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Working with Photographs using GIMP

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Welcome

General
Fire safety
Ergonomics
Time table

Objectives

- Open and create new images and work with the Gimp workspace
- Understand the differences between – tiff, jpg, gif, png file types
- Understand the factors that affect file size and know several methods for resizing images
- Perform basic colour correction functions
- Add text labels to Images.
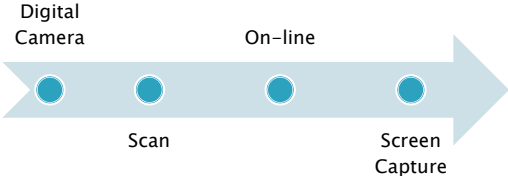- Print, save and share images with others

Gimp Resources

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▸ http://gimp-tutorials.net/

What do we do with images?

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▸ Resizing
  ◦ Keeping proportions
▸ Cropping
▸ Mode – black & white or colour
▸ Change Image type
  ◦ Web
    • jpeg – Joint Photographic expert group
    • Gif – graphical interchange format
    • Png – latest
    • Optimise
  ◦ Print –
    • TIFF

Image Sources

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Digital
Camera

On-line

Scan

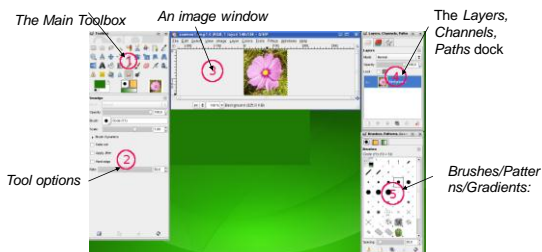Screen
Capture

On-line Resources

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- Nottingham Image Bank – http://www.nottingham.ac.uk/imagebank/login.php

- Internet – There is a tool designed by the Open Nottingham project team that only searches for images, video and audio materials licensed so they are suitable for reuse.
 ◦ http://www.nottingham.ac.uk/xpert/attribution/

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GIMP Orientation

Main Windows

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The Main Toolbox

An image window

The *Layers, Channels, Paths* dock

Tool options

Brushes/Patterns/Gradients:

Default Workspace

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**Note**

If your GIMP layout is lost, your arrangement is easy to recover using Windows → Recently Closed Docks ; the Windows menu command is only available while an image is open. To add, close, or detach a tab from a dock, click ◁ in the upper right corner of a dialog. This opens the Tab menu. Select Add Tab , Close Tab , or Detach Tab .

The Image Window

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1. Title Bar
2. Image Menu
3. Menu Button
4. QuickMask Toggle
5. Pointer Coordinates
6. Units Menu
7. Zoom Button
8. Status Area

Opening a new image

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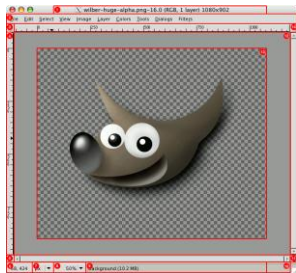
- **File**, **Open**
- However – If you have closed the image window:
  - You can drag an image into the Toolbox area to open a window
  - Dragging an image into the image window adds the image into that window.

Zoom and Navigate

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‣ Open Rodent.jpg

| Zoom the image to **200%** | → | Drag the Navigation Control |

‣ **Close the file**

Working with Tools

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‣ Point to each tool in order – note keystroke shortcut.
‣ Try the paint brush
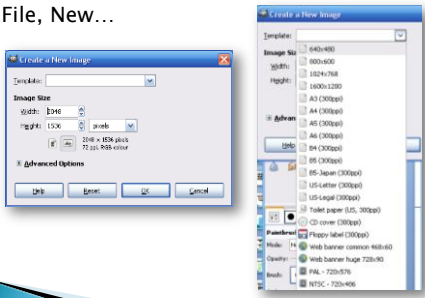‣ Use undo (Ctrl+z) as often as necessary to remove brush strokes

Create

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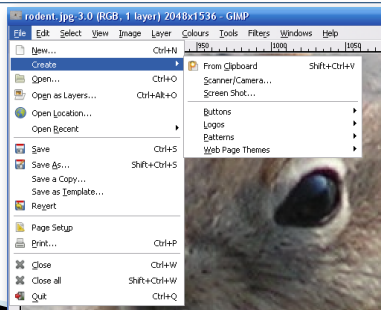
Create a New Image

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▸ File, New…

Printing Sharing and Saving Images

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File Formats

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▸ PSD
▸ XCF
▸ JPEG
▸ GIF
▸ PNG (still not fully supported in all browsers)

Press File, Save As to see File Formats supported by GIMP – ▸ press Cancel when finished

Saving an Image

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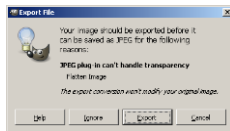- You will get different dialog boxes for different image types
- There are many options on the save dialog box – we do not need to be concerned with all of them if we are only preparing images for the web.
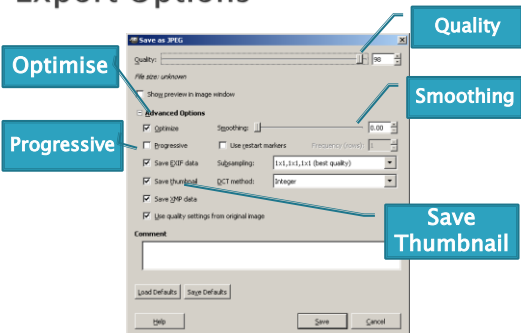 - If you are interested go to http://docs.gimp.org/en/gimp-images-out.html#id3147471

Exporting an Image

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- When you use Save As to save a jpg image you will see the following dialog box

Export Options

Quality

Optimise

Smoothing

Progressive

Save Thumbnail

Native File Formats

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- A Photoshop/Fireworks/GIMP etc native file format will retain all of the original file's attributes. Saved file characteristics include the following:
- Resolution, Color space (CMYK, RGB, grayscale, Spot color channels,Image bit depth
- These are 'working' image formats – usually saved as Tiff for printing or other formats for the web.

Colour Modes

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- **Image →Mode**
- **RGB**
  - ◦ (**Red, Green, Blue)** is the standard colour model for images that will be viewed on a **computer**, such as on the web.
  - ◦ Every colour on your computer monitor is created by mixing together different amounts of red, green and blue light, where red plus green plus blue light equals white light.
  - ◦ RGB is said to be **additive:** *the more light you add to a colour, the brighter the colour gets.*

Undo/Redo

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- Undo the most recent action –
  - ◦ **Edit →Undo**
    or
    Ctrl+Z.

- Redo
  - ◦ **Edit → Redo**
    or
    Ctrl+Y.

Resize an Image

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- Open **hallas_big.jpg**
- **Image → Scale Image**
  ◦ Use pixels for screen
  ◦ Inches/mm for print
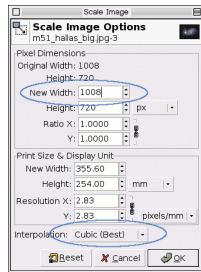- Always only change width **or** height (never both)

Scale Image Options
m51_hallas_big.jpg-3

Pixel Dimensions
Original Width: 1008
Height: 720
New Width: 1008
Height: 720   px
Ratio X: 1.0000
Y: 1.0000

Print Size & Display Unit
New Width: 355.60
Height: 254.00   mm
Resolution X: 2.83
Y: 2.83   pixels/mm

Interpolation: Cubic (Best)

Reset   Cancel   OK

Image File Size

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- Affected by
  ◦ **Image Dimensions** – actual image size
  ◦ **Image Resolution** – number of pixels per inch (ppi)
  ◦ **Bit Depth** – number of colours
- **File → Save As**
- Enter the filename – ie: **rodent_web.jpg**
- **Reduce the quality of the image**

Resolution Values

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Type	Appear-ance	Measure-ment	Laser Printer	News-paper	Magazine
Image Resolution		pixels/inch (ppi)	110–170 ppi	130–200 ppi	200–300 ppi
Halftone Screen		liness/inch (lpi)	71, 85 lpi typical	85, 100 lpi typical	133, 150 lpi typical
Printer Resolution		dots/inch (dpi)	600 dpi typical	1270, 2540 dpi typical	1270, 2540 dpi typical

Understanding File Compression

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▸ Gimp employs two types of compress schemes — lossy and lossless.
  ◦ **Lossy** compression reduces the size of the file by removing color information — information that can never be restored to the saved document. Files can be reduced by 80 percent or greater.
  ◦ The **lossless** method reduces file size by using compression algorithms that reduce the size of a file without removing image information. Lossy methods are used primarily for images displayed in browsers, or Web images.

Compressing/optimizing

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▸ Images that contain a lot of solid color information would compress quite well using the GIF (Graphics Interchange) or PNG8 formats.
▸ An image with a lot of soft blending colors, such as a photograph, would be best compressed using the JPEG (Joint Photographic Experts Group) format.

There is no going back!

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▸ Since the lossy compression approach actually removes image data, once an image has been compressed (or over compressed), the damage done is permanent.
▸ Always make sure you keep a copy of the image in its original state.

Interpolation

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▸ Changing the size and/or the resolution of an image forces the image program to add or subtract pixels from the image in a process called interpolation. Interpolation is a mathematical algorithm that changes the image. Adding or subtracting pixel information impacts quality in a negative way. So, plan a project before starting and try to begin with the correct resolution and size.

Resize and optimise images

◦ Open **Rodent.jpg**
◦ Note physical size
◦ Resize to 713 pixels wide
◦ Save as rodent.jpg into a new folder on desktop called **web ready**
◦ Reduce the quality to **80%**
◦ Mark as Progressive
◦ Compare file size with original
◦ Repeat process for all the photographs in the **Original Photos** folder

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Working with Photographs

▸ Perform basic colour correction functions
▸ Add text labels to Images.

Copying areas

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▸ Open the original **Rodent.jpg**
▸ Use the select tool to draw a square around the creature
▸ Ctrl+C to copy
▸ Ctrl+V to Paste
▸ Drag the copy

Fixing images

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▸ Use the **blur** tool to merge the edges where the new area of the picture is.

▸ Experiment with the **Options** below the tools

▸ Look out for the hints in the status bar below the image.

Clone Stamp Tool

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▸ Allows you to copy pixels from one part of an image to another part of the same image.
▸ Improve the picture by copying parts of the background to cover the join

Repairing Photographs — The University of Nottingham

▸ The Healing tool allows you to correct and repair imperfections by sampling an image or a pattern and paint copies of it elsewhere, as well as match the texture, lighting, and shading of pixels in an image or pattern to the source pixels.

Healing Tool: Heal image irregularities H

px   400%   Ctrl+Click to set a new heal source
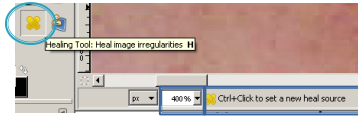
Healing tool — The University of Nottingham

Try the Spot healing tool

- Open **freckles.jpg**
- Zoom in to 400%
- Click on the **Healing** tool
- **Ctrl+click** to select an area next to a freckle
- Click on the freckle
- Zoom out to see the effect
- Carefully replace all the freckles

Flip an Image

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▸ Open **mirror-image.jpg**

Use Tools → Transform Tools → Flip,
or use the button on the toolbox

Using the Crop tool

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Crop tool

or   Shift + C

Crop the image
to just show
the notice
board.

Enter/double click to Crop
Esc to cancel
Or **Undo** if already pressed **Enter**

Rotate the image

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Use Image → Transform → Rotate 90°
clockwise

Or Use rotate button for manual rotation.
You may need to increase the canvas size – Image, Fit canvas to layers

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Layer Basics

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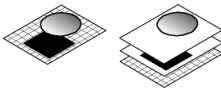
Using Layers

▸ Each object in a document resides on a layer. You can either create layers before you draw or add layers as needed. The canvas is below all layers and is not itself a layer.

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Allows editing without damaging image below

▸ Add a layer – Layer, New Layer
▸ Select the brush tool and draw on the second layer.
▸ Click on the Eye icon next to the new layer to hide it.

Increase Canvas Size

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- Image – Canvas Size
- Double the canvas size
- Duplicate the layer
- Click M or Click the Move Tool
- Drag the new image next to the existing
- Flip the second image

Revision

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- **Open The_Wrong_Station.jpg**
- Look at the Document information
- Open Flipping and Rotating.xcf
- Copy this image by:-
  ◦ Cropping the image
  ◦ Duplicating a layer
  ◦ Using Horizontal Flip for second image
  ◦ Duplicate another layer – rotate this
- Save image – notice it will not let you save this image as a jpg – save it as xcf.

Create Montage

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- A montage is simply more than one image on one canvas
- Open one of the web ready images
- Resize the image to 350 pixels wide
- Image, Canvas Size and change the width to 700 pixels
- Open another web ready image, make this the same size
- Copy and paste as new layer into your canvas
- Use the Move tool to position it
- Add more images as you wish

Flatten Layers

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- When saving images for web and to remove transparency in a .gif file.
- Image, Flatten Image
- Notice the background colour
- Save the image as flatten.jpg
- Open the original image and change the background colour, save again with a different name.
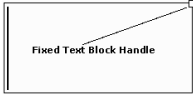

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Text Essentials

The Text Tool

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- **Click once with the text tool**
  - As you input text the block expands in one line only.
- **Click and drag**
  - As you input text, the text wraps to the next line when it hits the edge of the block

The Text Tool – Fixed Block

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Fixed Text Block Handle

abcde fghijk

Anti-aliasing

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Cactus
class Magnoliophyta

a

Cactus
class Magnoliophyta

a

Add Text

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‣ Label any open image
‣ Choose the Text Tool
‣ Set the options
‣ Draw a box on the image and type

Add Text

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- ▸ Label any open image
- ▸ Click on Text tool
- ▸ Set font, colour and Size
- ▸ Type text
- ▸ Text box can be moved and resized
- ▸ Practise moving and resizing the text box
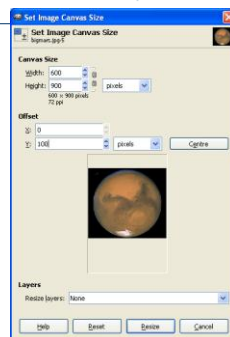
Labelling an image

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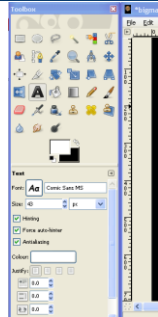
- ▸ Open bigmars.jpg
- ▸ Resize the canvas to add space for the labels
  - ◦ 900 height only (break link)

Offset

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- ▸ Use the Offset controls to move the image within the canvas

Change background

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- Change background colour to black
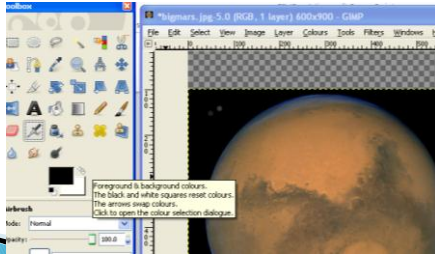
Extend background layer

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- Extend the background layer to fill the new canvas by selecting **Layers** > **Layer to Imagesize**
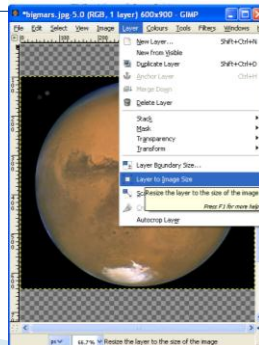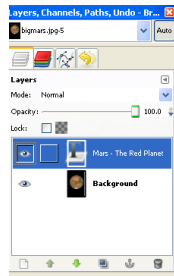

Add Text

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- Click on Text tool
- Set font, colour and Size
- Type text
- Text box can be moved and resized

Text Layers

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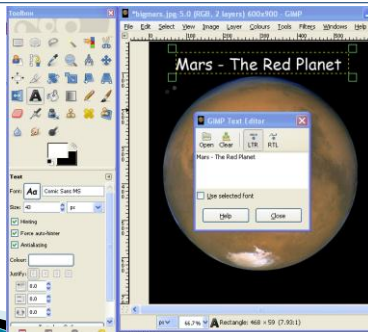
- Notice that a text layer has been created.
- Always ensure this is active before editing text
- Each new text box has its own layer
- Continue labelling the image as per the example in your folder.

Digital Photography Resources

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- http://www.adobe.com/support/forums/main.html – excellent discussions with advice from users.
- http://gimp-tutorials.net/ – some free tutorials and a discussion forum
- http://www.gimp-tutorials.com/
- http://docs.gimp.org/2.6/en/ – official site and manual

Colour Resources

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- The International Color Consortium (ICC) An organization that encourages the standardization and evolution of an open, vendor-neutral, cross-platform color management system architecture and components
- Basic Color Theory for the Desktop An overview of color theory: the nature of color and the factors that determine how we perceive it.

Thank you
for your time
and attention