



## Microsoft Paint


Microsoft includes with their Windows operating systems some simple accessories, programs that don't have a lot of features but can get you by in a pinch – WordPad, Notepad, a very simple calculator, and so on. For graphics, they include Paint.


When you start Paint (from Accessories under Programs in the Start Menu), you should see a blank canvas (usually white) with a palette of colors below and a toolbox to the left. The toolbox contains the different painting tools you have available. Click on a tool in the toolbox to draw using that tool.


 The pencil tool lets you freehand draw. Click on the canvas to draw a point, or drag to scribble thinlines.


 The brush tool is similar to the pencil but allows for points or lines of various sizes or thickness. When you select it, a palette of brush shapes appears below the toolbox.




 The rectangle tool lets you draw a standard shape. Hold shift to draw a perfect square.


 The selection tools allow you to select an area. A selected area can be cut, copied, etc.


 The fill tool lets you flood an outlined area that's all one color inside with a different color.


 The eraser tool restores the background. With the right mouse button, it only erases the foreground color, leaving others.


 The ellipse and rounded rectangle are like the rectangle tool, but draw other shapes.

 The eyedropper tool lets you select a color to use from a certain place in the image.


 The line tool lets you draw straight lines. Hold shift to force horizontal or vertical lines.

 The curve tool lets you draw simple curves, but if you're doing a lot of curves, the Gimp's bezier path tool is **much** better.

 The polygon tool lets you draw somewhat more irregular shapes, but still with straight sides.

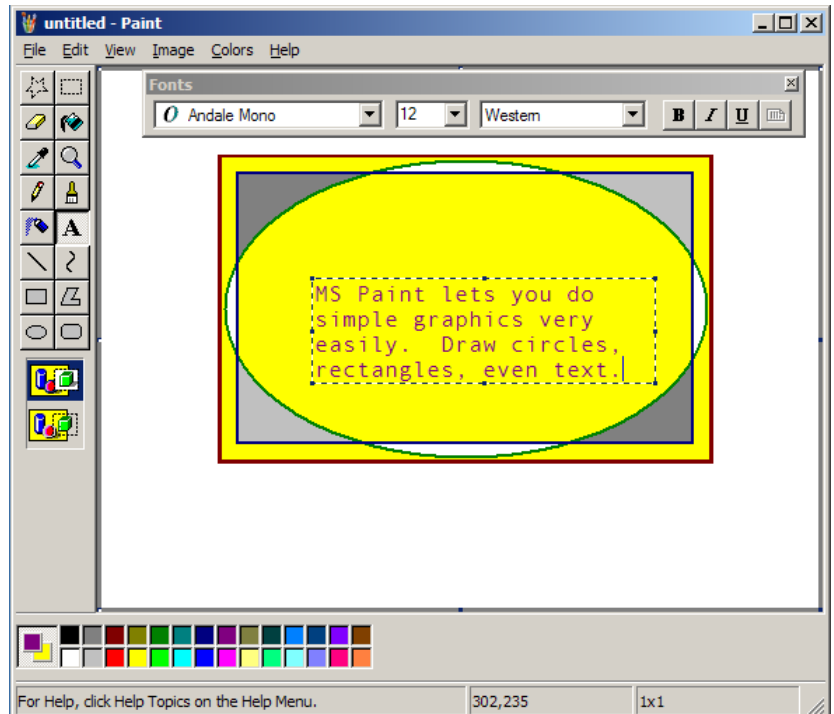
 The zoom tool lets you zoom in and out, so that you can see details or the big picture.

 The spraypaint tool throws a bunch of spots on your canvas. Hold it down longer for more spots.

 The text tool lets you type in some text, and an image of your text becomes part of the image, just like the rest.



The palette is where you pick your colors. Click a color with the left button to choose it as your main (foreground) color, or with the right button to choose it as your background color.



MS Paint is good for drawing simple things, like small diagrams and simple icons. In a pinch, you can do somewhat more involved drawing projects in it, if you have patience. I once did a self-portrait using it (though if I had to do it over again I would get the Gimp and use that instead).

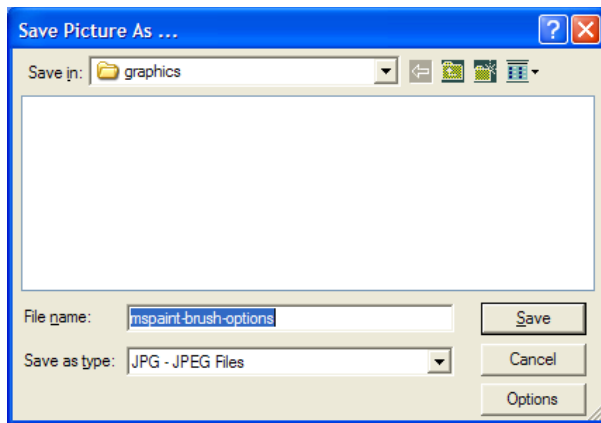
MS Paint automatically saves in bitmap format (BMP), so you can use images that you create in it for your Windows wallpaper, as a texture for certain screensavers, and similar uses. Paint doesn't know how to save your image in icon format, though. For that you need IrfanView.

## IrfanView

IrfanView is mostly intended for just viewing images, but it has some additional features that can come in handy. It's a nice complement for MS Paint, because almost none of IrfanView's features overlap with features found in Paint.

### Format Conversions

One thing IrfanView can do is convert between a wide variety of different graphics formats. IrfanView can take that GIF image that you downloaded from the internet and save it in bitmap (BMP) format so that you can edit it in Paint. IrfanView can then take your edited bitmap and convert it into icon format



(ICO) so that you can use it to spice up a shortcut on your desktop. Or, take that JPEG image of the earth from space that you got from the NASA website and convert it to a bitmap (BMP) so that you can use it for wallpaper. To do a format conversion, open the image you want to convert using IrfanView (either by choosing Open from the File menu in IrfanView or by dragging the icon representing the image onto the IrfanView icon) and then choose Save As from the File menu. By "Save as type" will be a dropdown list. Change it to whatever format you want.

*Tip: IrfanView is freeware that you can download from the internet.*



IrfanView is found at this address:  
<http://www.irfanview.com/>

It comes packaged in an automatic installer, and the installation process is very simple. The Windows Intermediate Skills course has more information about installing software.

### Color Adjustments

IrfanView can also do basic color adjustments. This option can be very helpful if you have photographs that were taken under less-than-ideal lighting conditions. If the image is too dark or too red, you can maybe fix it up a little.

Open your image in IrfanView, then pull down the Image menu and choose Enhance colors.

The sliders on the left (brightness, contrast, and gamma correction) have to do with darkness and lightness. Increasing the brightness or the gamma correction will lighten up the image. (The difference between brightness and gamma correction is technical. Try them both and see which one works better for your image.) Contrast increases the difference between the light areas and the dark areas in the image.

The three sliders on the right side let you adjust the overall color balance of the image. You can increase or decrease the amount of each primary color.

To make your changes permanent, click Ok, pull down the File menu, and choose Save.



# The Gimp

The Gnu Image Manipulation Program (GIMP) is a full-featured image editor. Learning to use it takes some time, especially if you want to learn to use all of its features, but if you want to do any serious graphics editing, you'll need to learn a full-featured image editor.

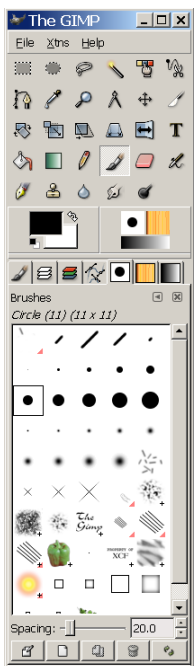
## The Gimp's Windows

The Gimp is made for working with several images at a time, and so in order to make the best use of screen space it doesn't place things like the toolbox in the window with each image. Instead, you'll have several windows. You can arrange them on the screen however you like.

*Tip: you can download the Gimp and install it on your computer.*



<http://www.gimp.org/windows/>  
<http://www.gimp.org/macintosh/>



## The Toolbox

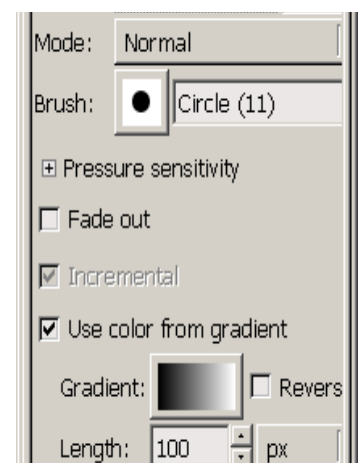
The toolbox window contains various tools you can use for editing images, much like the toolbox in MS Paint. Whatever tool you select in this toolbox, you can use that tool in any image window you have open. The toolbox also keeps your current working colors (double-click one to bring up a color selection dialog box), shows your active brush, pattern, and gradient, and has menus that allow you to open images and other windows (such as help). Also, other windows (e.g., brush selection) can be "docked" under the toolbox. If you close the toolbox window, all of the Gimp will exit. Don't worry about the Xtns menu for now.

## Brush Selection

If you double-click the current brush in the toolbox window, the brush selection will open (if it isn't open already). Here you can pick your brush. Different brushes have different characteristics, which affect the way the different tools paint. For example, if you choose a large brush with hard edges and use the eraser tool, you'll erase a lot of stuff quickly, but if you choose a small brush with soft edges, you can do more gentle, gradual erasing, more like using a pencil eraser that leaves some faint marks behind.

## Tool Options

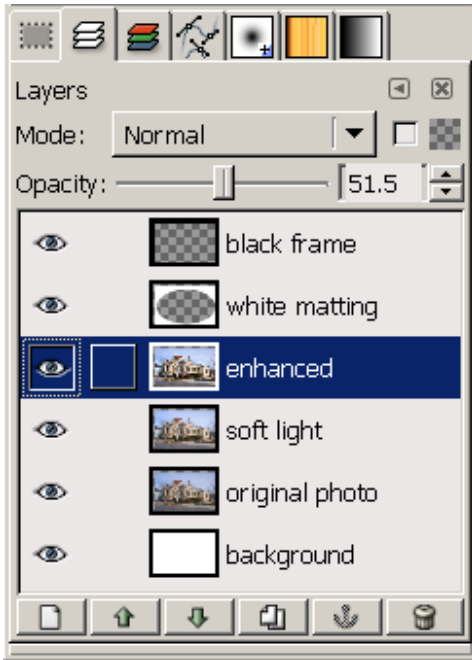
The Tool Options (available from the toolbox window's File menu under Dialogs) allows you to change some options that affect the way the tool you are using behaves. Different tools have different options, so whenever you select a different tool from the toolbox you'll see the tool options window show the options for that tool. For example, the paintbrush lets you set an opacity option, which controls how much it covers up what you're drawing over. Leave it at 100% to completely cover things up, or drop it closer to 0% to paint in a gentler overtone that lets everything under it show through. Several tools have this option, including the eraser. Other tools have their own options. The flip tool lets you choose whether to flip horizontally or vertically. The erase tool even has an Anti-Erase option, which lets you undo earlier erasing that you did.



## Image Windows & Menus

Each image you have open will also have its own window. This is where you work with that image. If you right click on an image window, a set of menus will come up that will allow you to do various things with the image – save it, copy the current selection to the clipboard, shrink or grow the current selection, and so forth. Under the Image menu is where you do things like color adjustments. The Filters menu contains all sorts of goodies, more than we can go into in a basic course. Sometimes the filters can do a lot of your work for you. Experiment with some of them some time to see what they do.

## Layers



Layers take some getting used to, but they're really useful once you get the hang of them. If you don't see this window, pull down your toolbox window's File menu and look under Dialogs for Layers.

Layers are just what they sound like: your image can be drawn in layers, one over another. Wherever a layer is transparent or partly transparent, the layers underneath show through.

You can draw on one layer without changing the others, so if you decide that the bird you're drawing would look better in front of a different part of the background, you can just slide it over, and the background that was behind the bird becomes visible again. Whichever layer you select in the Layers list is the one you'll be working with in the image window. If you want to see what the image looks like without a certain layer, click the eye icon beside that layer to make it invisible. You can change it back to visible later.

You can also change the order of the layers, moving them under or over one another. Select a layer and

click the up and down arrow buttons. You can put the bird behind the tree, or in front of it. Maybe you want the bird behind the one branch, but in front of the rest of the tree...

If you find that you need a new layer to draw on, click on the New Layer button (the one on the left that looks like a blank page).

If you decide that you want to combine two layers into one, you can. Right-click on a layer and choose Merge Down, and it will be joined with the layer directly beneath it. Once you start editing the new combined layer though, it can be difficult to reseparate them later.

When you save an image, your layers are only preserved if you save in a format that supports them. In general, it's best to save your images in .xcf format, so that you can easily do more editing later. If you also need the image in another format (such as .bmp or .png or .gif), use Save As to create a copy, but if you have any more editing to do, open the .xcf version and edit that.

When you get really comfortable with layers, you can achieve just exactly the image you want. Even those of us without graphic arts training can do amazing things with the Gimp and a little patience.

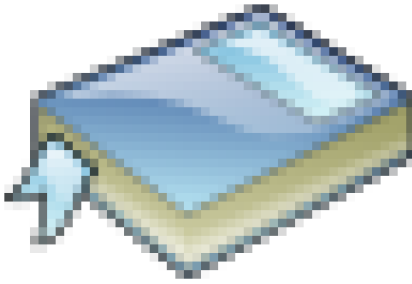


*Tip: the library has a book on using the Gimp, called Visual Quickstart Guide: The Gimp for Linux and Unix.*



It's shelved at 006.6 D 29. Ask a librarian to help you find this book. The book talks about using the Gimp on Unix, but you will find that just about everything is exactly the same under Windows. There is also information on the web at <http://www.gimp.org/>

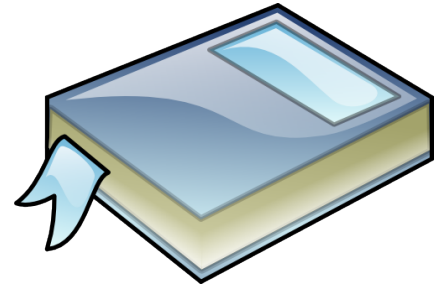
## Vector Graphics



*When a bitmapped image is enlarged too much, it can become pixelated.*

All of the programs we've looked at so far are for working with *bitmapped* images – that is, pictures stored as a grid of dots (or squares) called *pixels*. Although the Gimp can have multiple layers, each with its own color information for each pixel, still the images are composed of pixels.

Any time you enlarge a bitmapped image, it can become pixelated, because there is not enough information – not enough pixels – to look good at a larger size.



*A vector image can be viewed or rendered at any size, because it is made of shapes, not pixels.*

There is another type of picture on computers, called a *vector image*. Vector images are not made of pixels, but of objects. Each object has a shape, color, size, position, and so on. When you draw vector graphics, the computer remembers the objects that make up your drawing, and each of these objects may be independently changed later. In effect, every object behaves as its own layer. Digital photographs are always bitmapped images, because their resolution is limited by the properties of the camera. Images that are drawn on the computer, however, are often drawn as vector images.

Examples of popular drawing programs that create vector images include Illustrator, CorelDRAW, Visio, and Inkscape. Inkscape is the one we use for this class.

## Inkscape

Yeah, at some point I really should finish this page of the handout, with information about how to actually use Inkscape to draw things.

*Tip: you can download Inkscape from the internet and install it on your computer.*



<http://www.inkscape.org/>