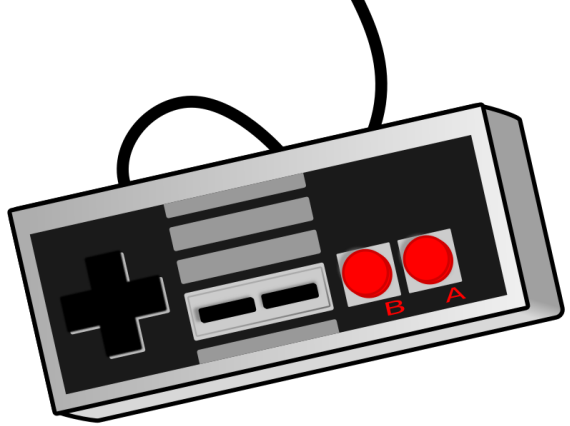


Lab_5

Introduction to Gimp

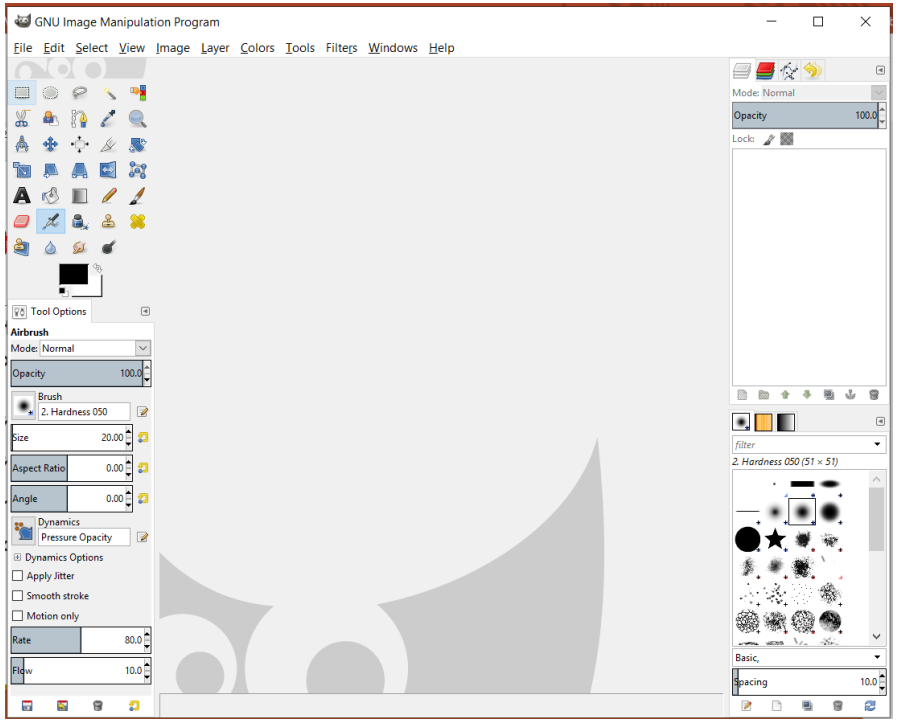
420-141-VA - GAME PROGRAMMING 1 - VANIER COLLEGE

Outline

Adaptation from Gimp Tutorial https://www.gimp.org/tutorials/GIMP_Quickies/

GIMP is a very powerful image manipulation software. The Lab will help to make quick modifications to apply to an image.

- **Changing the Size (Dimensions) of an Image (Scale)**
- **Changing the Size (Files size) of a JPEG**
- **Crop an Image**
- **Flip an Image**
- **Rotate an Image**



Step 1: Set up

- Download the **Lab_5.zip** file from Omnivox, which contains the **modern-crab** Scenario.
- Unzip the contents to somewhere on your USB key or hard disk.
- You will be using an image from the *Astronomy Picture of the Day* (APOD), provided by NASA.
- find your image ***horseheadir_hubble.jpg*** and open it with **Gimp** Software:

File → Open

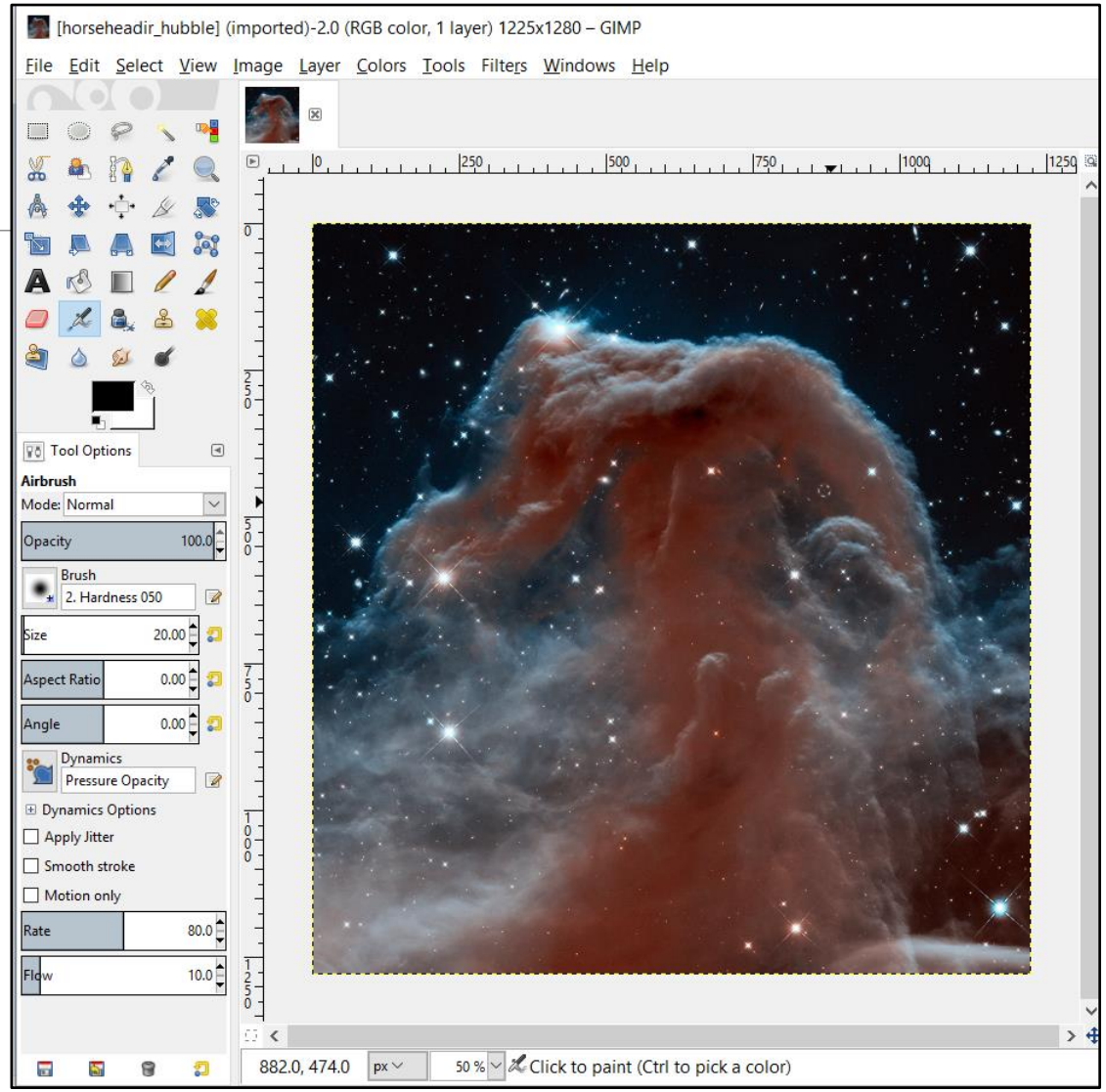


Fig. 1 - GIMP canvas View, with information at the top of the window.

Step 2: Changing the Size (Dimensions) of an Image (Scale)

- Notice that the information at the top of the window shows the current pixel dimensions of the image (in this case, the pixel size is **1225×1280**).
- To resize the image to new dimensions, we need only invoke the **Scale Image** dialog:

  Image → Scale Image…

- This will then open the *Scale Image* dialog box:

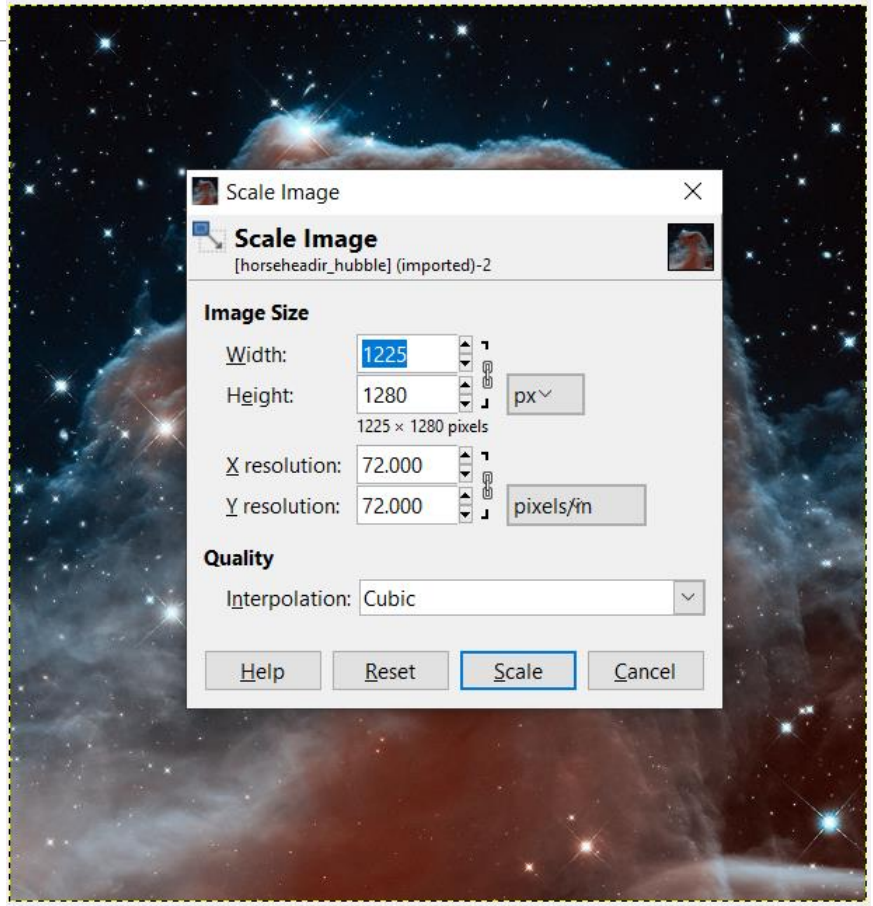


Fig.2 - The Scale Image dialog

- You can enter new values for **Width** and **Height**.
- The small chain icon shows that the **Width** and **Height** values are locked to keep the same aspect ratio (no strange compression or stretching in the image).
- **To do:**
  Set the width to 600 px, the **Height** will automatically change to maintain the aspect ratio of the image

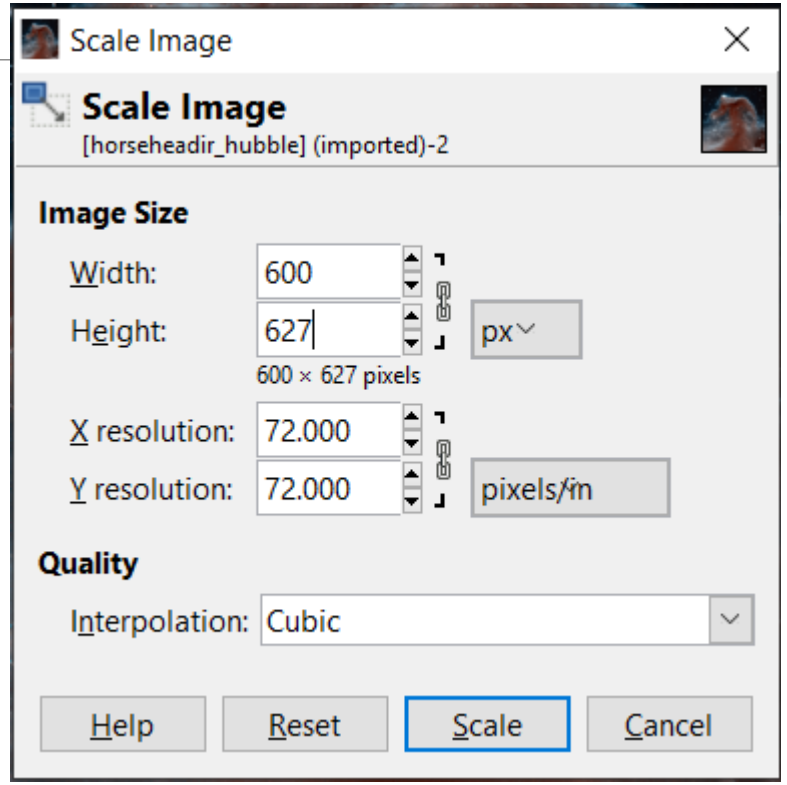


Fig. 3 – Width change in Scale Image dialog

- To specify a new size using different unit (other than **Pixel** size), click on the "**px**" spinner:
- A common use for this could be if you wanted to specify a new size as a percentage of the old one.
- **To do:**
  change to "***percent***", and then enter 50 in either field to scale the image to 50%.
- Click **Scale** button

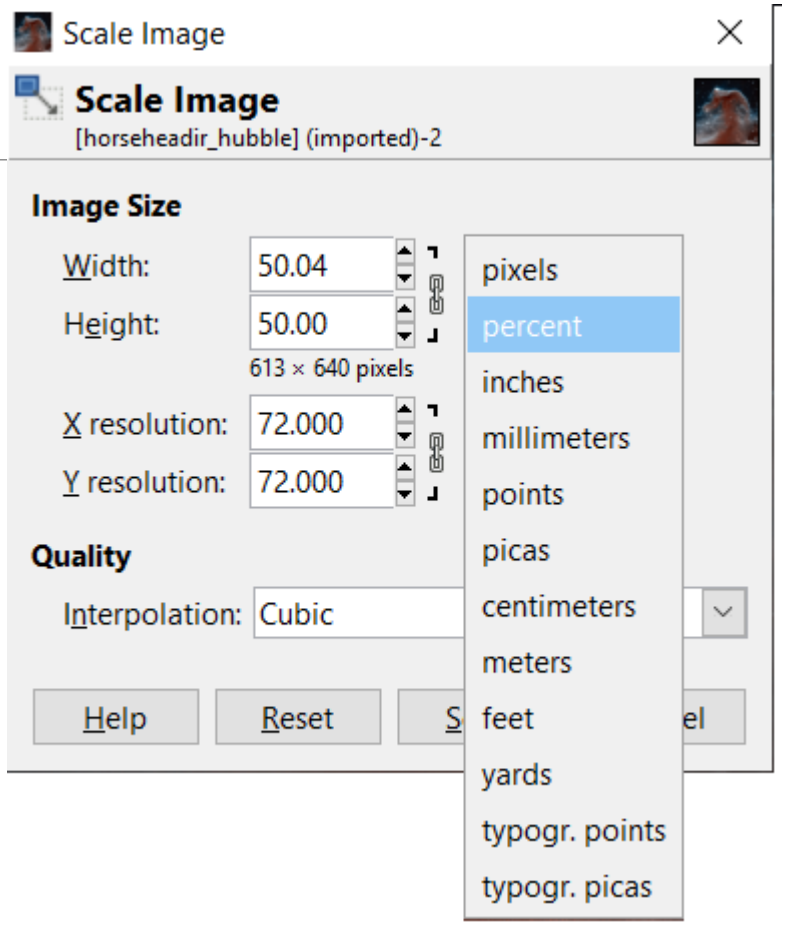


Fig. 4 – Changing input value types

- **To do:**
  Export the changes you've made:
- **File → Export As…**
- Export as a new filename:
  horseheadir_hubble_50Percent.jpg
- Click **Export** button

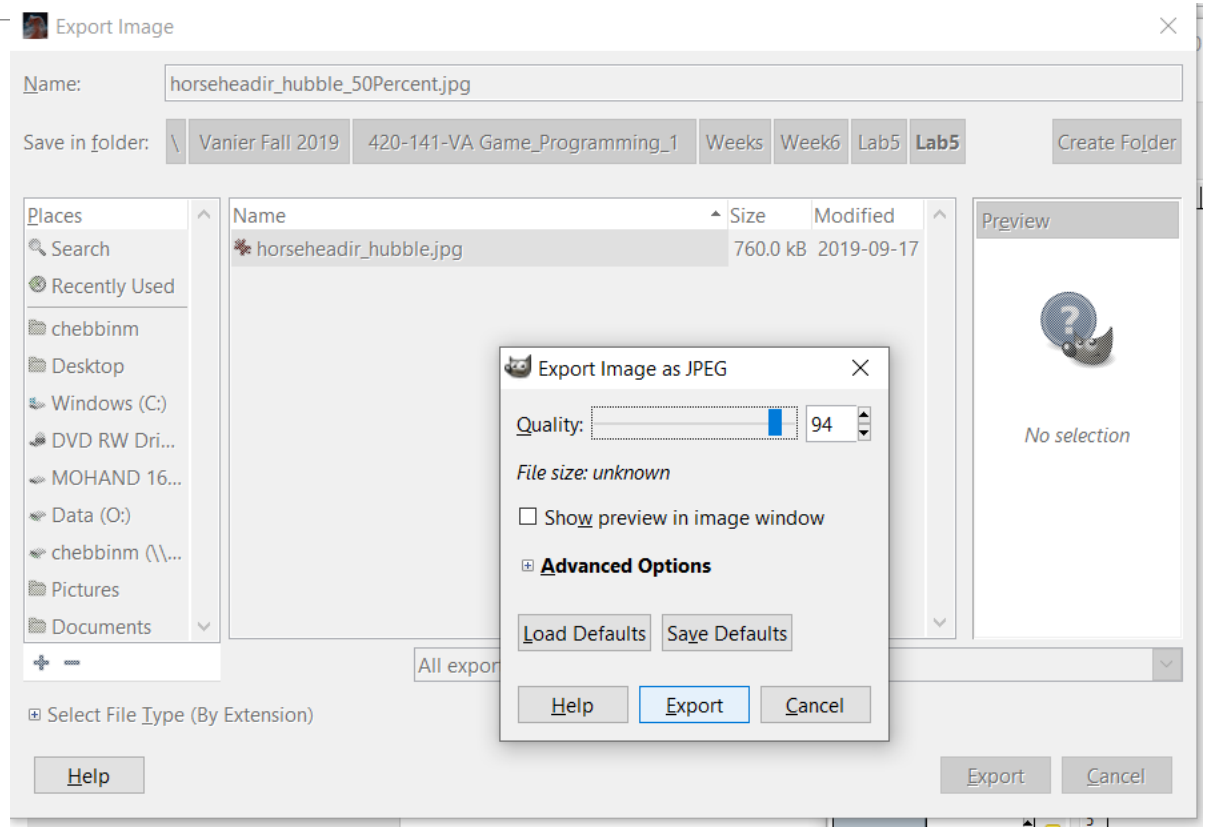
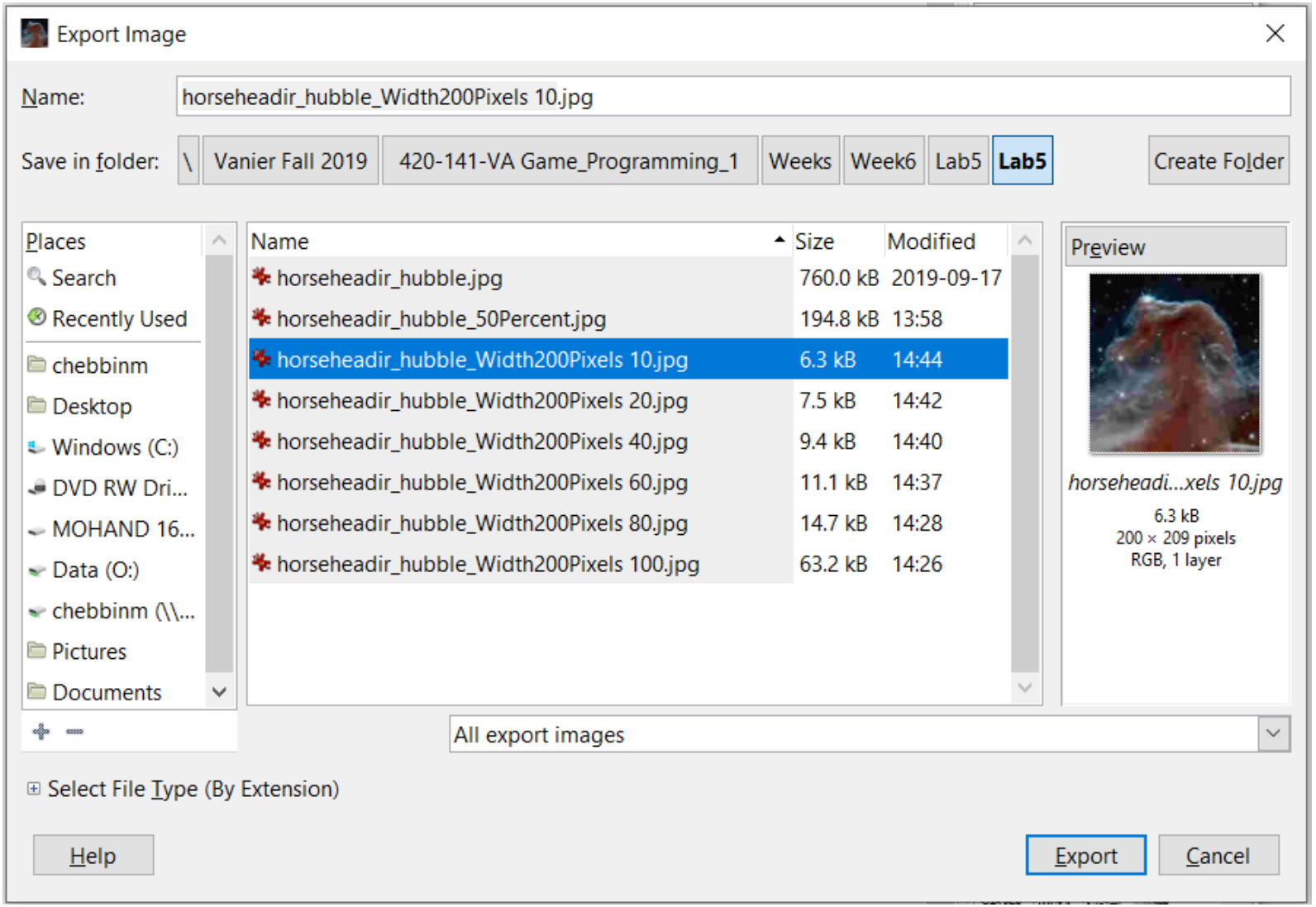


Fig. 5 – Export Image Dialogue Box

Step 3: Changing the Size (Filesize) of a JPEG

- Modify the file size of an image when exporting it to a format like JPEG.
- JPEG uses a compression algorithm, meaning that when saving images to the JPEG format, you may sacrifice some image quality to gain a smaller file size.
- **To do:**
  a) Open the image **horseheadir_hubble.jpg**,
  b) Resized to 200px wide
  c) Export it with 100% Quality and name it **horseheadir_hubble_Width200Pixels 100.jpg**
- Repeat the 3 operations (a, b, and c) above using different *Quality* levels of JPEG compression (**80, 60, 40. 20 and 10**) and name the files as follows:
  horseheadir_hubble_Width200Pixels 80.jpg,
  horseheadir_hubble_Width200Pixels 60.jpg
  horseheadir_hubble_Width200Pixels 40.jpg,
  horseheadir_hubble_Width200Pixels 20.jpg
  horseheadir_hubble_Width200Pixels 10.jpg



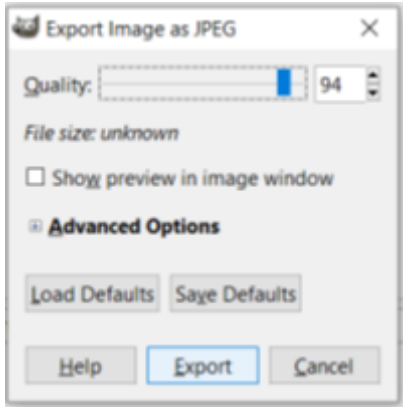


Fig. 6 – Export the image with different JPEG compression levels.

- In the previous figure (**Fig. 6**), you can enter a new file name. If you include the file_type extension (in this case, **.jpg**), GIMP will automatically try to export in that file format.
- You can also navigate to a new location on your computer through the **Places** pane, if you need to export the file to a different location.
- This will then bring up the ***Export Image as JPEG*** dialog box, where you can change the quality of the export:
  - If you also have the "**Show preview in image window**" option checked, the image on the canvas will update to reflect the quality value you input..
- When you are ready to export the image, just hit the **Export** button.

- As you can see, even at a quality setting of **80**, the image is significantly smaller in file size

horseheadir_hubble_Width200Pixels 80.jpg	2019-10-03 2:28 PM	15 KB
horseheadir_hubble_Width200Pixels 100.jpg	2019-10-03 2:26 PM	62 KB

- It represents **75%** of size reduction ((62-15)/62) , while the image quality is still quite reasonable

a) 62 KB, 100 Quality

b) 15 KB, 80 Quality

C) 11 KB, 60 Quality

e) 10 KB, 40 Quality

e) 8 KB, 20 Quality

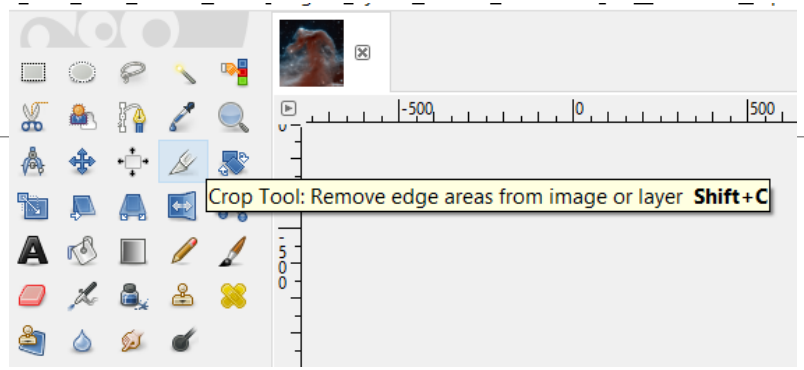
f) 7 KB, 10 Quality

– Comparison of different JPEG compression levels.

Step 4: Crop an Image

- There are numerous reasons you may want to crop an image:
  - You may want to remove useless borders or information for aesthetic reasons,
  - You may want to focus on some particular detail for instance.
- **Cropping** is just an operation to trim the image down to a smaller region than what you started with.
- You can get the **Crop Tool**:
  1) through the tools palette:
  2) through the menus:
     - **Tools → Transform Tools → Crop**

- Original image (left), - cropped image (right).



- Crop Tool on the Tools Palette.

- **To do:**
  a) Open the image **horseheadir_hubble.jpg**,
  b) Crop the image as shown in Fig. 7
  c) Export and name it: **horseheadir_hubble_Croped.jpg**

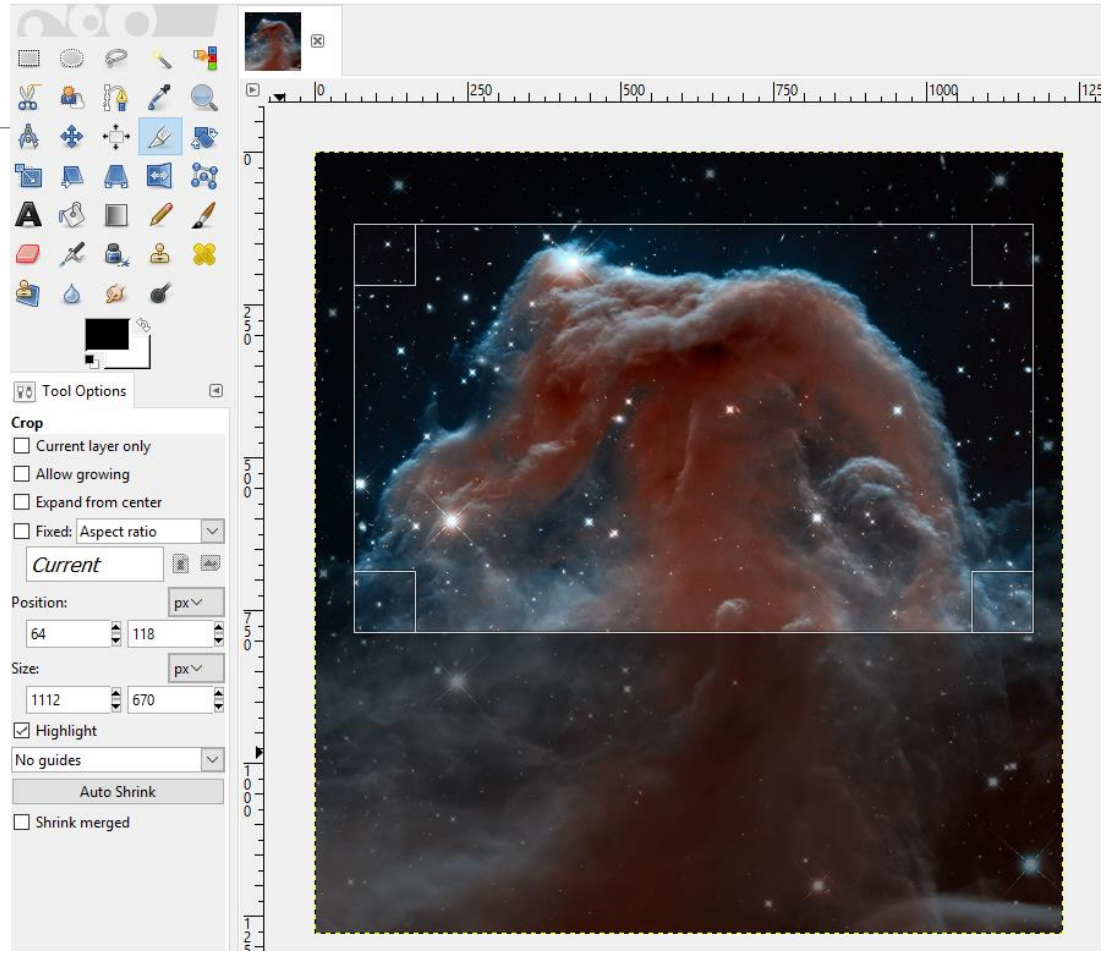
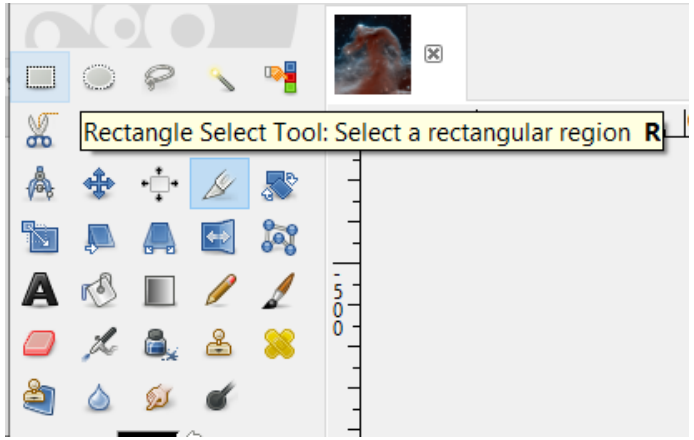


Fig. 7 – Crop the image.

Another Method to crop:

Another way to crop an image is to make a selection first, using the **Rectangle Select Tool**:

1) through the tools palette:
2) through the menus:
   Tools → Selection Tools → Rectangle Select

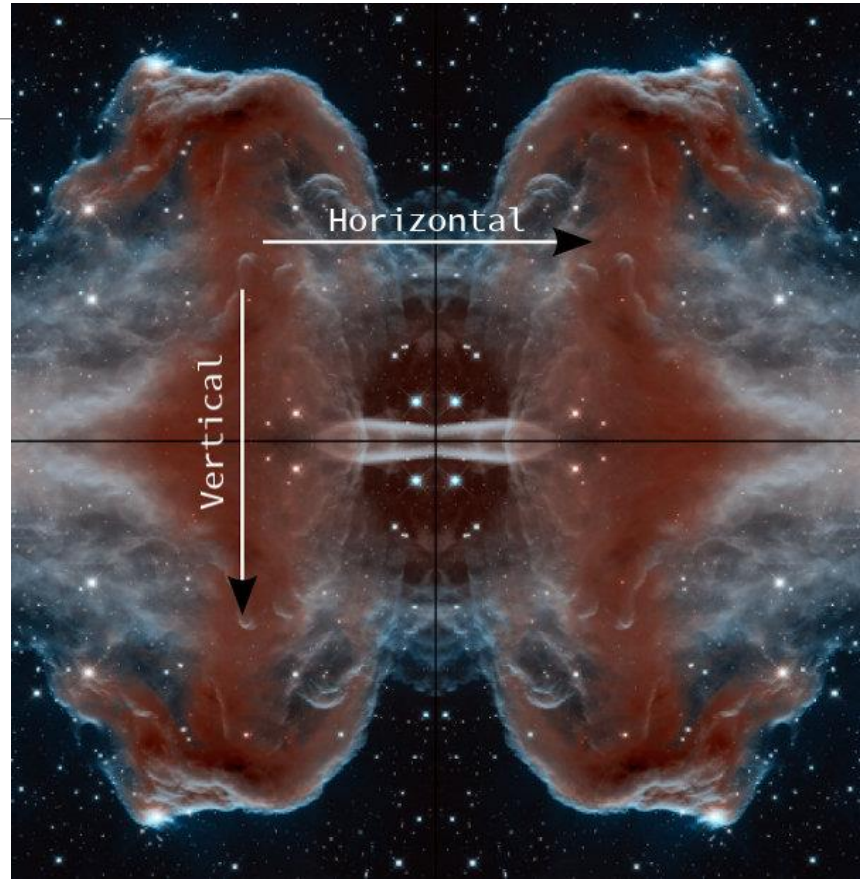


Once you have a selection you like, you can crop the image to fit that selection through:

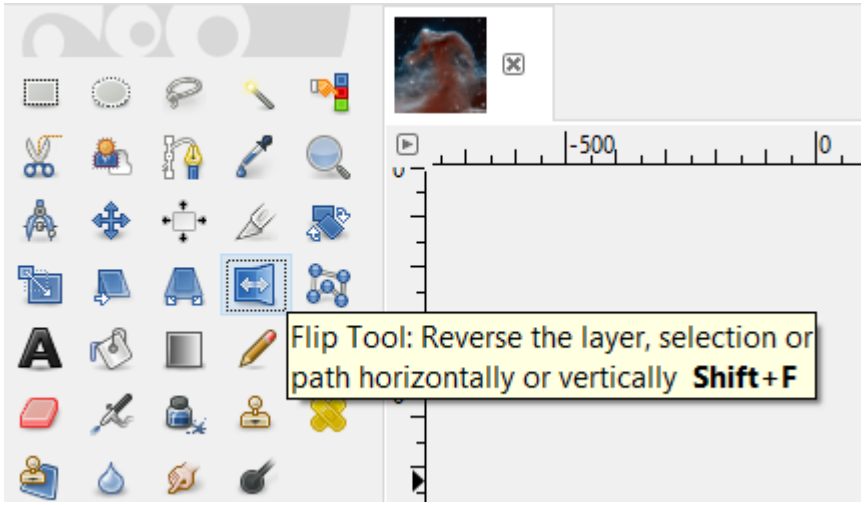
Image → Crop to Selection

Step 5: Flip an Image

- If you want to flip your image, the **Transform** menu offers two options: Flip Horizontally, or Flip Vertically.
- This operation will mirror your image along the specified axis. For example, here are all of the flip operations shown in a single image:
- These commands are grouped together under the same menu item:
- **Image → Transform**
  - **Flip Horizontally**
  - **Flip Vertically**



– Flips applied to base image (top left).



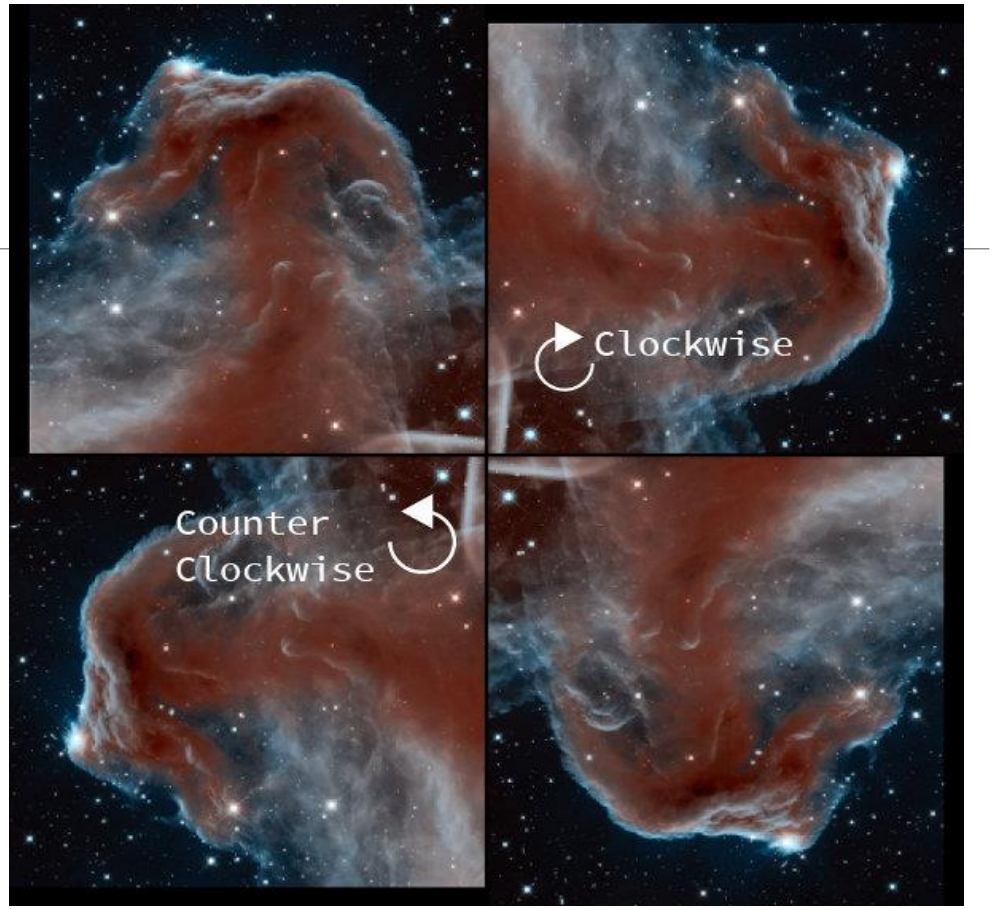
- Flip Tool on the Tools Palette.

- **To do:**
  a) Open the image **horseheadir_hubble.jpg**,
  b) Flip the image as shown in Fig. 8
  c) Export and name it: **horseheadir_hubble_Fliped.jpg**

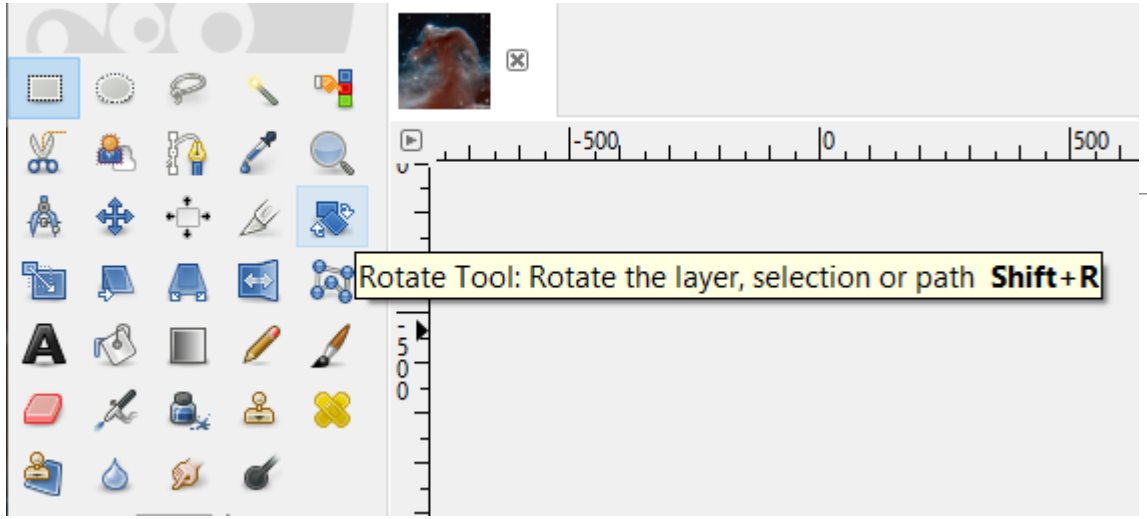
Fig. 8 –The image as flipped Vertically

Step 6: Rotate an Image

- There may be a time that you would need to rotate an image.
- For instance, you may have taken the image with your camera in a right orientation.
- **Image → Transform**
  - **Rotate 90° clockwise**
  - **Rotate 90° counter-clockwise**
  - **Rotate 180°**



Original (top left) **90° clockwise (top right)**
90° counter-clockwise (bottom left) **180° (bottom right)**



- Rotate Tool on the Tools Palette.

- **To do:**
  a) Open the image **horseheadir_hubble.jpg**,
  b) Rotate the image with an angle of -30 degrees as shown in Fig.9
  c) Export and name it: **horseheadir_hubble_Rotated.jpg**

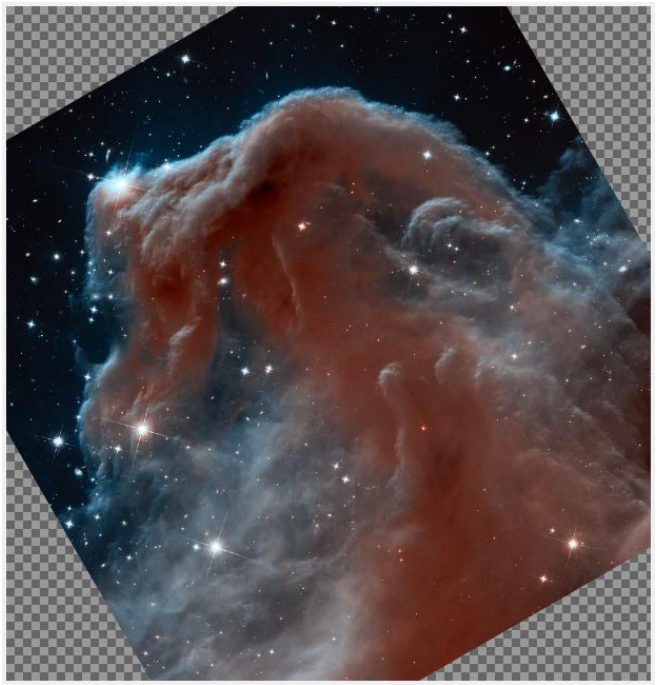


Fig. 9 –The image as Rotated

Questions

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