

Experiment File Location

- Click the **Data Folder** button to access experiment files.
- All data should be saved within the /data1 directory.
- Open **Resolve3D Settings** menu and navigate to the **Files** tab to change the current data directory.

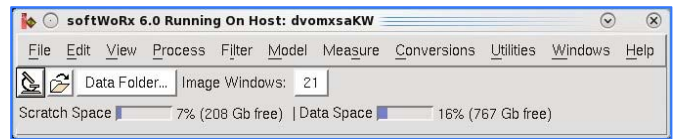
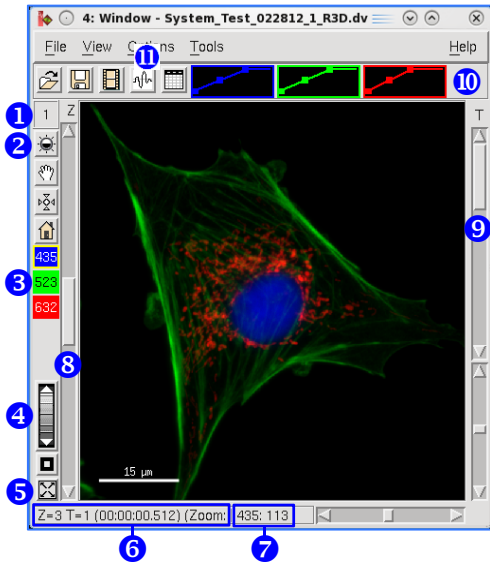


Image Window Controls




- Window ID Number** – Used to load files into processing tools.
- Histogram Tool** – Opens full histogram to adjust display scale.
- Channel Selection** – Toggles individual channels on and off.
- Zoom Bar** – Click the down arrow to zoom in on the image, up to zoom out.
- Fit to Screen** – Resizes image to fit the window.
- Status Bar** – Reports current z section, time point and zoom level information.
- Channel Status** – When cursor is placed over the image, shows pixel intensity information for the channel (highlighted in yellow in channel selection section).
- Z Slider** – Scrolls through z sections.
- Time Slider** – Scrolls through time points.
- Quick Histogram** – Adjusts display scaling without opening histogram tool.
- Arbitrary Line Profile** – Draws a line profile anywhere in the image. Use in-tool check box to view FWHM (Full Width at Half Maximum) information.

General Viewing Tips

- To adjust the size, color and position of the **Scale Bar**, click **Options | Display** and adjust **Scale Bar Attributes**.
- To add a **Timestamp** to the image, click **View | Show Section Label**.
- To view data as a **Montage**, from the image window select **View | Montage** and then one of the following:
 - **By Channel** – Displays each channel in the data set separately along with a color overlay.
 - **By Time** – Displays each time point in the data set separately.
 - **By Z** – Displays each z section in the data set separately.

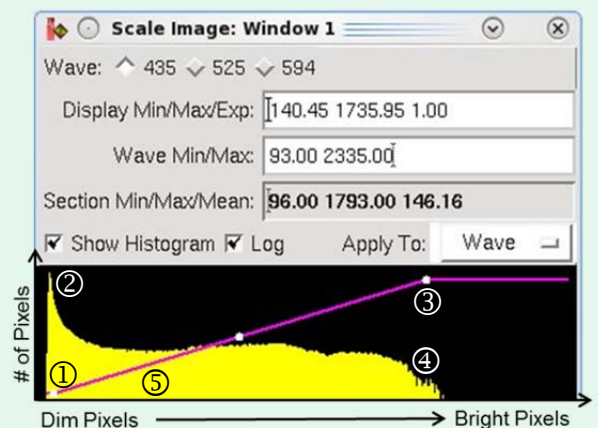
Note: Click **View | Montage | Options** to edit number of rows and columns. Montage view can be saved as jpeg or movie.

What is the Image Histogram?

Click the **Histogram**  button to open the image histogram tool. The histogram is a frequency plot that shows the distribution of pixel intensities in the image. The x-axis represents intensities from dim to bright and the y-axis reports the number of pixels of that intensity.

How do I adjust the Histogram?

- To scale out background, click on the left handle ① (white dot) and slide to the right until handle is even with the histogram peak ②. All pixels with intensity below this value will be set to the darkest shade (black).
- Click on the right handle ③ and slide to the left until the handle just overlaps with the tail of the histogram ④. All pixels with intensity higher than this value will be set to the brightest shade.
- Clicking on the purple line in between two handles ⑤ will adjust the slope, commonly called Exp or Gamma, of the line. This can be helpful for visualizing dim objects alongside bright objects, but care must be taken to report this adjustment when used as it does make the display non-linear.



File Structure and Notations

The DeltaVision image file format will always have a .dv file extension. In addition, there are a number of notations appended to DV image files that can help identify what type of file it is before it is opened:

- FileName_ **R3D.dv** – Raw (unprocessed) image file
- **_R3D.dv.log** – Acquisition log file
- **_D3D.dv** – Deconvolved image file
- **_D3D.dv.log** – Deconvolution log file
- **_PRJ.dv** – Projected image file
- **_VOL.dv** – Volume View image file

File suffixes build upon each other. A file called **Sample_01_R3D_D3D_PRJ.dv** would be an image file that was deconvolved and then projected.

General Processing Tips

- To load files into processing tools, open the tool, then do one of the following:
 - Drag and drop **1** the **Window ID Number** into the **Input** field.
 - Type the **Window ID Number** into the **Input** field.
 - Drag and drop the image icon from a file browser into the **Input** field.
- Click the **Details** **2** button to process only a subset of the data by selecting only certain z sections, time points, etc.
- Click the **Select Region** **3** button then draw a box in the image window to select an x/y area to process. The **Reset** **4** button will erase a selected region.

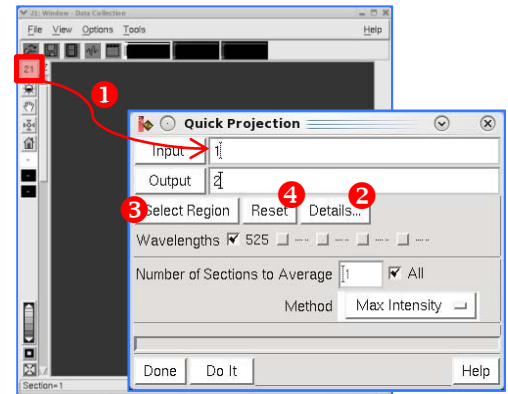
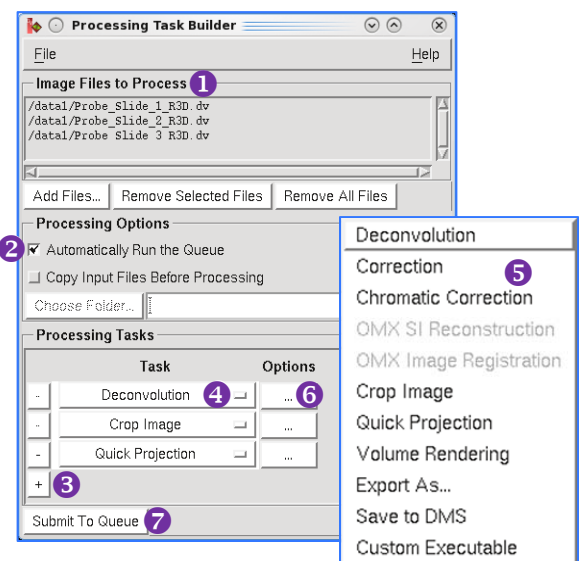


Image Processing

- **Deconvolution** – Processing step in which an algorithm reassigns blurred light back to its original point source. Will result in a deconvolved file with higher contrast and slightly higher resolution than the raw data.
 1. Click **Process | Deconvolve**.
 2. Relevant information is loaded from the raw image file. Default settings are adequate for the majority of applications.
 3. Click **Do It**.
- **Quick Projection** – Tool to project 3D data (x/y/z) into a 2D format (x/y) by **Max Intensity**, **Average** or **Sum** method.
 1. Click **View | Quick Project**.
 2. Select projection method (**Max Intensity** is most common, but shouldn't be used for quantification) and then click **Do It**.
- **Volume Viewer** – Tool which will generate a 3D image of a data set that can be rotated around a specified axis. Ideal for visualizing data in 3D, but should not be used for 3D quantification.
 1. Click **View | Volume Viewer**.
 2. Select the **Number of Projections** and preferred **Rotation**. A higher number of projections will result in smoother rotation.
 3. Click **Do It**.
- **Batch Processing** – The **Task Builder** window works with the softWoRx™ Queue Manager to batch process image files.
 1. Click **Process | Task Builder**.
 2. Load image files into the **Image Files to Process** **1** section.
 3. Click the **Automatically Run the Queue** **2** check box to process files immediately. To process later, uncheck and specify date/time in the **Queue Manager** after Step 7.
 4. Click the **+** **3** button to add processing tasks.
 5. Select **Processing Tasks** **4**. Available tasks are shown **5**.
 6. Click the Options "..." button **6** to view possible options for each task.
 7. Click **Submit to Queue** **7**.



Save As

- **Movie** – In the image window, click **File | Save as Movie**. Select the preferred file format (MPEG, AVI or Quicktime) and frame rate, then click **Preview**. When the speed of the file looks okay, select **Do It**.
- **Tiff** – In the image window, click **File | Save as Tiff**. For scaled output, click the check box next to **Scale Using Min/Max/Exp Values Below**. Select the appropriate **Output Size** (16 bit Grayscale must be used for quantification), then select **Do It**.

Note: A separate Tiff file for every channel, z section and time point in your experiment will be created.

- **JPEG Snapshot** – In the image window, click **File | Save as JPEG**. Select **Do It**. JPEG is NOT a quantifiable file format.