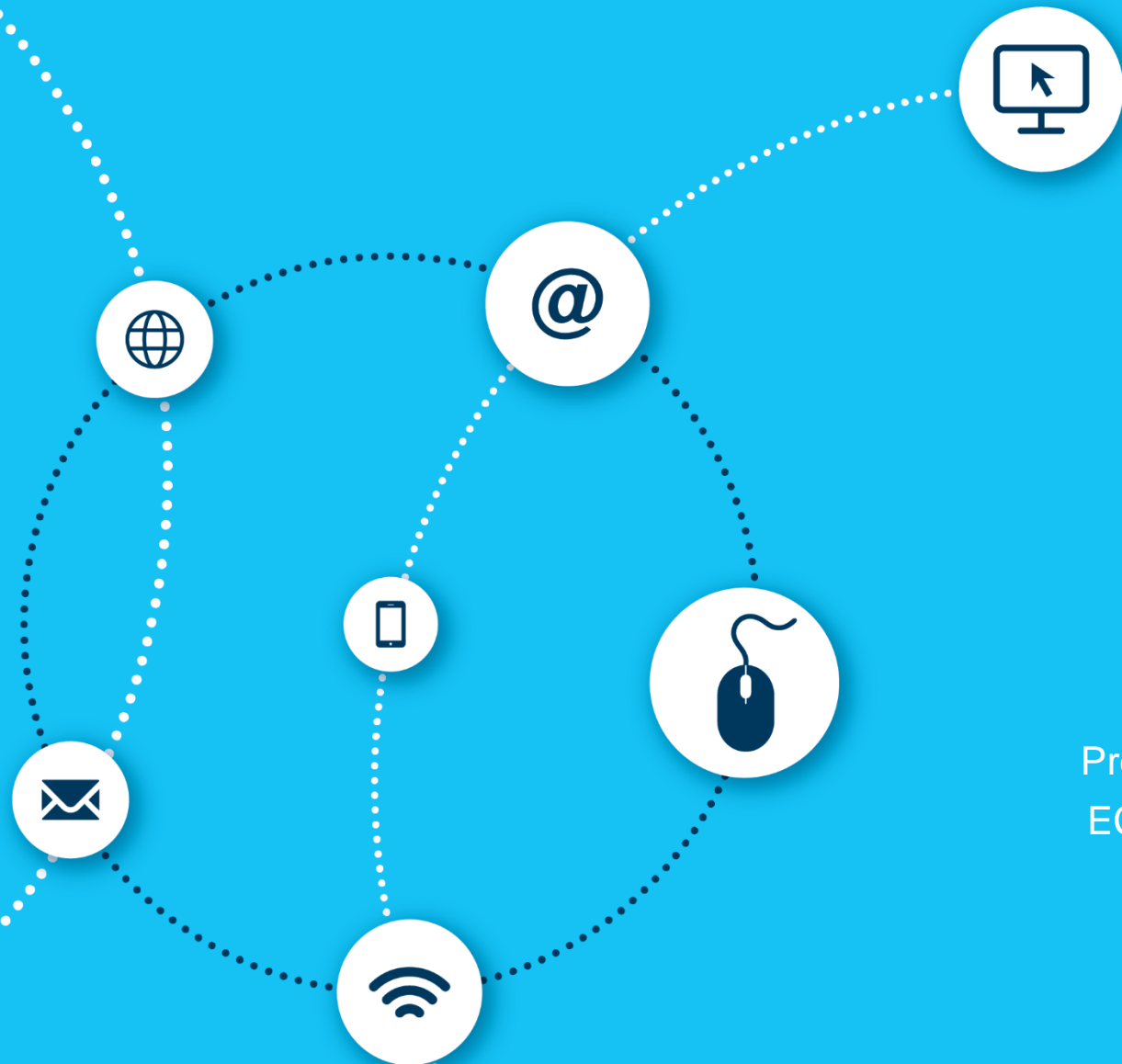


ECDL IMAGE EDITING

Syllabus 2.0
Learning Material (GIMP)



Provided by:
ECDL Malta

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ECDL Image Editing

This ECDL Image Editing module enables you to understand the main concepts underlying digital images and how to use image editing software. You will learn how to enhance images, apply effects, and prepare an image for printing and publishing.

On completion of this module you will be able to:

- Understand the main concepts of using digital images; understand graphic format options and colour concepts.
- Open an existing image; save an image in different formats; set image file options.
- Use built-in options, such as displaying toolbars, palettes, too enhance productivity.
- Capture and save an image; use various selection tools; manipulate images.
- Create and use layers; work with text; use effects and filters; use drawing and painting tools.
- Prepare images for printing or publishing.

What are the benefits of this module?

This module provides a solid grounding in working with digital images, and gives you the platform to develop your skills in this area in the future. Once you have developed the skills and knowledge set out in this book, you will be in a position to become certified in an international standard in this area – ECDL Image Editing.

ECDL IMAGE EDITING

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LESSON 1 - IMAGING CONCEPTS

In this section, you will learn how to:

- Identify common uses of digital images
- Understand pixel, resolution and file size
- Identify key features of a digital image
- Comparing lossy and lossless image compression
- Understand copyright and the implication of use

1.1 COMMON USES OF DIGITAL IMAGES

Digital images are an increasingly important and common type of digital content both for workers and for home users.

Common uses of digital images include:

- Web and print publishing - Publish images to websites, social networks or photo sharing sites, or use image for print publishing, for example in magazines or brochures.
- Distribution by e-mail and mobile phone - Send your images to friends or colleagues
- Home printing - Use a printer to print at home
- Digital photo frames - Display images on a digital photo frame

1.2 DIGITAL IMAGES AND PIXELS

A digital image is a representation of an image in numeric (generally binary) form. Digital images are composed of discrete pixels. The word pixel is derived from the words picture and element. Pixels are the smallest part of a digital image on a screen or a single point in a picture.

Resolution

The term resolution refers to the detail and quality of an image, and in a digital images resolution is often determined by pixel dimensions, or the number of pixels along the width and height of an image

File Size and Compression

The digital size of an image is measured in kilobytes (K), megabytes (MB), or gigabytes (GB). File size is related to the pixel dimensions of the image. Images with more pixels may produce more detail at a given printed size, but they require more disk space to store and may be slower to edit and print.

Image resolution is therefore a compromise between image quality and file size.

File format can also affect file size - due to varying compression methods used by GIF, JPEG, and PNG file formats, file sizes can vary considerably for the same pixel dimensions.

Some file formats, such as JPEG, use lossy compression. **Lossy compression** creates a smaller sized compressed file that results in a lower resolution picture with pixel loss.

Other file formats, such as PNG, use lossless compression. **Lossless compression** ensures that the compressed data can be reconstructed to the exact original image without pixel loss.

1.3 COPYRIGHT

Copyright is protection for intellectual property. Intellectual property consists of anything an individual has written or created, including music, text, pictures, photographs, sounds. Specifically, copyright specifies the rights granted to use, publish, or distribute images or other pieces of work for a specific time period.

It is important to note that you cannot use intellectual property – for an example, an image that you find on the web – without considering the copyright protection associated with the image. It may be possible to acquire rights to an image through a licensing arrangement.

Common License Models for Images

There are several common licenses or business models governing the use of the images: two of the most common are royalty-free images and rights-managed images.

1. Royalty-free images

- Under this arrangement, you incur a one-off fee allowing you to use the image as many times as required with some restrictions.

2. Rights-managed images

- Under this arrangement, images have a copyright license which, if purchased by a user, allows the one time use of the photo as set out by the license.

1.4 REVIEW EXERCISE

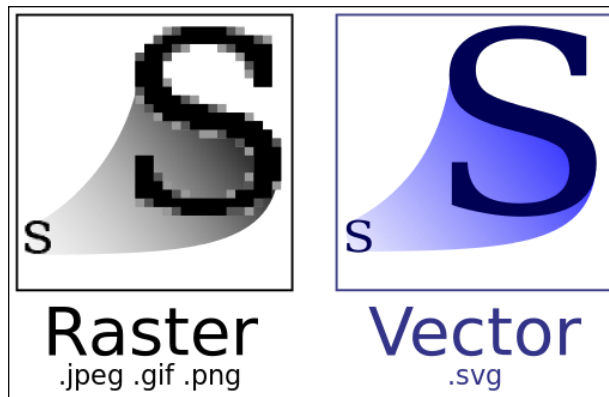
1. What is the term used to describe the smallest part of a digital image?
2. List 2 examples of materials that may be protected under the copyright law:
3. Give an example of a lossy file format?
4. Under what licensing arrangement can you pay a one-off fee and use an image several times?

LESSON 2 – GRAPHIC FORMATS

In this section, you will learn how to:

- Distinguish raster and vector images
- Identify common raster formats
- Identify common vector formats
- Recognise proprietary digital image editing application formats

2.1 RASTER AND VECTOR IMAGES



Raster Images

Raster images, sometime referred to as bitmap images, use a rectangular grid of picture elements (pixels) to represent images. Each pixel has a specific location and colour value. When you work with a raster image, you edit pixels rather than objects or shapes.

Raster images contain a fixed number of pixels, and they cannot be scaled to a large size without losing quality.

Specific file formats support raster images

Raster File Format	File Extension
Joint Photographic Experts Group (JPEG)	.jpeg
Graphics Interchange Format (GIF)	.gif

JPEG

- The JPEG format is commonly used to display photographs and other continuous-tone images on the Web.
- It does not support transparency.
- Unlike GIF format, JPEG retains all colour information in an RGB image but compresses file size by selectively discarding data. JPEG images are automatically decompressed when they are opened.

GIF

- On The GIF file format commonly used to display indexed-colour graphics and images on the Web.
- GIF is a compressed format designed to minimise file size and electronic transfer time.

- It supports transparency and is particularly useful for images such as graphics and logos.

Vector Images

In contrast, vector images consist of lines and curves defined by mathematical objects called vectors. These define the image according to its geometric characteristics.

Vector images can be modified without losing detail or clarity, as they are independent of resolution.

Specific file formats support raster images.

Raster File Format	File Extension
Scalable Vector Graphics (SVG)	.svg
Encapsulated PostScript (EPS)	.eps

SVG

- SVG is an open standard created and developed by the World Wide Web Consortium.
- It provides a versatile, scriptable and all-purpose vector format.
- SVG files can be compressed using lossless data compression techniques.

EPS

- EPS is a standard graphics file format for exchanging images, drawings, or layouts of complete pages.
- The file internally contains a description of such an object or layout using the PostScript language.

2.2 PROPRIETARY APPLICATION FORMATS

A native file format is the default file format used by a specific software application. The native file format of an application is proprietary, and these types of files are generally not meant to be used with other applications.

Usually special software-specific image properties – for example, editable layer styles and text - can only be preserved when an image is saved in the software's native format.

The following table shows the proprietary image file format for some of common image editing applications:

Image Editing Application	Native File Format
GIMP	.xcf
Adobe Photoshop	.psd
Paint Shop Pro	.psp
Adobe Illustrator	.ai
Corel Photo Paint	.cpt

LESSON 3 - COLOUR CONCEPTS

In this section, you will learn how to:

- Understand the term colour model
- Recognise common colour models
- Understand colour palette and depth
- Understand colour terms

3.1 COLOUR MODELS

A colour model is a mathematical model that describes how colours can be represented as lists of numbers, typically as three or four values or colour components. Different colour models can be used depending on the medium, for example, print or web, being used.

The four most common colour models are RGB, CMYK, HSB, and greyscale.

RGB

The RGB colour model combines red, green and blue colours. In this model, an intensity value is assigned to each pixel. Usually, the intensity values range from 0 (black) to 255 (white) for each of the RGB (red, green, blue) components in a colour image.

Although RGB is a standard colour model, the exact range of colours represented can vary, depending on the application or display device

CMYK

In the CMYK mode, each pixel is assigned a percentage value for each of the process inks (usually, cyan, magenta, yellow and key, or black). The lightest (highlight) colours are assigned small percentages of process ink colours, whereas the darker (shadow) colours higher percentages.

You should use the CMYK mode when preparing an image to be printed using process colours.

HSB

HSB stands for Hue, Saturation and Brightness. This model describes a colour using three numbers.

- The first number is the hue, and its value ranges from 0 to 360 degrees. Each degree represents a distinct colour.
- The second number is the saturation. It represents the amount of colour or, more exactly, its percentage. Its value ranges from 0 to 100, where 0 represents no colour, while 100 represents the full colour.
- The third number is the brightness. You can enhance the colour brightness adding the white colour, or we can reduce it adding the black colour. In this case 0 represents the white colour and 100 represents the black colour

Greyscale

Images in this colour model – which is also referred to as black-and-white - are composed exclusively of shades of gray, varying from black at the weakest intensity to white at the strongest.

3.2 COLOUR PALETTE AND DEPTH

A colour palette is the finite set of colours available for digital images. For example, a common palette used in computers is a 256-colour palette. The palette used may be limited by hardware limitations, for example the specification of a monitor.

Colour depth is the maximum number of colours that are used in an image: The higher the depth, the broader the range of distinct colours and the more realistic the image is. Colour depth is related to the number of bits (units of digital information) used for each colour component of an individual pixel. For example, True Color (24-bit) supports high quality images and complex graphics.

3.3 UNDERSTANDING COMMON COLOUR TERMS

Other important terms relating to digital images include:

- **Hue** - A pure colour described by name, such as “red” or “yellow”
- **Saturation** - The dominance, or intensity, of hue in the colour
- **Colour balance** - The overall adjustment of the intensities of the colour
- **Contrast** - The difference in colour and light level in an image
- **Brightness** - The degree to which an image radiates light
- **Gamma** - The way brightness is changed for the middle range of gray tones
- **Transparency** - The ability of light to transmit through an image

3.4 REVIEW EXERCISE

1. Define the following terms:
 - a. Hue
 - b. Saturation

2. Name the 2 colour models.

3. Give an example of a common colour palette.

LESSON 4 – CAPTURING IMAGES

In this section, you will learn about:

- Saving Images from Digital Camera
- Using Print Screen Facility
- Saving Image from Image Library
- Scanning Images

4.1 SAVING IMAGES FROM A DIGITAL CAMERA

Before you start working with digital images on a computer, you need to acquire the images and move them to the computer. A common source of digital images is a digital camera.

To copy images from a media source such as a memory card or directly from a camera, follow these steps:

1. Connect the media to the computer using one of the methods below:
 - Connect the camera to computer using the USB cable and switch on the camera to the transfer mode or
 - Insert the media card into our computer card reader slot.
2. On your computer, double click on the drive that represents the camera or media card.
3. Open the folder containing the images.
4. Select the required images or the entire folder.
5. Drag them to a folder on our hard drive to copy them to our computer.



4.2 USING THE PRINT SCREEN FACILITY

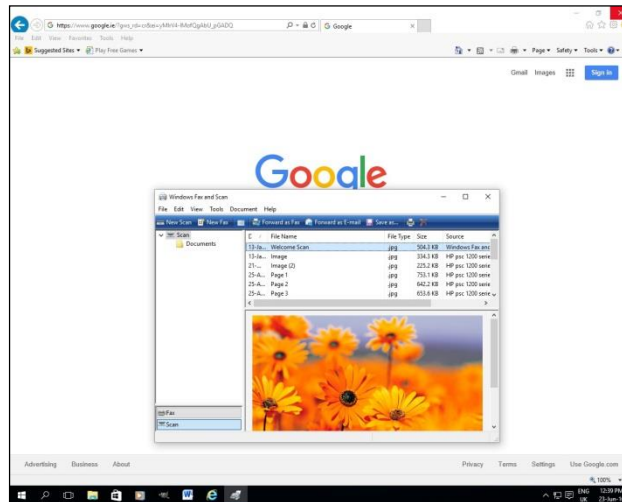
You can also create an image by capturing the current screen or active window on your computer using the **Print Screen** facility.

To capture screen shot:

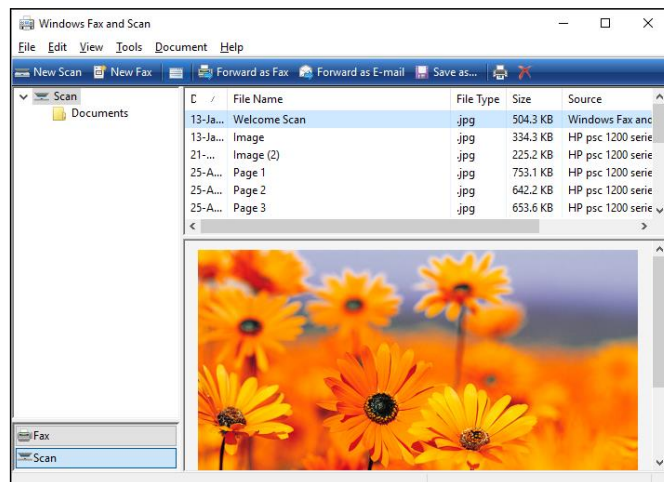
1. Activate the screen to window required.

2. Press the **Print Screen** (to capture the current screen) or **ALT Print Screen** (to capture the active window only) on our keyboard.
3. Open an image editing program.
4. Choose **Edit > Paste**.

When working with a laptop/notebook PC, the print screen key may share the key with another command. In this case, press **Function** or **Fn** and the key for the print screen at the same time.



Print Screen



ALT + Print Screen

4.3 SAVING IMAGE FROM IMAGE LIBRARY

To save image from an online source, such as an online image library:

1. Right-click the image.
2. On the shortcut menu that appears, select **Save Picture As...**
3. In the **Save In** list box, select a location.

4. Click **Save** to save the image.

The saved image can then be opened in an image editing application.

Most online image libraries are subscription based for user-generated, royalty-free stock photos and illustrations.

Popular image library sites include www.istockphoto.com and www.shutterstock.com

4.4 SCANNING IMAGES

Another method of acquiring images is by scanning documents, images or objects. Scanning creates a digital image that can then be manipulated using image editing software. The most common type of scanner is a desktop flat-bed scanner.

The process of scanning an image involves:

1. Place the image on the scanner.
2. Click **Scan** to view options.
3. Follow the instructions to choose the scanning parameters. These typically include resolution (which will directly influence the quality of the image) and file format.
4. Navigate to the location required to save the image.
5. Click **Scan**



4.5 REVIEW EXERCISE

1. Search for the following images online and save them using an appropriate file name.
 - a. The Taj Mahal
 - b. A Lightning Storm
2. Name two common scanning parameters?
3. What is the keyboard shortcut used to capture the current active window?

LESSON 5 - CREATING IMAGES

In this section, you will learn about:

- Familiarization of GIMP interface
- Opening and placing image files
- Switching between open image files
- Creating new image file
- Saving images

5.1 GIMP INTERFACE AND CREATING IMAGES

GIMP is the GNU Image Manipulation Program. It is a freely distributed software for such tasks as photo retouching, image composition and image authoring. It works on many operating systems, in many languages.

GIMP's environment contains a set of well-defined tools and dialog boxes that are easily accessible and customizable. It supports a large number of image formats and high-end graphics for different media.

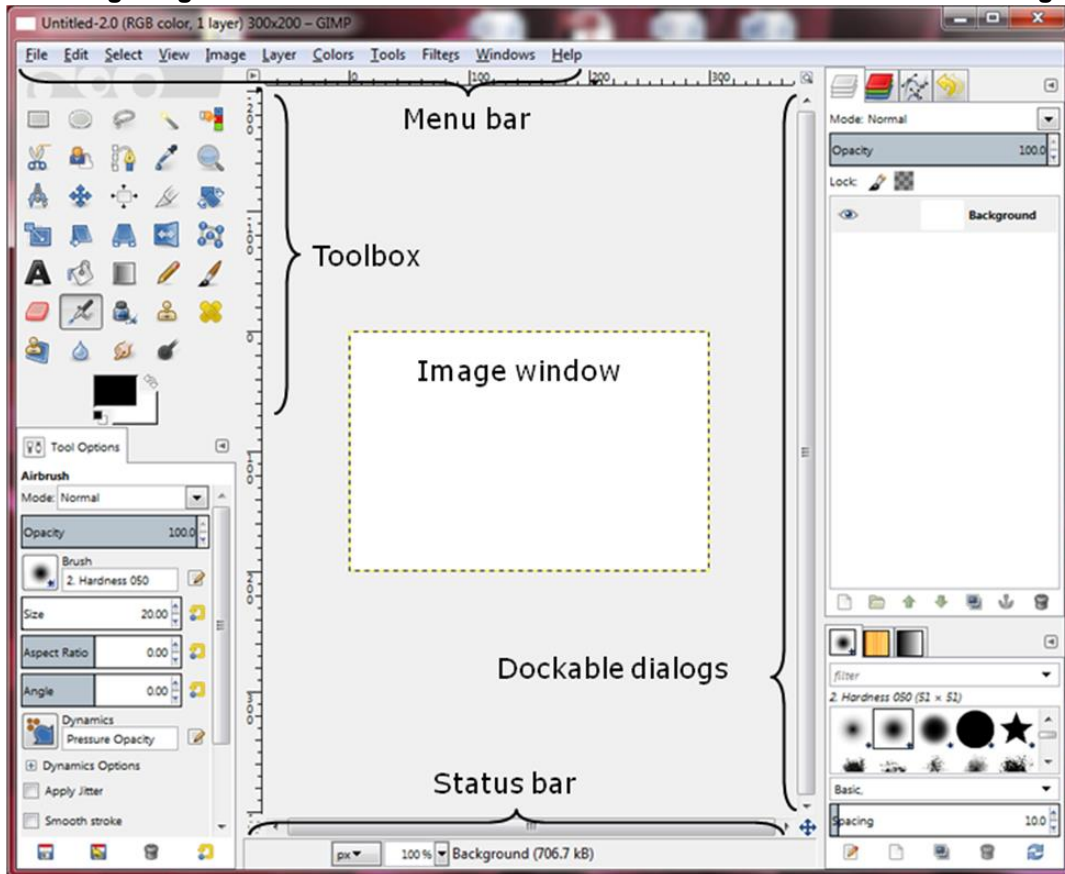
We would need to familiarise ourselves with design creation and image editing techniques using this software. Understanding the different tools and features available in GIMP will help us maximise our creative potential.

Familiarization of GIMP Interface

GIMP has a user friendly-interface with a variety of tools and features to help us design, create, and enhance images, and produce professional designs for both print and web.

By default, the screen consists of the following:

- Menu bar
- Toolbox
- Image window
- Dialogs
- Status bar.



Interface Element	Description
Menu bar	Consists image editing and enhancement commands.
Toolbox	Displays available tools.
Tool options	Appears below the toolbox and displays additional options for the currently selected tool.
Image window	Displays the current image file opened in GIMP. We can view, create, or edit images here.
Dialogs	Comprises of dialogs with a tab for each dialog. Most of the dialogs contain a menu, which allows us to perform additional tasks. Some of the dialogs are CHANNELS, PATHS, LAYERS, and UNDO HISTORY.
Status bar	Appears at the bottom of the screen, and displays the unit of measurement and current magnification of the image.

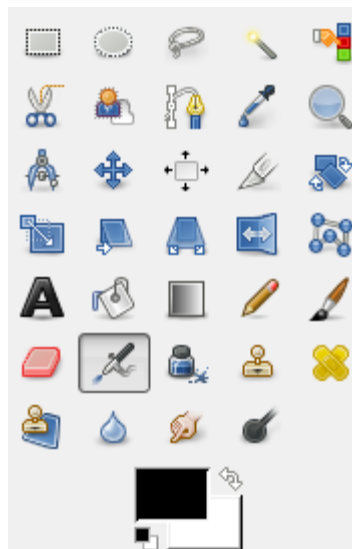
The **Menu bar** is located at the top of the screen.



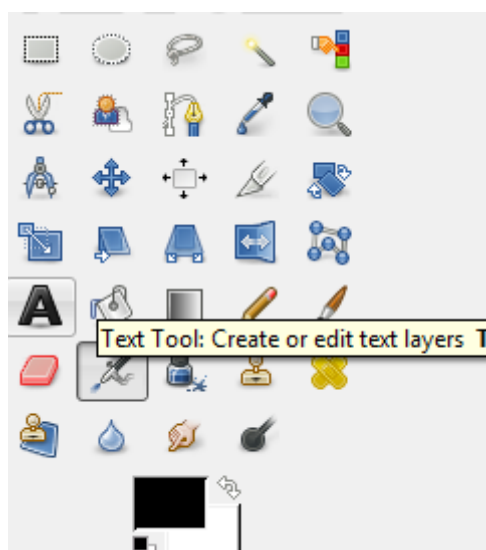
The bar's main purpose is to give us a central location for the software's commands, tools and options rather than having them scattered throughout GIMP. For example, the first menu File, contains all file related commands such as open, save, export and print.

































Tools Panel

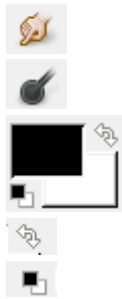
Along the left side of the screen is GIMP's **Toolbox**. This is where we find all of the various tools we need for working on our images.



Pointing to a tool displays the tool's name and the shortcut key if available.



<u>Tool</u>	<u>Name</u>	<u>Shortcut Key</u>
	Rectangle Select	R
	Ellipse Select	E
	Free Select	F
	Fuzzy Select	U
	Select By Color	SHIFT O
	Scissor Select	
	Foreground Select	
	Paths B	
<u>Tool</u>	<u>Name</u>	<u>Shortcut Key</u>
	Color Picker	O
	Zoom	Z
	Measure	SHIFT M
	Move	M
	Alignment	Q
	Crop	SHIFT C
	Rotate	SHIFT R
	Scale	SHIFT T
	Shear	SHIFT S
	Perspective	SHIFT P
	Flip	SHIFT F
	Cage Transform	SHIFT G
	Text	T
	Bucket Fill	SHIFT B
	Blend	L
	Pencil	N
	Paintbrush	P
	Eraser	SHIFT E
	Airbrush	A
	Ink	K
	Clone	C
	Healing	H
	Perspective Clone	
	Blur / Sharpen	SHIFT U

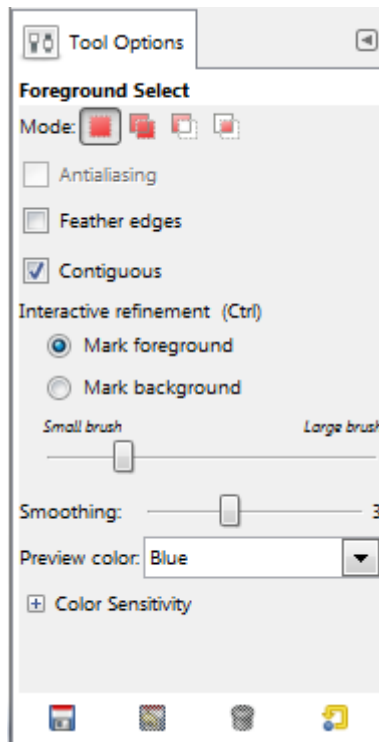


- Smudge S
- Dodge / Burn SHIFT D
- Foreground & background colors
- Swap colors
- Reset colors

The Tools Options Panel

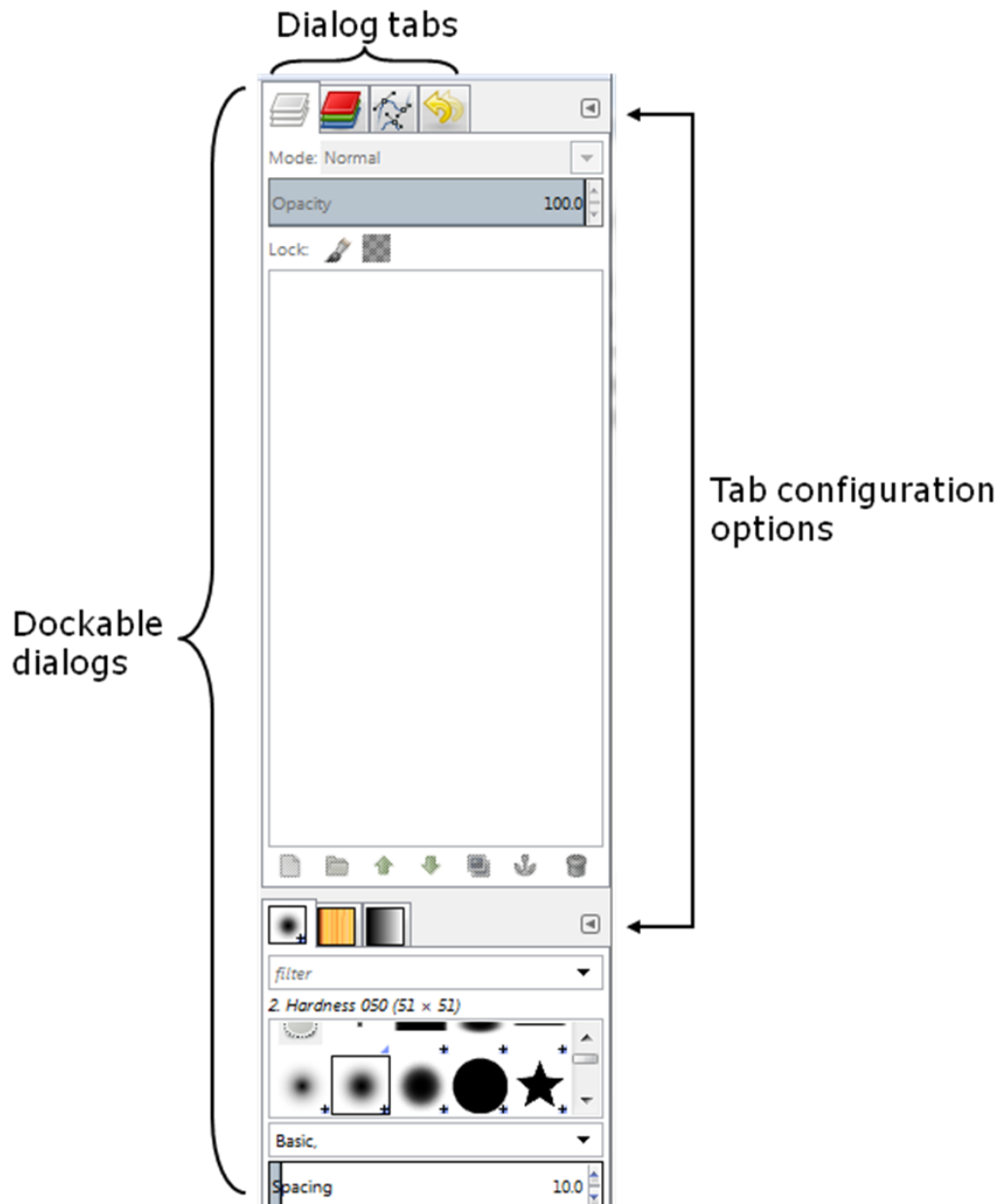
Directly related to the **Toolbox** is the **Tool Options panel** at the bottom of the **Toolbox**. It always changes to display the relevant settings and options for controlling whichever tool we have currently selected.

Here, the **Tool Options panel** is displaying options for the **Foreground Select** tool.



The Dialogs

To the right of the image window, there is another panel containing dialogs for manipulating image layers, colour channels and Undo History. Each of these dialogs is organised as a tab in the panel and can be displayed by clicking on the tab heading of the dialog. Dialogs are the most common means of setting options and controls in GIMP.



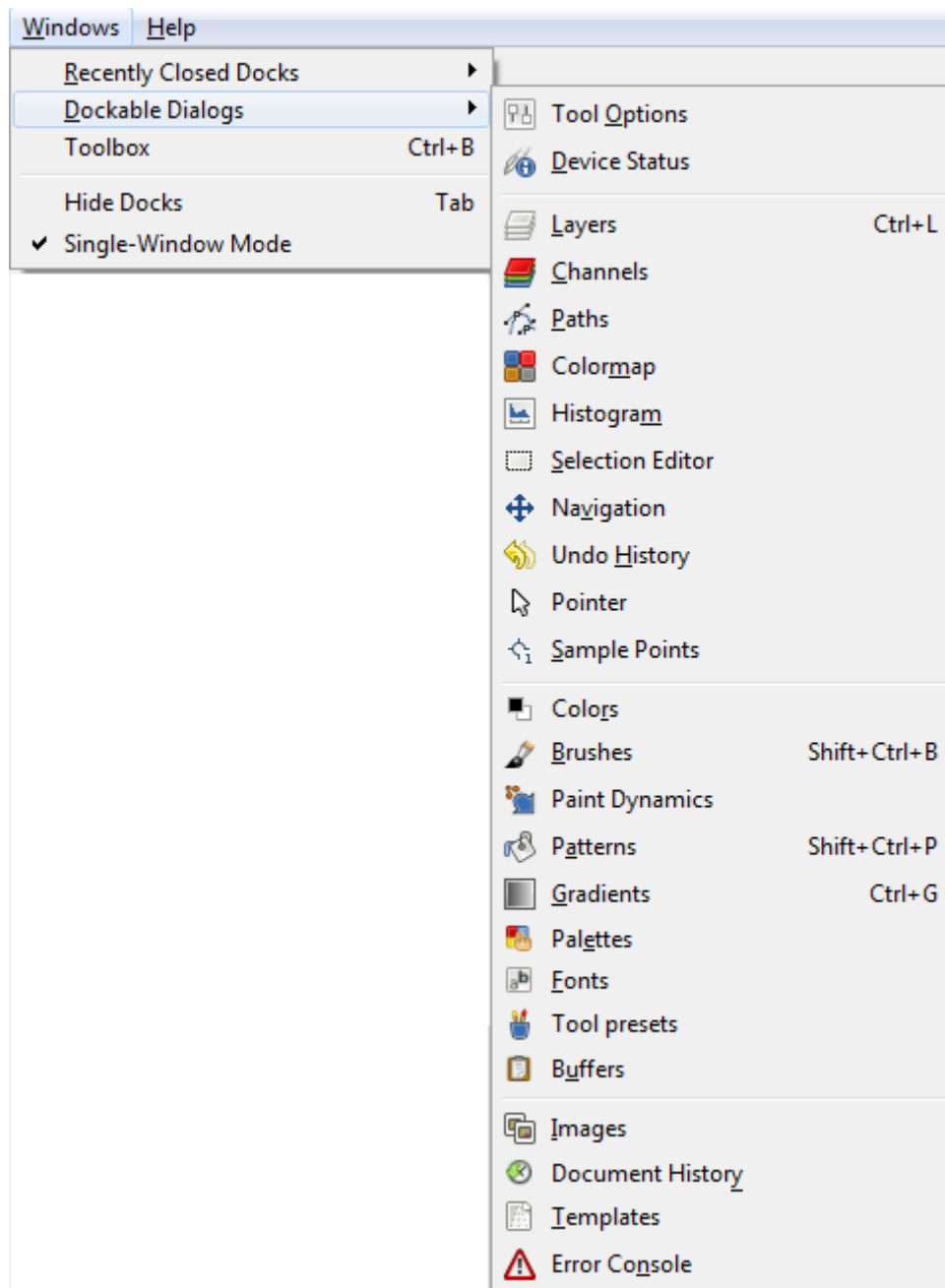
GIMP has three default docks:

1. The **Tool options** dock under the **Toolbox** in the left panel.
2. The **Layers, Channels, Paths** and **Undo** dock in the upper part of the right panel.
3. The **Brushes, Patterns** and **Gradients** dock in the lower part of the right panel.

In these docks, each dialog is in its own tab.

In multi-window mode, the **Toolbox** is a utility window and not a dock. In single-window mode, it belongs to the single window.

Use **Windows > Dockable Dialogs** to view a list of dockable dialogs. Select a dockable dialog from the list to view the dialog. If the dialog is available in a dock, then it is made visible.



5.2 OPENING, PLACING AND CLOSING IMAGE FILES

Opening the Application

- Click the **Start** button.
- Select **All Programs**.
- Click **GIMP**.

Opening Files

- We can open files using the **File > Open** command and **File > Open Recent** command.
- We can also open files into GIMP by dragging and dropping the file into the image window.

Closing Files

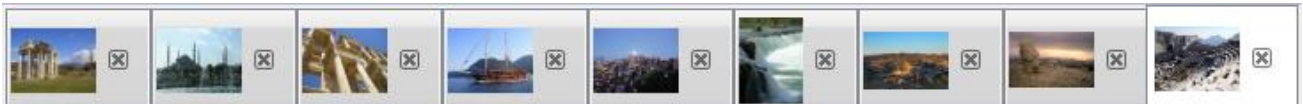
- We can close a single file using the **File > Close** command.
- We can close multiple open files using **File > Close All** command.

Exiting the Application

When done with the application, choose **File > Quit** or press **CTRL Q** to close the application.

5.3 SWITCHING BETWEEN OPEN FILES

When opening multiple images in GIMP, only one image is visible at a time, but if we look above the image, we see a series of tabs, with each tab containing the thumbnail of one of the images. The tab of the image that's currently visible is highlighted.



To switch to a different image, simply click on another image's tab, similar to how we switch between GIMP's dialog on the right of the screen by clicking on their tabs.

If we have so many images open at once that GIMP cannot fit all of their thumbnail tabs on the screen, we will see arrow icon appear at both ends of the tabs. Clicking on the icon scrolls the tabs allowing us to select any of the images.

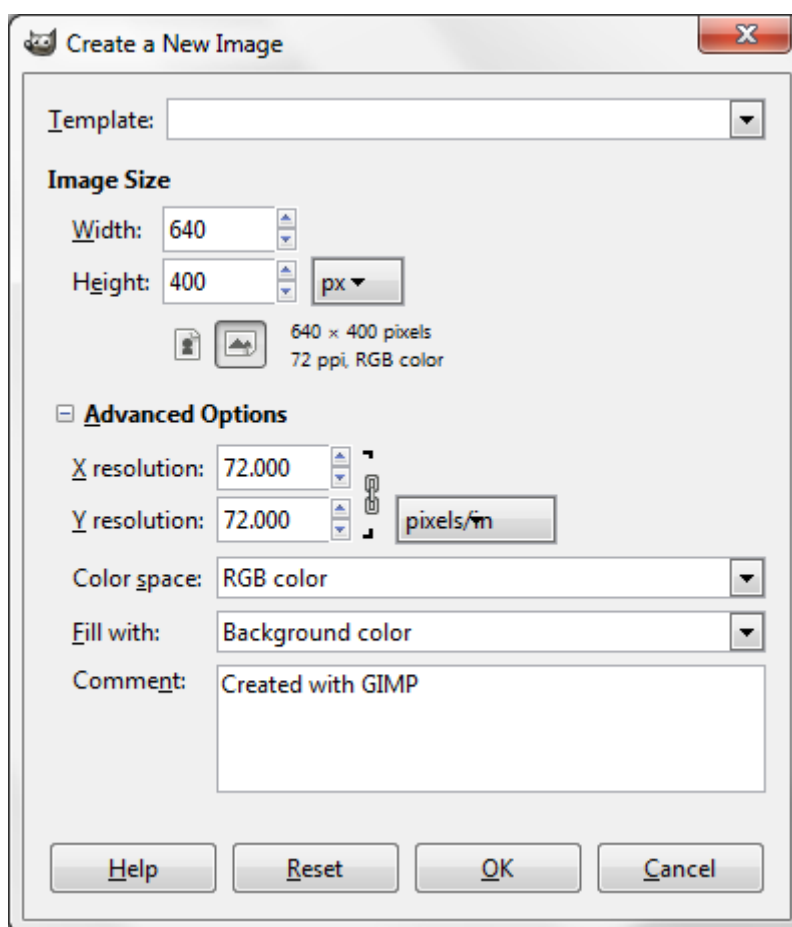


5.4 CREATING NEW IMAGE FILE

The **Create a New Image** dialog box is displayed every time we create a new design document by choosing **File > New**.

We can do the following in the new dialog box:

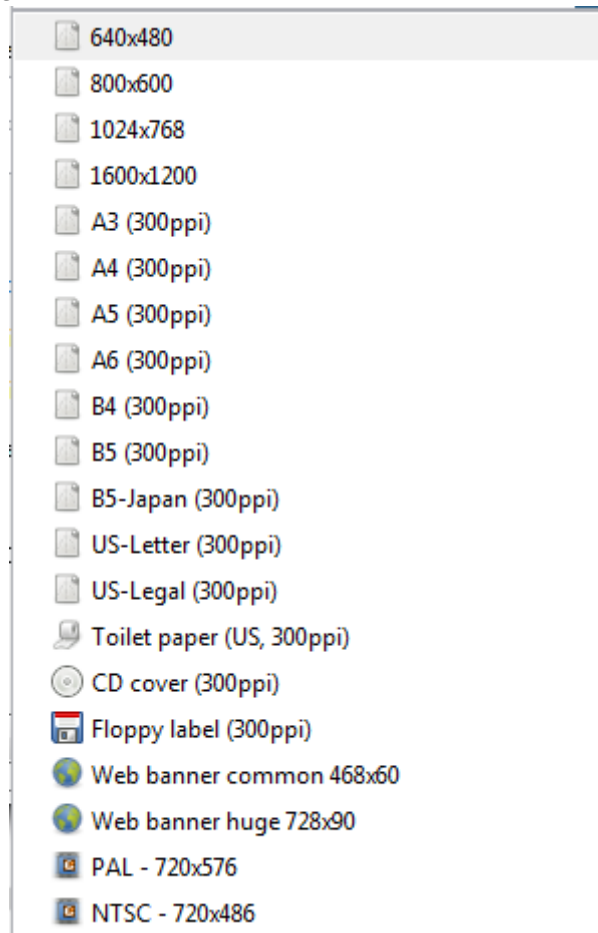
- Choose a template, or specify the width, height, and resolution.
- Select the image's colour space.
- Specify the colour of the background contents.



Templates

GIMP has created a selection of templates for us to choose from when creating images. These templates are nicely arranged into a sequence of categories based on different workflows.

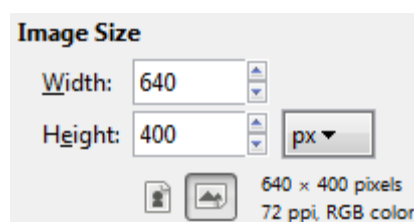
The Template drop-down menu includes the following options:



Width and Height

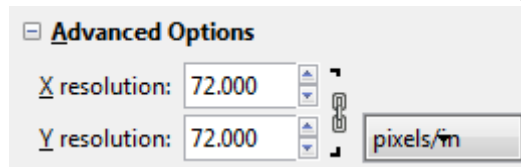
The width and height entered here will determine how wide and tall the image will be. This and resolution are the most important of all information within this dialog box. This is because the size of the image cannot be changed without causing noticeable damage to the image's appearance.

The width and height can be set using various measurement units.



Resolution

Resolution is the next consideration when creating a new image. It depends on the output that we are targeting.



Colour Space

The **Colour space** drop down allows us to select a colour space to work in. The RGB colour space is preferred for most image editing and manipulation in GIMP. Because RGB has a 24-bit colour depth, a wide variety of filters and other manipulation tools can be applied to the image. Working with a lesser colour depth (or mode) will make some of these filters and tools unavailable.



Background Fill

The **Fill with** option assigns a background colour or transparency to our image. The options are:

- **Foreground Colour**
Creates an image using the foreground colour displayed in the **Toolbox**. The foreground colour is the one on the right of the two colour swatches.
- **Background Colour**
Creates an image using the background colour displayed in the **Toolbox**. The background colour is the one on the right of the two colour swatches.
- **Transparency**
Creates an image without any colour. Transparency is displayed with a grey check pattern by default.
- **White**
Creates an image with a white background.

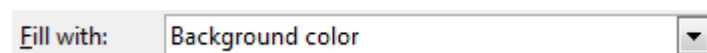
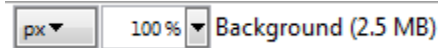


Image Window

The top and bottom bars of an image window contain useful information about the image. The top of the image window, called the title bar, displays the image name, the working colour space, number of layers, and the dimension.



The bottom of the image window is called the status bar. The first field on the left is the drop down list to choose the measurement unit, followed by the current image magnification. Next, current layer and file size is displayed.

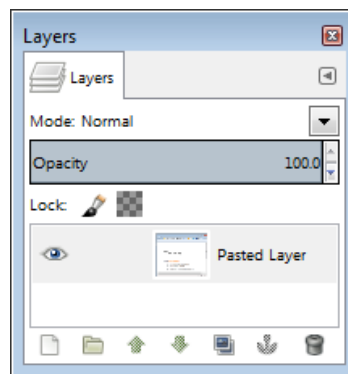


Create New Image from Clipboard

To create a new image based on clipboard:

1. On the desired application (for example, Internet browser) press **Print Screen**.
2. In GIMP, choose **Edit > Paste as > New Image**.

A new image file is created with the current image in the clipboard. The Layer dialog shows a new layer named as **Pasted Layer**.



5.5 SAVING IMAGES

Once we design our artwork and finalise it, we may want to convert it to other file formats for diverse distribution. While saving images in another format, it is best to have 3 versions of it.

- A copy of the source file before making any changes to it.
- A copy of the file as a GIMP file (.xcf).
- The file as it is saved in the desired format.

Save an image to a location on a drive.

1. On the **File** menu, click **Save**.
2. Create a file name and navigate to the required location.
3. Click **Save**.

Save an image under another name to a location on a drive.

1. On the **File** menu, click **Save As**.
2. Enter a new file name over the existing file name and navigate to the location required.

3. Click **Save**.

Saving Images for Print

Files for print are typically saved in TIFF or JPEG file formats. Monitor displays images using light, while a printer reproduces images using inks and pigments. As a result, the printed copy can appear quite different with the screen version.

To save a file for print:

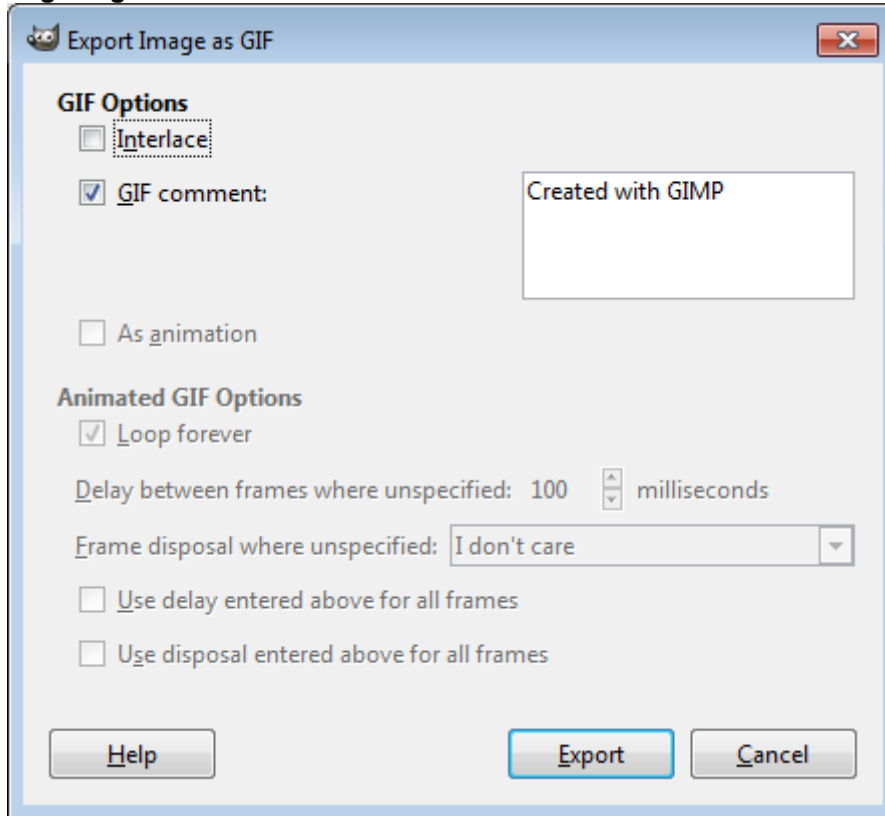
1. Open the file in GIMP.
2. Choose **File > Export**.
3. In the **Export Image** dialog box, click on the **Select File Type (By Extension)** expand icon.
4. Select **JPEG image** or **TIFF image**.
5. Enter a filename.
6. Click **Export**.
7. Specify the required export image options.
8. Click **Export**.

Saving Images for the Web

Web graphics are commonly saved in either JPEG or GIF formats. JPEG images can contain millions of colours and shades, so it is the preferred format for photographs.

To save images for the web in GIF format:

1. Choose **File > Export**.
2. Enter a file name in the **Name** box.
3. In the **Export Image** dialog box, click on the **Select File Type (By Extension)** expand icon.
4. Select **GIF image**.
5. Click **Export**.
6. Specify the required **GIF Options**.

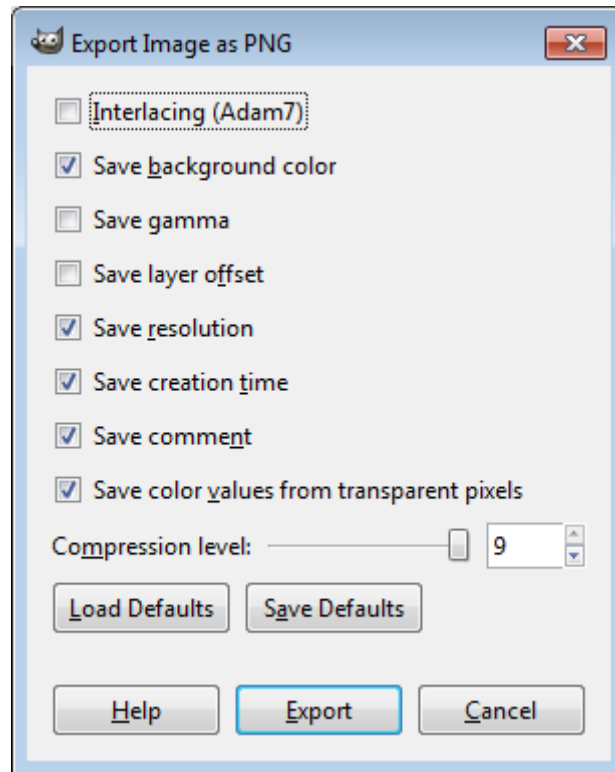


7. Click **Export**.

PNG (Portable Network Graphics) was created as an improved replacement for GIF that supports lossless image compression.

To save images in PNG format:

1. Choose **File > Export**.
2. Enter a file name in the **Name** box.
3. In the **Export Image** dialog box, click on the **Select File Type (By Extension)** expand icon.
4. Select **PNG image**.
5. Click **Export**.
6. Specify the required options in the **Export Image as PNG** dialog box.



7. Click **Export**.

LESSON 6 – LAYOUT SETTINGS

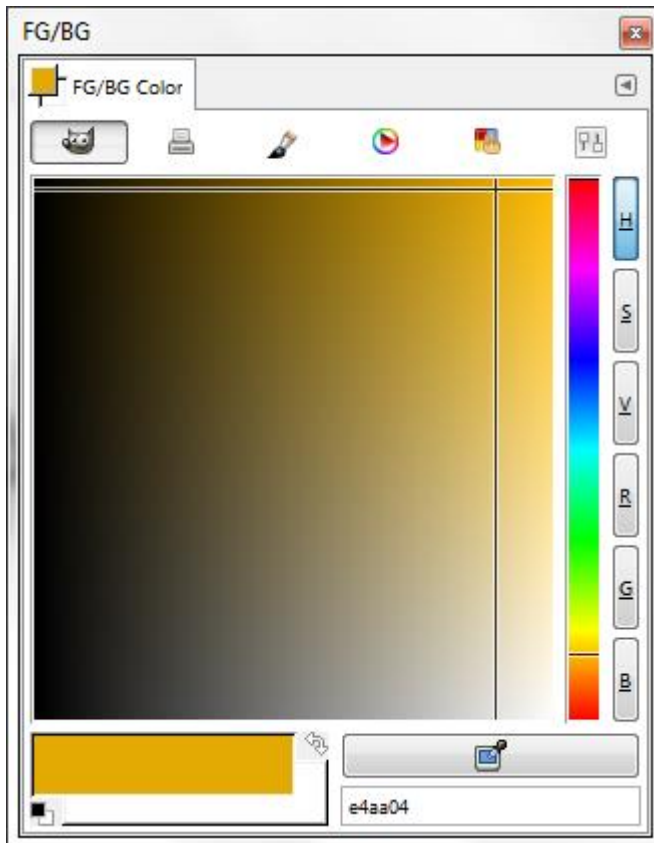
In this section, you will learn about:

- Choosing foreground and background colours
- Setting grid properties

6.1 FOREGROUND AND BACKGROUND COLOURS

GIMP uses the foreground colour to paint, fill, and stroke selections and the background colour to make gradient fills and fill in the erased areas of an image. The foreground and background colours are also used by some special effects filters.

We can designate a new foreground or background colour using the **Color Picker** tool, the **FG/BG Color** dialog, the **Palette Editor** dialog, or the **Color Selection** dialog.



The default foreground colour is black, and the default background colour is white.

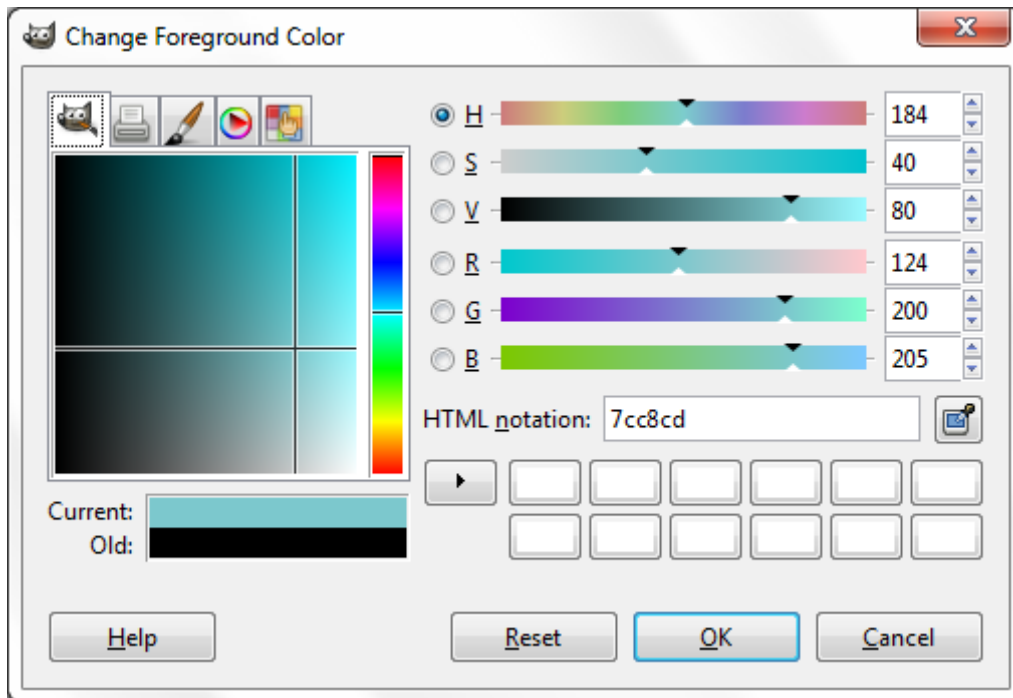


Color Selection Dialog

The **Color Selection** dialog is a tool used for choosing colours. These colours can then be used for painting, filling areas with colour, and a whole bunch of other things.

The colour in the **Color Selection** dialog displays the colour components in HSB (HSV) colour mode, RGB colour mode, and HTML notation. If we know the numeric value of the colour we want, we can enter it into the text fields. We can also use the colour slider and the colour field to preview a colour to choose. As we

adjust the colour using the colour field and colour slider, the numeric values are adjusted accordingly.



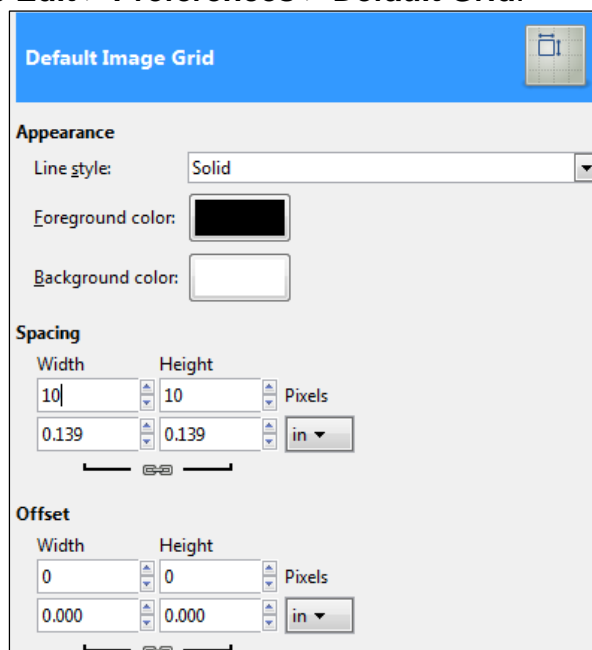
6.2 SETTING GRID PROPERTIES

The grid is useful for laying out elements symmetrically. The grid appears by default as nonprinting lines but can also be displayed as dots.


To display the grid, choose **View > Show Grid**.

To do set the grid properties, do the following:

1. Choose **Edit > Preferences > Default Grid**.



2. For **Appearance**, select a display option for the grid.
 - a. Choose a **Line Style** from the drop down list provided.
 - b. Set a Foreground colour (grid colour).
 - c. Set a Background colour.

3. Set the **Spacing** and **Offset** options.
 - a. **Spacing**: Select the cell size of the grid and the unit of measurement. Click the **Link** icon  to change the horizontal (**Width**) and vertical (**Height**) spacing individually.
 - b. **Offset**: Set the offset of the first cell. The coordinate origin is the upper left corner of the image. By default, the grid begins at the coordinate origin, (0,0).

4. Click **OK**.

6.3 REVIEW EXERCISE

1. Open the image *Wheel Template*.
2. Use the **Color Selection** dialog to mix the colours.

The different colours in the colour wheel are made up of three primary colours: red, green and blue; three secondary colours: cyan, magenta and yellow and six tertiary colours that fall in between each of the primary and secondary colour values.

Use the **Bucket Fill** tool to apply the colours to the wheel.

3. Use the following RGB values:

Colour Group	Hue	R	G	B
Primary colour (RGB) circles	Red	255	0	0
	Green	0	255	0
	Blue	0	0	255
Secondary colour circles	Cyan	0	255	255
	Magenta	255	0	255
	Yellow	255	255	0
Tertiary colours circles	Orange	255	127	0
	Yellow green	127	255	0
	Cyan green	0	255	127
	Cyan blue	0	127	255
	Purple	127	0	255
	Pink	255	0	127

4. Save the file as *Colour Wheel*.

LESSON 7 – ENHANCING PRODUCTIVITY

In this section, you will learn about:

- Setting basic options and preferences
- Using the Help function
- Using magnification and zoom tools
- Performing undo or redo with History panel
- Manipulating toolbars, panels and windows

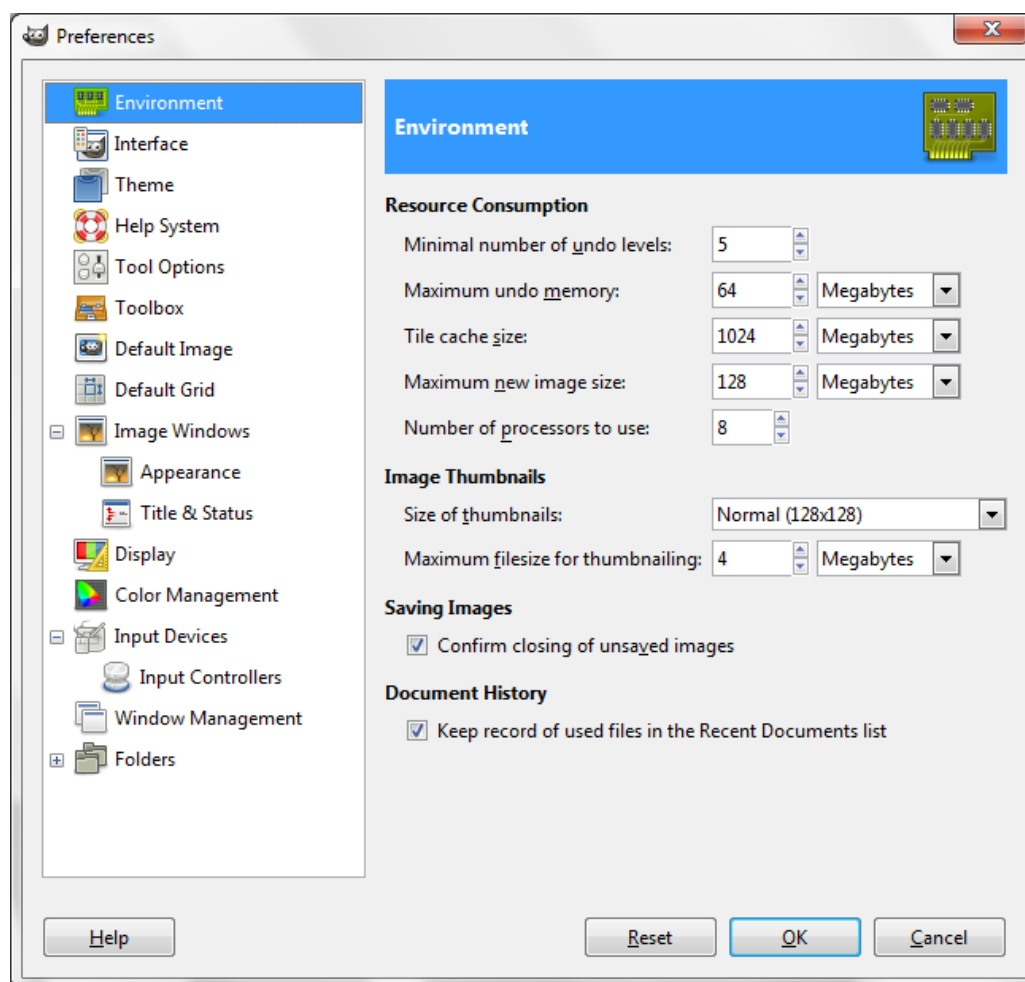
7.1 SETTING BASIC OPTIONS AND PREFERENCES

Main Window

The GIMP user interface is available in two modes: multi-window mode and single window mode. When we open GIMP for the first time, it opens in multi-window mode by default. We can enable single-window mode through **Windows > Single-Window Mode**.

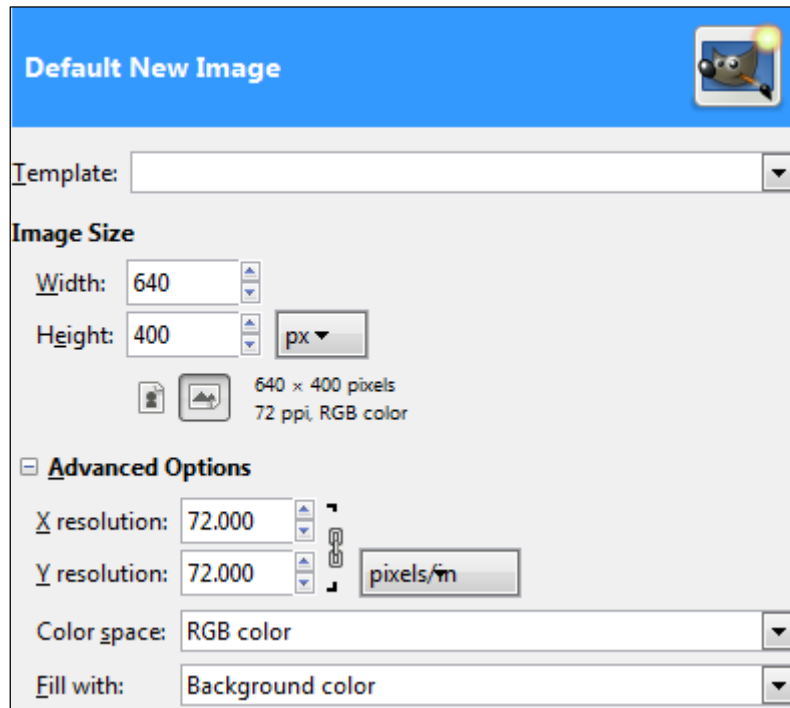
Setting Preferences

Numerous program settings such as general display options, file-saving options, and performance options are set in the **Preferences** dialog box. The preferences dialog can be accessed **Edit > Preferences**. It lets us customise many aspects of the way GIMP works.

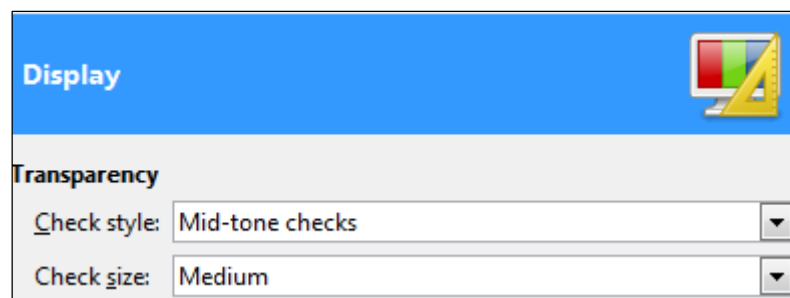


Some of the common settings are:

- **Default Image**
 - Sets the default new file options such as Image Size (width, height and orientations).
 - Also used to set the default resolution and colour mode for new files.



- **Display**
 - Sets the appearance of **Transparency** in the **Layers dialog**.
 - Choose the check box style from the **Check style** drop down list.
 - Choose the check box size from the **Check size** drop down list.

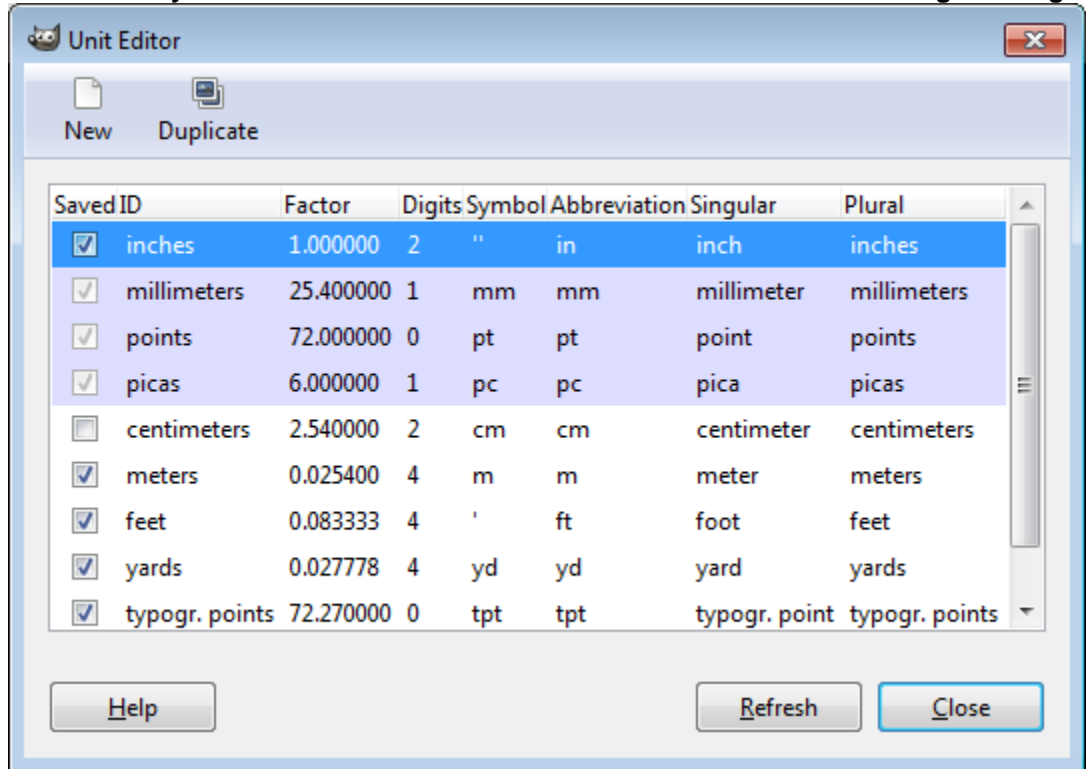


Setting Measurement Units

GIMP offers many different measurement units for us to work with. The unit will be used whenever we are creating new files, drawing preset shapes or displaying grids.

To set the default measurement unit:

1. Choose **Edit > Units**.



2. Check or uncheck the measurement units required.
3. Click **Close**.

7.2 USING THE HELP FUNCTION


To access **GIMP Help**:

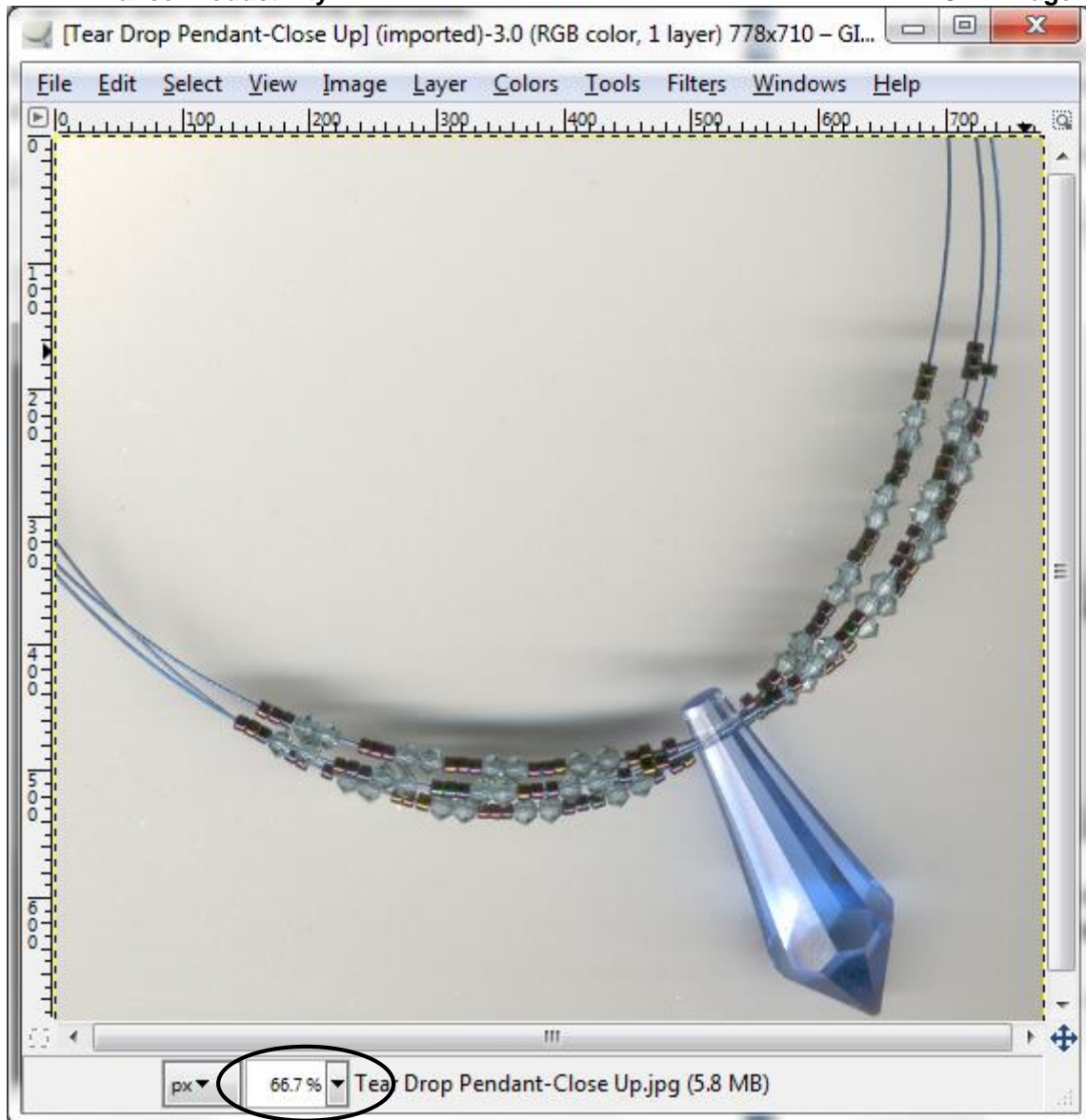
1. Choose **Help > Help** or press **F1**.
2. Click the expand icon on the left side on the window.
3. Browse through the topics on the left and double click on the topic to access the help.



7.3 USING MAGNIFICATION AND ZOOM TOOLS

When we work with GIMP files, we will often view them from different perspectives. We use the **Zoom tool** to enlarge and reduce the image on screen.

- To zoom in, choose the **Zoom tool**  and then click or click and drag in the image. When we zoom in, the zoom percentage increases. The current zoom percentage is shown in the status bar. The zoom percentage shows the magnification at which we are viewing the image (not the actual size of the image).

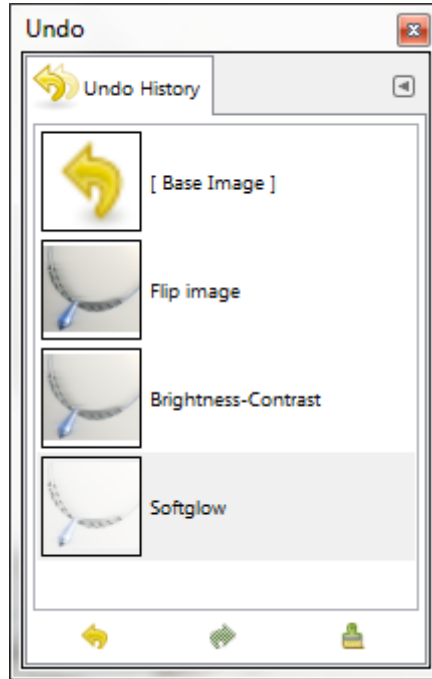


- To zoom out, press the **CTRL** key while clicking with the **Zoom tool**.

7.4 PERFORMING UNDO AND REDO WITH UNDO HISTORY

To undo the last action, simply choose **Edit > Undo <action name> (CTRL Z)**.

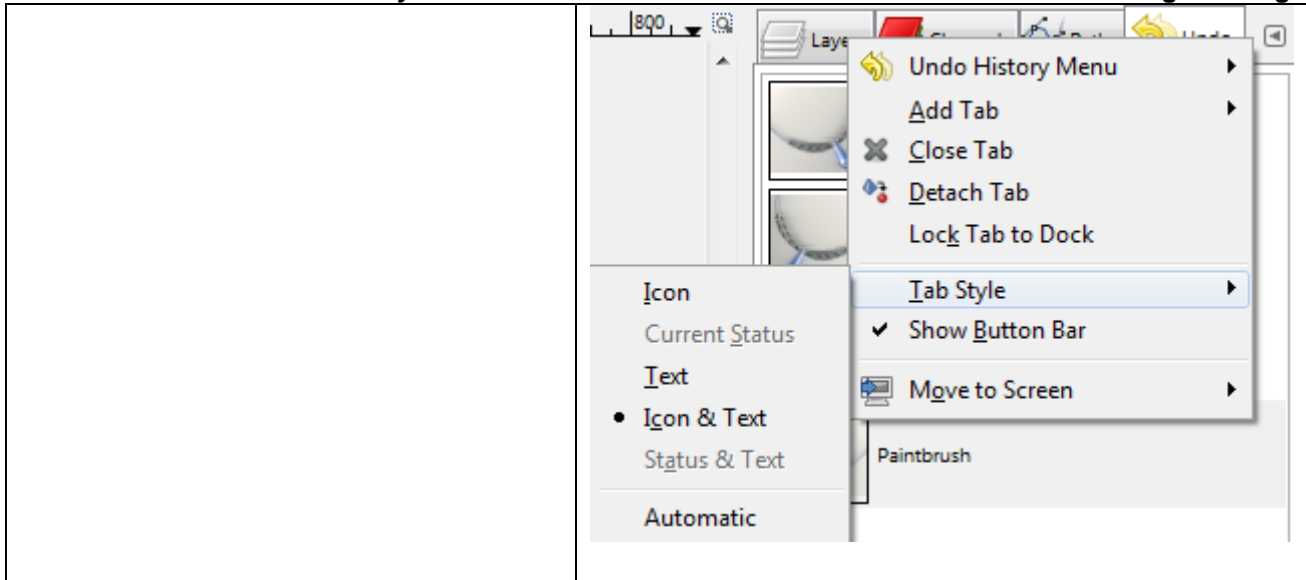
The **Undo History** dialog records our actions and maintains minimal 5 actions. We can click a state in the list to go back to that point of our work, and then continue working from that state.



Action	Command
Undo the last action	Click on the last state in the Undo History dialog or press CTRL Z .
Redo the last action	Click on the next state in the Undo History dialog that was undone or press CTRL Y .
Revert to the state the file was last saved	Choose File > Revert .

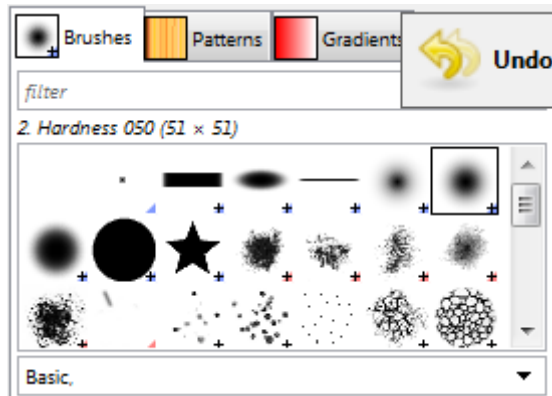
7.5 MANIPULATING TOOLBOX AND PANELS

Action	Command
To hide or show all docks	Press TAB .
To change dock displays	Click on Configure this tab > Tab Style .



To combine tabs together

Click on the tab name, drag and drop below another tab or next to the panel's name.



7.6 REVIEW EXERCISE

1. Which tool is used to enlarge and reduce the view of an image?

2. Which keyboard key is used to activate the Help function?

3. What happens when we press TAB?

4. In GIMP, do the following:
 - a. Open all the images in the ***Turkey Travel*** folder.
 - b. Use the file tab to activate the image ***Mount Nemrud***.
 - c. View the image at 100% zoom level.
 - d. Pan the image so that the face structure on the left is fully visible.
 - e. Fit the image on screen.
 - f. Save the image as JPEG format using the file name ***Nemrud-Medium***.
 - g. Close all open images.

LESSON 8 – SELECTION TECHNIQUES

In this section, you will learn about:

- Selecting an entire image or layer
- Selecting with marquee and lasso tools
- Setting selection tool properties
- Selecting based on colour
- Feathering and anti-aliasing
- Inversing selection
- Saving and loading selections

8.1 ABOUT SELECTION TECHNIQUES

A selection isolates one or more parts of our image. By selecting specific areas, we can edit and apply effects and filters to portions of our image while leaving the unselected areas untouched.

GIMP provides separate sets of tools to make selections of raster and vector data. For example, to select pixels, we can use the marquee tools or the lasso tools. We can use commands in the **Select** menu to select all pixels and to deselect.

To select vector data, we can use the **Paths** tool as a selection tool: any closed path can be converted into a selection. It also can do a great deal more, though, and does not share the same set of options with the other selection tools.

Selections can be copied, moved, and pasted, or saved.

8.2 SELECTING AN ENTIRE IMAGE OR LAYER



We can select all visible pixels on a layer or deselect any selected pixels.

- Select all pixels (entire image) on a layer
 - **Select > All** **CTRL A**
- Deselect selection
 - **Select > None** **CTRL SHIFT D**

8.3 SELECTING WITH MARQUEE AND LASSO TOOLS

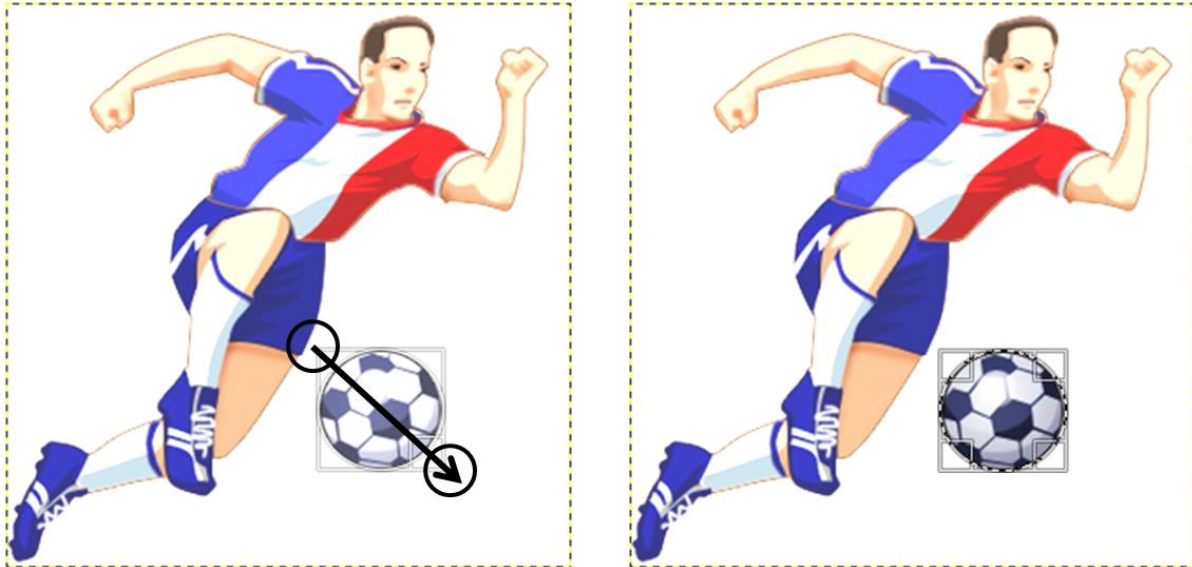
Selecting with Marquee Tools

The marquee tools are used to select rectangles and ellipses.

-  **Rectangle Select**
Makes a rectangular or square selection.
-  **Ellipse Select**
Makes an elliptical or circle selection.

Selection techniques:



- Holding down **SHIFT** while dragging constrains the marquee to a square or circle (press **SHIFT** after starting to drag and release the mouse button before releasing **SHIFT** to keep the selection shape constrained).




- To drag a marquee from its center, hold down **CTRL** after beginning to drag.



Selecting with the Lassos

-  **Free Select**
Useful for drawing freeform and straight-edged segments of a selection border.
-  **Scissors Select**
The border snaps to the edges of defined areas in the image and is especially useful for quickly selecting objects with complex edges set against high-contrast backgrounds.

Using the Free Select Tool

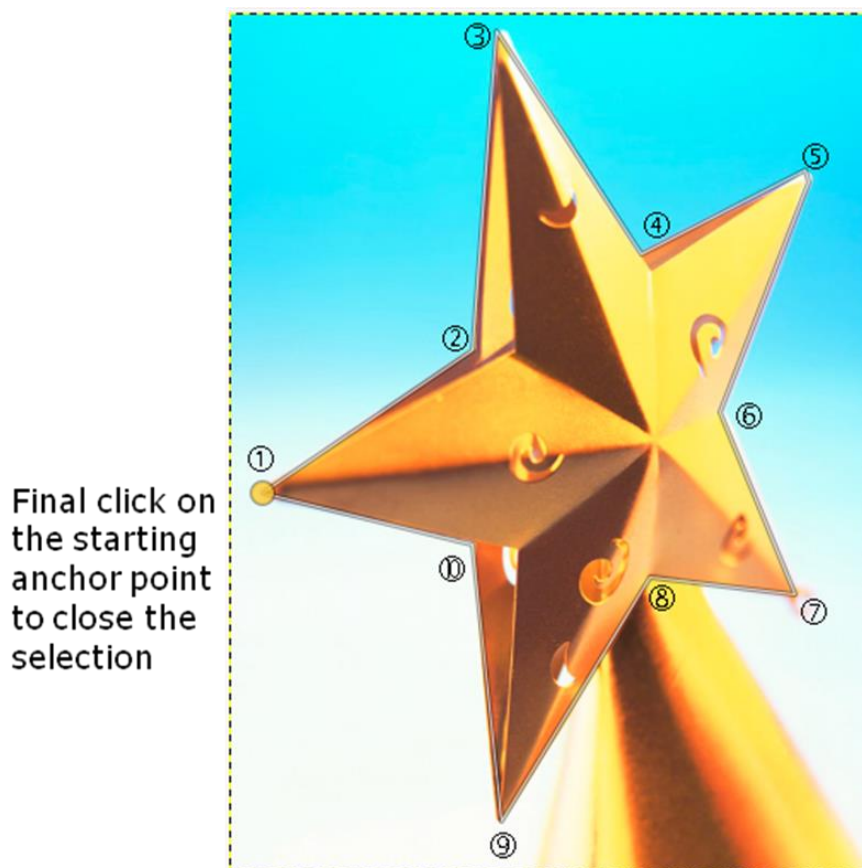
1. Select the **Free Select** tool .
 2. Drag to draw a freehand selection border.
- **To draw a straight-edged selection border:** Position the pointer where we want the first straight segment to end, and click. Continue clicking to set endpoints for subsequent segments.
 - **To erase recently drawn segments:** Press the **BACKSPACE** key.
 - **To close the selection border:** Position the tool pointer over the starting point (a filled circle appears next to the pointer), and click.




The **Free Select** is a quick way to select an area but does not allow us to select it precisely. All we do is click, hold and draw to create a selection. After we release our click the selection completes itself.

The polygonal selection lets us create more accurate lines as we create straight lines so we have more control of what we want to select and is much more flexible.

To start using this tool all we do is click onto our picture which creates an anchor point and then start clicking around the area we want to select. With this tool we do not have click and drag. To finish the selection we can click onto the 1st point where we started off or double click anywhere on the picture, as this will draw a straight line to the 1st point.



Using the Scissors Select Tool

1. Select the **Scissors Select** tool .
2. Click in the image to set the first fastening point. Fastening points anchor the selection border in place.
3. To draw a freehand segment, click and drag the mouse pointer.

The tool finds the point of the maximal gradient (where the colour change is maximal) for placing a new control node or moving an existing node.

Each time we left click with the mouse, we create a new control point, which is connected to the last control point by a curve that tries to follow edges in the image.

4. To finish, click on the first point.

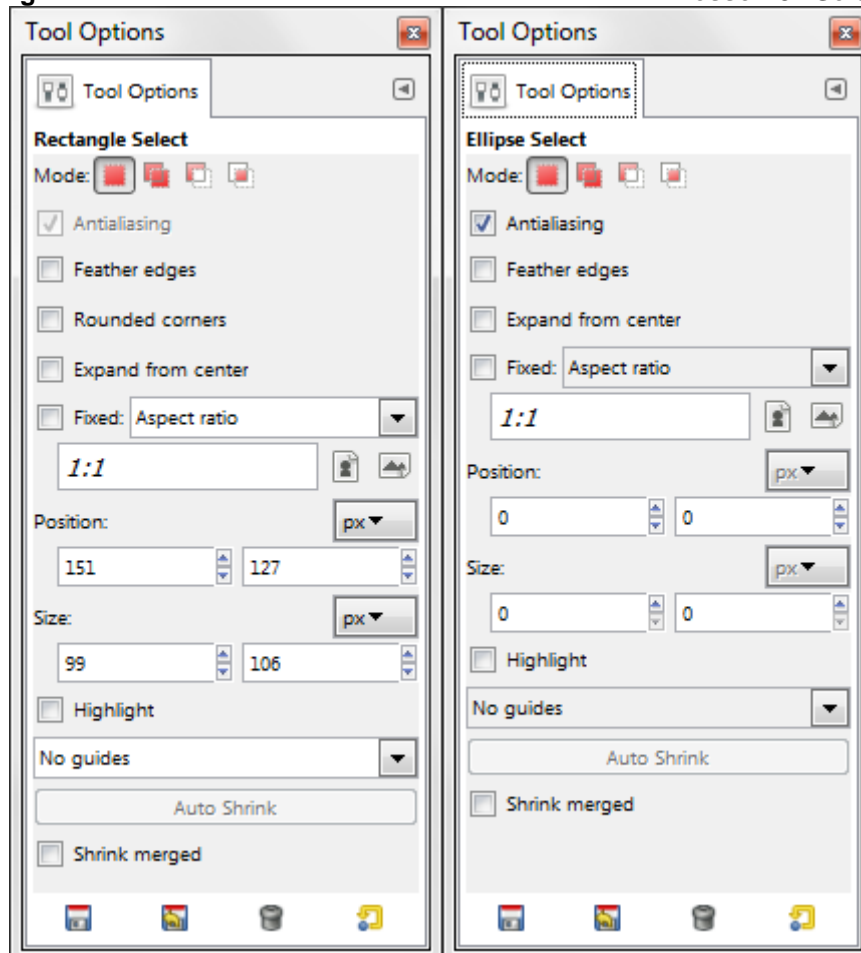
We can adjust the curve by dragging the control nodes, or by clicking to create new control nodes.

5. When we are satisfied, click anywhere inside the curve to convert it into a selection.

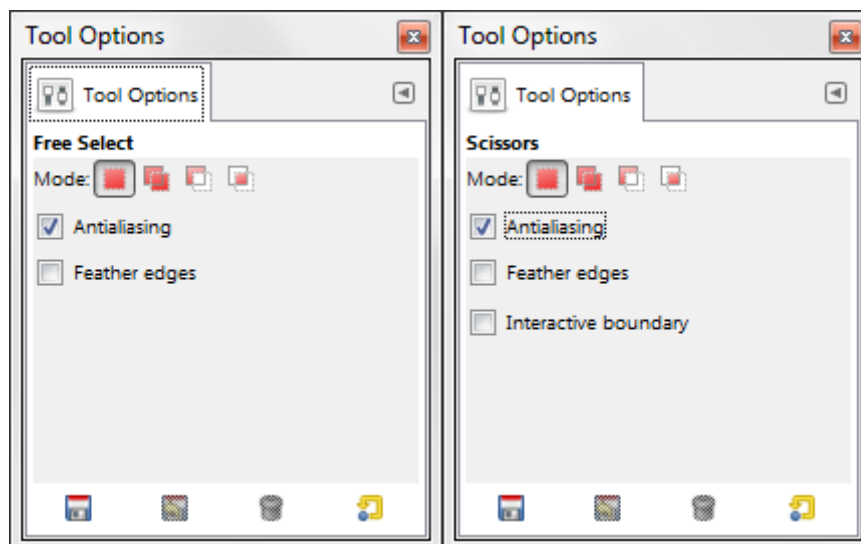


Marquee Tool Options

Tool options for **Rectangle Select** and **Ellipse Select** tool:



Tool options for **Free Select** and **Scissors Select** tool:




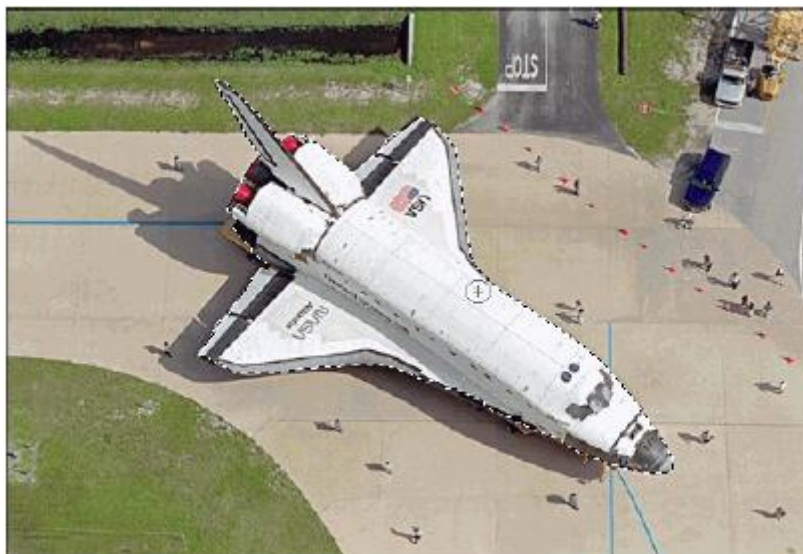
- Antialiasing:** Smoothens the jagged edges of a selection by softening the colour transition between edge pixels and background pixels. Since only the edge pixels change, no detail is lost. Antialiasing is useful when cutting, copying, and pasting selections to create composite images. Turning off this option produces a hard-edged transition between pixels—and therefore the appearance of jagged edges.

- **Feather Edges:** Blurs edges by building a transition boundary between the selection and its surrounding pixels. This blurring can cause some loss of detail at the edge of the selection.
- **Rounded corners:** A slider appears and we can use this to adjust the radius that is used to round the corners of the selection.
- **Expand from center:** Allows the selection to be drawn from the center of the mouse click.
- **Fixed:** We can define width, height or proportion of selection by using this option.
 - **Aspect ratio** to set a height-to-width ratio. By default the ratio is 1:1.
 - **Width** to specify width of selection.
 - **Height** to specify height of selection.
 - **Size** to specify both width and height of selection.

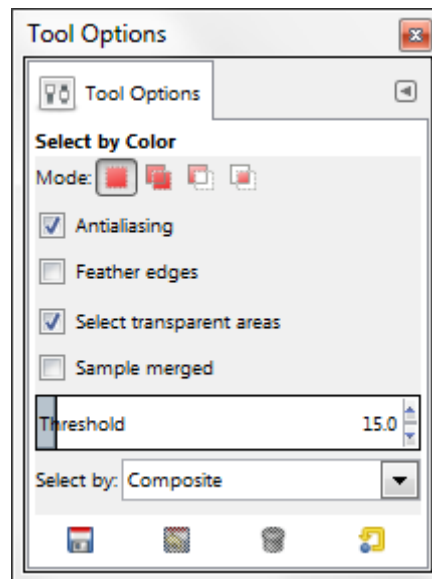
8.4 SELECTING BASED ON COLOUR

Selecting with the Select by Color Tool

We can use the **Select by Color** tool  to select areas of an image based on colour similarity. It works a lot like the **Fuzzy Select** tool. The main difference between them is that the **Fuzzy Select** tool selects contiguous regions, with all parts connected to the starting point by paths containing no large gaps; while the **Select by Color** tool selects all pixels that are sufficiently similar in colour to the pixel you click on, regardless of where they are located.




Select by Color Tool Options



- **Antialiasing:** Smoothens the jagged edges of a selection.
- **Feather edges:** Blurs edges of a selection.
- **Select transparent areas:** Select areas that are completely transparent.
- **Sample merged:** Relevant when we have several layers in our image, whether to sample from current layer only, or from all visible layers.
- **Threshold:** Determines the range of colours that will be selected at the moment we click the pointer on the initial point, before dragging it: the higher the threshold, the larger the resulting selection. After the first click, dragging the pointer downward or to the right will increase the size of the selection; dragging upward or to the left will decrease it. Thus, we have the same set of possibilities regardless of the Threshold setting: what differs is the amount of dragging we have to do to get the result we want.

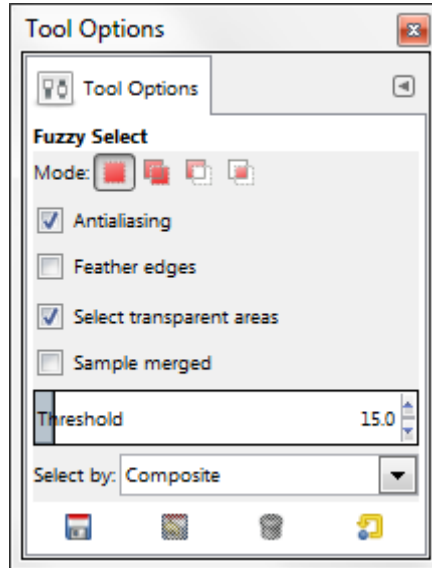
Selecting with the Fuzzy Select (Magic Wand) Tool

The **Fuzzy Select (Magic Wand)** tool  lets us select an area by colour range without having to trace its outline. We can specify the colour range, or tolerance, for the **Magic Wand** tool's selection.

Enter a low value to select the few colours very similar to the pixel we click, or enter a higher value to select a broader range of colours.



Fuzzy Select Tool Options



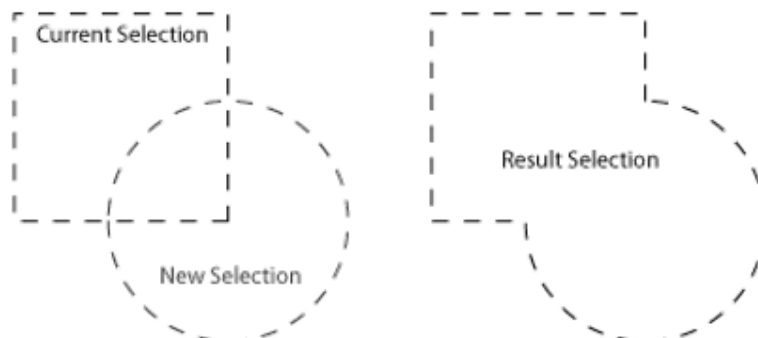
The options for the **Fuzzy Select tool** is the same for **Select by Color tool**.

8.5 MANIPULATING SELECTIONS

There are four selection modes in the tool options tab.



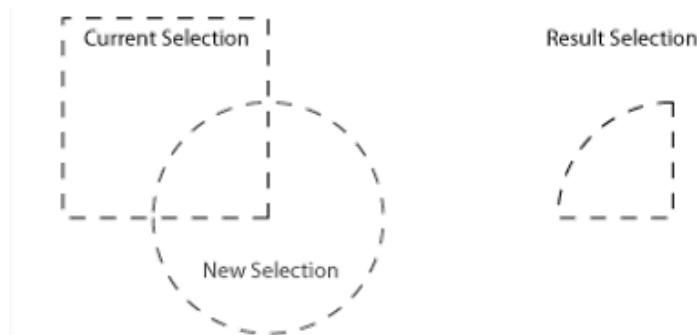
- **Replace**
- **Add**



- **Subtract**



- **Intersect**



8.6 FEATHERING AND ANTI-ALIASING

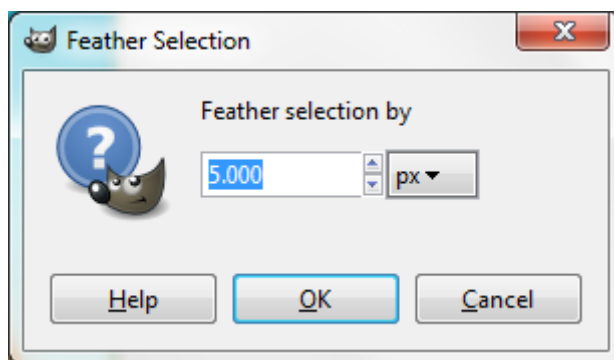
Selection feather will soften the edge of selection. The default feather is 0px that will produce crispy and jagged edge. This will be more noticeable in very higher resolution image.



Selection feather is very useful, especially when making selection to adjust blur or out-focus object. By using appropriate amount of feather, the image will look more natural.

The amount of feather will vary depend on resolution of image. Specific amount of feather that produce best result in one image may not work with the other image if the image resolution is greatly different.

1. Create a selection.
2. Choose **Select > Feather**.



3. Enter required feather radius.
4. Click **OK**.

8.7 INVERSING SELECTION

We can select the unselected parts of an image by inverting the current selection. We can use this option to select an object placed against a solid-coloured background. The background can be selected using the **Fuzzy Select** or **Select by Color** and then invert the selection.



Original selection



Inversed selection

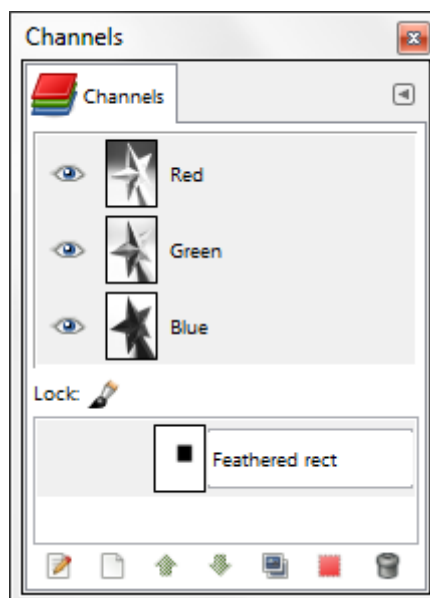
1. Create a selection.
2. Choose **Select > Invert**.

8.8 SAVING AND LOADING SELECTIONS

We can save any selection in a new channel and later reload the selection.

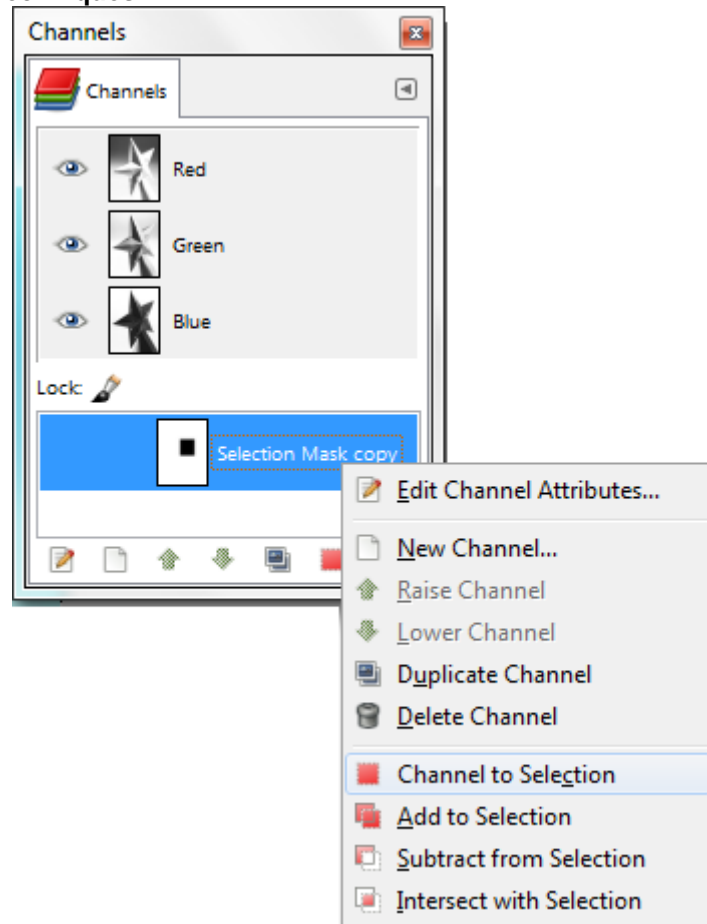
To save a selection:

1. Use a selection tool to select the area.
2. Choose **Select > Save to Channel**.
3. Enter a name for the selection in the **Channels** tab.
4. Press **ENTER**.



To load a saved selection:

1. Right-click on the named channel.
2. Click on **Channel to Selection**.



8.9 REVIEW EXERCISE

1. Open the images **Wall** and **Frames**.
 - a. Use the marquee selection tools to select the framed pictures and object and place them on the wall image.
 - b. Save the file as **Wall – Completed**.

2. Open the image **Butterfly**.
 - a. Use a lasso tool to select the butterfly.
 - b. Save the selection.
 - c. Save the file.

3. Open the image **Pink Rose**.
 - a. Select the flower.
 - b. Subtract any background from the selection if necessary.
 - c. Save the selection.
 - d. Save the file.

LESSON 9 - IMAGE MANIPULATION

In this section, you will learn about:

- Changing image canvas size
- Resizing images
- Cropping images
- Moving and copying image or selection
- Rotating and flipping image or selection

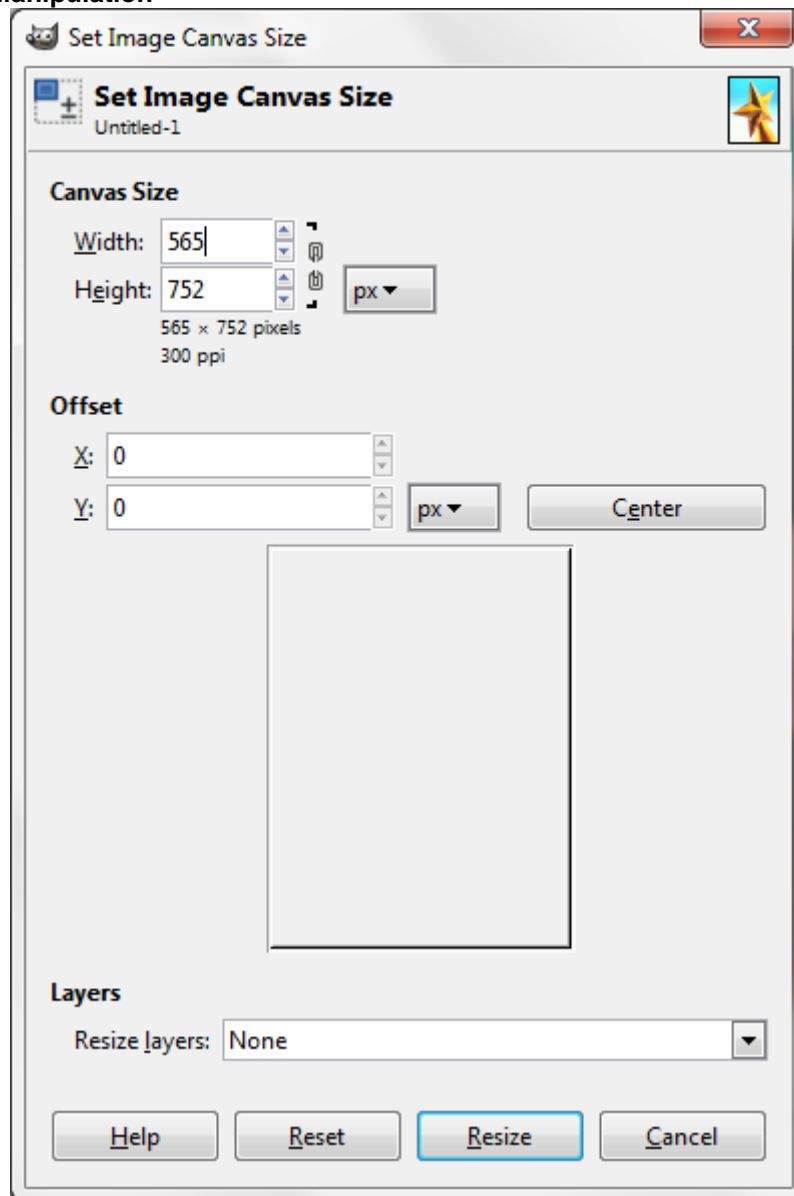
9.1 CHANGING IMAGE CANVAS SIZE

The canvas size is the full editable area of an image. The **Canvas Size** command lets us increase or decrease an image's canvas size. By default the size of the canvas coincides with the size of the layers.

When we enlarge the canvas, we create free space around the contents of the image. When we reduce it, the visible area is cropped, however the layers still extend beyond the canvas border.

When we reduce the canvas size, the new canvas appears surrounded with a thin negative border in the preview. The mouse pointer is a moving cross: click and drag to move the image against this frame.

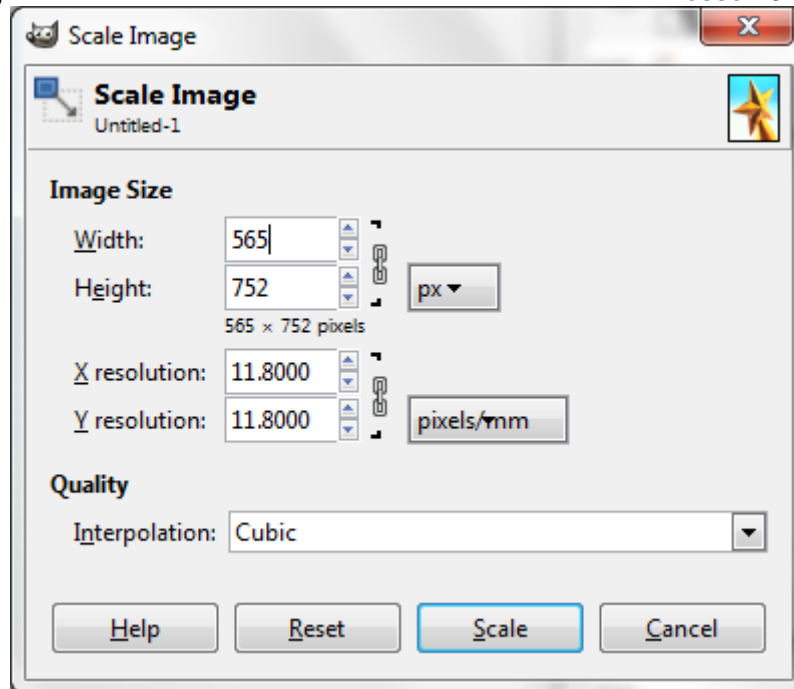
1. Choose **Image > Canvas Size**.
2. Do one of the following:
 - Enter the dimensions for the canvas in the **Width** and **Height** boxes.
 - Choose different units, e.g. percent, if we want to set the new dimensions relative to the current dimensions.
 - Break the **Chain** by clicking on it, to set **Width** and **Height** separately.
3. Set **Offset** values to place the image on the canvas or click the **Center** button to center the image on the canvas. When we click on the **Center** button, the offset values are automatically calculated and displayed in the text boxes.
4. Click **Resize**.



9.2 RESIZING IMAGES

Image size refers to the dimensions of the GIMP file. The **Scale Image** command enlarges or reduces the physical size of the image by changing the number of pixels it contains. It changes the size of the contents of the image and resizes the canvas accordingly.

1. Choose **Image > Scale Image**.



2. Enter the required **Width** and **Height**.
3. Set the printing resolution for the image in the **X resolution** and **Y resolution** fields.
4. Click **Scale**.

To change the image size, either some pixels have to be removed or new pixels must be added. The process we use determines the quality of the result. The **Interpolation** drop down list in the **Scale Image** dialog provides a selection of available methods of interpolating the colour of pixels in a scaled image.

These different methods have an impact on the perceived sharpness and smoothness of the resulting image.


The different resampling options are:

- **None**
No interpolation is used. Pixels are simply enlarged or removed, as they are when zooming. This method is low quality, but very fast.
- **Linear**
This method is relatively fast, but still provides fairly good results.
- **Cubic**
The method that produces the best results, but also the slowest method.
- **Sinc (Lanczos 3)**
New with GIMP 2.4, this method gives less blur in important resizing.

When changing image size relatively small amounts (say scaling up or down less than 10%), it may not be necessary to change the default setting of (**Cubic**), but when making large changes be certain to choose the appropriate option for the maximum quality.

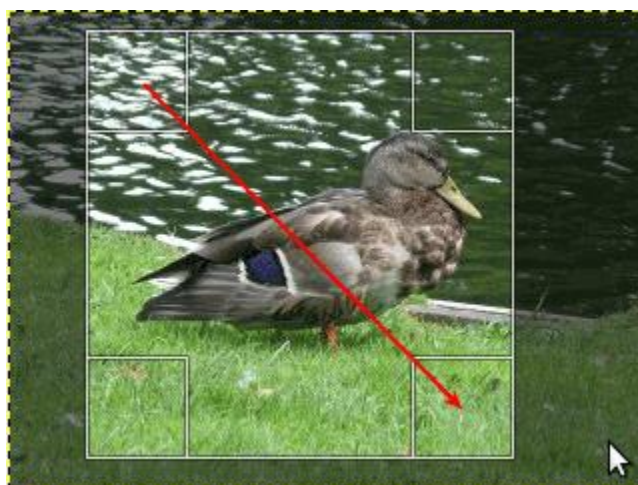
9.3 CROPPING IMAGES

One of the first editing tasks we will probably undertake is cropping an image photo. There are different ways to crop in GIMP. We will start with the basic and then we will look at some ways to make the task faster and easier.

Cropping is the process of removing portions of an image to create focus or strengthen the composition. We can crop an image using the **Crop** tool  and the **Crop to Selection** command (**Image > Crop to Selection**). We can also trim pixels using the **Autocrop Image** and the **Zealous Crop** commands.

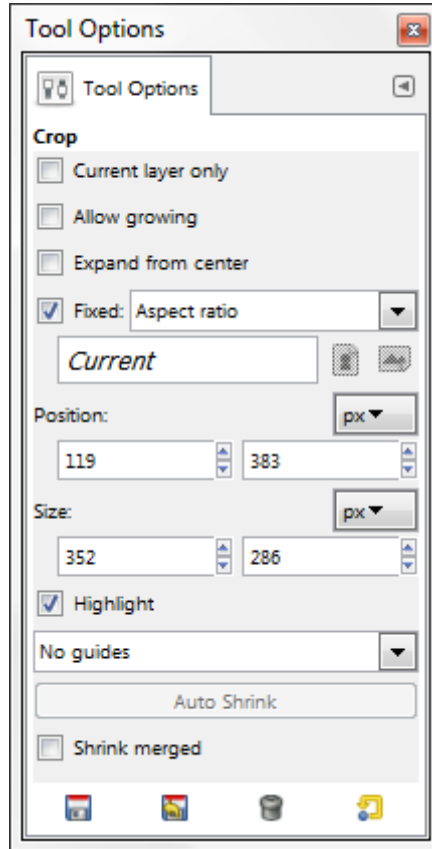
Using the Crop Tool

The **Crop** tool works similarly to the **Rectangular Select** tool. We can drag to draw rectangular area to select part of image we want to include. Moreover **Crop** tool include bounding box around selected area that allows us to resize, move or perspective the select area. We can also crop and resize our selected area to target resolution that we specify in tools option.



To crop an image using the **Crop** tool:

1. Select the **Crop** tool.
2. Set resample options in the **Tool Options** tab.

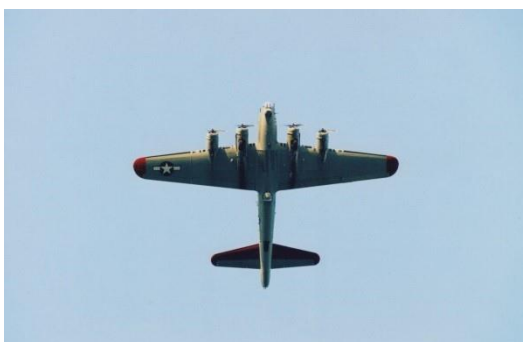


3. Drag over the part of the image we want to keep to create a marquee. If necessary, adjust the cropping marquee.
4. Press **ENTER** or click inside the cropping marquee.

Using Autocrop Image Command

The **Autocrop Image** command removes the borders from an image. It searches the active layer for the largest possible border area that is all the same colour, and then crops this area from the image.

1. Open an image file.
2. Choose **Image > Autocrop Image**.



Original image

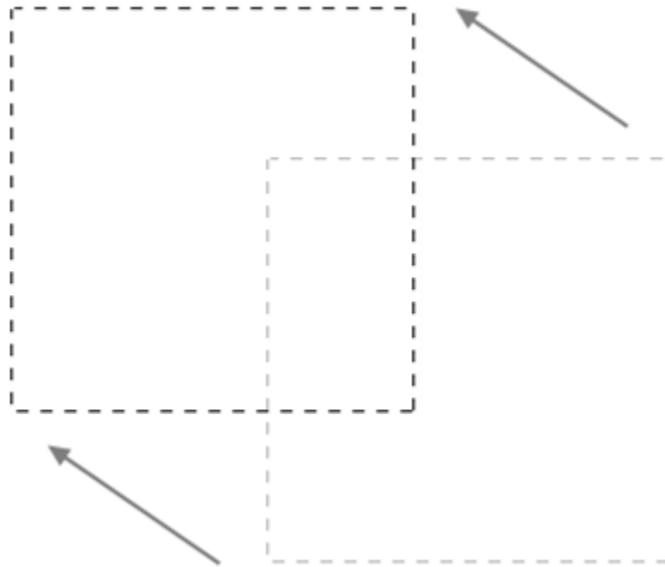


Image after applying **Autocrop Image** command

9.4 MOVING AND COPYING IMAGE

To move a selection:

1. Place the selection tool pointer inside the selection border.
2. Drag the selection to a new position.



To copy a selected image area:

1. Select the required image area.
2. Choose **Edit > Copy**.
3. Choose **Edit > Paste**.

To move an image:

1. Select the **Move** tool.
2. Drag the image to a new position.

To copy an image:

1. Choose **Image > Duplicate**.

9.5 ROTATING AND FLIPPING SELECTION/IMAGE

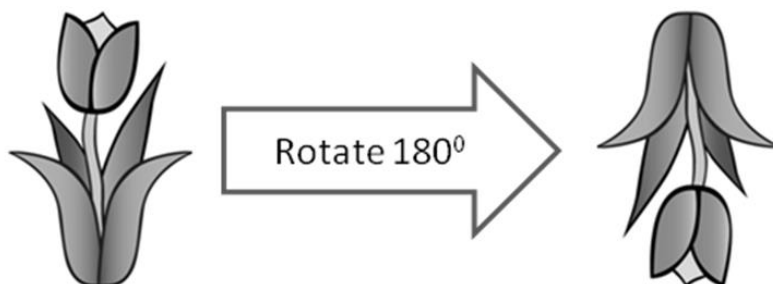
Rotating Image

There may be times when we open an image in GIMP to find that it is not in its proper orientation.

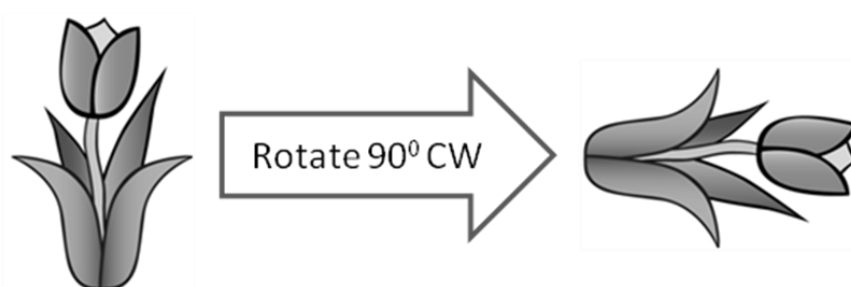
To rotate an image:

The **Image > Transform** commands let us rotate or flip an entire image. The commands do not work on individual layers or parts of layers, paths, or selection borders.

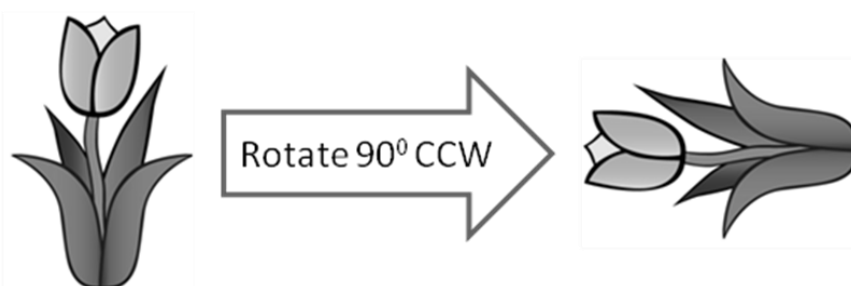
1. Choose **Image > Transform**.
2. Choose one of commands from the submenu.
 - a. **Rotate 180°**




- b. **Rotate 90° clockwise**

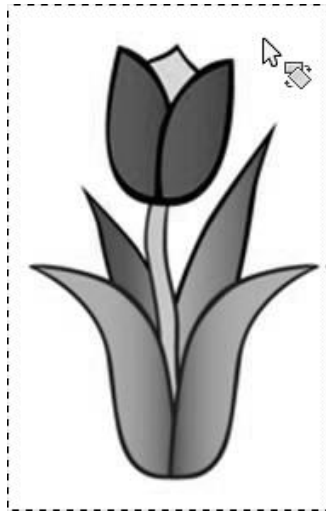


- c. **Rotate 90° counter-clockwise**

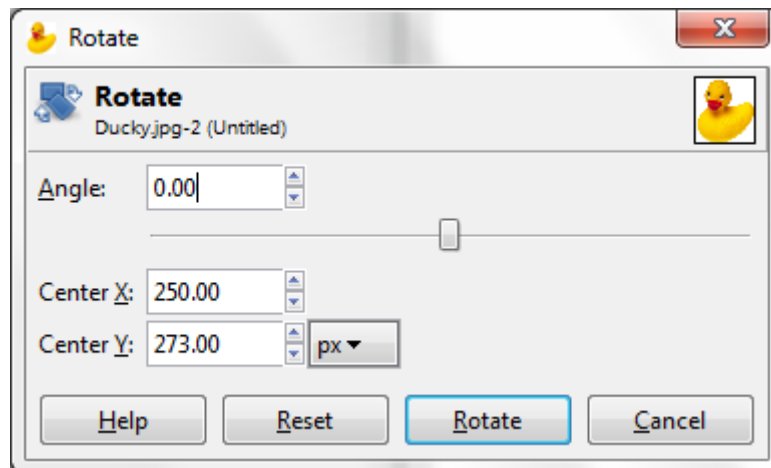


To rotate the image by a specify angle:

1. Select the **Rotate** tool .
2. Click on the image.



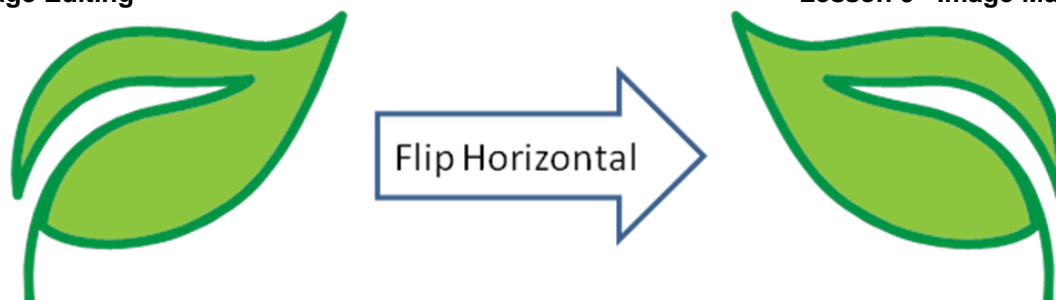
3. Enter the required angle.
4. Click **Rotate**.



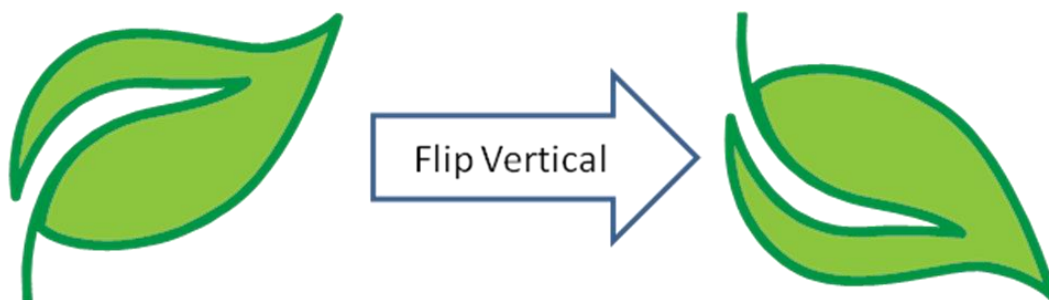
Mirroring Image

To mirror/flip an image you can use the following commands:

1. Choose **Image > Transform**.
2. Choose one of the commands from the submenu.
 - a. **Flip Horizontally:** Mirrors the image as to the standing axis, i.e. interchanges the left and the right parts of the image.




- b. **Flip Vertically:** Mirrors the image as to the horizontal axis, i.e. it turns the image upside down.




Selection within an Image

To rotate a selection:

1. Select an area of the image using the selection tool of our choice.
2. Select the **Rotate** tool .
3. Click inside the selection marquee.
4. Enter the required angle.
5. Click **Rotate**.

To mirror/flip a selection:

1. Select an area of the image using the selection tool of our choice.
2. Select the **Flip** tool .
3. Click inside the selection marquee.

9.6 REVIEW EXERCISE

1. Add additional 10% of black canvas area all around the image **Bottle**.
2. Crop the image **Deck Chairs** to a width of 3 inches by a height of 2 inches. Ensure only the chairs are visible.
3. Crop and straighten the images in **Scanned Photos**. Rotate the yacht image as necessary. Save the images as **Beach1**, **Beach2** and **Beach3**.
4. Trim away the excess blank space in the image **Old TV**.
5. In the file **Blue Butterfly**, extend the canvas on right and create the other half of the butterfly. Trim away excess canvas area.

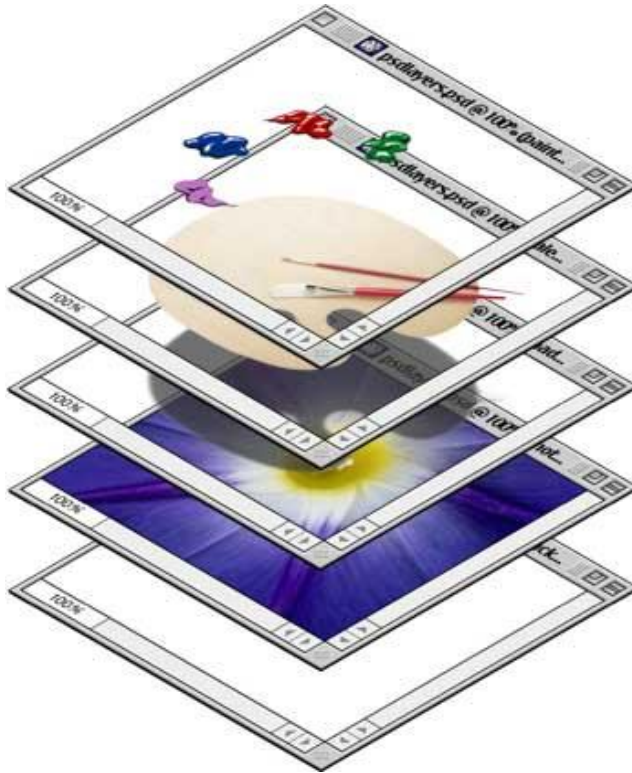
LESSON 10 – LAYERS

In this section, you will learn about:

- Understanding layers
- Creating, copying and deleting layers
- Setting layer properties
- Merging and flattening layers
- Transforming layers
- Rasterizing layers
- Creating animated GIF from layers

10.1 UNDERSTANDING LAYERS

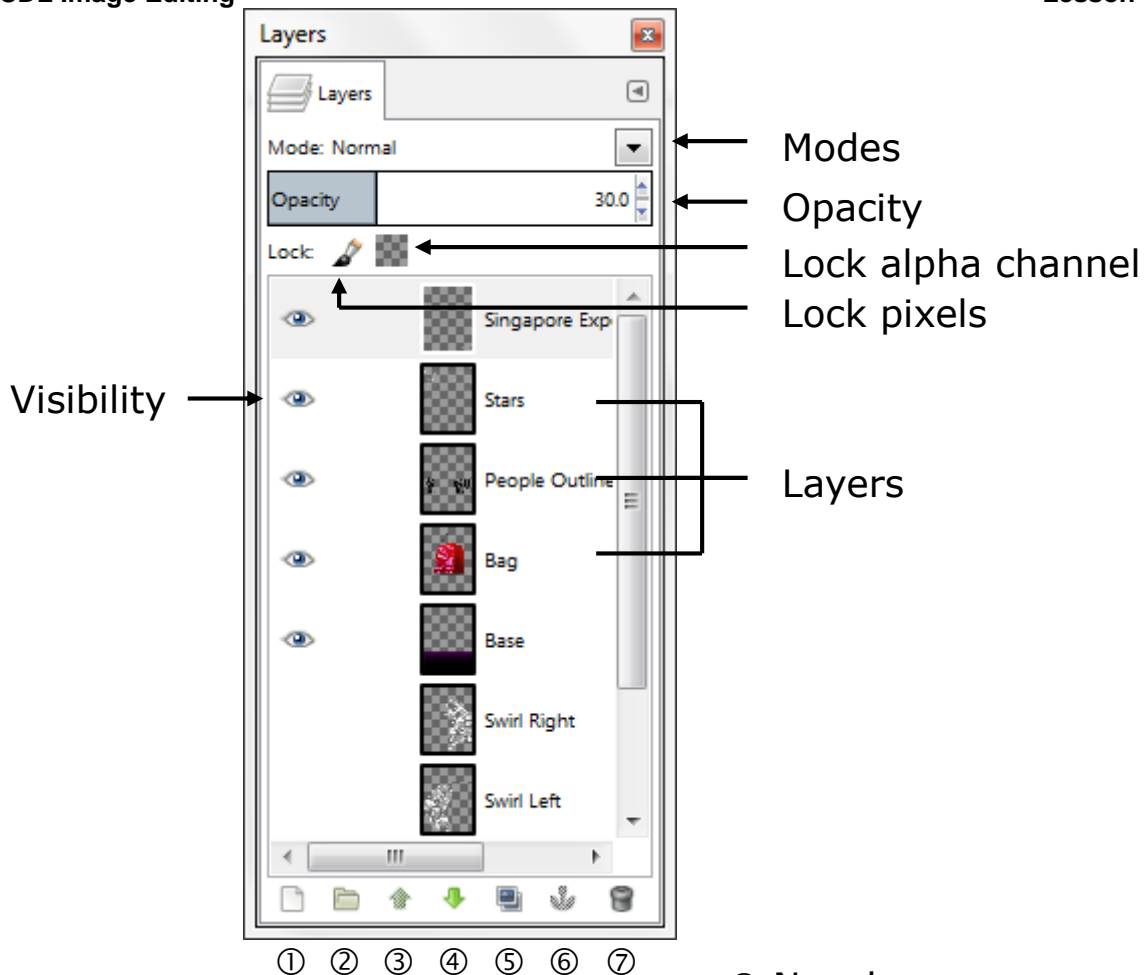
GIMP layers are like sheets of transparencies. We can see through transparent areas of a layer to the layers below. We move a layer to position the content on the layer, like sliding a sheet in a stack. We can also change the opacity of a layer to make content partially transparent.



We use layers to perform tasks such as compositing multiple images, adding text to an image, or adding vector graphic shapes. We can apply a layer style to add a special effect such as a drop shadow or a glow.

The organization of layers in an image is shown by the **Layers** dialog. Each open image has at any time a single active drawable. A “drawable” includes layers, but also several other types of things, such as channels, layer masks, and the selection mask. (Basically, a “drawable” is anything that can be drawn on with painting tools).

If a layer is currently active, it is shown highlighted in the **Layers** dialog, and its name is shown in the status area of the image window. If not, we can activate it by clicking on it. If none of the layers are highlighted, it means the active drawable is something other than a layer.



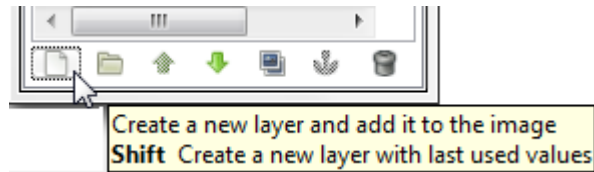
- ① New layer
- ② New layer group
- ③ Raise layer up
- ④ Lower layer down
- ⑤ Duplicate layer
- ⑥ Anchor floating layer
- ⑦ Delete layer

10.2 CREATING, COPYING AND DELETING LAYERS

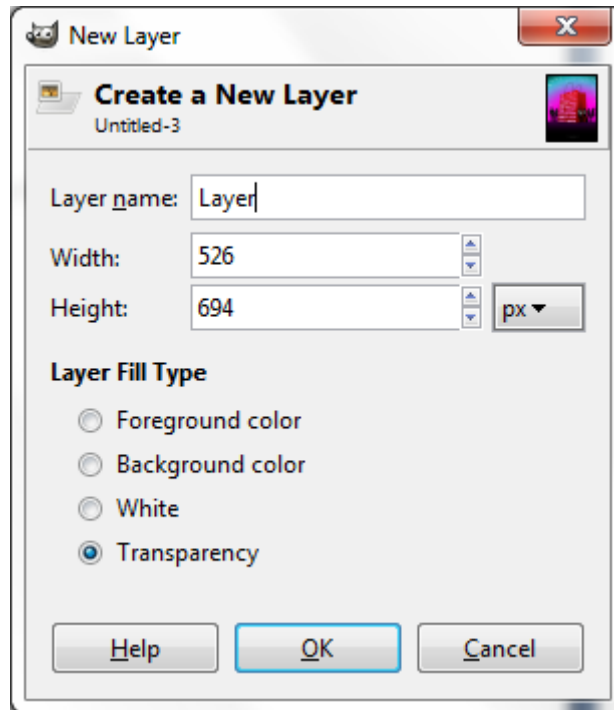
Creating New Layer

To create a new layer:

1. Click on the **New Layer** icon at the bottom of the **Layers** dialog or choose **Layer > New Layer**.



2. Enter the layer properties and click **OK**.



A new layer appears above the current layer.

Copying Layers

We can make a copy of an existing layer by using any of the methods mentioned below:

- Choose **Layer > Duplicate Layer**.
- Right click on the layer thumbnail in the **Layers dialog** and choose **Duplicate Layer**.
- Press **CTRL SHIFT D**.

Rearranging Layers

We can move layers above and below each other in the **Layers dialog** simply by dragging them.

To move a layer, click and drag it above or below another layer. Release the mouse button when the highlight bar appears, and GIMP drops the layer into its new position.

The **Layer > Stack** submenu contains the commands:

- **Raise Layer**

- **Lower Layer**
- **Layer to Top**
- **Layer to Bottom.**

These commands can also be used for moving layers within the stacking order.

Deleting Layers

To delete a layer, simply right click on its' thumbnail in the **Layers dialog** and choose **Delete Layer**. We also can drag it down onto the **Trash Bin** icon at the bottom of the **Layers dialog**.



Selecting and Moving Layer Content



The **Move tool** is used to move, transform, align and distribute layer elements. When used on a layer with no selections, it will reposition all the objects on that layer. If a selection has been made, only the selected pixels will be moved.


10.3 SETTING LAYER PROPERTIES

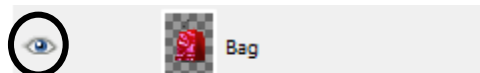
Renaming Layers

GIMP automatically names layers for us as we add them, but the names it gives them, like "**Layer 1**" and "**Background copy**", are pretty generic and not very helpful. When we only have a couple of layers in a document, the names may not seem very important, but when we find ourselves working with multiple layers, it is much easier to keep them organised if they have meaningful names.


To rename a layer, simply double-click directly on a layer's name in the **Layers dialog**, then type in a new name. When done, press **ENTER**.


The Layer Visibility Icon

We can hide layers by clicking on its layer visibility icon . When the little eyeball is visible in the box, it means the layer is visible in the document. Clicking the icon will hide the eyeball and hide the layer.



Linking Layers

We can link layers by clicking the white space to the right of the layer visibility icon .

When the link chain icon  is visible in the box, it means these layers are being linked in the document. Clicking the icon again will remove the link.



Locking Layers

Layers panel also gives us a few different ways that we can lock certain aspects of a layer.

For example, if part of a layer is transparent, we can lock the transparent pixels so that we are only affecting the actual contents (the image pixels) on the layer. Or we can lock the image pixels.

There are two lock options to choose from, each represented by a small icon, and they are located just below the opacity settings in the **Layers dialog**. From left to right, we have **Lock pixels** and **Lock alpha channels**.



- Lock  **Lock pixels**
This will lock all transparent and opaque pixels on a layer. When in effect, we cannot make any editing changes to the layer.
- Lock  **Lock alpha channels**
This will lock all transparent pixels on a layer. When in effect, we cannot apply any changes to transparent pixels.

Layer Opacity

Another one of the features of using layers is that we can blend them together in interesting ways. The most simple and speedy way to blend layers together is by using opacity.

Opacity is the opposite of transparency. If something has an opacity value of 100%, which means it's completely visible (opaque). An opacity value of 0% indicates that an object is completely transparent.



To change the layer opacity, click on the up or down button to the right of the **Opacity** value. We can also double-click on the **Opacity** value and type a new value.

Layer Blend Modes

Blending modes can be used to create a variety of effects by blending pixels in a layer or between layers. GIMP contains a number of blending modes. Some of the blending modes are **Difference**, **Multiply**, **Overlay**, **Hard Light**, and **Soft Light**.



A blending mode takes the colour values of two layers and combines them using a formula, so it is more sophisticated than just changing opacity. Some blending modes happen to have effects that conveniently help us with basic tone and colour edits, and all we have to do is copy a layer on top of the original and apply a blending mode to the copy.

It is helpful to think in terms of following colours when visualizing a blending mode's effect:

- The base colour is the original colour in the image.
- The blend colour is the colour being applied with the painting or editing tool.
- The result colour is the colour resulting from the blend.

Types of Blend Modes

Normal	Overlay
Dissolve	Soft light
Lighten only	Hard light
Screen	Difference
Dodge	Subtract
Addition	Grain extract
Darken only	Grain merge
Multiply	Divide
Burn	Hue
	Saturation
	Color
	Value

Mode	Description
------	-------------

Mode	Description
Independent <ul style="list-style-type: none"> • Normal • Dissolve 	Replaces the underlying pixels with the pixels of the applied layer when the layer is at 100 percent opacity. At lower opacities, Normal blends the overlying pixels with the underlying ones according to the layer Opacity value, while Dissolve replaces pixels randomly.
Lighten <ul style="list-style-type: none"> • Lighten only • Screen • Dodge • Addition 	The Lighten modes are the inverse of the Darken modes. The neutral colour for the Lighten modes is black—black pixels on a layer set to a Lighten mode leave the underlying pixels unchanged. Nonblack pixels darken the result by varying amounts, depending on each blending mode’s math and the difference in value between the applied and underlying pixels.
Darken <ul style="list-style-type: none"> • Darken only • Multiply • Burn 	The neutral colour for the Darken modes is white. White pixels on a layer set to a Darken mode leave the underlying pixels unchanged. Non-white pixels darken the result by varying amounts, depending on each blending mode’s math and the difference in value between the applied and underlying pixels.
Contrast <ul style="list-style-type: none"> • Overlay • Soft light • Hard light 	<p>These modes combine corresponding Darken and Lighten modes. The neutral colour for the Contrast modes is 50 percent gray—50 percent gray pixels on a layer set to a Contrast mode leave the underlying pixels unchanged.</p> <p>Lighter pixels lighten the result and darker pixels darken the result; the amount depends on the blending mode and the value difference between the applied and underlying pixels.</p>
Comparative <ul style="list-style-type: none"> • Difference • Exclusion • Grain extract • Grain merge • Divide 	The neutral colour for the Comparative modes is black. The Comparative modes look at each channel and subtract the underlying colour from the overlying colour or the overlying colour from the underlying colour, whichever returns a result with higher brightness. Blending with white inverts the underlying colour values.

Mode	Description
HSL <ul style="list-style-type: none"> • Hue • Saturation • Colour • Value 	<p>Blending modes in other groups generally operate on overall tone and colour values. The members of the HSL group work with hue, saturation, and luminosity (HSL) instead</p> <ul style="list-style-type: none"> • Hue. This blending mode creates a result colour with the brightness and saturation of the underlying colour and the hue of the overlying colour. • Saturation. This mode creates a result colour with the brightness and hue of the underlying colour and the saturation of the overlying colour. • Colour. This mode creates a result colour with the

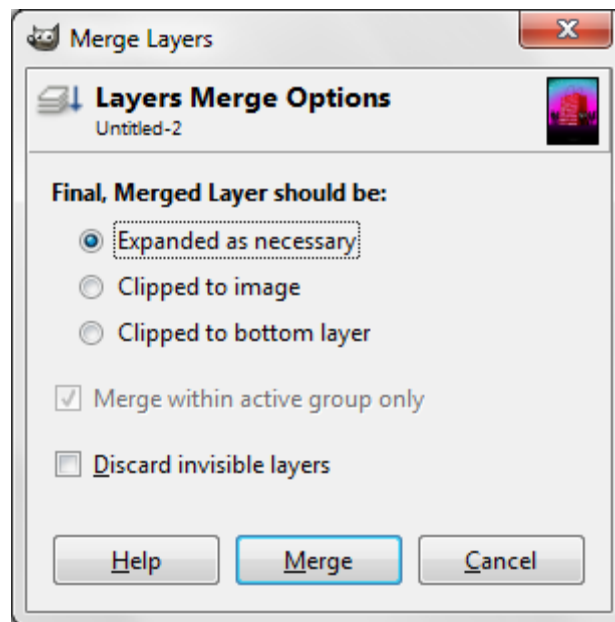
	<p>luminosity of the underlying colour and the hue and saturation of the overlying colour.</p> <ul style="list-style-type: none">• Value. This is the inverse of the Colour blending mode. It creates a result colour with the hue and saturation of the underlying colour and the luminosity of the overlying colour.
--	---

10.4 MERGING AND FLATTENING LAYERS

We can merge layers to reduce the size of our image files. When we merge layers, the data of the top layers replaces any data that it overlaps on the lower layers.

To merge layers:

1. Ensure the layers to be merged are visible.
2. Choose **Image > Merge Visible Layers**.
3. Select the required merge options.



4. Click **Merge**.

Flattening reduces file size by merging all visible layers into the background and discards hidden layers. Any remaining transparent areas are filled with white. When we save a flattened image, we cannot revert back to the un-flattened state, the layers are permanently merged.

To flatten layers:

1. Ensure the layers are visible.




2. Choose **Image > Flatten Image**.

10.5 TRANSFORMING LAYERS

Transforming scales, rotates, flips, moves, or trims a layer. We can apply transformations to a selection, an entire layer, multiple layers, or a layer mask.

To make a transformation, first select an item to transform and then choose a transformation command. We can perform several manipulations in succession before applying the cumulative transformation.

To transform selection, choose **Layer** and choose a submenu.

- **Scale a layer**
 - Choose **Layer > Scale Layer**
 - Set the required options.
 - Click **Scale**.
 - For freeform scaling, use the **Scale** tool .
- **Rotate or flip a layer**
 - Choose **Layer > Transform**.
 - Select a flip option or rotation angle and direction.
 - For freeform rotation, use the **Rotate** tool .
- **Move a layer**
 - Choose **Layer > Transform > Offset**.
 - Set the required options and click **Offset**.
 - For freeform moving, use the **Move** tool .
- **Trim a layer**
 - Choose **Layer > Autocrop Layer**.

10.6 RASTERIZING LAYERS

We cannot use the painting tools or filters on layers that contain vector data (such as type layers or shape layers). In this case, we can rasterize these layers to convert their contents into a flat, raster image.

1. Select the layers to rasterize.
2. Choose **Image > Flatten Image**.
3. Save the file as a raster format (e.g. JPEG).

To rasterize a text layer, right click on the layer thumbnail and choose **Discard Text Information**.

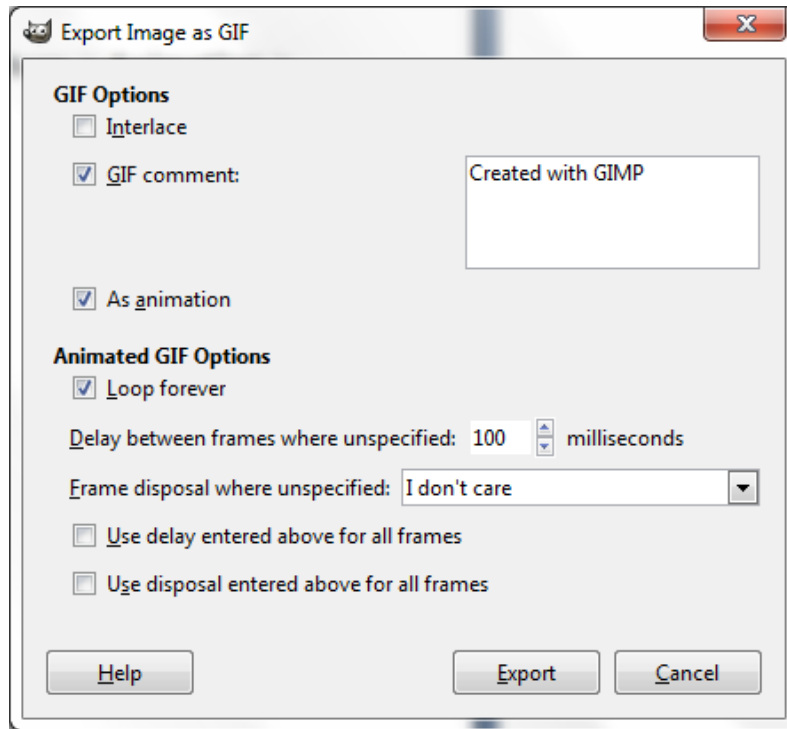
10.7 CREATING ANIMATED GIF FROM LAYERS

The first step in creating any animation in GIMP is to build a layered GIMP file with all the elements we plan to animate.

1. On the each layer, create the content frame.
2. Enter the amount of milliseconds each layer is to appear in the animation by entering this number in parentheses followed by "ms" next to the layer name. For example: (1500ms).



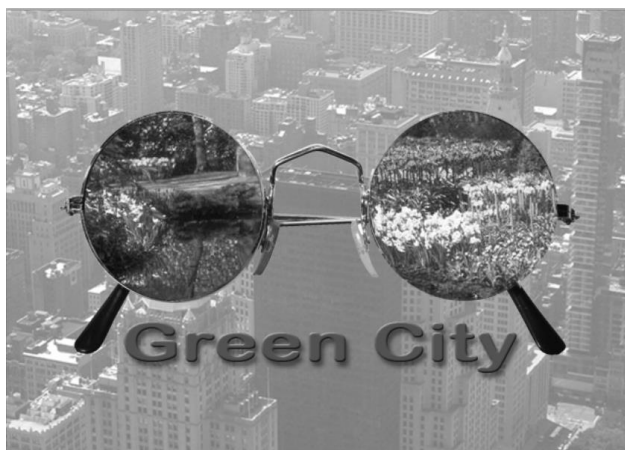
3. To preview the animation, choose **Filters > Animation > Playback**.
4. Choose **File > Export**.
5. Set file type to **GIF**.
6. Enter a filename and click **Export**.
7. Check the option **As animation**.
8. Set the frame delay as required.



9. Click **Export**.

10.8 REVIEW EXERCISE

1. Creating a web pop-up advertisement:
 - a. Create a new image document using the following settings:
 - i. Width: 640 px
 - ii. Height: 450 px
 - iii. Resolution: 72
 - iv. Colour mode: RGB
 - v. Background: Transparent
2. Place **City** into the new file, scale so that it fills the canvas and name the layer as **City**.
3. Use Desaturate command (**Colors** menu) to remove the colours from the **City** layer and set the opacity of the layer to 60%.
4. Place **Park** into the new file and name the layer as **Park**.
5. Place **Sunglasses** into the new file.
6. Select the circular area inside the glasses and copy the selection into a new layer. Name the layer as **Lenses**.
7. Place the **Park** layer above the **Lenses** layer.
8. Mask the layers **Lenses** and **Park** layers (right click > **Add Layer Mask**).
9. Make the **Park** layer the active layer and using the **Move** tool to shift the park image around until it is framed the way we like it within the glasses.
10. Make **City** the active layer, place **Green City Text** image into the new file and move the layer all the way to the top in the **Layer dialog**.
11. Center the text horizontally and position it below the glasses.
12. Save the file as **Web Ad** in GIMP format.



LESSON 11 – WORKING WITH TEXT

In his section, you will learn about:


- Creating and editing text
- Formatting text
- Applying text wrap

11.1 CREATING AND EDITING TEXT

When we create text, a new text layer is added to the **Layers dialog**. After creating a text layer, we can edit the text and apply layer commands to it. There are 3 ways to create type:

- Point type: A horizontal or vertical line of text that begins where we click in the image.
- Paragraph type: Uses boundaries to control the flow of characters, either horizontally or vertically.
- Type on a path: Flows along the edge of an open or closed path.

To enter text:

1. Select the **Text tool** .
2. Click in the image to set an insertion point.
3. Type the text.

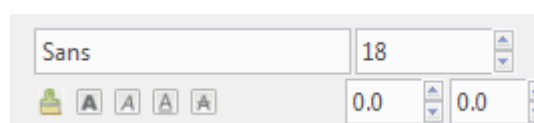
To edit the text, simply double click on the layer thumbnail and edit as required. To delete a text layer, right click on the layer thumbnail and choose **Delete Layer**.

To copy the text:

1. Highlight the text.
2. Right click > **Edit** > **Copy**.
3. Position the cursor as necessary or create a text layer.
4. Right click > **Edit** > **Paste**.

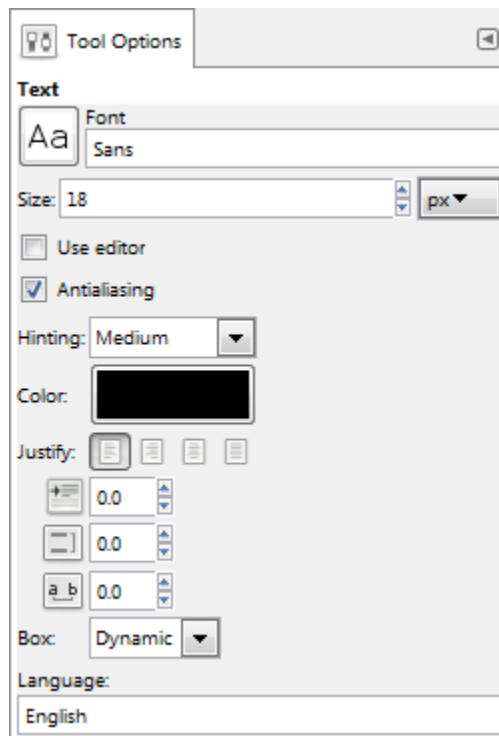
To move the text, use the **Move** tool to move the entire text layer, else use **Edit** > **Cut** and then **Edit** > **Paste** to move within the existing text box.

11.2 FORMATTING TEXT



Modifying text using the Tool Options

To set an option in the **Tool Options dialog**, we first select the text we want to change. For each option in the panel, choose a value from the pop-up menu, click an icon or type a value. When we type a value directly, press **ENTER** to apply it.



The options in the **Tools Options** include the following:

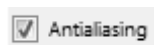
Font



Font size



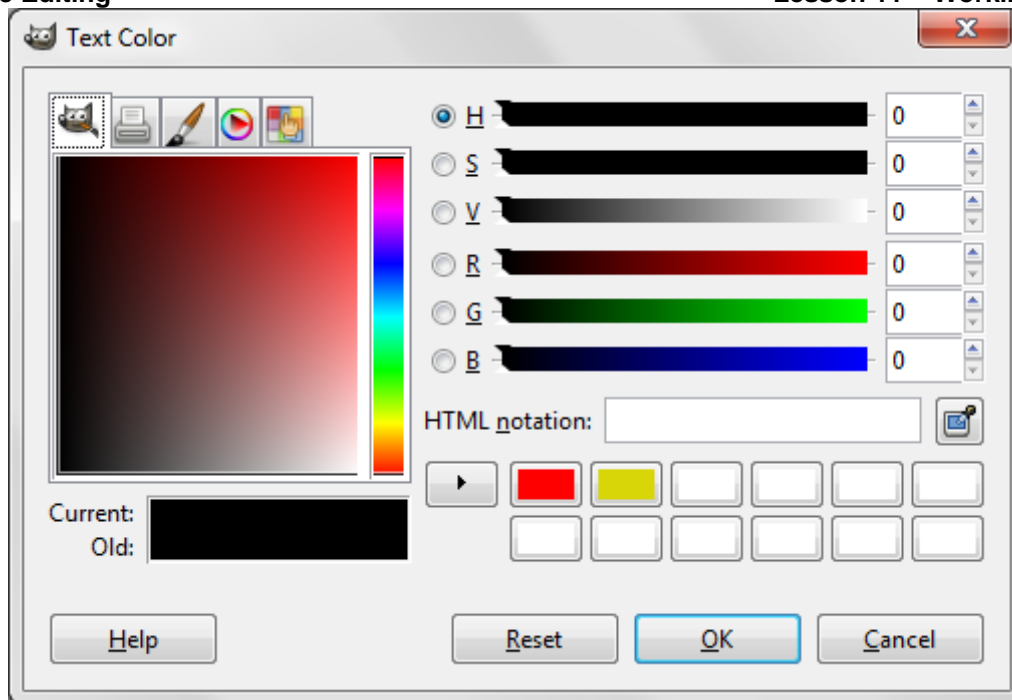
Anti-aliasing



Font Colour



Clicking on the colour box displays the **Text Color** dialog box. Use the options provided to set a font colour.

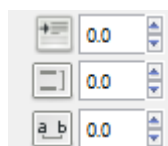


Alignment



We can change the text's alignment — whether the text lines up with the left, right, or center of the text box. We can also justify the text.

Indentation, Leading and Tracking



Leading: Space between lines.

Tracking: Space between characters.

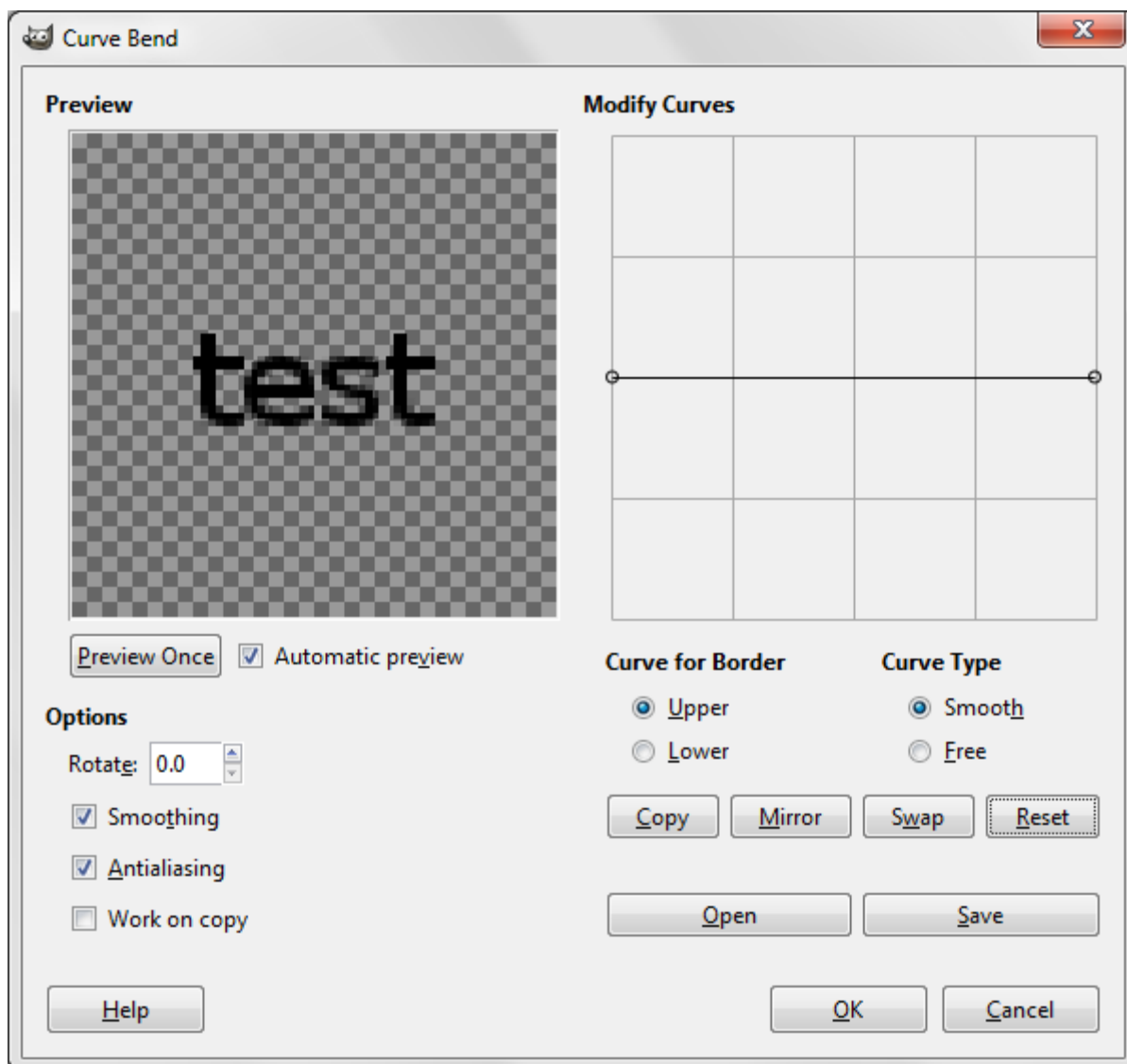
11.3 APPLYING TEXT WARP

We can also curve, or warp, text by using the filter **Curve Bend** option to create special type effect.

To warp type:

1. Select the **Text** tool.
2. Select the text we wish to warp.

3. Choose **Filter > Distorts > Curve Bend**.



4. Check the option **Automatic preview**.

5. Use the mouse to bend the curve the way we like.

11.4 REVIEW EXERCISE

1. Create a collage or image composition to depict the colour wheel that contains all 12 colours (3 primary, 3 secondary, and 6 tertiary).
2. Use the following website to read up on the colour wheel:
http://en.wikipedia.org/wiki/Colour_wheel.
3. The artwork dimension should be 700 by 700 pixels with 150 ppi resolution.
4. Label all of the colours correctly.
5. Save the file as ***Wheel Illustration***.

LESSON 12 - EFFECTS AND FILTERS

In this section, you will learn about:

- Applying artistic and distortion effects
- Applying blur effects
- Applying lighting effects
- Working with image adjustments
- Working with sharpen and unsharp mask
- Applying red eye reduction

12.1 UNDERSTANDING EFFECTS AND FILTERS

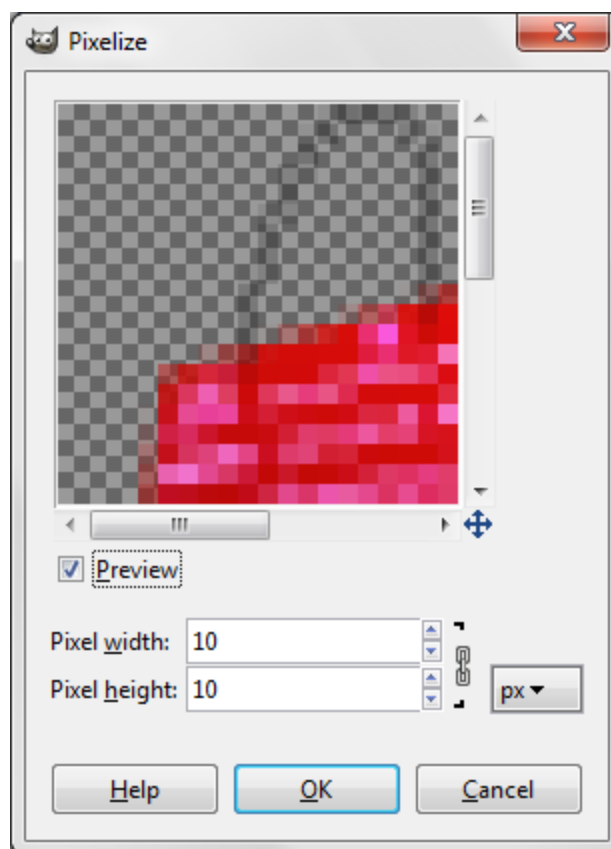
Filters are a large group of effects that we can apply to images. Filters can be anything from blurs to textures to distortions, and everything in between. One thing is common to most filters: they modify the existing pixels of the layer they are applied to.

In GIMP, filters are classified into many groups based on the effect they have on an image. Filter groups include **Artistic**, **Blur**, and **Texture**. Each filter group contains individual filters that apply a certain effect to the image. Some of the individual filters are the **Sponge** that simulates sponge painting; **Grain** that adds texture to an image by simulating different types of grains; and **Blur** that softens the entire image or a selection.

12.2 APPLYING ARTISTIC AND DISTORTION EFFECTS

The Pixelate Filter

Choose **Filters > Blur > Pixelize**.



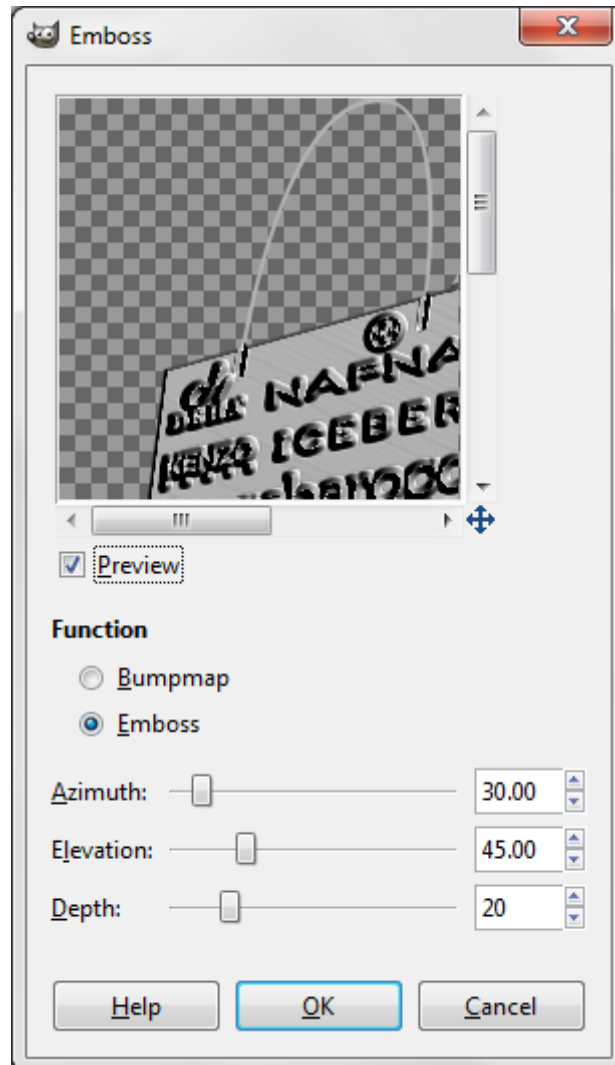
This filter breaks up the image, or reduces its resolution. It sharply defines a selection by clumping pixels of similar colour values in cells.

We can set the desired width and height of the blocks.

The Emboss Filter

Choose **Filters > Distorts > Emboss**.

It makes a selection appear raised or stamped by converting its fill colour to gray and tracing the edges with the original fill colour.

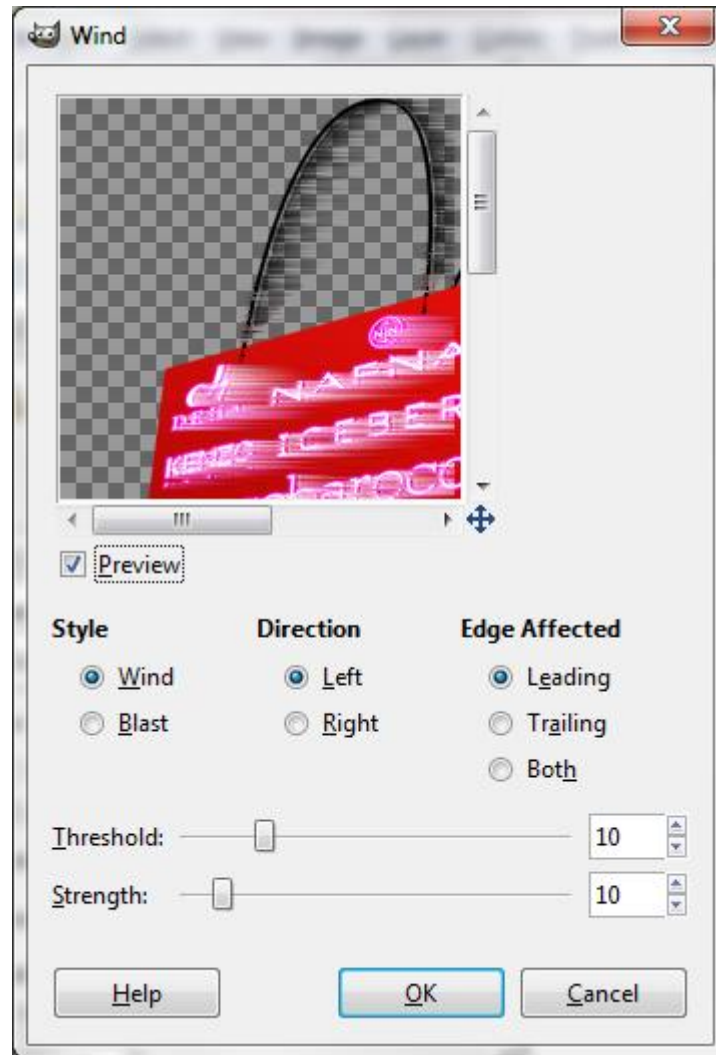


The Wind Filter

Choose **Filters > Distorts > Wind**.

Creates tiny horizontal lines in the image to simulate a wind effect. Note that this filter only works horizontally, so the image needs to be rotated if the effect is to be vertical.

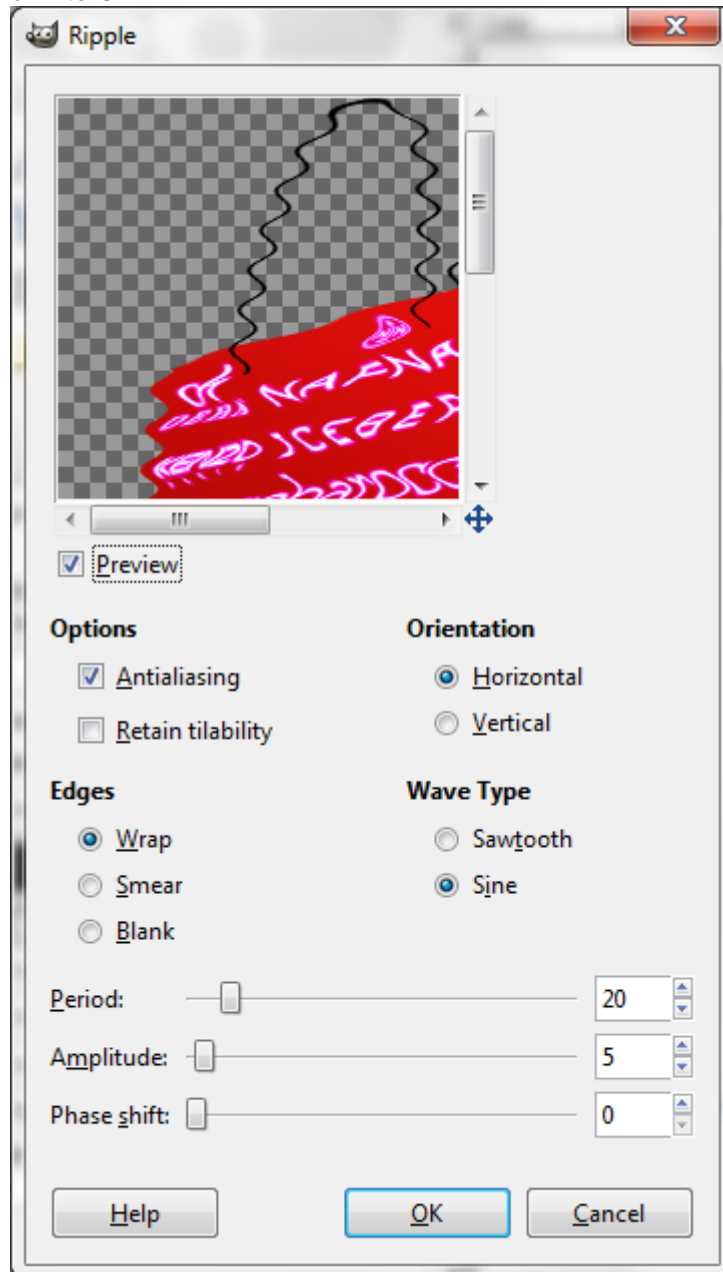
Style: **Wind** determines the high-contrast areas and displaces them using a jagged pattern of fading stripes; **Blast** is a more dramatic version of **Wind** in the entire image.



The Ripple Filter

Choose **Filters > Distorts > Ripple**.

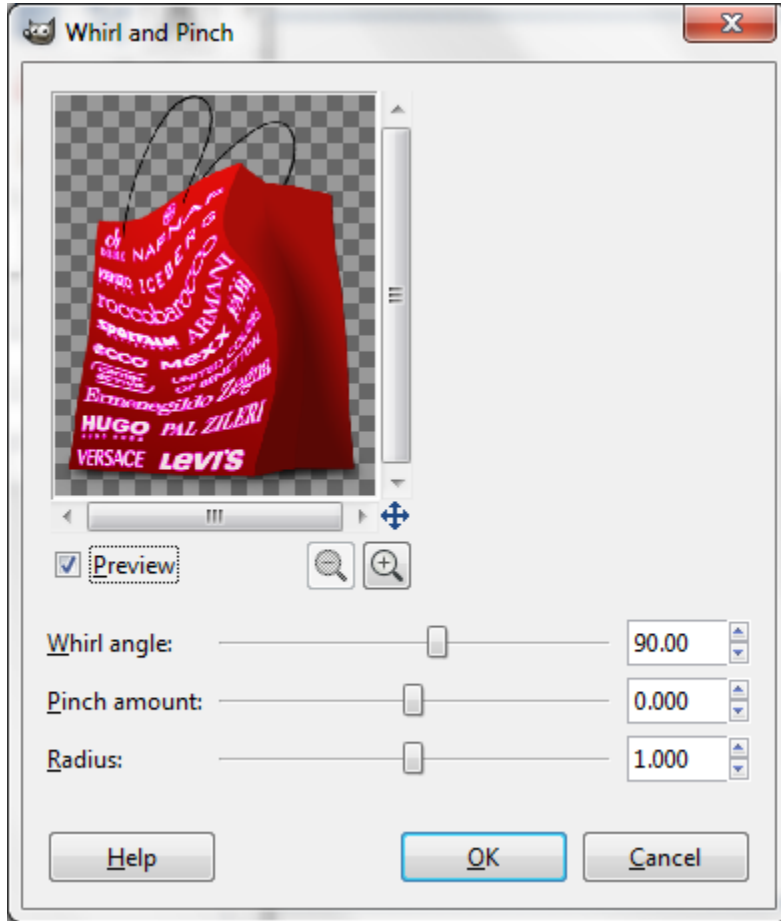
Creates an undulating pattern on a selection, like ripples on the surface of a pond.



The Twirl Filter

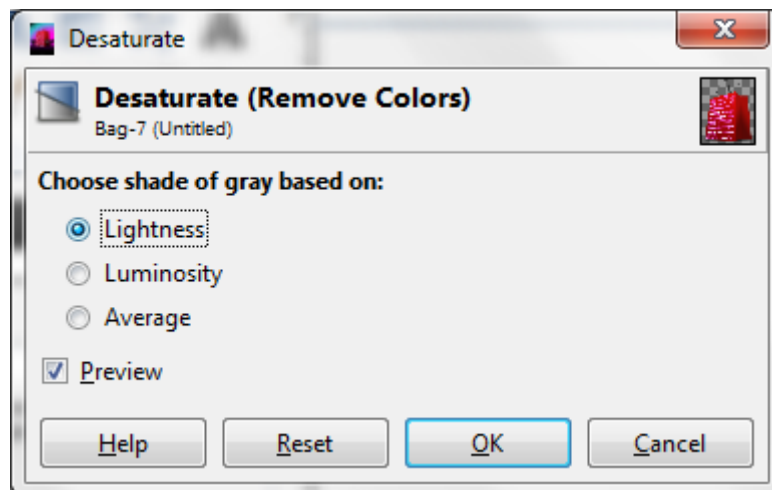
Choose **Filters > Distorts > Whirl and Pinch**.

Rotates a selection more sharply in the center than at the edges. Specifying an angle produces a twirl pattern. Positive angles twirl clockwise, negative amounts anti-clockwise.



Desaturate

Choose **Colors > Desaturate**.

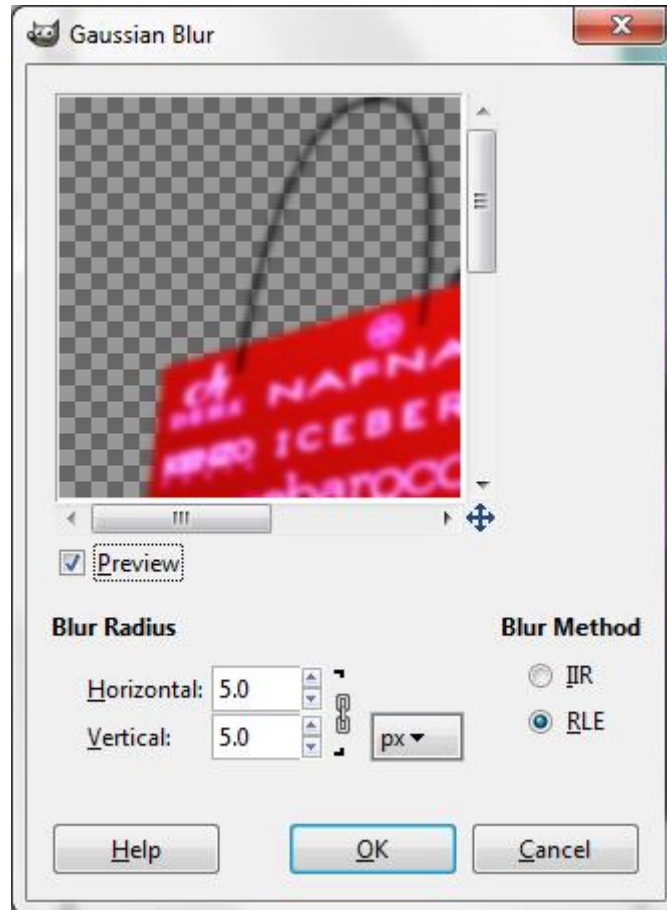


The **Desaturate** effect converts all of the colours on the active layer to corresponding shades of gray. This command only works on RGB images.

12.3 APPLYING BLUR EFFECTS

Gaussian Blur

Choose **Filters > Blur > Gaussian Blur**.



Named after German mathematician Carl Friedrich Gauss, this is the most widely-used of the blurs as it uses a special function to produce a natural-looking blur.

Gaussian Blur is used everywhere, from creating drop shadows to smoothing the pixelated edges of objects, and simulating photographic depth-of-field.

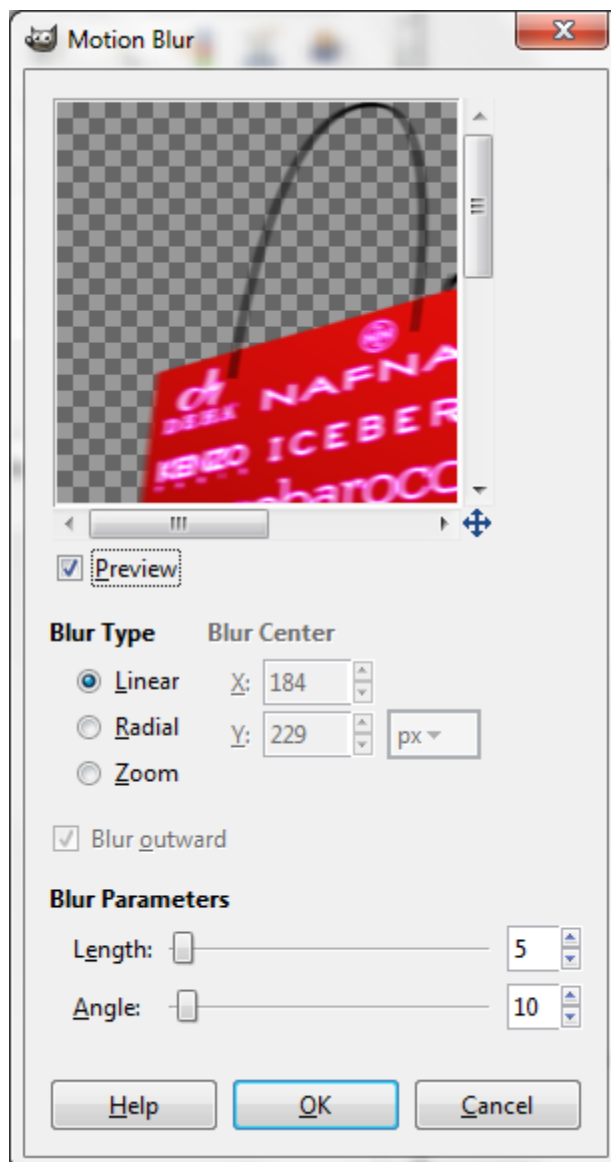
Blur Radius is used to set the blur intensity. By altering the ratio of horizontal to vertical blur, we can give the effect of a motion blur. We can choose the unit with the drop list.

Blur Method IIR (Infinite Impulse Response) works best for large radius values and for images which are not computer generated.

RLE (Run-Length Encoding) is best used on computer-generated images or those with large areas of constant intensity.

Motion Blur

Choose **Filters > Blur > Motion Blur**.



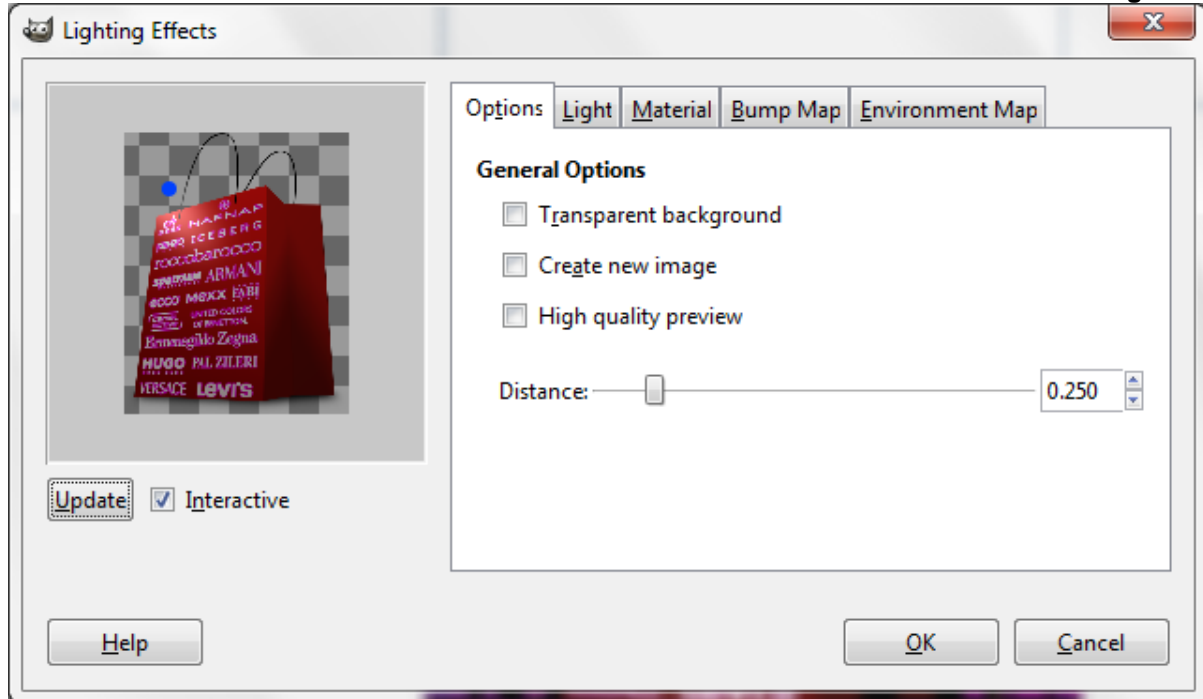
Similar to **Gaussian Blur** but applied in one direction. Can be used to create custom stroke effects and, of course, to make something stationary appear to be moving.

Try applying this filter to a duplicate layer, offsetting it and then reducing its transparency for a better result.

Applying Lighting Effects

The **Lighting Effects** filter allows us to create myriad lighting effects on RGB images.

1. Choose **Filter > Light and Shadow > Lighting Effects**.



2. In the **Options** tab, specify the distance of the light source from the center of the image with this slider.
3. Set the light properties in the **Light** tab.
4. Set the material properties in the **Material** tab.
5. Click **OK**.

Lens Flare

Lens flare stimulates the refraction caused by shining a bright light into a camera lens. We specify a location for the center of the flare by clicking anywhere inside the image thumbnail or by dragging its cross hair.

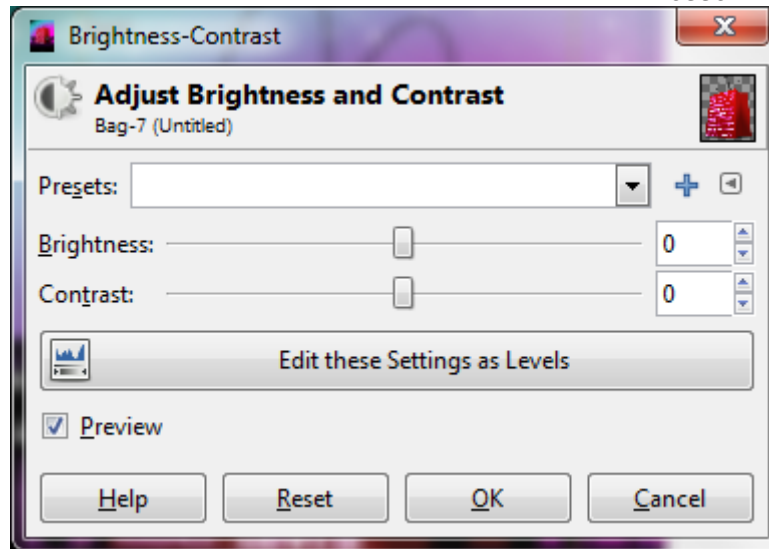
Choose **Filters > Light and Shadow > Lens Flare**.

12.5 WORKING WITH IMAGE ADJUSTMENTS

Adjustments are a quick and accurate way to edit any picture or image by simply clicking on one of the Adjustment options shown on it. We will be able to edit the colours, saturation, levels, channels, mix colours and add gradients.

Brightness and Contrast

Choose **Colors > Brightness-Contrast**. This is one of the simplest adjustments and yet very powerful.

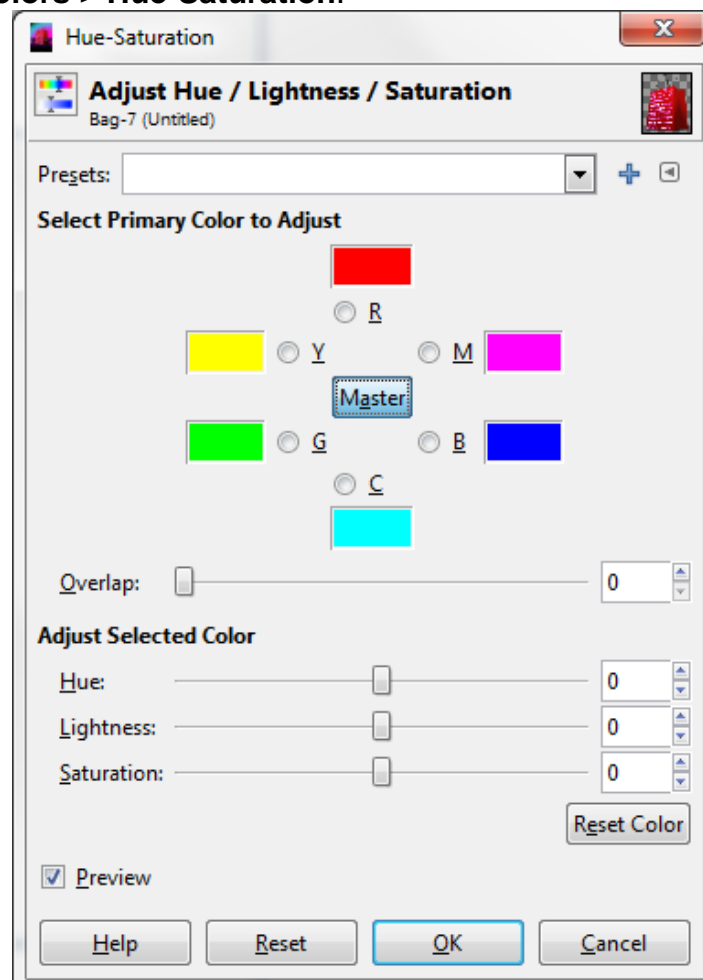


We can simply edit the tonal range of an image in a very smart way. Just move the sliders to adjust our desired settings.

Hue and Saturation

Another must-know Adjustment, **Hue-Saturation** lets us adjust the hue, saturation, and lightness of a specific range of colours in an image or simultaneously adjust all the colours on it.

Choose **Colors > Hue-Saturation**.



To adjust all the colours at the same time select **Master** on the colour list and then move any of the three sliders. The **Hue** slider changes the colour itself.

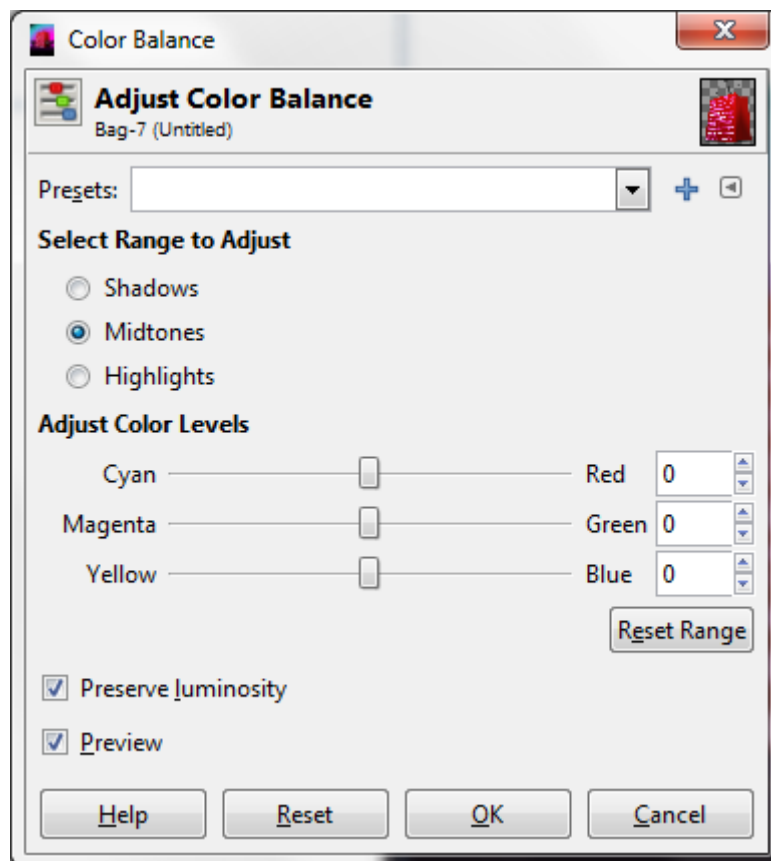
The **Saturation** slider modifies the amount of the colour; less saturated colour means a grayer image. The **Lightness** slider adjusts the amount of black/white of the image.

It is also possible to colourize an image from this menu and this is an easy way to produce an image with the look of a Cyanotype or Sepia-toned image.

Colour Balance

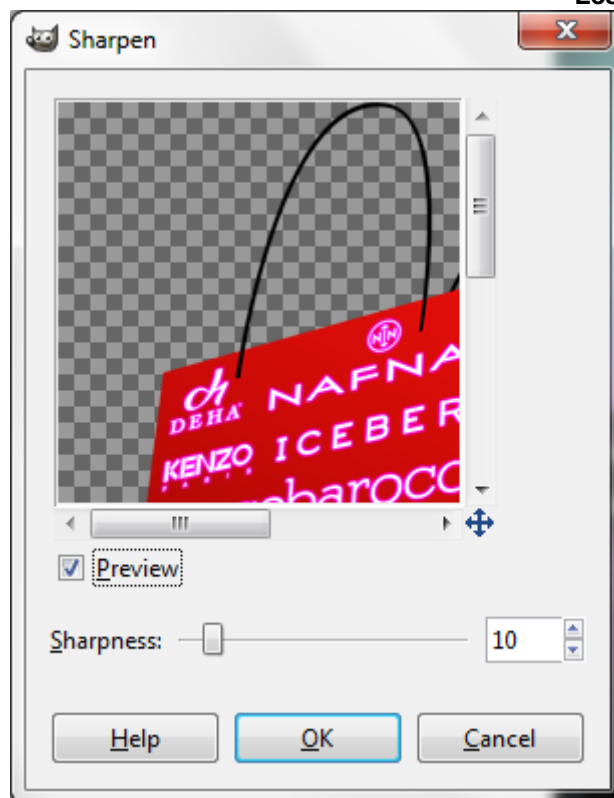
The **Colour Balance** adjustment changes the overall mixture of colours in an image for generalised colour correction. It basically adds something like a tint over the **Shadows**, **Midtones** and **Highlights** of the image.

Choose **Colors > Color Balance**.



12.6 WORKING WITH SHARPEN AND UNSHARP MASK

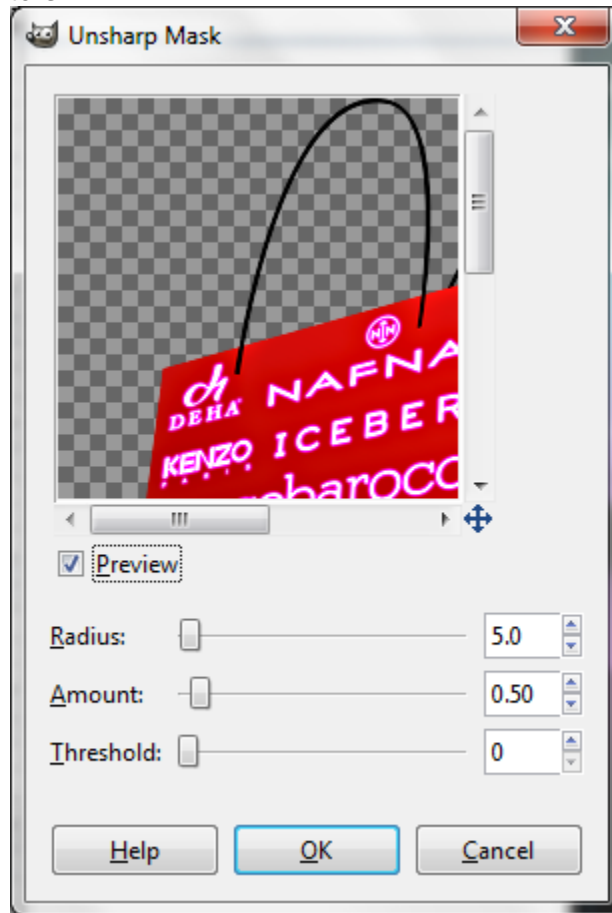
The **Sharpen** filter focuses the entire image or a selection, improving its clarity. Choose **Filters > Enhance > Sharpen**.



The **Unsharp Mask** filter is borrowed from traditional photography, it basically enables us to sharpen an image more precisely than that offered by the **Sharpen** filter.

Use the **Unsharp Mask** filter to adjust the contrast of edge detail and produce a lighter and darker line on each side of the edge. This process will emphasise the edge and create the illusion of a sharper image.

Choose **Filters > Enhance > Unsharp Mask**.



Unsharp Mask Controls

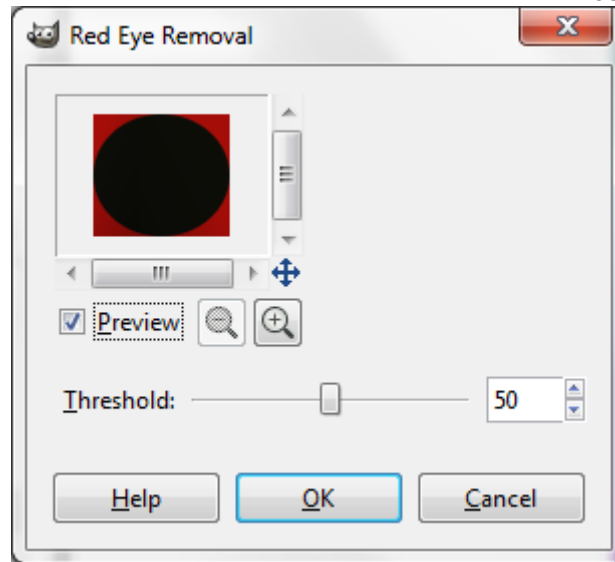
- **Radius**
Determines the number of pixels surrounding the edge pixels that affect the sharpening.
- **Amount**
Determines how much to increase the contrast of pixels.
- **Threshold**
Determines how different a pixel must be from the surrounding area before it is considered an edge pixel and sharpened by the filter.

12.7 APPLYING RED EYE REDUCTION

Red eye is caused by the reflection of camera's flash in the retina. We see it more often when taking pictures in darkened room because the iris is wide open.

The **Red Eye Removal** filter removes red eye in flash photos.

1. Select the eye area.
2. Choose **Filters > Enhance > Red Eye Removal**.



3. Drag the **Threshold** slider to reduce the red eye effect.

12.8 REVIEW EXERCISE

1. Search for 4 sceneries and flowers that represents the 4 seasons: spring, summer, autumn and winter.
2. Create a mock-up of a post card design for a travel company using the dimension of a 4R photo with the resolution of 150 ppi.
3. Apply an artistic filter to the background composition (the 4 sceneries) and reduce the opacity.
4. Place the flowers as shown in the sample below.
5. Add the text, apply warp effect and layer styles.
6. Save the file as **Post Card**.



LESSON 13 - DRAWING TOOLS

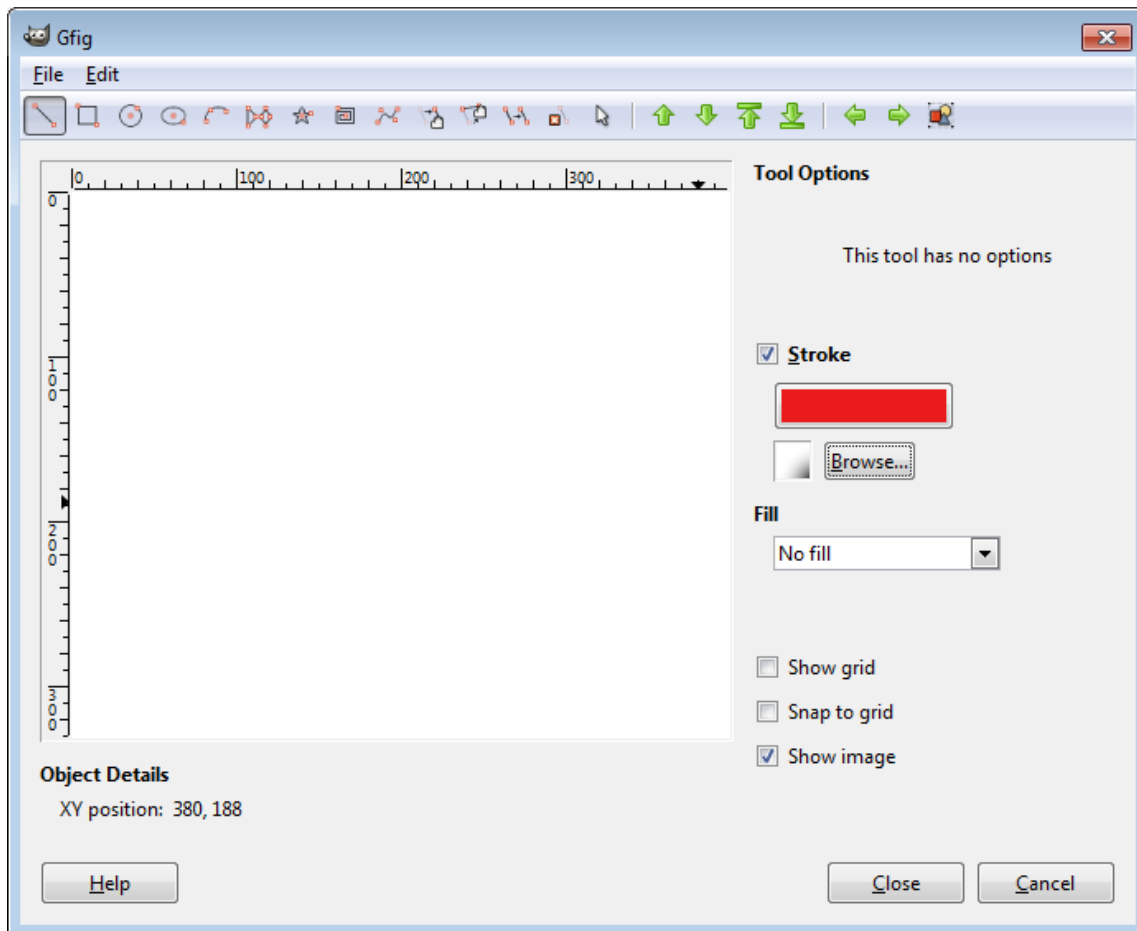
In this section, you will learn about:

- Working with drawing tools
- Adding line and shapes

13.1 WORKING WITH DRAWING TOOLS

Drawing in GIMP involves creating vector shapes and paths. Use the rectangle or ellipse select tools to create the shape and apply a fill colour. We can also draw using the **Path** tool.


GIMP offers a very useful filter called Gfig that allows us to draw various lines and shapes and format them.




13.2 ADDING LINES AND SHAPES

Adding Lines

To draw a straight line using the **Path** tool:

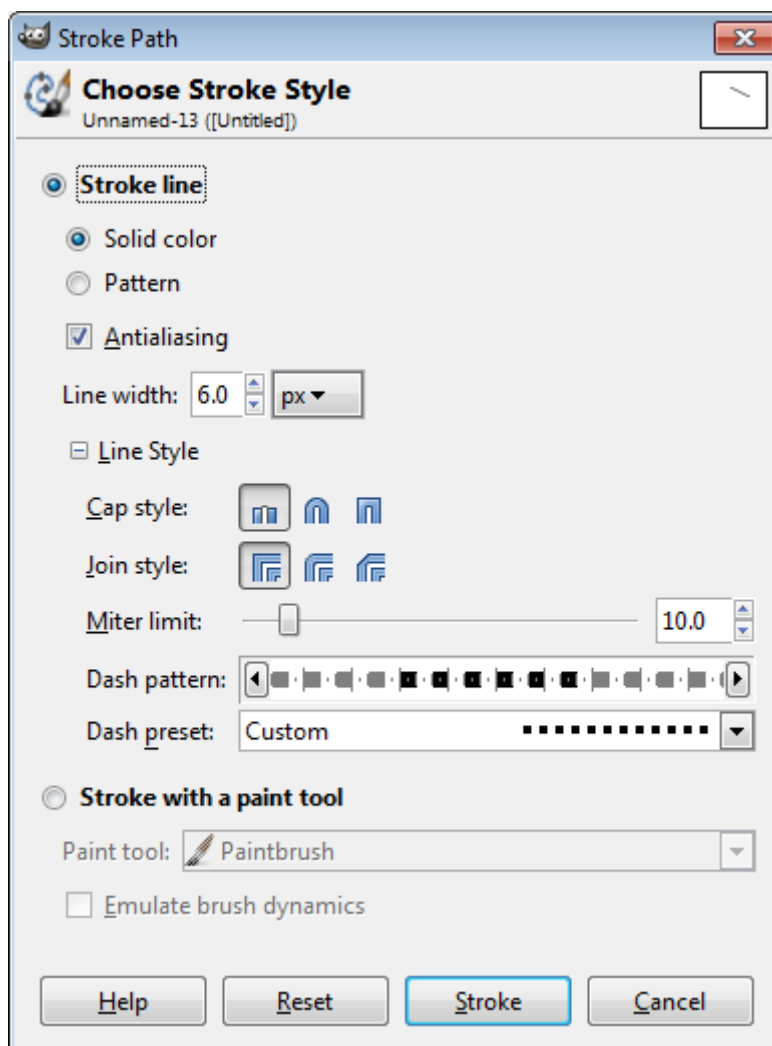
1. Click on the **Path** tool .
2. Draw the line by clicking on the starting point and then clicking on the end point.

To draw a curved line:

1. Click on the **Path** tool .
2. Click once at the starting point.
3. Click once at the ending point.
4. Move the mouse cursor close to a line segment, click and drag the line segment to create the curve.

Formatting Lines




1. Select the drawn line (path).
2. Click on the **Foreground color** box in the toolbox and select a colour for the line.
3. Choose **Edit > Stroke Path**.
4. Set the required stroke options.
 - i. **Weight:** Use the **Line width** box to set the thickness of the line.
 - ii. **Style:** Click on the plus icon to expand the **Line Style** options. Click the **Dash preset** drop down list to choose a line style.

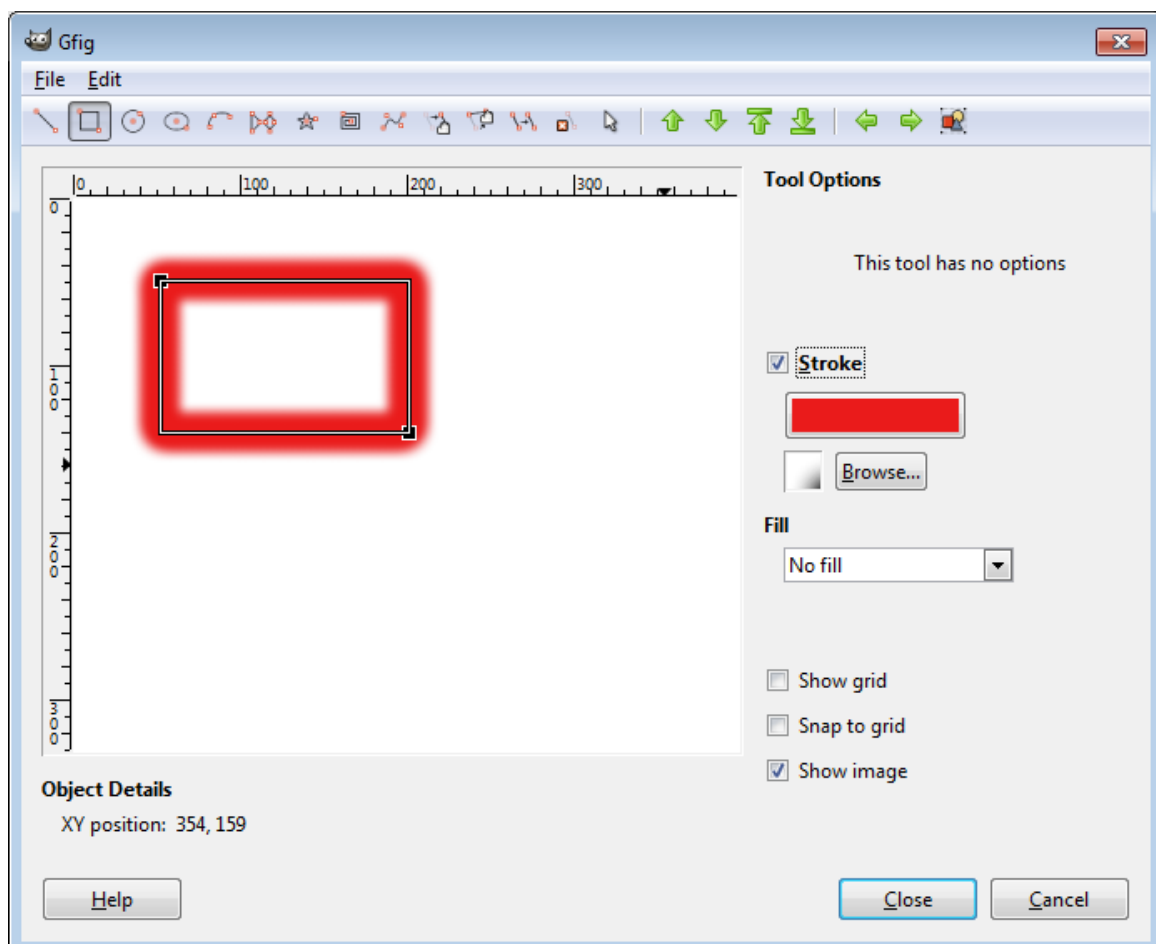


5. Click **Stroke**.

Adding Shapes



To add a rectangle or ellipse:

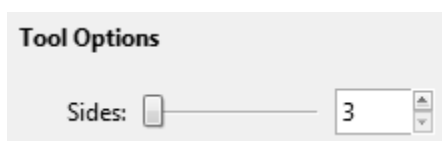
1. Create a new blank layer, if necessary.
2. Choose **Filters > Render >Gfig**.
3. In the **Gfig** dialog box, click on either one of the shapes below:
 - a.  **Create rectangle**
 - b.  **Create circle**
 - c.  **Create ellipse**
4. Click and drag on the image area to draw the shape.
5. Check or uncheck the **Stroke** option to create the shape outline.
6. Click on the **Stroke color** box and select a colour for the outline.
7. Choose a fill type from the **Fill** drop down box.
8. Click on the **Fill** box to choose a fill variation.



9. Click **Close**.

To add a polygon or a star:

1. Create a new blank layer, if necessary.
2. Choose **Filters > Render >Gfig**.
3. In the **Gfig** dialog box, click on **Create reg polygon** icon  or **Create star** icon .
4. Set the number of sides using the **Sides** slider.







5. Click and drag on the image area to draw the shape.
6. Check or uncheck the **Stroke** option to create the shape outline.
7. Click on the **Stroke color** box and select a colour for the outline.
8. Choose a fill type from the **Fill** drop down box and click on the **Fill** box to choose a fill variation.
9. Click **Close**.

LESSON 14 - PAINTING TOOLS

In this section, you will learn about:


- Selecting colour with the eyedropper
- Filling with gradient fill
- Colouring using the paintbrush
- Using the eraser
- Filling with paint bucket
- Cloning with the clone stamp


14.1 WORKING WITH PAINTING TOOLS

The **Paintbrush tool**  and the **Pencil tool**  work like traditional drawing tools by applying colour with brush strokes. The **Blend tool**  and **Bucket Fill tool**  apply colour to large areas.


Tools such as the **Eraser tool** , **Blur tool** , and **Smudge tool**  modify the existing colours in the image.

14.2 SELECTING COLOUR WITH THE COLOUR PICKER TOOL

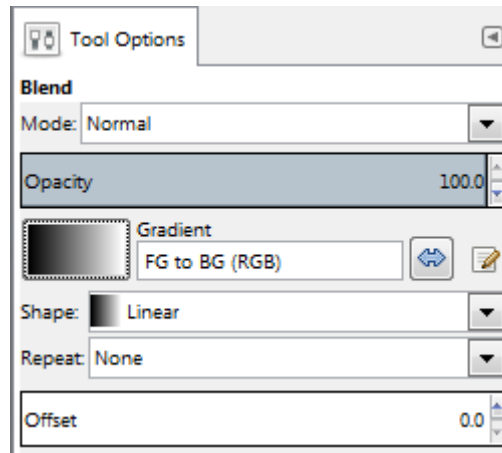
The **Color Picker tool**  samples colour to assign a new foreground or background colour. We can sample from the active image or from anywhere else on the screen.

1. Select the **Color Picker tool** .
2. Change the sample size of the eyedropper from the **Sample average** option in the Tool.
3. Click in the image to select a new foreground colour.

14.3 FILLING WITH GRADIENT FILL

The **Blend tool**  can be used to create a gradual blend of colour between one or more colours. We can choose from the list of gradient fills preset or create a whole new gradient fill preset. To fill part of the image, select the desired area. Otherwise, the gradient fill will be applied to the entire active layer.

We can fill an area with a gradient by dragging in the image. The starting point (where the mouse is pressed) and ending point (where the mouse is released) affect the gradient appearance, depending on the **Blend tool** option used.



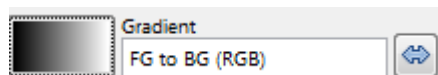
Common Gradient Shapes

- **Linear gradient**
To shade from the starting point to the ending point in a straight line.
- **Radial gradient**
To shade from the starting point to the ending point in a circular pattern.

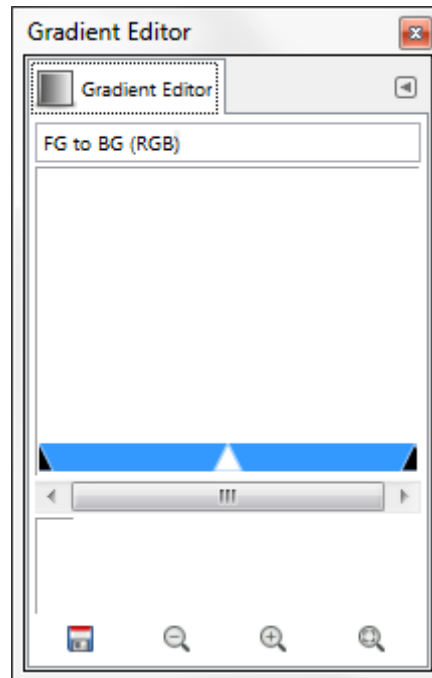
Changing Gradient Colours

To change the gradient colours:


1. Go to the **Tools Option dialog** with the **Blend tool** selected.
2. Click the gradient box choose from a set of gradients that ships with GIMP.




The **Gradient Editor** dialog lets us define a new gradient by modifying a copy of an existing gradient. We can also add intermediate colours to a gradient, creating a blend between more than two colours.

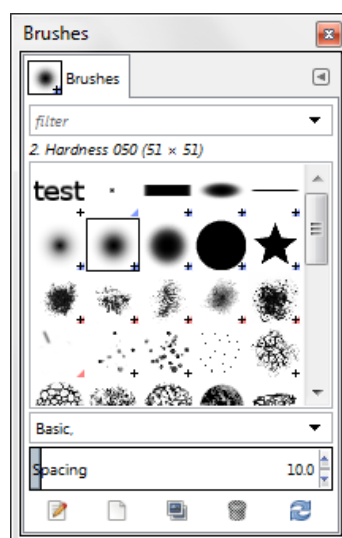


14.4 COLOURING USING THE PAINTBRUSH

The **Paintbrush tool**  paints the current foreground colour on an image. It creates soft strokes of colour.

To colour using the paintbrush:


1. Choose a foreground colour.
2. Select the **Paintbrush tool** .
3. Choose a brush from the **Brushes dialog**.




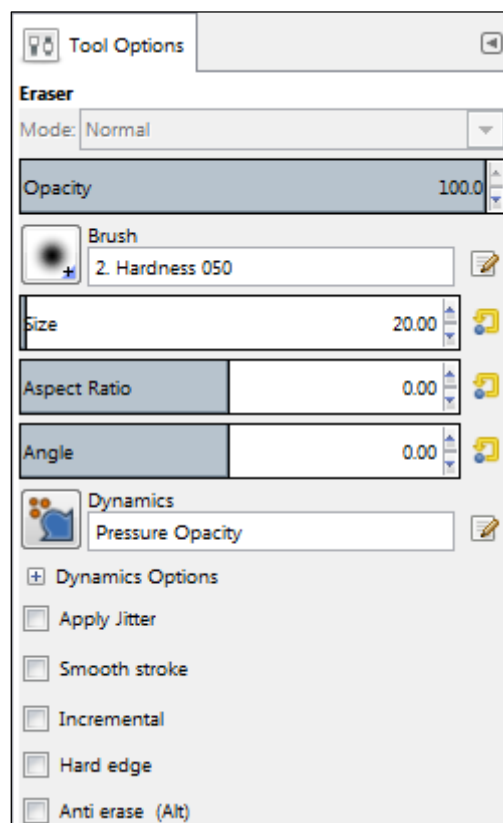
4. Set tool options for mode, opacity, and so on, in the **Tool Options dialog**.

5. Click and drag in the image to paint.

14.5 USING THE ERASER


The **Eraser tool**  changes pixels to either the background colour or to transparent. If we are working on a background or in a layer with transparency locked, the pixels change to the background colour; otherwise, the pixels are erased to transparency.


1. Select the **Eraser tool** .
2. Set the background colour we want to apply if we are erasing in the background or a layer with locked transparency.
3. In the **Tool Options dialog**, choose a required setting.

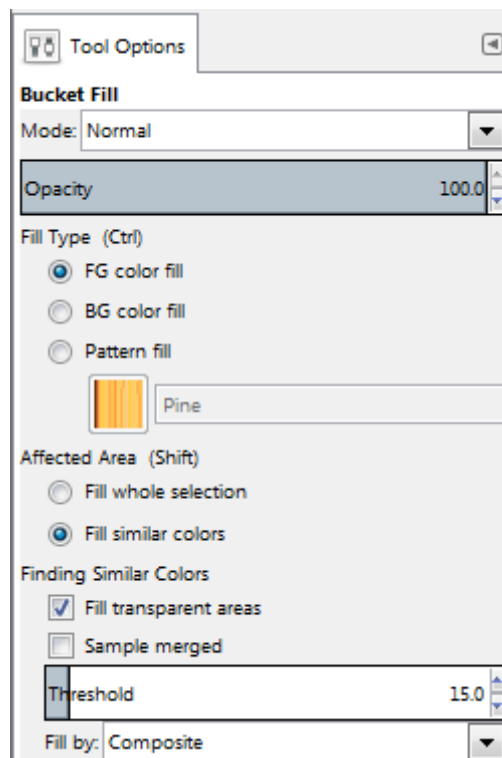


4. Drag through the area we want to erase.

14.6 FILLING WITH BUCKET FILL TOOL


The **Bucket Fill tool**  fills adjacent pixels that are similar in colour value to the pixels we click.

1. Choose a foreground colour.
2. Select the **Bucket Fill tool** .
3. Specify whether to fill the selection with the foreground colour or with a pattern.
4. Specify a blending mode and opacity for the paint.
5. Enter the tolerance for the fill.



6. Click the part of the image we want to fill.


14.7 CLONING WITH THE CLONE TOOL

The **Clone tool**  paints one part of an image over another part of the same image or over another part of any open document that has the same colour mode. We can also paint part of one layer over another layer. The **Clone tool** is useful for duplicating objects or removing a defect in an image.

To use the **Clone tool**, we set a source point on the area we want to copy (clone) the pixels from and paint over another area. We can use any brush tip with the **Clone tool**, which gives us precise control over the size of the clone area. We can also use opacity and flow settings to control how paint will be applied to the cloned area.

Clone Stamp Tool Options

To clone with the **Clone Stamp tool**:

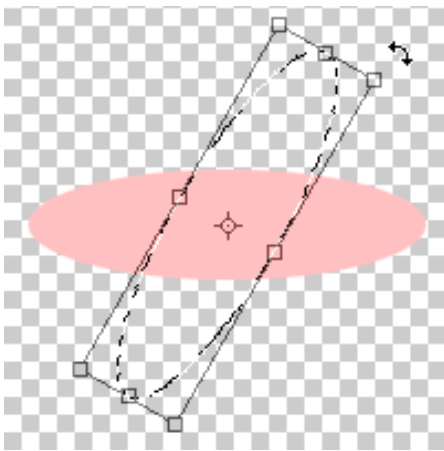
1. Select the **Clone tool**  .
2. Choose a brush tip and set brush options for the blending mode, opacity, and flow in the Tool Options bar.
3. Specify how we want to align the sampled pixels and how to sample data from the layers in our document
4. Set the sampling point by positioning the pointer in any open image and **CTRL**-clicking.
5. Drag over the area of the image we want to correct.

14.8 REVIEW EXERCISE

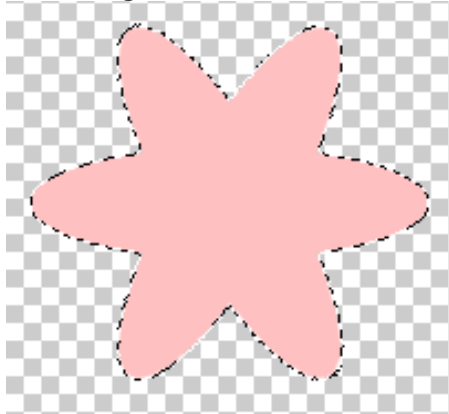
1. Open a new document with a dimension of 300 x 300 px with a transparent background.
2. Save the file as **Flower Icon**.
3. Choose two colours to use for this graphic and set them up as the foreground and background colours in the Toolbox. Preferably one colour is lighter than the other; we will get better results by setting the lighter colour as the foreground colour.
4. Select the Elliptical Marquee tool and ensure the Antialiasing option is turned on. Create an oval selection that is 180 x 50 px. Nudge the selection until it is approximately centered.
5. Fill the selection with the foreground colour.



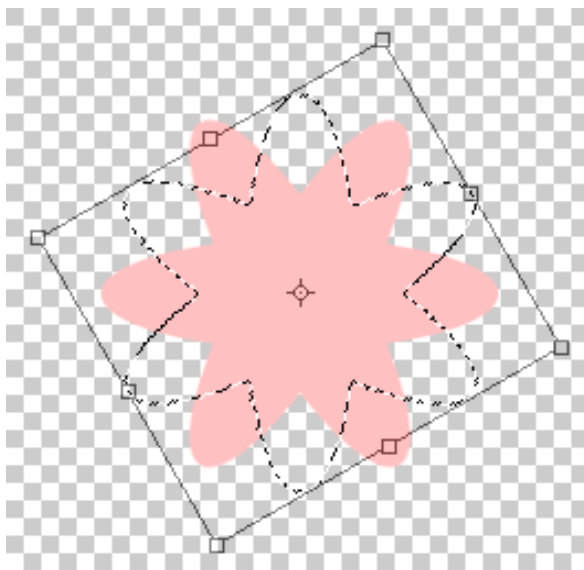
6. Rotate the selection marquee by 60° counter-clockwise direction.



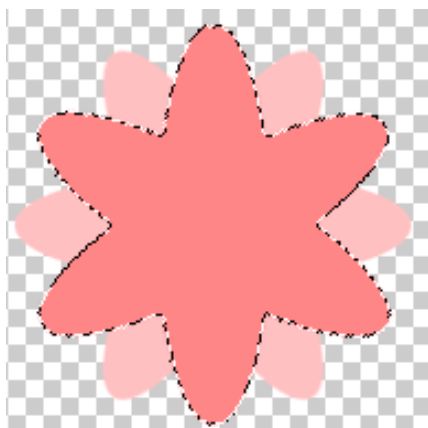
7. Fill the new selection with the **foreground colour**.
8. Repeat steps 6 - 7 once more.
9. Deselect.
10. Select the Fuzzy Select tool and make sure Antialiasing is enabled and Threshold is set to 32. Click on the coloured pixels to select the entire area.



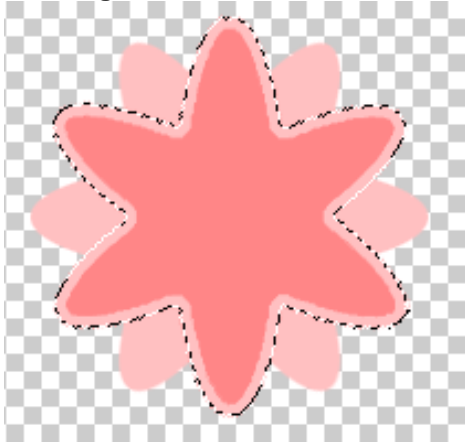
11. Rotate the selection by 30°.



12. Fill the selection with the background colour.



13. Choose Edit > Stroke Selection to open the Stroke Selection dialog. Set the Line Width to 5.



14. Deselect.
15. Open the Stroke Selection dialog again. Click on the colour swatch to open the colour picker. Use the eyedropper to click on the background colour. Set the line width to 10.



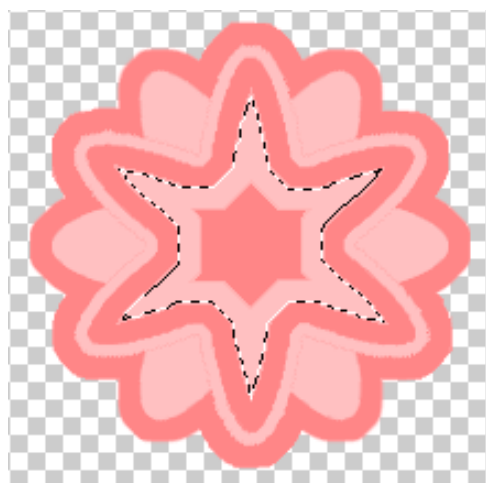
16. Use the Fuzzy Select to select the center (background) colour.



17. Choose **Select > Shrink**. In the Shrink Selection dialog, set the value to 10 and click OK.



18. Open the Stroke Selection dialog, set the Line Width to 10. We will need to click on the colour swatch to open the colour picker. Use the eyedropper to sample the lighter colour in our image. (The colour is no longer displayed as the foreground colour in the Tools dialog.)
19. Click Stroke.



20. Deselect and save the file.



LESSON 15 – PREPARING OUTPUTS

In this section, you will learn about:

- Setup
- Previewing an image
- Selecting output settings
- Printing
- Changing print orientation and size
- Printing using defined options

15.1 SETUP

Previewing an Image

Choose **File > Print** and click on the **Image Settings** tab to display the **Print** dialog box which allows us to preview the image before printing.

Selecting Output Settings

Saving Files for the Web

For web pages, we will generally want to save photos in JPEG format. JPEG is used more than any other format for photos on web pages. Other web formats include GIF, usually used for images with limited colours and PNG, a less often used, but flexible format.

JPEG is popular because it compresses well, we can make files smaller without sacrificing quality. However, if we compress too much, file quality will suffer, the trick is to find the right balance between image quality and compression.

GIMP makes this process easier through a command called Export.

To save a file as a JPEG:

1. Choose **File > Export**.
2. Set the file type to **JPEG image**.
3. Click **Export**.
4. Adjust quality by using the **Compression** slider.
5. Click **Export**.

Generating Files for Print

Generating files for print use is different from saving images for the web: we use an uncompressed file format and must be sure the file is at a high enough resolution (preferably 300 ppi) before we save it. It is always good to import the image into GIMP at the highest possible resolution to give more flexibility in the kinds of images we can generate.

Generating files for print involves three steps:

1. Setting the image resolution to 300 ppi.
2. Converting the image to CMYK (if the image is going to an offset print vendor).
3. Generating a print-friendly (compression-free or lossless) format, such as TIFF.

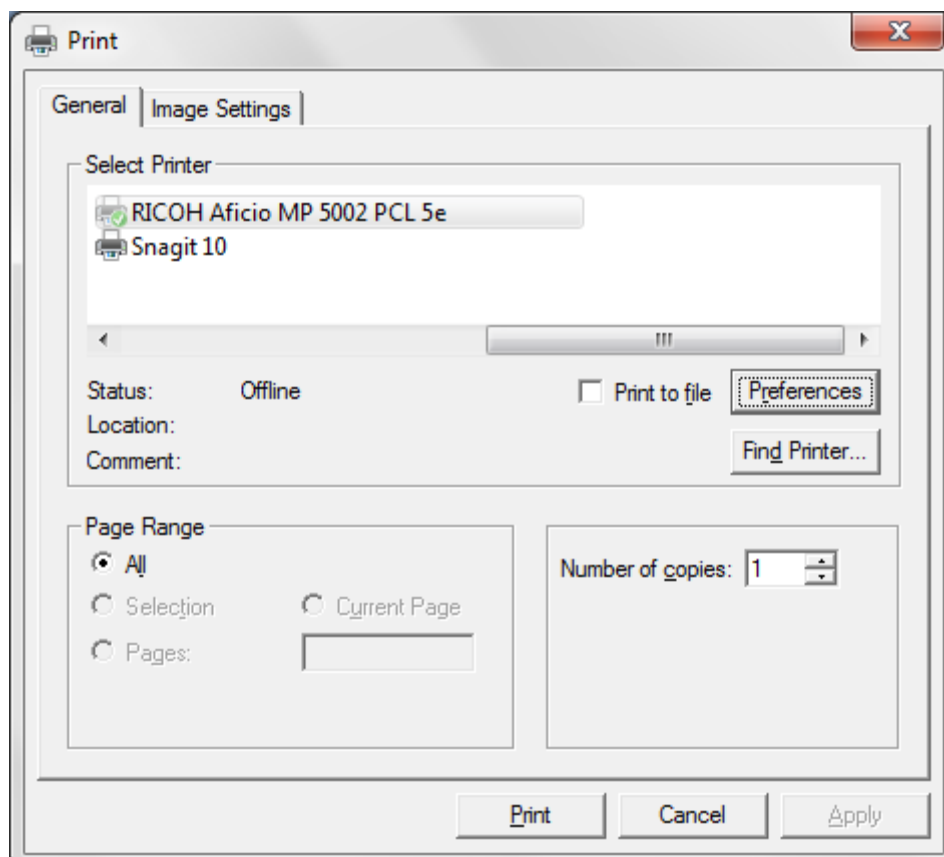
To generate file for print:

1. Choose **Image > Scale Image**.
2. Ensure the **Resample Image** option is not selected.
3. Enter **300** in the **Resolution** text box.
4. Ensure pixels/inch is selected as the units for **Resolution**.
5. Click **Scale**.
6. Choose **File > Export**.
7. Set the file type to TIFF.
8. Click **Export**.

15.2 PRINT

Changing Print Orientation and Size

The Print dialog box, allows us to preview the print job and select the printer, number of copies, output options, and colour management options.



GIMP provides the following printing commands:

- **Preferences**
Displays options specific to the printer, printer drivers, and operating system.
- **Print**
Displays the **Print** dialog box, where we can preview the print job and select the printer, number of copies and output options.

ECDL Syllabus

Ref	ECDL Task Item	Location	Ref	ECDL Task Item	Location
1.1.1	Identify common uses of digital images like: web and print publishing, distribution by e-mail and mobile phone, home printing, digital photo frames.	1.1 <i>Common Uses of Digital Images</i>	2.1.1	Save an image from a digital camera to a location on a drive.	4.1 <i>Saving Images from a Digital Camera</i>
1.1.2	Understand the terms pixel, resolution and identify the key features of a digital image: composed of discrete pixels, represented digitally in binary code.	1.2 <i>Digital Images and Pixels</i>	2.1.2	Use the print screen facility to capture a full screen, active window.	4.2 <i>Using the Print Screen Facility</i>
1.1.3	Understand the terms lossy, lossless image file compression.	1.3 <i>Copyright</i>	2.1.3	Save an image from an image library, web page to a location on a drive.	4.3 <i>Saving Image from Image Library</i>
1.1.4	Understand the term copyright and the implications for image use. Understand the terms royalty-free images and rights-managed images.	1.3 <i>Copyright</i>	2.1.4	Open a scanning application and scan an image: preview, set scanning parameters, scan, save.	4.4 <i>Scanning Images</i>
1.2.1	Understand the terms raster and vector graphics and distinguish between them. Identify common raster (jpeg, gif) and vector (svg, eps) formats.	2.1 <i>Raster and Vector Images</i>	3.1.1	Open, close an image editing application. Open, close image files.	5.2 <i>Opening, Placing and Closing Image Files</i>
1.2.2	Recognise proprietary digital image editing application formats: psd, psp, xcf, cpt.	2.2 <i>Proprietary Application Formats</i>	3.1.2	Create a new image file and set options: colour model, size, resolution, background colour.	5.4 <i>Creating New Image File</i>
1.3.1	Understand the term colour model and recognise common colour models: RGB, HSB, CMYK, grayscale.	3.1 <i>Colour Models</i>	3.1.3	Create a new image file from clipboard.	5.4 <i>Creating New Image File</i>
1.3.2	Understand the terms colour palette, colour depth.	3.2 <i>Colour Palette and Depth</i>	3.1.4	Switch between open image files.	5.3 <i>Switching Between Open Files</i>
1.3.3	Understand the terms hue, saturation, colour balance.	3.3 <i>Understanding Common Colour Terms</i>	3.1.5	Save an image to a location on a drive. Save an image under another name to a location on a drive.	5.5 <i>Saving Images</i>
1.3.4	Understand the terms contrast, brightness, gamma.	3.3 <i>Understanding Common Colour Terms</i>	3.1.6	Save, export an image as another file type like: jpeg, gif, tiff, png.	5.5 <i>Saving Images</i>
1.3.5	Understand the term transparency.	3.3 <i>Understanding Common Colour Terms</i>	3.2.1	Set background colour, foreground colour.	6.1 <i>Foreground and Background Colours</i>
			3.2.2	Set grid properties: units, horizontal spacing, vertical spacing, colour.	6.2 <i>Setting Grid Properties</i>
			3.3.1	Set basic options/preferences in the application like: transparency, grid settings, measurement units.	7.1 <i>Setting Basic Options and Preferences</i>
			3.3.2	Use available Help functions.	7.2 <i>Using the Help Function</i>

Ref	ECDL Task Item	Location	Ref	ECDL Task Item	Location
3.3.3	Use magnification/zoom tools.	<i>7.3 Using Magnification and Zoom Tools</i>	4.3.3	Set layer properties: name, hide, show, lock, opacity, blending mode.	<i>10.3 Setting Layer Properties</i>
3.3.4	Use the undo, redo command. Use the undo history.	<i>7.4 Performing Undo and Redo with Undo History</i>	4.3.4	Arrange, merge, link, flatten layers.	<i>10.2 Creating, Copying and Deleting Layers</i> <i>10.3 Setting Layer Properties</i>
3.3.5	Display, hide built-in toolbars, palettes, windows.	<i>7.5 Manipulating Toolbox and Panels</i>			<i>10.4 Merging and Flattening Layers</i>
4.1.1	Select an entire image, layer(s).	<i>8.2 Selecting an Entire Image or Layer</i>	4.3.5	Transform layer(s): scale, rotate, flip, move, trim..	<i>10.5 Transforming Layers</i>
4.1.2	Set selection tool properties: relationship between multiple selections, feathering, antialiasing, width, height.	<i>8.3 Selecting with Marquee and Lasso Tools</i> <i>8.6 Feathering and Anti-aliasing</i>	4.3.6	Convert a drawn object to a raster layer.	<i>10.6 Rasterizing Layers</i>
4.1.3	Select part of an image using selection tools: rectangular, elliptic, magic wand, magnetic lasso, freehand image.	<i>8.3 Selecting with Marquee and Lasso Tools</i>	4.3.7	Create an animated gif from layers.	<i>10.7 Creating Animated GIF from Layers</i>
4.1.4	Inverse a selection.	<i>8.7 Inversing Selection</i>	4.4.1	Add, edit, delete text.	<i>11.1 Creating and Editing Text</i>
4.1.5	Save a selection, load a saved selection.	<i>8.8 Saving and Loading Selections</i>	4.4.2	Copy, move text.	<i>11.1 Creating and Editing Text</i>
4.2.1	Change the canvas size of an image.	<i>9.1 Changing Image Canvas Size</i>	4.4.3	Align text: left, centre, right, justified.	<i>11.2 Formatting Text</i>
4.2.2	Resize an image in pixels, measurement units.	<i>9.2 Resizing Images</i>	4.4.4	Apply text formatting: font sizes, font types, font colour.	<i>11.2 Formatting Text</i>
4.2.3	Crop an image.	<i>9.3 Cropping Images</i>	4.4.5	Apply a text warp.	<i>11.3 Applying Text Warp</i>
4.2.4	Copy, move image(s), selection within an image.	<i>9.4 Moving and Copying Image</i>	4.5.1	Apply artistic, distortion effects: pixelate, emboss, wind, ripple, swirl, desaturate..	<i>12.2 Applying Artistic and Distortion Effects</i>
4.2.5	Rotate, mirror an image, selection within an image.	<i>9.5 Rotating and Flipping Selection/Image</i>	4.5.2	Apply blur effects: gaussian, motion..	<i>12.3 Applying Blur Effects</i>
4.3.1	Define and understand the term layer.	<i>10.1 Understanding Layers</i>	4.5.3	Apply lighting effects: lighting, flare.	<i>12.4 Applying Lighting Effects</i>
4.3.2	Create, copy, delete a layer.	<i>10.2 Creating, Copying and Deleting Layers</i>	4.5.4	Apply adjustments: brightness-contrast, hue-saturation, colour balance.	<i>12.5 Working with Image Adjustments</i>
			4.5.5	Apply sharpen, unsharpen mask.	<i>12.6 Working with Sharpen and Unsharp Mask</i>
			4.5.6	Apply red eye reduction.	<i>12.7 Applying Red Eye Reduction</i>

Ref	ECDL Task Item	Location
5.1.1	Add a line to an image: straight line, free drawn line, curves. Set, modify line weight, style and colour.	<i>13.2 Adding Lines and Shapes</i>
5.1.2	Add a shape to an image: rectangle, ellipse, n-shaped polygon. Set, modify line, fill style and colour..	<i>13.2 Adding Lines and Shapes</i>
5.2.1	Pick up a colour value with the dropper.	<i>14.2 Selecting Colour with the Colour Picker Tool</i>
5.2.2	Fill a portion of an image with the gradient tool, selecting opacity/transparency, radial, linear, position, rotation.	<i>14.3 Filling with Gradient Fill</i>
5.2.3	Colour a portion of an image with the paintbrush tool, selecting colour, shape, size..	<i>14.4 Colouring using the Paintbrush</i>
5.2.4	Erase a portion of an image with the eraser tool, selecting its shape and size..	<i>14.5 Using the Eraser</i>

Ref	ECDL Task Item	Location
5.2.5	Fill a portion of an image with colour using the paint bucket tool.	<i>14.6 Filling with Bucket Fill Tool</i>
5.2.6	Clone a portion of an image using a clone tool, selecting size, opacity..	<i>14.7 Cloning with the Clone Tool</i>
6.1.1	Preview an image.	<i>15.1 Setup</i>
6.1.2	Select appropriate colour depth, resolution, image size, graphic format for web, screen, print use.	<i>15.1 Setup</i>
6.2.1	Change print output orientation: portrait, landscape. Change paper size.	<i>15.2 Print</i>
6.2.2	Print an image to an installed printer using defined options, default settings.	<i>15.2 Print</i>

Congratulations! You have reached the end of the ECDL Image Editing book. You have learned about the key skills relating to Gimp software, including:

- Understand the main concepts of using digital images; understand graphic format options and colour concepts.
- Open an existing image; save an image in different formats; set image file options.
- Use built-in options, such as displaying toolbars, palettes, too enhance productivity.
- Capture and save an image; use various selection tools; manipulate images.
- Create and use layers; work with text; use effects and filters; use drawing and painting tools.
- Prepare images for printing or publishing.

Having reached this stage of your learning, you should now be ready to undertake ECDL certified testing. For further information on taking this test, please contact your ECDL test centre.

