Instructions for using the NIS 2022 Image Viewer

- Access the standard web browser connected to the secure NanoImaging Services client web site: https://login.nanoimagingservices.com/myamiweb
- Login to the Image Viewer using the username and password provided by NIS.

Figure 1. Example of the NIS 2022 Image Viewer dataset browser

- On the left hand side you will see a list of the available imaging sessions for your project with the label format '0###.P###.S###.N/V#.C#' and the corresponding session number under 'Experiment'.
  - 'Label' specifies the sample or grid name. Note in exceptional instances, there can be more than one session used to acquire images for the same sample.
  - 'Experiment' specifies the imaging session associated with each sample or grid. The name of an experiment will be in a format similar to 'sdc1t22jan01a' where 'sdc1t' is the microscope, '22' is the year, 'jan' is the month, '01' is the day of the month, and 'a' represents a specific session on that day.
  - The image session names shown under "Experiment' start with the specific microscope being used. All NIS microscopes are listed below:

SDC1T	San Diego Carroll Canyon T12 microscope
SDC1G	San Diego Carroll Canyon Glacios microscope
SDM1G	San Diego Miratech Glacios microscope
SDC1K	San Diego Carroll Canyon Krios microscope
SDM1K	San Diego Miratech Krios microscope
WBG1G/WBG2G	Woburn Glacios microscope

  - The session name for each sample or grid is listed in the corresponding NIS report.

- To view the imaging session, click the 'Experiment' of interest.
- A new window with the Image Viewer will open. The viewer provides a variety of options for examining the images as well as a tool for making length measurements.

Figure 2. Top of the web-based image viewer page.

- At the very top of the image viewer, there are a few buttons that can help you examine the images as well as checking the info for the imaging parameters and sample prep conditions (Figure 2).
    - Click on **[3way viewer]** button will display the same images at different magnifications.
    - Click on **[report]** will show the microscope setup and imaging parameters summary, such as pixel size and defocus value, etc.
    - Click on **[prep info]** will show how the grid was being prepared for the specific image session.
    - Click on **[help]** will open the image viewer instruction for all NIS services, which include Characterization, Single Particle Analysis and Micro Electron Diffraction.
- On the web-based Image Viewer you can further select from several lists (Figure 3):
    - The Experiment List where you can switch between different imaging sessions.
    - The Image List where you can browse and select images to view within an experiment.
    - The Image Type/Magnification List where you can select just a subset of the images to appear in the Image List. For example, you can select just a single magnification level. By default the list starts out with "all" types and magnifications shown. The specific image types available in the list are the magnification scales used in acquiring the images. Clients may want to look at the low magnification images for an overview of the sample distribution and the high magnification images for high resolution details. Not all magnifications will be taken for each sample or project.
    - The Microscope List where you can select the images according to the microscope they were collected on.

- You can browse through the images that were acquired during the experiment, (either all of them, or by a single selected magnification) as follows:
  - Click on an individual image in the Image List (see Figure 3). You will see this image show up in the Image Viewer window. Once you have clicked on an image number, the up and down arrows of your keyboard will select the next images.
  - Select the "play" ▶ button located in the "Main View" bar on the upper right hand side of the viewer window (see Figure 3). This will automatically display the images in the list with a small delay or as fast as the bandwidth with allow. This is a good way to get an overview of the entire data set. You can stop this process by selecting the "stop" ■ button, and you can reverse the order of the images by selecting the "reverse" play ◀ button.

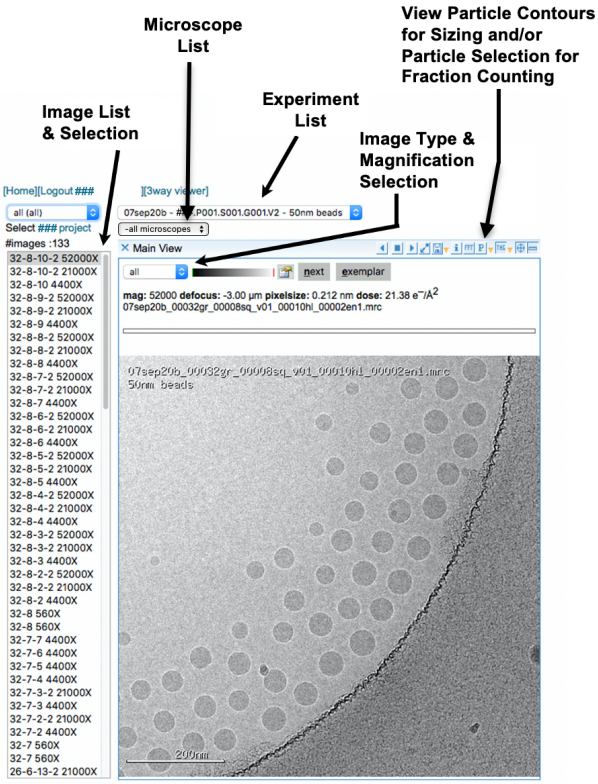

Figure 3. Example of the NIS on-line image viewer.

- If you want to take a closer look at a particular image, left click anywhere on the image and a zoomed in view will appear in a new window. That window will include a small thumbnail of the entire image in the upper left hand corner that contains a green overlay box. The box can be dragged using the mouse to navigate on the zoomed image. The scroll bars can also be used. You can make some simple measurements on the zoomed image after selecting the "ruler" icon. Once this has been selected every pair of left clicks on the zoomed image will put down a pair of green crosshairs, and the distance between the crosshairs will be displayed to the right of the ruler icon (see Figure 4).

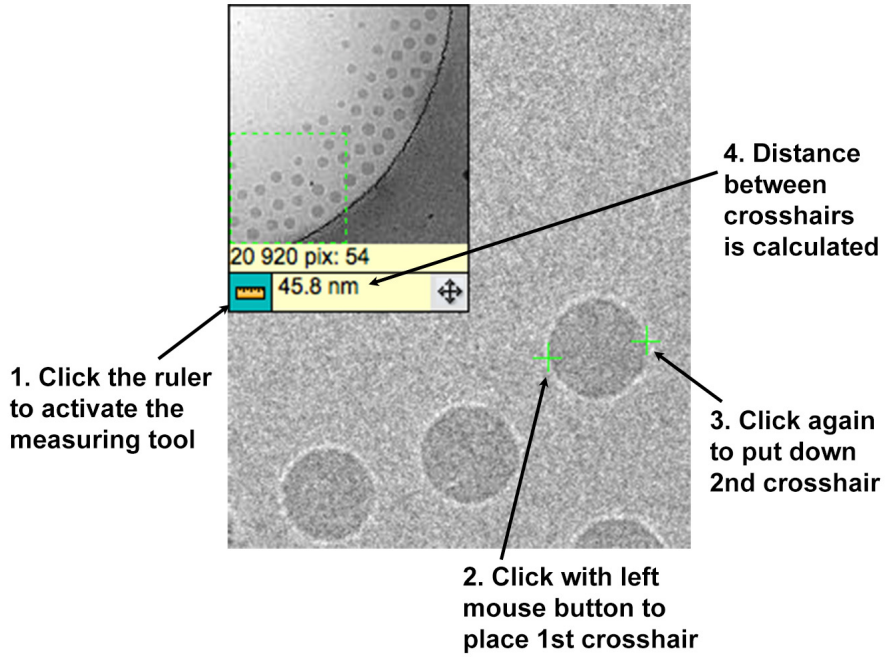

Figure 4. Example of the NIS measurement tool. This will come up in a new window when you left-click on any image in the viewer.

- There are a number of other features available on the Main View toolbar of the image viewer:
  - All of the parameters used to acquire the displayed image can be accessed by clicking on the icon. This will pop up a new window with various summaries and links to parent or child images related to the current image. A full parameter set associated with the image can be accessed by selecting "view" on the Data Tree view » icon.
  - Selecting the icon will display or hide targets on the lower magnification images that show where the higher magnification images were acquired.
  - Selecting the icon will display or hide the scale bar.
  - If you want to view the traced particles that are part of the particle sizing analysis you can do this by selecting 'sizingrun' and 'diameter' by clicking on the yellow triangle next to the P icon, and then clicking on the P icon itself to display or hide the traced particle contours (see Figure 5). Please keep in mind that the particle sizing analysis is generally only done at one magnification, and for only a subset of the images. This feature is available upon request only.
  - If you want to view the selected particles that are part of the particle fraction counting analysis you can

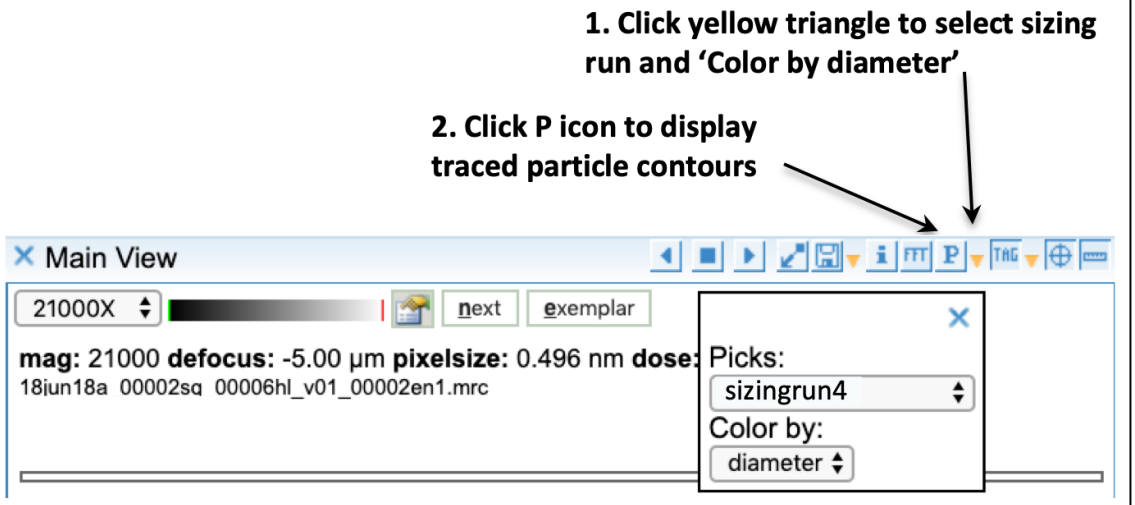

Figure 5. Example of how to display traced particle contours in the viewer.

do this by selecting 'countingrun' and 'label' by clicking on the yellow triangle next to the P icon. Here, you will also have the opportunity to select all or some of the fraction counting categories (see Figure 6). You will have to click on the P icon itself to display or hide the labeled particles. Please keep in mind that the particle fraction counting analysis is generally only done at one magnification, and for only a subset of the images. This feature is available upon request only.

- If you want to save any particular image to your disk you can do this by first selecting the desired image type (mrc, tiff, or jpeg) by clicking on the yellow triangle next to the disk icon and then clicking the disk icon itself to download the image to your computer (Figure 7). Note that these high resolution images will not have the scale bar, labels or targets displayed. The image displayed on the image viewer is reduced in size but contains all the labels and targets. The image in the viewer can also be saved to disk by right clicking on the image and selecting "Save Image As…".

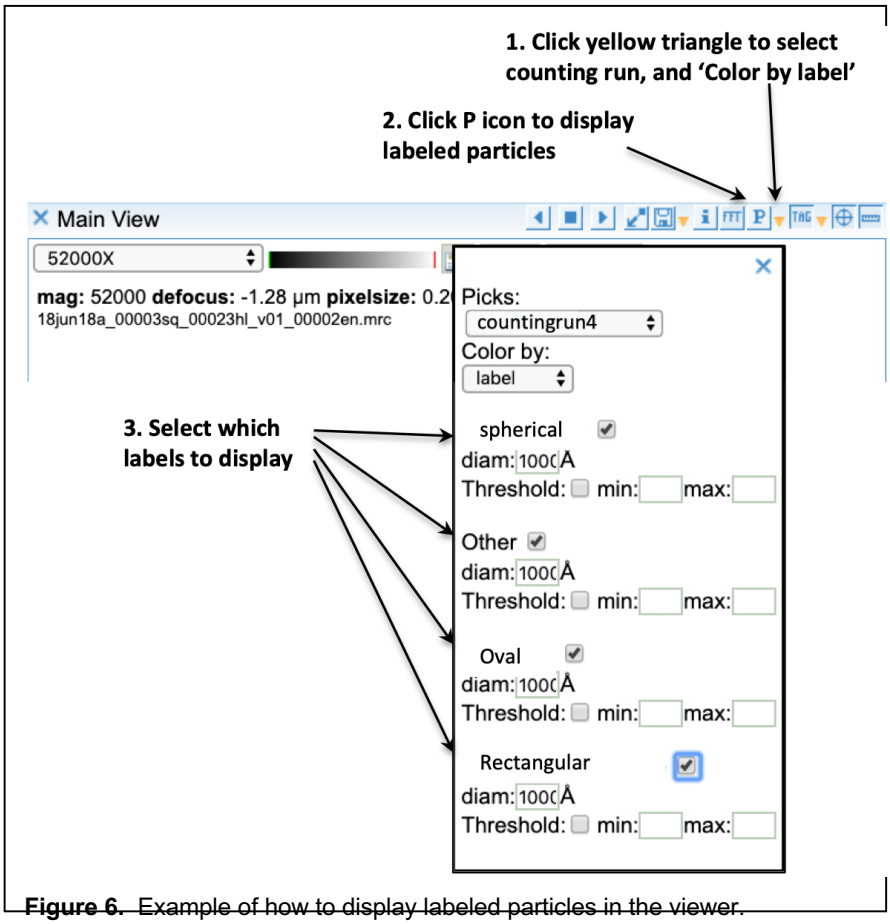

Figure 6. Example of how to display labeled particles in the viewer.

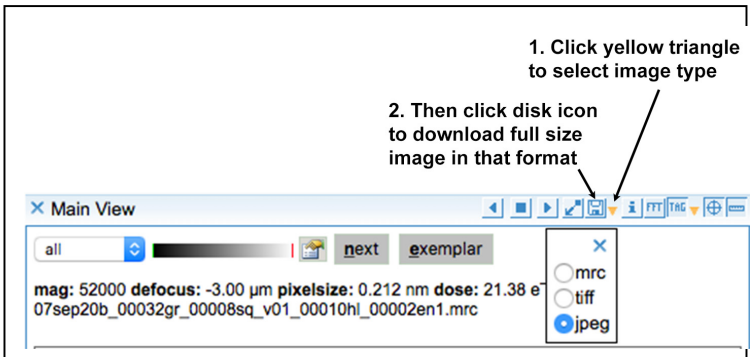

Figure 7. Example of how to save a high resolution image to disk.

- To log out of the image viewer, click 'Logout' on the top left corner of the window.
- Please feel free to contact us with any questions or issues you have regarding the image viewer.