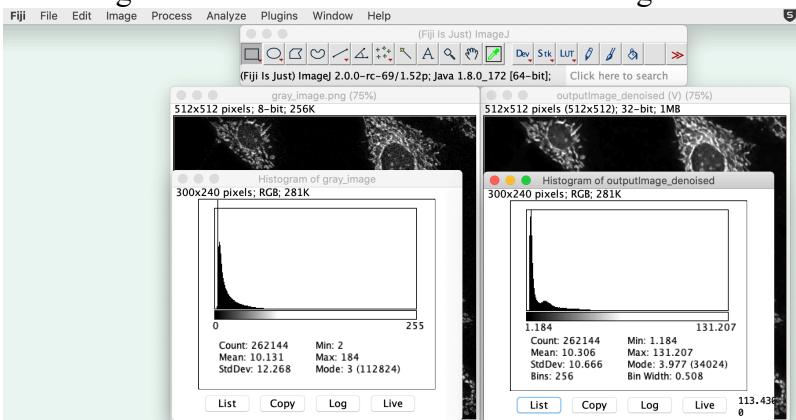
Adjust the brightness of the noisy input and denoised output image.



Now we can see the difference between noisy input and denoised output images



use histogram to check min and max of these images.



Note: output of denoised image is always 32-bit format and for color images, we need to separate the images from denoised output stack and merge them later to form a color image.