

Installing and Using the Vuzix's VR920 Glasses

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Installing

The term “PC” will mean a Windows system (desktop or laptop). For a specific example, the PC used is a laptop (Dell, XPS M170) running Windows XP.

NOTE: Use of the Vuzix VR920 glasses requires that the screen resolution of the PC be set to 1024. The glasses go up to a resolution of 640×480, but can support 1024×768 VGA formats. Although the video card of the PC may be able to handle higher resolutions, the glasses can not and the software will reduce the resolution of the PC to match the lower limit (1024) of the glasses. This can cause a lot of problems. So it is best to reduce the PC screen resolution to 1024 first.

To get the glasses to work:

1. Download and install the VR920 software (“VR920 v2.4 Software”) from http://www.vuzix.com/support/downloads_drivers.html.
2. Plug the glasses into the PC:
 - a. the 15 pin into the video out port, **and**
 - b. the USB plug into the USB port.**Both** must be plugged in.
3. Now you need to change the video settings of the PC. This is like setting up a second monitor for the PC.
 - a. If you haven't already, set the resolution of the PC screen to be 1024. If the current resolution is higher than 1024 then by changing to the lower

1024 value your desktop icons will get rearranged. If you have a lot of icons, some may not get displayed at all when the lower resolution is set.

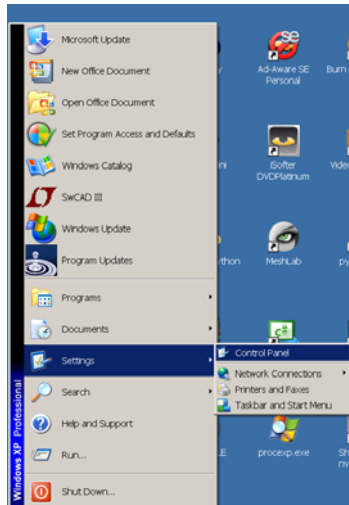


Figure 1 Go to the Control Panel.

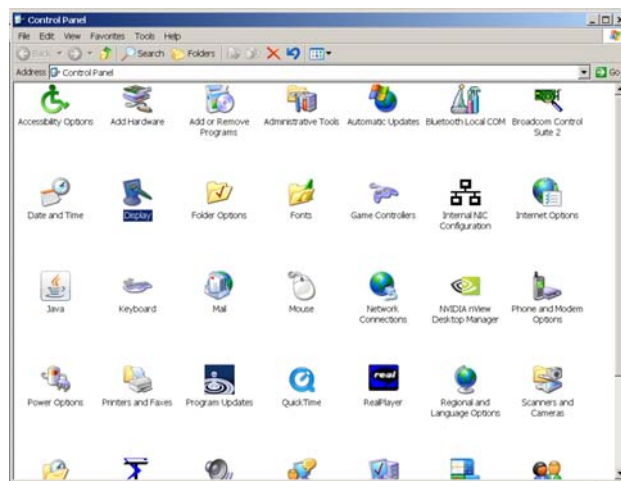


Figure 2 Select "Display".

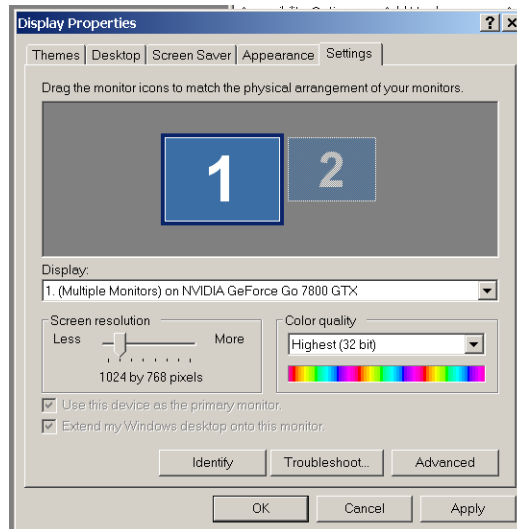


Figure 3 Set “Screen resolution” to 1024 ×
Note the “Advanced” tab. That will be used soon

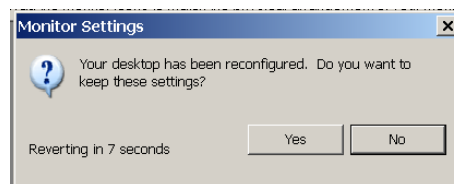


Figure 4 Click “Yes” to keep the new resolution.

- b. Now you need to “**clone**” the monitor. The way to do this *depends on the graphics card* you have. Click on the “Advanced” tab (see Figure 3).

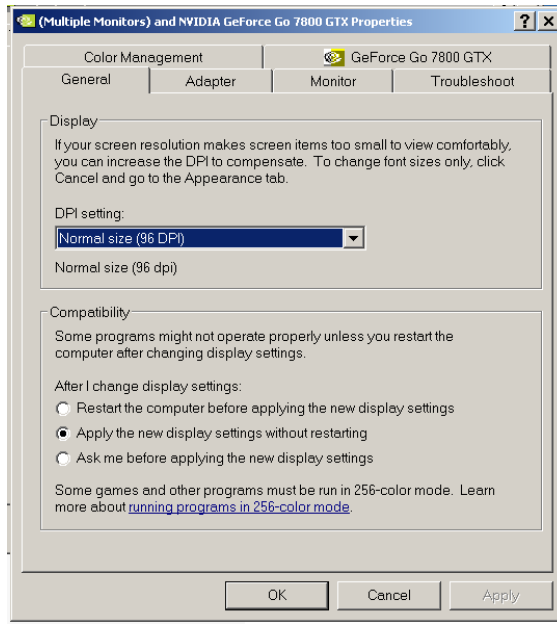


Figure 5 Under the “Advanced” tab, look for the graphics card, which is a GeForce Go 7800 GTX card. Click on the tab.

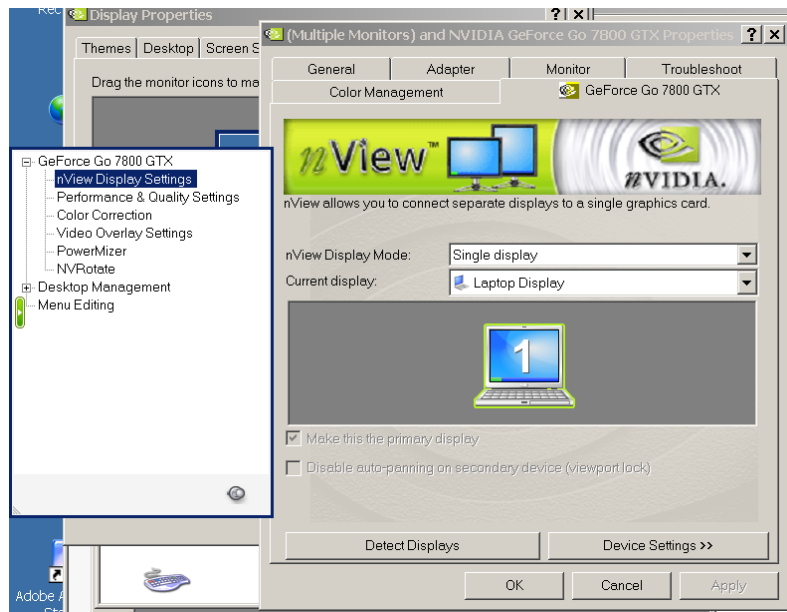


Figure 6 This displays the graphics card options. Notice that the “nView Display Mode” is currently “Single display”.

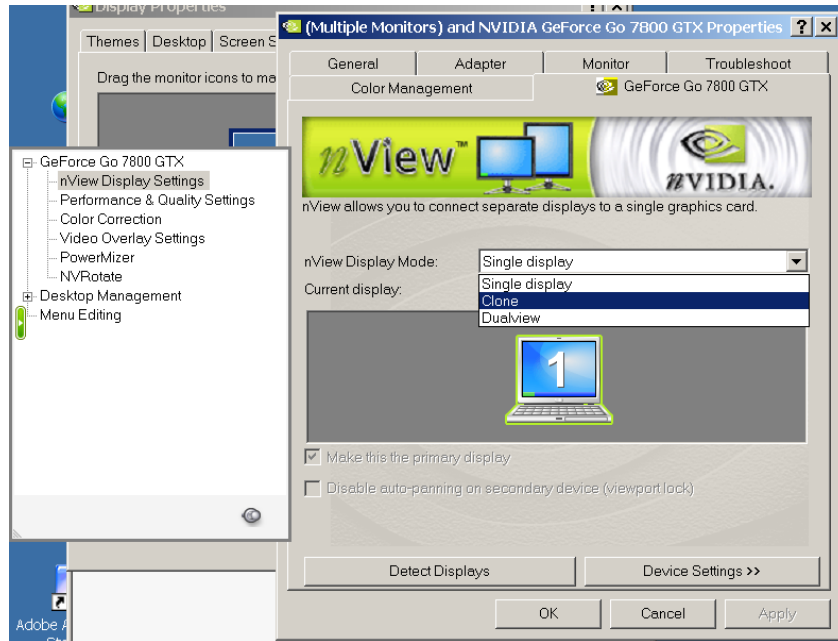


Figure 7 Change “Display Mode” to “Clone”.

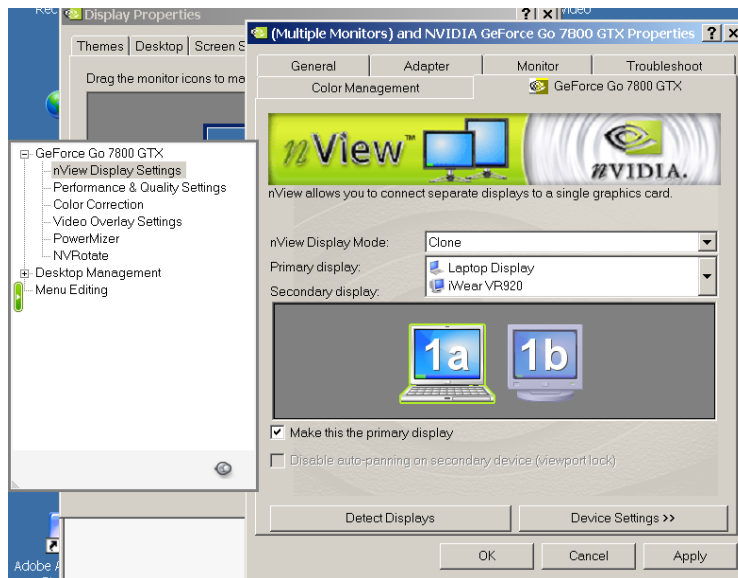


Figure 8 Now it lists the Primary display as “Laptop Display” and the Secondary display as “iWear VR920”. That’s what we want.

Click on “Apply”.

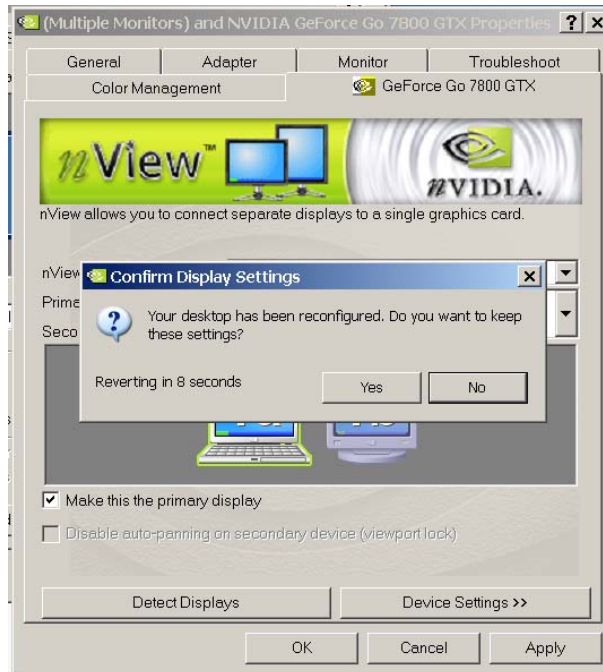


Figure 9 And again the notification that the settings have changed.
Click on “Yes”.

That’s it! After all this, you should be able to see the PC desktop displayed when you wear the glasses. (Unfortunately, the resolution is so low that you can’t read anything from the VR920 glasses display...)

Using

You can use the glasses for viewing a single stereo image pair or you can combine multiple image pairs into a slide show by using the Vuzix JPS Viewer software. The JPS Viewer software can be downloaded from the Vuzix website at

http://www.vuzix.com/support/downloads_drivers.html

It can be downloaded alone or as part of the “Bonus Software” bundle.

The file format used by the JPS Viewer (.jps image files) is a .jpg file containing a left and right image side-by-side. These types of image files can be made with Photo Shop or

Paint Shop or other similar image manipulation software. Assuming that the two images are of the same size and properly aligned to produce a good 3D visual effect (see below for how to do this), simply create a new image which is twice as wide as one of the original images. Then copy and paste one of the original images on the left-half of the new image and the other on the right-half of the new image. (If you don't get good results, try exchanging the left and right images.) If the software you use doesn't allow saving the new image as a “.jps” file type, then simply save the file as a jpg and rename the file later.

The following Figure is a **single** “.jpg” file (file type renamed to be “.jps”) created from two TEM images using Paint Shop Pro.

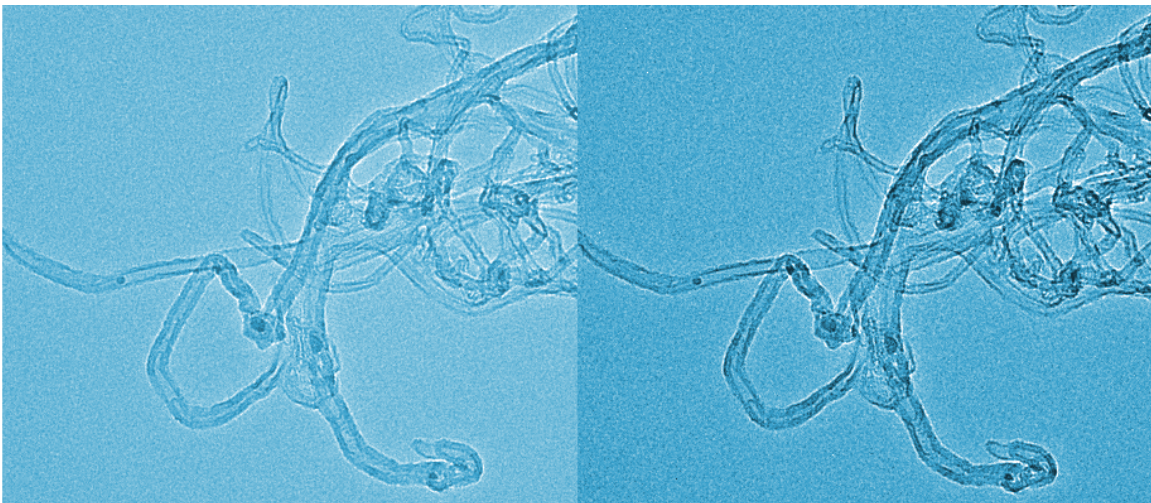


Figure 10 Example of a jps image file containing two side-by-side images.

One advantage that the VR glasses approach has over the anaglyph approach is that the VR glasses do not depend on the coloring of the image to produce the 3D visual effect. This means that the color aspects (range and clarity) of the image are much higher with the VR glasses than with the anaglyph colored lens. The down side to the VR glasses approach is that the image files are twice as big as the anaglyph files.

As mentioned above, making the jps image depends on the original images being the same size *and properly aligned* to produce a good 3D effect. One approach to accomplishing this is to follow the same procedure for making anaglyphs up to the point of aligning the red/cyan images. At that point in the anaglyph procedure, you are using the red/cyan colored lens to adjust the position of one image over the other.

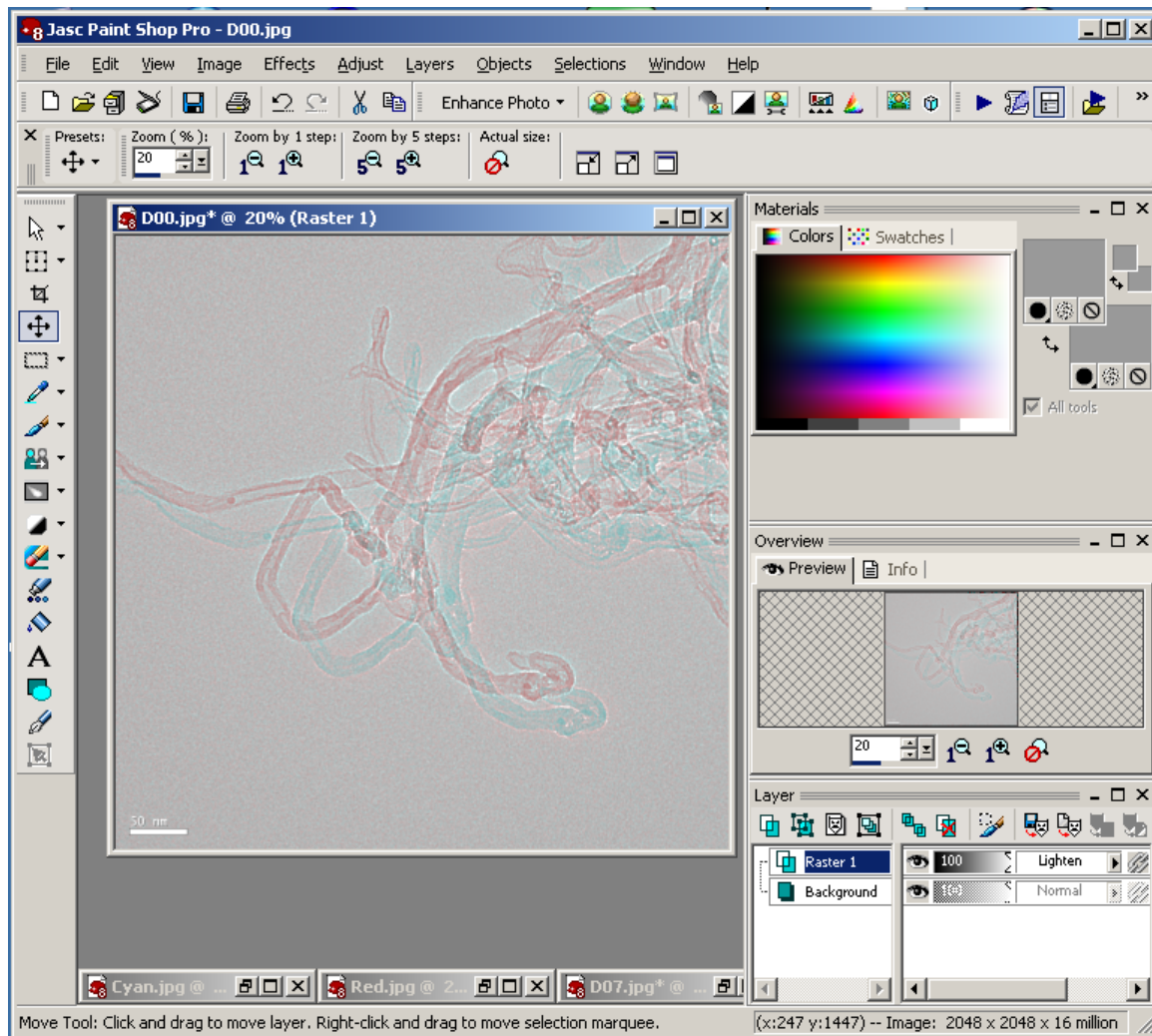


Figure 11 Aligning the images, as when making anaglyphs.

Once you have the images aligned, ***do not*** merge (flatten) the two layers. Use the Area Selection tool to select only the area that you want to include in the image. Copy and paste as a new image the top layer only. This is done by making sure that the “Raster 1” layer is the only layer selected (highlighted) in the Layers panel.

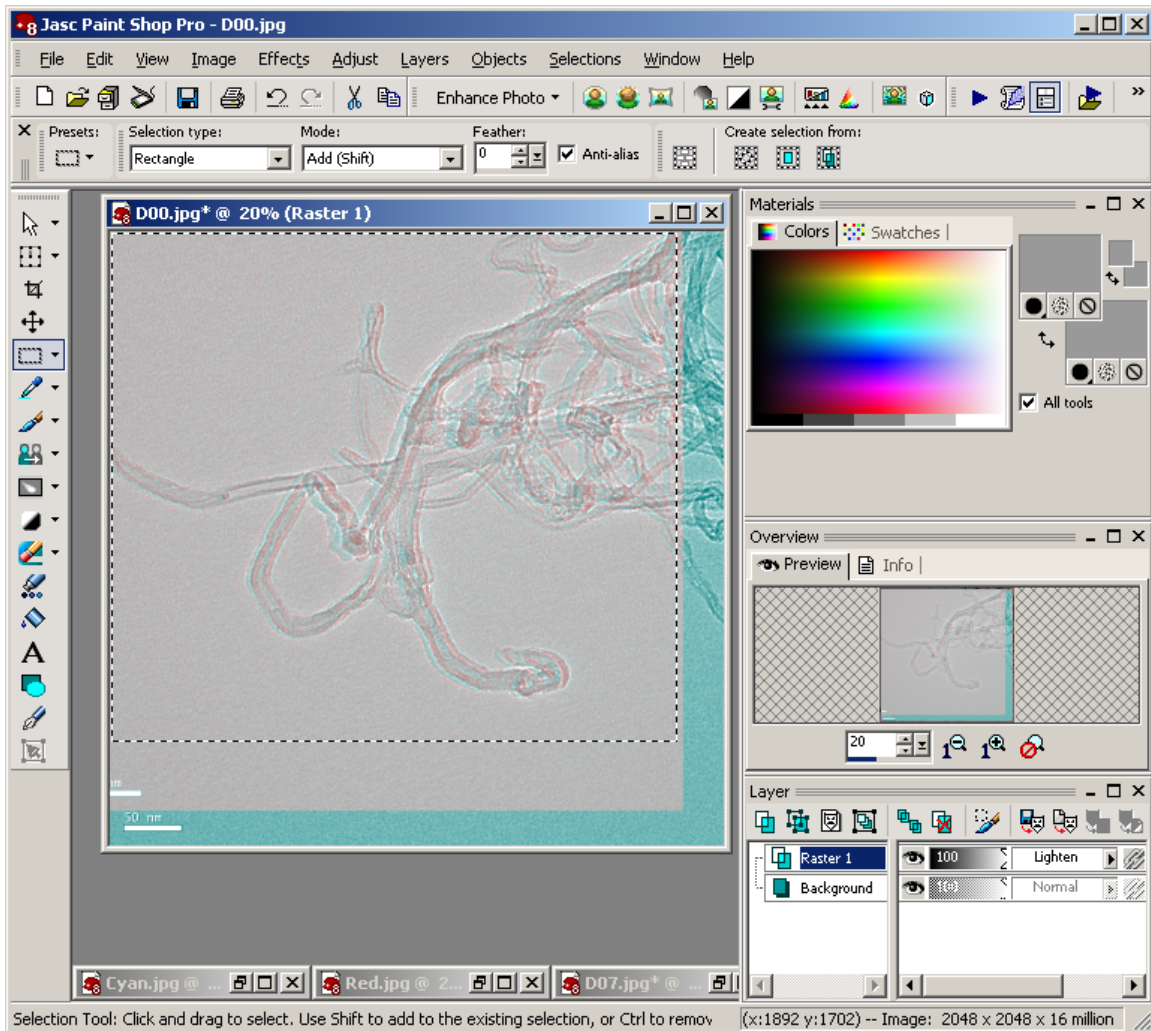


Figure 12 After alignment, copying the “Raster 1” layer.

Next, highlight only the “Background” layer in the Layers panel. Don’t change the selected area! Simply copy and paste as a new image again. Since the “Background” layer is highlighted, only the background (bottom layer) is copied.

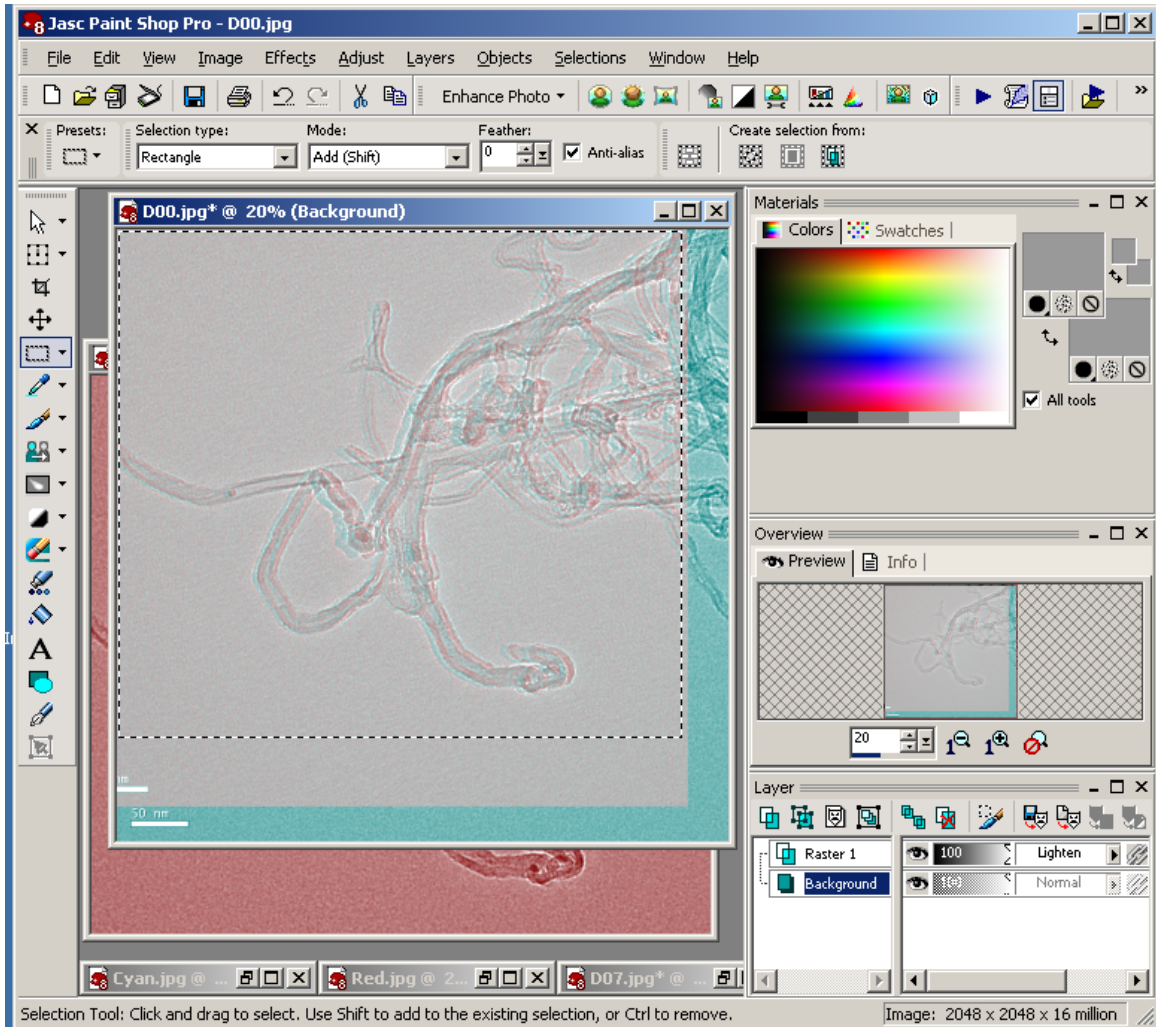


Figure 13 Copying the “Background” layer.

Now you have the two images, of the same size, and properly aligned, to make the jps image. Make a new image twice as wide as the images and copy/paste each image.

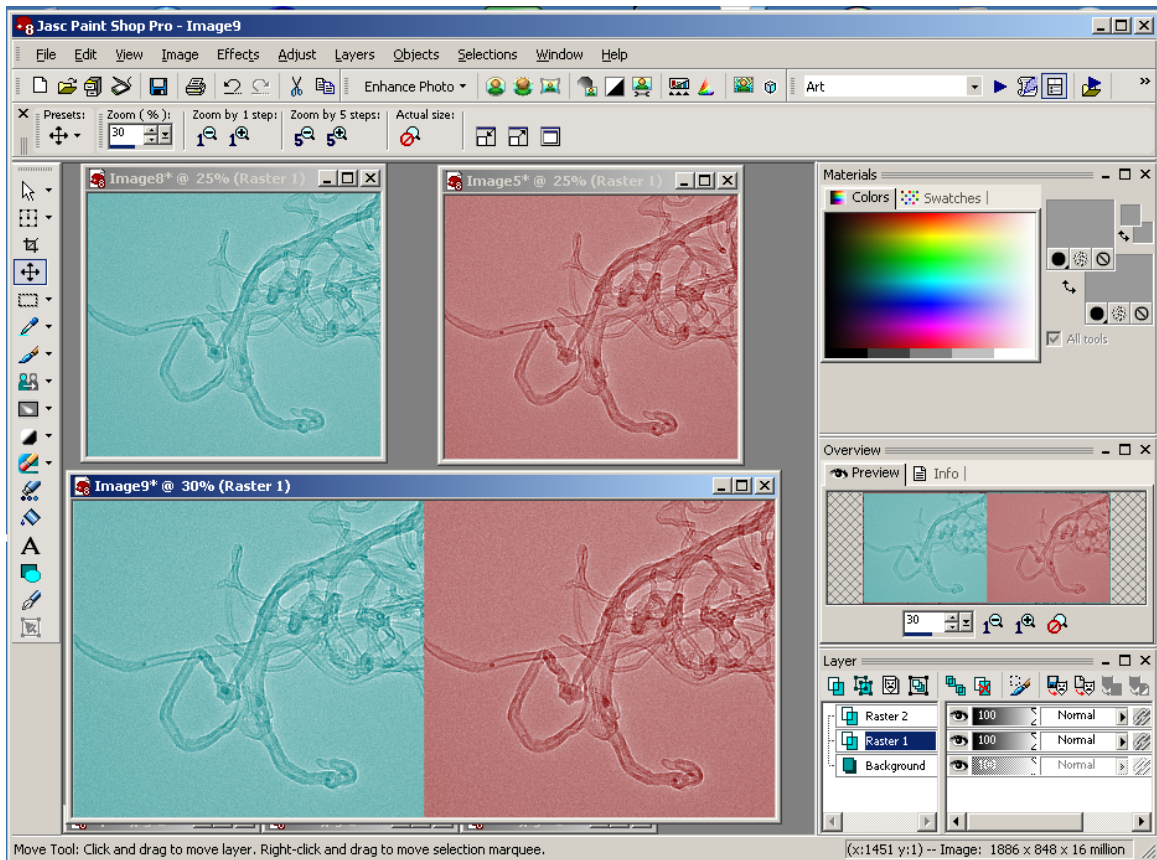


Figure 14 Arranging the images for the jps image file.

Merge (flatten) the layers together to form a single image.

To remove the red and cyan coloring from the combined image, simply set the combined image color to “Grey scale”.

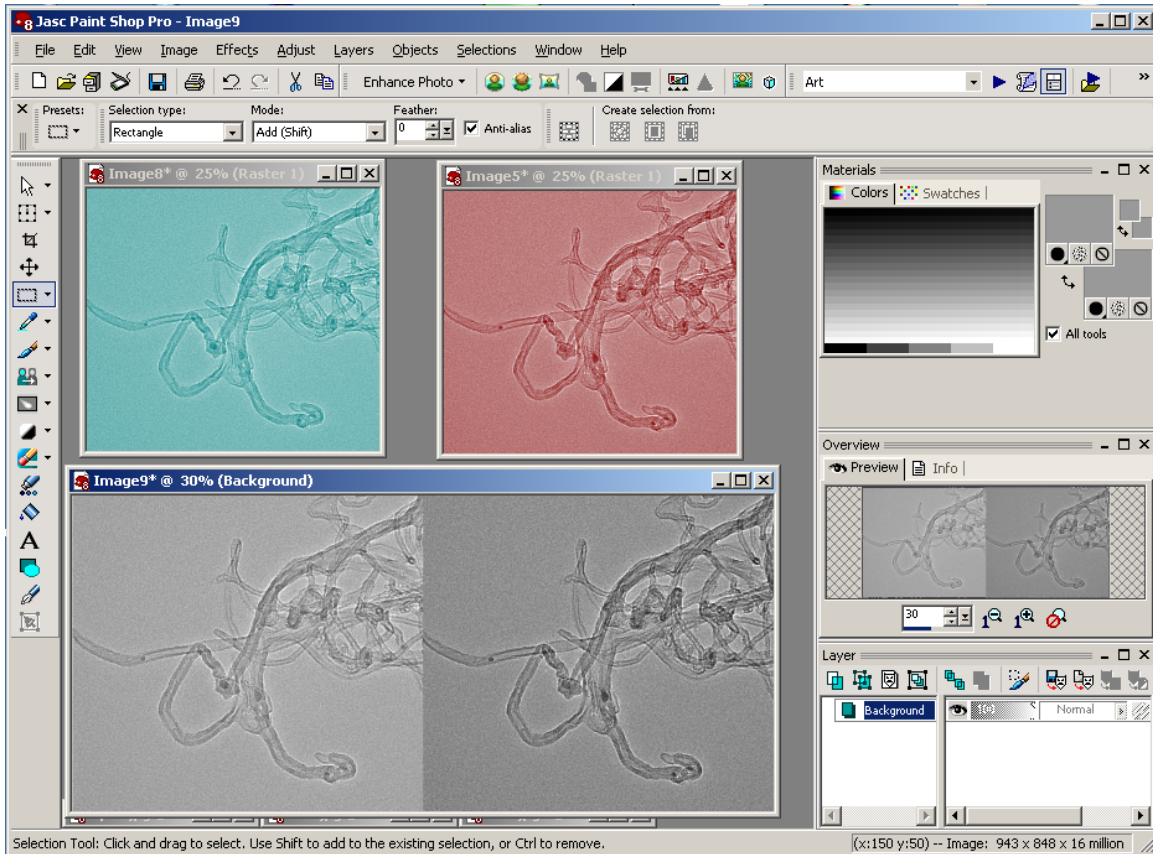


Figure 15 The final .jps image.

Save the image as a “.jpg” file and then rename the file type to be “.jps”. The JPS Viewer can then be used to view the image.