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GNU Image Manipulation Program

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User Manual

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GIMP User Manual Authors and Contributors

Chapter

Introduction

Welcome to The GIMP

The GIMP is a multiplatform photo manipulation tool. GIMP is an acronym for GNU Image Manipulation Program. The GIMP is suitable for a variety of image manipulation tasks, including photo retouching, image composition, and image construction.

It has many capabilities. It can be used as a simple paint program, an expert quality photo retouching program, an online batch processing system, a mass production image renderer, an image format converter, etc.

GIMP is expandable and extensible. It is designed to be augmented with plug-ins and extensions to do just about anything. The advanced scripting interface allows everything from the simplest task to the most complex image manipulation procedures to be easily scripted.

One of The GIMP's strengths is its free availability from many sources for many operating systems. Most GNU/Linux distributions include The GIMP as a standard application. The GIMP is also available for other operating systems such as Microsoft Windows or Apple's Mac OS X (Darwin). The GIMP is not freeware. It is a Free Software application covered by the General Public License (GPL license). The GPL provides users with the freedom to access and alter the source code that makes up computer programs.

Authors

The first version of the GIMP was written by Peter Mattis and Spencer Kimball. Many other developers have contributed more recently, and thousands have provided support and testing. GIMP releases are currently being orchestrated by Sven Neumann and Mitch Natterer and many other people called the GIMP-Team.

The GIMP-Help system

The GIMP-Help system provides you with the information necessary to understand how to use The GIMP. You can get context sensitive help while using GIMP by pressing the F1 key. Help on specific menu items can be accessed by pressing the F1 key while the mouse focuses the menu item. Read on to begin your GIMP journey.

Features and Capabilities

The following list is a short overview of some of the features and capabilities which GIMP offers you:

- A full suite of painting tools including brushes, a pencil, an airbrush, cloning, etc.
- Tile-based memory management so image size is limited only by available disk space
- Sub-pixel sampling for all paint tools for high-quality anti-aliasing
- Full Alpha channel support for working with transparency
- Layers and channels
- A procedural database for calling internal GIMP functions from external programs, such as Script-Fu
- Advanced scripting capabilities
- Multiple undo/redo (limited only by disk space)
- Transformation tools including rotate, scale, shear and flip
- File formats supported include GIF, JPEG, PNG, XPM, TIFF, TGA, MPEG, PS, PDF, PCX,

BMP and many others

- Selection tools including rectangle, ellipse, free, fuzzy, bezier and intelligent
- Plug-ins that allow for the easy addition of new file formats and new effect filters

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What's New in The GIMP?

GIMP 1.0 evolved gradually into the very stable and widely used 1.2 release. Three years later, as the GIMP development came closer to the next stable release, they decided that the level of fundamental change to the inner workings of the program justified calling the new stable version 2.0. GIMP 2.0.0 was released on March 23, 2004. For GIMP 2.2, the developers aimed at a short cycle, adding a number of important features that did not require instability-inducing low level changes. GIMP 2.2.0 was released on December 19, 2004. This section briefly describes the new features that were added in GIMP 2.2, as well as the features that were introduced in GIMP 2.0.

Here is a brief summary of some of the most important new features introduced in GIMP 2.2. There are many other smaller changes that long-time users will notice and appreciate (or complain about!). There are also important changes at the level of plugin programming and script-fu creating that are not covered here.

Interoperability and standards support

- You can drag-and-drop or copy-and-paste image data from the GIMP to any application which supports image/png drops (currently Abiword and Kword at least) and image/xml+svg drops (Inkscape supports this one). So you can copy-and-paste curves into the GIMP from Inkscape, and then drag a selection into Abiword to include it inline in your document.
- Patterns can now be any supported GtkPixbuf format, including png, jpeg, xbm and others.
- GIMP can load gradients from SVG files, and palettes from ACT and RIFF files.
- Drag-and-drop support has been extended. You can now drop files and URIs onto an image window, where they will be opened in the existing image as new layers.

Shortcut editor

You can now edit your shortcuts in a dedicated dialog, as well as continue to use the little-known dynamic shortcuts feature (which has been there since 1.2).

Plug-in previews

We have provided a standard preview widget for plug-in authors which greatly reduces the amount of code required to support previews. David Odin has integrated this widget into all the current filters, so that now many more filters in the GIMP include a preview which updates in real time, and the various previews behave much more consistently.

Real-time previews of transform operations

The transform tools (shear, scale, perspective and rotate) can now show a real-time preview of the result of the operation when the tool is in "Traditional" mode. Previously, only a transforming grid was shown.

GNOME Human Interface Guide conformance

A lot of work has been done on making the GIMP's interface simpler and more usable for newcomers. Most dialogs now follows the GNOME HIG to the best of our knowledge. In addition, dialogs have separated out or removed many "Advanced" options, and replaced them with sane defaults or hidden them in an expander.

GTK+ 2.4 migration

- Menus use the GtkUIManager to generate menu structure dynamically from XML data files.

- A completely revamped File Chooser is used everywhere in the GIMP for opening or saving files. The best thing about it is that it lets you create a set of "bookmarks", making it possible to navigate quickly and easily to commonly used directories.

- GIMP now Supports fancy ARGB cursors when they are available on the system.

Basic vector support

Using the GFig plug-in, the GIMP now supports the basic functionality of vector layers. The GFig plug-in supports a number of vector graphics features such as gradient fills, Bezier curves and curve stroking. It is also the easiest way to create regular or irregular polygons in the GIMP. In the GIMP 2.2, you can create GFig layers, and re-edit these layers in GFig afterwards. This level of vector support is still quite primitive, however, in comparison to dedicated vector-graphics programs such as Inkscape.

Also . . .

There are many other smaller user-visible features. A rapid-fire list of some of those features is below.

- It is now possible to run the GIMP in batch mode without an X server.

- We have a GIMP binary (GIMP-console) which is not linked to GTK+ at all.

- Improved interface for extended input devices

- Editable toolbox: You can now decide which tools should be shown in the Toolbox, and their order. In particular, you can add any or all of the Color Tools to the Toolbox if you wish to.

- Histogram overlays R, G and B histograms on the Value histogram, and calculates the histogram only for the contents of the selection.

- Shortcuts are now shared across all GIMP windows.

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Running GIMP

Most often, you start GIMP either by clicking on an icon (if your system is set up to provide you with one), or by typing gimp on a command line. If you have multiple versions of the GIMP installed, you may need to type gimp-2.2 to get the latest version. You can, if you want, give a list of image files on the command line after the program name, and they will automatically be opened by GIMP as it starts. It is also possible, though, to open files from within GIMP once it is running.

In most operating systems, you can set things up so that various types of image files are "*associated*" with GIMP, and cause it to start automatically when icons for them are double-clicked.

If you want to cause a certain file type to automatically open in GIMP, you should associate it with "*gimp-remote*" ("*gimp-win-remote*" under Windows) rather than with "*gimp*". The gimp-remote program is an auxiliary that comes with gimp. If gimp is not already running on the system when gimp-remote is executed, it is started and the image given as argument to gimp-remote is loaded. If gimp is already running, though, the image is simply loaded into the already-running program.

Command Line Arguments

Ordinarily you don't need to give any arguments when starting GIMP, but here is a list of some that may at one time or anther be useful. This is not a complete list; on Unix systems you can get a complete list by running man gimp in a terminal window.

Known platforms

The GIMP is the most widely supported image manipulation available today. The platforms that The GIMP is known to work on include GNU/Linux, Apple Mac OS X (Darwin), Microsoft Windows 95, 98, Me, XP, NT4, and 2000, OpenBSD, NetBSD, FreeBSD, Solaris, SunOS, AIX, HP-UX, Tru64, Digital UNIX, OSF/1, IRIX, OS/2, and BeOS.

The GIMP can easily be ported to other operating systems because of its source code availability.

Language

All being well, GIMP detects the system language. This may fail on some machines and you may want use another language. It is possible to change the language:

In LINUX: in console mode, type LANGUAGE=en GIMP or LANG=en GIMP replacing en by fr, de, ... according to the language you want.

In WINDOWS XP: Control Panel/System/ Advanced/"Environment" button/ In "System Variables" area: "Add" button: Enter LANG for Name and fr or de... for Value. Watch out! You have to click on three successive "OK" to validate your choice.

If you often change language, you can create a batch file. Open NotePad. Type the following commands (for french for instance): set lang=fr cd c:\Program Files\GIMP-2.0\bin GIMP-2.2.exe Save this file as GIMP-FR.BAT (or another name, but always with a .BAT extension. Create shortcut and drag it to your desktop.

Start/Programs/ Accessories/System Tools/System Informations/Tools/System Configuration Utility/"Environment" tab/"New" button: Enter LANG for Name and fr or de... for Value.

Under Window 95 and Windows 98, add the line set lang=fr in the "*C:\autoexec.bat*" file.

Go to System Preferences, click on the International icon, and in the Language tab, the

desired language should be the first in the list.

Starting GIMP the first time

The first time you run GIMP, it goes through a series of steps to set up options and directories. This process creates a subdirectory of your home directory called `.gimp-2.2`. All of the information about the choices you make here goes into that directory. If you later remove that directory, or rename it as something like `.gimp-2.2.bak`, then the next time you start GIMP, it will go through the whole setup sequence again, creating a new `.gimp-2.2` directory. You can exploit this if you want to explore the effect of different choices without destroying your existing installation, or if you have screwed things up so badly that your existing installation needs to be nuked.

For the most part, setting up GIMP is very easy, and you can just accept the defaults at each step, and possibly adjust things later using the Preferences dialog. The main thing you might want to give a little thought to at the start is the amount of memory to allocate for GIMP's tile cache.

Here is a walk-through of the setup process:

1. Since this window mentions the GNU General Public License you know it is truly a Welcome dialog you are entering into. Also, note the "*Continue*" button. The GIMP does not even ask that you agree to it, merely whether you want to continue. Feel free to press the continue button.
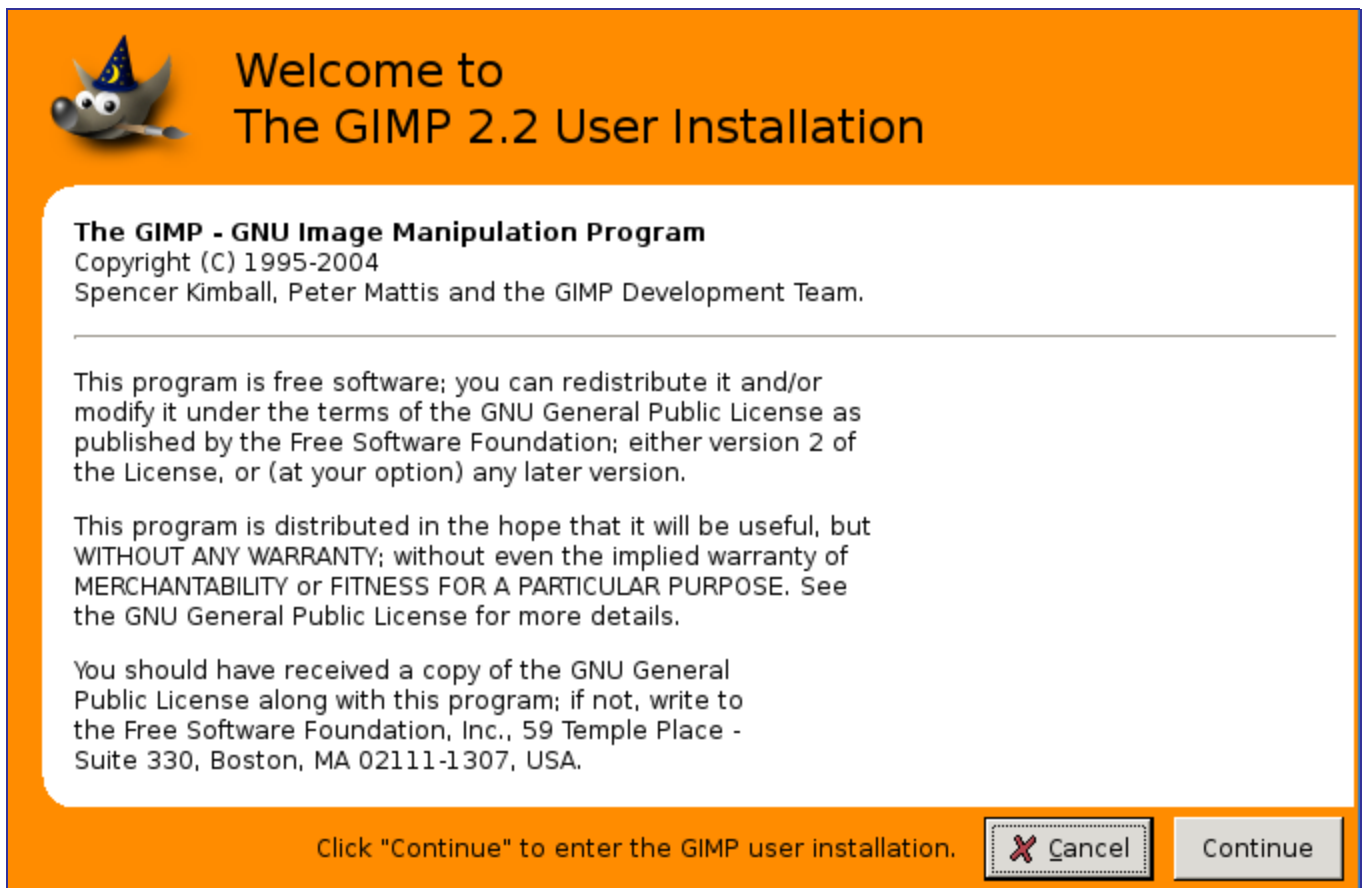
2. The purpose of this screen is only to make the user aware of the GIMP personal settings directory, subdirectories and files creation process, before it begins. You just have to have a look and click to proceed.

Personal GIMP Folder

▽ 📂 /home/marco/.gimp-2.2
    📄 gimprc
    📄 gtkrc
    📄 pluginrc
    📄 menurc
    📄 sessionrc
    📄 templaterc
    📄 unitrc
    📂 brushes
    📂 fonts
    📂 gradients

For a proper GIMP installation, a folder named '/ **home/marco/.gimp-2.2**' needs to be created.

This folder will contain a number of important files. Click on one of the files or folders in the tree to get more information about the selected item.

Click "Continue" to create your personal GIMP folder. ✗ Cancel   Continue

3. This window shows you the files that GIMP will create. It will have some complaints if you told it to install some place that it don't have permission to be. There is a scroll bar to see all the things GIMP has created for you.

User Installation Log

Creating folder '/home/marco/.gimp-2.2'... ✔
Copying file '/home/marco/.gimp-2.2/gtkrc' from '/etc/gimp/2.0/gtkrc'... ✔
Creating folder '/home/marco/.gimp-2.2/brushes'... ✔
Creating folder '/home/marco/.gimp-2.2/fonts'... ✔
Creating folder '/home/marco/.gimp-2.2/gradients'... ✔
Creating folder '/home/marco/.gimp-2.2/palettes'... ✔
Creating folder '/home/marco/.gimp-2.2/patterns'... ✔
Creating folder '/home/marco/.gimp-2.2/plug-ins'... ✔
Creating folder '/home/marco/.gimp-2.2/modules'... ✔
Creating folder '/home/marco/.gimp-2.2/environ'... ✔
Creating folder '/home/marco/.gimp-2.2/scripts'... ✔
Creating folder '/home/marco/.gimp-2.2/templates'... ✔
Creating folder '/home/marco/.gimp-2.2/themes'... ✔
Creating folder '/home/marco/.gimp-2.2/tmp'... ✔
Creating folder '/home/marco/.gimp-2.2/tool-options'... ✔

Installation successful. Click "Continue" to proceed. ✗ Cancel   Continue

4. Setting your memory usage is not an easy thing. So much depends on what your needs are for the GIMP and what hardware you have to work with. You have two options at this point. Go with the default value the developers have set here, or determine the best value. A brief tile-cache explanation. might help you determine this value. The tile-cache information might also be helpful to you if you are encountering memory problems when using the GIMP.

On a Unix system, `/tmp` might be a good place for the swap.

Chapter

GIMP Concepts

Main Windows in GIMP

The screenshot above shows the most basic arrangement of GIMP windows that can be used effectively. Three windows are shown:

The Main Toolbox: This is the heart of the GIMP. It contains the highest level menu, plus a set of icon buttons that can be used to select tools, and more.

Tool options: Docked below the main Toolbox is a Tool Options dialog, showing options for the currently selected tool (in this case, the Rectangle Select tool).

An image window: Each image open in GIMP is displayed in a separate window. Many images can be open at the same time: the limit is set only by the amount of system resources. It is possible to run GIMP without having any images open, but there are not very many useful things to do then.

Layers Dialog: This dialog window shows the layer structure of the currently active image, and allows it to be manipulated in a variety of ways. It is possible to do a few very basic things without using the Layers dialog, but even moderately sophisticated GIMP users find it indispensible to have the Layers dialog available at all times.

Brushs/Patterns/Gradients: The docked dialog below the layer dialog shows the dialogs for managing brushes, patterns and gradients.

This is a minimal setup. There are over a dozen other types of dialogs used by GIMP for various purposes, but users typically create them when they are needed and close them when they are not. Knowledgeable users generally keep the Toolbox (with Tool Options) and Layers dialog around at all times. The Toolbox is essential to many GIMP operations; in fact, if you close it, GIMP will exit. (You are asked to confirm that you want to do this, though.) The Tool Options are actually a separate dialog, shown docked to the Main Toolbox in the screenshot. Knowledgeable users almost always have them set up this way: it is very difficult to use tools effectively without being able to see how their options are set. The Layers dialog comes into play whenever you work with an image that has multiple layers: once you advance beyond the very most basic stages of GIMP expertise, this means *almost always*. And finally, of course, the necessity of having images displayed in order to work with them is perhaps obvious.

If your GIMP layout gets trashed, fortunately the arrangement shown in the screenshot is pretty easy to recover. In the File menu from the Main Toolbox, selecting File Dialogs Create New Dock Layers, Channels, and Paths will give you a Layers dialog just like the one shown. In the same menu, selecting File Dialogs Tool Options gives you a new Tool Options dialog, which you can then dock below the Main Toolbox. (The section on Dialogs and Docking explains how to dock dialogs.) There is no need to be able to create a new Main Toolbox, because you cannot get rid of the one you have without causing GIMP to exit.

Unlike some other programs, GIMP does not give you the option of putting everything—controls and image displays—all into a single comprehensive window. The GIMP developers have always felt that this is a poor way of working, because it forces the program to perform a wide range of functions that are much better done by a dedicated window manager. Not only would this waste a lot of programmer time, it is almost impossible to do in a way that works correctly across all of the operating systems GIMP is intended to run on.

Earlier versions of the GIMP (up to GIMP 1.2.5) were very profligate with dialogs: advanced users often had half a dozen or more dialogs open at once, scattered all over the screen and very difficult to keep track of. GIMP 2.0 is much better in this respect, because it allows dialogs to be docked together in a flexible way. (The Layers dialog in the screenshot actually contains four dialogs, represented by tabs: Layers, Channels, Paths, and Undo.) The system takes a little while to learn, but once you learn it, we hope that you will like it.

The following sections will walk you through the components of each of the windows shown in the screenshot, explaining what they are and how they work. Once you have read them, plus the section describing the basic structure of GIMP images, you should have learned enough to use GIMP for a wide variety of basic image manipulations. You can then look through the rest of the manual at your leisure (or just experiment) to learn the almost limitless number of more subtle and specialized things that are possible. Have fun!

The Main Toolbox

The Main Toolbox is the heart of the GIMP. It is the only part of the application that you cannot duplicate or close. Here is a quick tour of what you will find there.

In the Toolbox, as in most parts of GIMP, moving the mouse on top of something and letting it rest for a moment will usually bring up a "tooltip" message that may help you understand what the thing is or what you can do with it. Also, in many cases you can press the F1 key to get help about the thing that is underneath the mouse.

Toolbox Menu: This menu is special: it contains some commands that cannot be found in the menus that are attached to images. (Also some that can.) These include commands for setting preferences, creating certain types of dialogs, etc. The contents are described systematically in the Toolbox Menu section.

Tool icons: These icons are buttons that activate tools for a wide variety of purposes: selecting parts of images, painting on them, transforming them, etc. The Toolbox Introduction section gives an overview of how to work with tools, and each tool is described systematically in the Tools chapter.

Foreground/Background colors: The color areas here show you GIMP's current foreground and background colors, which come into play in many operations. Clicking on either one of them brings up a color selector dialog that allow you to change to a different color. Clicking on the double-headed arrow swaps the two colors, and clicking on the small symbol in the lower left corner resets them to black and white.

Brush/Pattern/Gradient The symbols here show you GIMP's current selections for: the Paintbrush, used by all tools that allow you to paint on the image ("painting" includes operations like erasing and smudging, by the way); for the Pattern, which is used in filling selected areas of an image; and for the Gradient, which comes into play whenever an operation requires a smoothly varying range of colors. Clicking on any of these symbols brings up a dialog window that allows you to change it.

Active Image: (This is a new feature in GIMP 2.2) In GIMP, you can work with many images at once, but at any given moment, one of them is the "*active image*". Here you find a small iconic representation of the active image. Clicking on it brings up a dialog with a list of all the currently open images, allowing you to make a different one active if you want to. (Clicking on the window where the image is displayed will accomplish the same thing, though.)

The "Active Image" preview is disabled by default. If you want it, you can enable it in the Toolbox Preferences tab.

At every start, GIMP selects a tool (the brush), a color, a brush and a pattern by default, always the same. If you want GIMP to select the last tool, color, brush and pattern you used when quitting your previous session, check the "Set input device settings on exit" in Preferences/Input Devices.

Image Window

In GIMP, each image that you have open is displayed in its own separate window. (In some cases, multiple windows may all display the same image, but this is unusual.) We will begin with a brief description of the components that are present by default in an

ordinary image window. Some of these, in fact, can be made to disappear using commands in the View menu; but you will probably find that you don't want to do that.

Title Bar: At the top of the image window you will probably see a emphasis bar, showing the name of the image and some basic information about it. The emphasis bar is actually provided by the windowing system, not by GIMP itself, so its appearance may vary with different operating systems, window managers, and/or themes. In the Preferences dialog you can customize the information that appears here, if you want to.

Image Menu: Directly below the emphasis bar appears the Image Menu (unless it has been suppressed). This menu gives you access to nearly every operation you can perform on an image. (There are some "*global*" actions that can only be accessed via the Toolbox menu.) You can also get the Image Menu by right-clicking inside the image , or by left-clicking on the little "*arrow*" symbol in the upper left corner, if for some reason you find one of these more convenient. More: most menu operations can also be activated from the keyboard, using Alt plus an "*accelerator*" key underlined in the menu emphasis. More: you can define your own custom shortcuts for menu actions, if you enable Use Dynamic Keyboard Shortcuts in the Preferences dialog.

Menu Button: Clicking on this little button gives you the Image Menu, except in a column instead of a row. Mnemonics users who don't want the menu bar visible can acces to this menu by pressing the Shift F10 key.

Ruler: In the default layout, rulers are shown above and to the left of the image, indicating coordinates within the image. You can control what type of coordinates are shown if you want to. By default, pixels are used, but you can change to other units, using the Units setting described below.

One of the most important uses of rulers is to create *guides*. If you click on a ruler and drag into the image display, a guideline will be created, which you can use to help you position things accurately. Guides can be moved by clicking on them and dragging, or deleted by dragging them out of the image display.

QuickMask Toggle: At the lower left corner of the image display is a small button that toggles on or off the Quick Mask, which is an alternate, and often extremely useful, way of viewing the selected area within the image. For more details see QuickMask.

Pointer Coordinates: In the lower left corner of the window is a rectangular area used to show the current pointer coordinates (that is, the mouse location, if you are using a mouse), whenever the pointer is within the image boundaries. The units are the same as for the rulers.

Units menu: (This feature is new in GIMP 2.2; it does not appear in GIMP 2.0). By default, the units used for the rulers and several other purposes are pixels. You can change to inches, cm, or several other possibilities using this menu. (If you do, note that the setting of "*Dot for dot*" in the View menu affects how the display is scaled: see Dot for Dot for more information.

Zoom button: (This feature is new in GIMP 2.2; it does not appear in GIMP 2.0). There are a number of ways to zoom the image in or out, but this menu is perhaps the simplest.

Status Area: The Status Area appears below the image display. Most of the time, by default, it shows which part of the image is currently active, and the amount of system memory that the image is consuming. You can customize the information that appears here, by changing your Preferences. When you perform time-consuming operations, the status area changes temporarily to show what operation is being performed, and its state of progress.

Cancel Button: At the lower right corner of the window appears the Cancel button. If you start a complex, time-consuming operation (most commonly a plug-in), and then decide, while it is being computed, that you didn't really want to do it after all, this button will cancel it immediately.

There are a few plug-ins that respond badly to being canceled, possibly leaving corrupted

pieces of images behind.

Navigation control: This is a small cross-shaped button at the lower right corner of the image display. Clicking on it, and holding the left mouse button down, brings up a window showing a miniature view of the image, with the displayed area outlined. You can pan to a different part of the image by moving the mouse while keeping the button depressed. For large images of which only a small part is displayed, the navigation window is often the most convenient way of getting to the part of the image you are looking for. (See Navigation Dialog for other ways to access the Navigation Window). (If your mouse has a middle-button, click-drag with it to span across the image).

Inactive Padding Area: This padding area seperates the active image display and the inactive padding area, so you're able to distinguish between them. You cannot apply any Filters or Operations in generall on the inactive area.

Image Display: The most important part of the image window is, of course, the image display or canvas. It occupies the central area of the window, surrounded by a yellow dotted line showing the image boundary, against a neutral gray background. You can change the zoom level of the image display in a variety of ways, including the Zoom setting described below.

Image Window Resize Toggle: If this button is pressed, the image itself will be resized if the image window is resized.

Dialogs and Docking

Docking Bars

In GIMP 2.0 and 2.2, you have a lot of flexibility about the arrangement of dialog windows on your screen. Instead of placing each dialog in its own window, you can group them together using docks. A "dock" is a container window that can hold a collection of persistent dialogs, such as the Tool Options dialog, Brushes dialog, Palette dialog, etc. Docks cannot, however, hold image windows: each image always has its own separate window. They also can't hold non-persistent dialogs, such as the Preferences dialog or the New Image dialog.
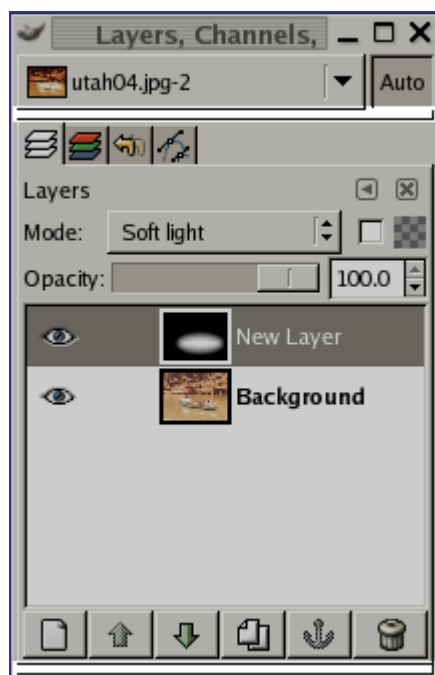

Each dock has a set of *docking bars*, as highlighted in the adjoining figure. These are thin gray bars, very unobtrusive and easy not to notice: most people don't realize that they

exist until they are specifically pointed out.

Docking Drag Handles

Each dockable dialog has a *drag handle area*, as highlighted in the figure on the right. You can recognize this by the fact that the cursor changes to a hand shape when the pointer is over the drag handle area. To dock a dialog, you simply click on its drag handle area, and drag it onto one of the docking bars in a dock.
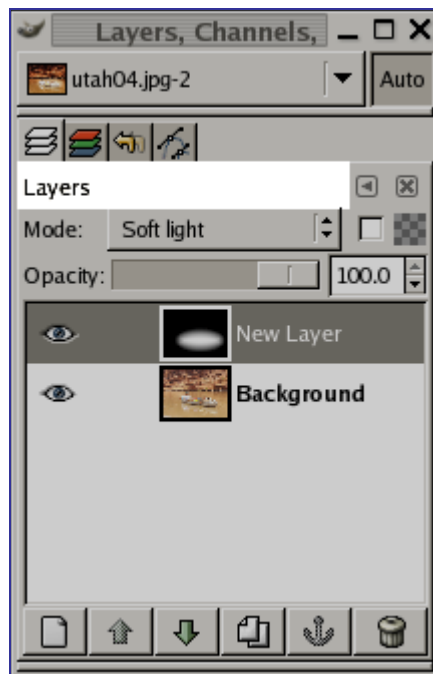
You can drag more than one dialog onto the same docking bar. If you do, they will turn into tabs, represented by iconic symbols at the top. Clicking on the tab handle will bring a tab to the front, so that you can interact with it.

Image Menu

Some docks contain an *Image Menu*: a menu listing all of the images open in GIMP, and displaying the name of the image whose information is shown in the dock. You can use the Image Menu to select a different image (don't confuse this menu for the Image Menu that is the Menu of the active image on your screen). If the Auto button is depressed, then the menu always shows the name of GIMP's currently active image, that is, the image you are currently working on.
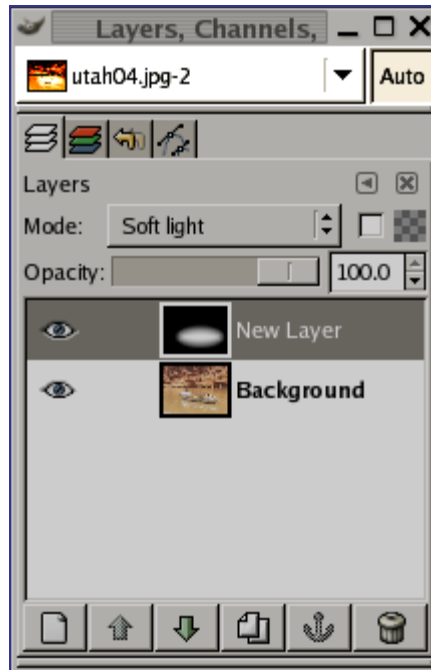
By default, a "*Layers, Channels, and Paths*" dock shows an Image Menu at the top, and other types of docks do not. You can always add or remove an Image Menu, however, using the "Show Image Menu" toggle in the Tab menu, as described below. (Exception: you cannot add an Image Menu to the dock that contains the Toolbox.)

Tab Menu
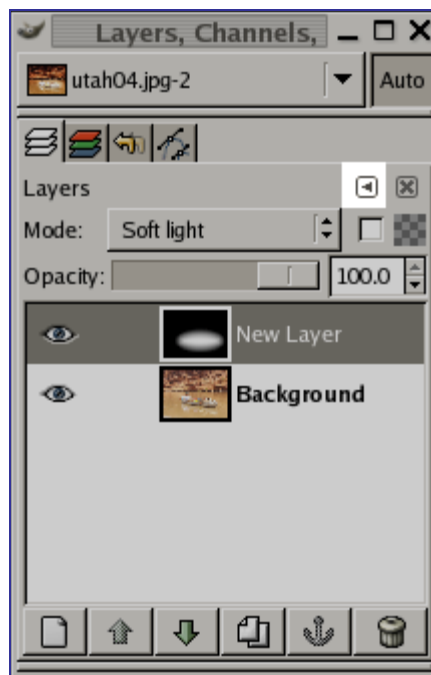
In each dialog, you can access a special menu of tab-related operations by pressing the Tab Menu button, as highlighted in the figure on the right. Exactly which commands are shown in the menu varies a bit from dialog to dialog, but they always include operations for creating new tabs, or closing or detaching tabs.

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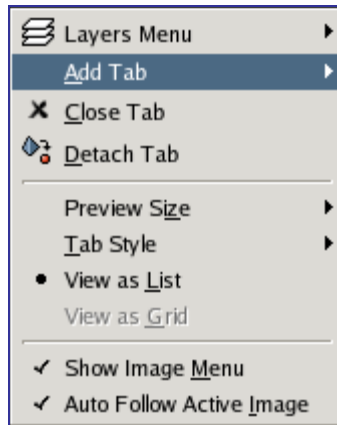
The Tab menu gives you access to the following commands:

Basic GIMP Concepts

This section is intended to give you a brief introduction to the basic concepts and terminology you will need to understand in order to make sense of the rest of the documentation. Everything here is explained in much greater depth elsewhere. With a few exceptions, we have avoided cluttering this section with a lot of links and cross-references: everything mentioned here is so high-level that you should easily be able to locate it in the index.

Working with Images

Image types

It is tempting to think of an *image* as something that corresponds with a single display window, or to a single file such as a JPEG file, but really a Gimp image is a rather complicated structure, containing a stack of layers plus several other types of objects: a selection mask, a set of channels, a set of paths, an "undo" history, etc. In this section we are going to take a detailed look at all of the components of an image, and the things you can do with them.

The most basic property of an image is its *mode*. There are three possible modes: RGB, grayscale, and indexed. RGB stands for Red-Green-Blue, and indicates that each point in the image is represented by a "*red*" level, a "*green*" level, and a "*blue*" level. Because every humanly distinguishable color can be represented as a combination of red, green, and blue, RGB images are full-color. Each color channel has 256 possible intensity levels. More details in Color Models

In a grayscale image, each point is represented by a brightness value, ranging from 0 (black) to 255 (white), with intermediate values representing different levels of gray.
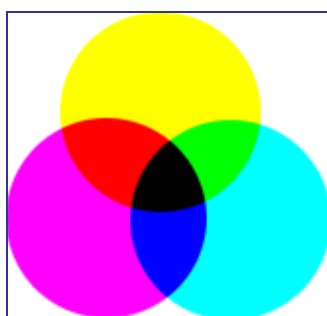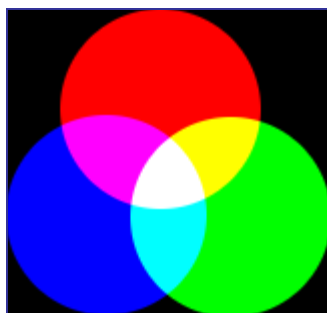
Essentially the difference between a grayscale image and an RGB image is the number of "*color channels*": a grayscale image has one; an RGB image has three. An RGB image can be thought of as three superimposed grayscale images, one colored red, one green, and one blue.

Actually, both RGB and grayscale images have one additional color channel, called the *alpha* channel, representing opacity. When the alpha value at a given location in a given layer is zero, the layer is completely transparent, and the color at that location is determined by what lies underneath. When alpha is maximal, the layer is opaque, and the color is determined by the color of the layer. Intermediate alpha values correspond to varying degrees of translucency: the color at the location is a proportional mixture of color from the layer and color from underneath.
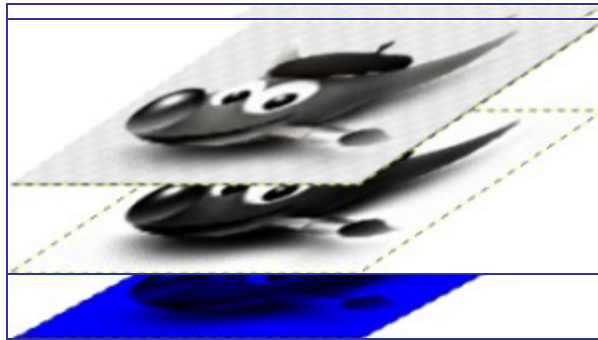
In Gimp, every color channel, including the alpha channel, has a range of possible values from 0 to 255; in computing terminology, a depth of 8 bits. Some digital cameras can produce image files with a depth of 16 bits per color channel. Gimp cannot load such a file without losing resolution. In most cases the effects are too subtle to be detected by the human eye, but in some cases, mainly where there are large areas with slowly varying color gradients, the difference may be perceptible.

The third type, *indexed* images, is a bit more complicated to understand. In an indexed image, only a limited set of discrete colors are used, usually 256 or less. These colors form the "colormap" of the image, and each point in the image is assigned a color from the colormap. Indexed images have the advantage that they can be represented inside a computer in a way that consumes relatively little memory, and back in the dark ages (say, ten years ago), they were very commonly used. As time goes on, they are used less and less, but they are still important enough to be worth supporting in Gimp. (Also, there are a few important kinds of image manipulation that are easier to implement with indexed images than with continuous-color RGB images.)

Some very commonly used types of files (including GIF and PNG) produce indexed images when they are opened in Gimp. Many of Gimp's tools don't work very well on indexed images–and many filters don't work at all–because of the limited number of colors available. Because of this, it is usually best to convert an image to RGB mode before working on it. If necessary, you can convert it back to indexed mode when you are ready to save it

Gimp makes it easy to convert from one image type to another, using the Mode command in the Image menu. Some types of conversions, of course (RGB to grayscale or indexed, for example) lose information that cannot be regained by converting back in the other direction.

If you are trying to use a filter on an image, and it appears grayed out in the menu, usually the cause is that the image (or, more specifically, the layer) you are working on is the wrong type. Many filters can't be used on indexed images. Some can be used only on RGB images, or only on grayscale images. Some also require the presence or absence of

an alpha channel. Usually the fix is to convert the image to a different type, most commonly RGB.

QuickMask
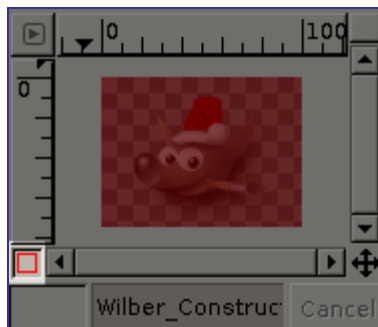
The selection tools sometimes show their limits when they have to be used for creating a complex selection. In these cases, using the QuickMask can make things much easier. Simply put, the QuickMask allows you to paint a selection instead of just tracing its outline.

Overview

Normally when you create a selection in GIMP, you see it represented by the "marching ants" that trace along its outline. But really there may be a lot more to a selection than the marching ants show you: in GIMP a selection is actually a full-fledged grayscale channel, covering the image, with pixel values ranging from 0 (unselected) to 255 (fully selected). The marching ants are drawn along a contour of half-selected pixels. Thus, what the marching ants show you as either-or–inside or outside the boundary–is really just a slice through a continuum.

The QuickMask is GIMP's way of showing you the full structure of the selection. Activating it also gives you the ability to interact with the selection in new, and substantially more powerful, ways. To activate the QuickMask, click on the small red-outlined button at the lower left of the image window. The button is a toggle, so clicking it again will return you to normal marching-ant mode. You can also activate the QuickMask by selecting in the image window menu Select Toggle QuickMask , or by using the ShiftQ shortcut.

Activating the QuickMask shows you the selection as though it were a translucent screen overlying the image, whose transparency at each pixel indicates the degree to which that pixel is selected. By default the mask is shown in red, but you can change this if another mask color would be more convenient. The less a pixel is selected, the more it is obscured by the mask. Fully selected pixels are shown completely clear.

When you are in QuickMask mode, many image manipulations act on the selection channel rather than the image itself. This includes, in particular, paint tools. Painting with white causes the painted pixels to be selected; painting with black causes them to be unselected. You can use any of the paint tools, as well as the bucket fill and gradient fill tools, in this way. Advanced users of the GIMP learn that "*painting the selection*" is the easiest and most effective way to delicately manipulate it.

To save the selection done by the Quickmask to a new channel; Make sure that there is a selection and that Quickmask is not active in the image window. Select in the image menu Select/Save to Channel. This will create a new channel in the channel dialog called SelectionMask 1.

When QuickMask is active, Cut and Paste act on the selection rather than the image. You can sometimes make use of this as the most convenient way of transferring a selection from one image to another.

You can learn more on Quickmask and Selection masks in the section dedicated to the channel dialog.

Layers

A good way to visualize a GIMP image is as a stack of transparencies: in GIMP terminology, each individual transparency is called a *layer*. There is no limit, in principle, to the number of layers an image can have: only the amount of memory available on the system. It is not uncommon for advanced users to work with images containing dozens of layers.

The organization of layers in an image is shown by the Layers dialog, which is the second most important type of dialog window in GIMP, after the Main Toolbox. The appearance of the Layers dialog is shown in the adjoining illustration. How it works is described in detail in the Layers Dialog section, but we will touch on some aspects of it here, in relation to the layer properties that they display.

Each open image has at any time a single *active drawable*. A "*drawable*" is a GIMP concept that 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, you 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.

In the menubar above an image window, you can find a menu called Layer, containing a number of commands that affect the active layer of the image. The same menu can be accessed by right-clicking in the Layers dialog.

Layer properties

Each layer in an image has a number of important attributes:

The Selection

Often when you operate on an image, you only want part of it to be affected. In GIMP, you make this happen by *selecting* that part. Each image has a *selection* associated with it. Most, but not all, GIMP operations act only on the selected portions of the image.

There are many, many situations where creating just the right selection is the key to getting the result you want, and often it is not very easy to do. For example, in the above

image, suppose I want to cut the tree out from its background, and paste it into a different image. In order to do this, I need to create a selection that contains the tree and nothing but the tree. It is difficult because the tree has a very complex shape, and in several spots is hard to distinguish from the objects behind it.

Now here is a very important point, and it is crucial to understand this. Ordinarily when you create a selection, you see it as a dashed line enclosing a portion of the image. The idea you could get from this is that the selection is a sort of container, with the selected parts of the image inside, and the unselected parts outside. This concept of the selection is okay for many purposes, but it is not really correct.

Actually the selection is implemented as a *channel*. In terms of its internal structure, it is identical to the red, green, blue, and alpha channels of an image. Thus, the selection has a value defined at each pixel of the image, ranging between 0 (unselected) and 255 (fully selected). The advantage of this approach is that it allows some pixels to be *partially selected*, by giving them intermediate values between 0 and 255. As you will see, there are many situations where it is desirable to have smooth transitions between selected and unselected regions.

What, then, is the dashed line that appears when you create a selection?

It is a *contour line*, dividing areas that are more than half selected from areas that are less than half selected.

You should always bear in mind, when looking at the dashed line that represents the selection, that it only tells you part of the story. If you want to see the selection in complete detail, the easiest way is to click the QuickMask button in the lower left corner of the image window. This causes the selection to be shown as a translucent overlay atop the image. Selected areas are unaffected; unselected areas are reddened. The more completely selected an area is, the less red it appears.

QuickMask mode, and its uses, are described in detail below. Meanwhile, if you are following this discussion by trying things out in GIMP, you should know that many operations work differently in QuickMask mode, so go ahead and toggle it off again for now (by clicking the QuickMask button once more).

Feathering

With the default settings, the basic selection tools, such as the Rectangle Select tool, create sharp selections. Pixels inside the dashed line are fully selected, and pixels outside completely unselected. You can verify this by toggling QuickMask: you see a clear rectangle with sharp edges, surrounded by uniform red. In the Tool Options, however, is a checkbox called "*Feather edges*". If you enable this, the tool will instead create graduated

selections. The feather radius, which you can adjust, determines the distance over which the transition occurs.

If you are following along, try this out with the Rectangle Select tool, and then toggle QuickMask. You will now see that the clear rectangle has a fuzzy edge.

Feathering is particularly useful when you are cutting and pasting, in helping the pasted object to blend smoothly and unobtrusively with its surroundings.

Actually, it is possible to feather a selection at any time, even if it was originally created as a sharp selection. You can do this from the image menu, by choosing Select Feather . This brings up a dialog that allows you to set the feather radius. You can do the opposite-- sharpen a graduated selection into an all-or-nothing selection--by choosing Select Sharpen .

For technically oriented readers: feathering works by applying a Gaussian blur to the selection channel, with the specified blurring radius.

Making a selection partially transparent

You can set layer opacity, but you cannot do that directly for a selection. It is quite useful to make the image of a glass transparent. You can achieve this by using these methods:

- For simple selections, use the Eraser tool with the wanted opacity.

- For complex selections: use the command Selection Floating to create a floating selection. This creates a new layer called "*Floating Selection*". Activate it and use the opacity slider to get the wanted opacity. Then anchor the selection: outside the selection, the mouse pointer comes with an anchor icon. When you click, the floating selection disappears from the Layer Dialog and the selection is at the right place and partially transparent (anchoring works this way only if a selection tool is activated : you can also use the command in the context menu that you get by right clicking on the selected layer in the layer dialog).

  And, if you use this function frequently: CtrlC to copy the selection, CtrlV to paste it, creating so a floating selection, adapt the opacity then make Layer/New Layer that pastes the floating selection into the new layer. You can also create a shortcut for the New Layer command to use keys only.

- Another way: Layer Mask Layer mask to add a layer mask to the layer with the selection, initializing it with the selection. Then use a brush with the wanted opacity to paint the selection with black, i-e paint it with transparency. Then Layer/Mask/Apply Layer Mask. See .

Undoing

Almost anything you do to an image in GIMP can be undone. You can undo the most recent action by choosing Edit Undo from the image menu, but this is done so frequently that you really should memorize the keyboard shortcut, Ctrl Z .

Undoing can itself be undone. After having undone an action, you can *redo* it by choosing Edit Redo from the image menu, or use the keyboard shortcut, Ctrl Y . It is often helpful to judge the effect of an action by repeatedly undoing and redoing it. This is usually very quick, and does not consume any extra resources or alter the undo history, so there is never any harm in it.

If you undo one or more actions and then operate on the image in any way except by using Undo or Redo, it will no longer be possible to redo those actions: they are lost forever. The solution to this, if it creates a problem for you, is to duplicate the image and then operate on the copy. (*Not* the original, because the undo/redo history is not copied when you duplicate an image.)

If you often find yourself undoing and redoing many steps at a time, it may be more

convenient to work with the Undo History dialog, a dockable dialog that shows you a small sketch of each point in the Undo History, allowing you to go back or forward to that point by clicking.

Undo is performed on an image-specific basis: the "Undo History" is one of the components of an image. GIMP allocates a certain amount of memory to each image for this purpose. You can customize your Preferences to increase or decrease the amount, using the Environment page of the Preferences dialog. There are two important variables: the *minimal number of undo levels*, which GIMP will maintain regardless of how much memory they consume, and the *maximum undo memory*, beyond which GIMP will begin to delete the oldest items from the Undo History.

Even though the Undo History is a component of an image, it is not saved when you save the image using GIMP's native XCF format, which preserves every other image property. When the image is reopened, it will have an empty Undo History.

The implementation of Undo by GIMP is rather sophisticated. Many operations require very little Undo memory (e.g., changing visibility of a layer), so you can perform long sequences of them before they drop out of the Undo History. Some operations (changing layer visibility is again an example) are *compressed*, so that doing them several times in a row produces only a single point in the Undo History. However, there are other operations that may consume a lot of undo memory. Most filters are examples of this: because they are implemented by plug-ins, the GIMP core has no really efficient way of knowing what they have changed, so it has no way to implement Undo except by memorizing the entire contents of the affected layer before and after the operation. You might only be able to perform a few such operations before they drop out of the Undo History.

Things that cannot be Undone

Most actions that alter an image can be undone. Actions that do not alter the image generally cannot be. This includes operations such as saving the image to a file, duplicating the image, copying part of the image to the clipboard, etc. It also includes most actions that affect the image display without altering the underlying image data. The most important example is zooming. There are, however, exceptions: toggling QuickMask on or off can be undone, even though it does not alter the image data.

There are a few important actions that do alter an image but cannot be undone:

Filters, and other actions performed by plugins or scripts, can be undone just like actions implemented by the GIMP core, but this requires them to make correct use of GIMP's Undo functions. If the code is not correct, a plugin can potentially corrupt the Undo History, so that not only the plugin but also previous actions can no longer properly be undone. The plugins and scripts distributed with GIMP are all believed to be set up correctly, but obviously no guarantees can be given for plugins you obtain from other sources. Also, even if the code is correct, canceling a plugin while it is running can sometimes leave the Undo History corrupted, so it is best to avoid this unless you have accidentally done something whose consequences are going to be very harmful.

Grids and Guides

You will probably have it happen many times that you need to place something in an image very precisely, and find that it is not easy to do using a mouse. Often you can get better results by using the arrow keys on the keyboard (which move the affected object one pixel at a time, or 25 pixels if you hold down the Shift key), but GIMP also provides you with two other aids to make positioning easier: grids and guides.
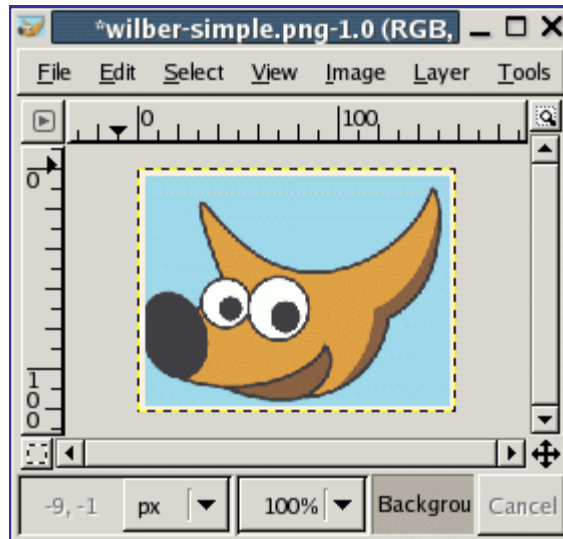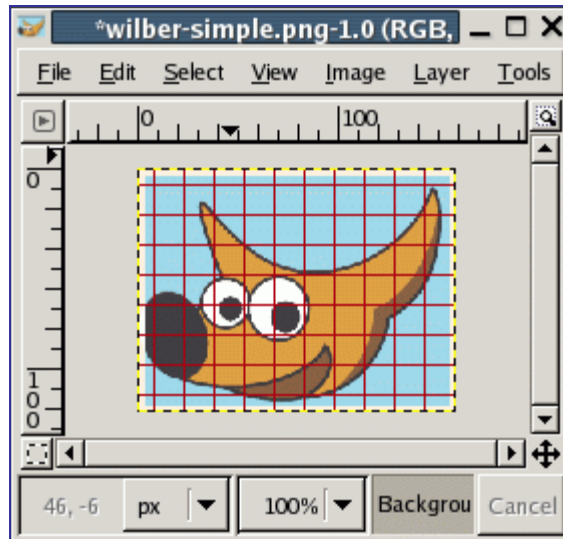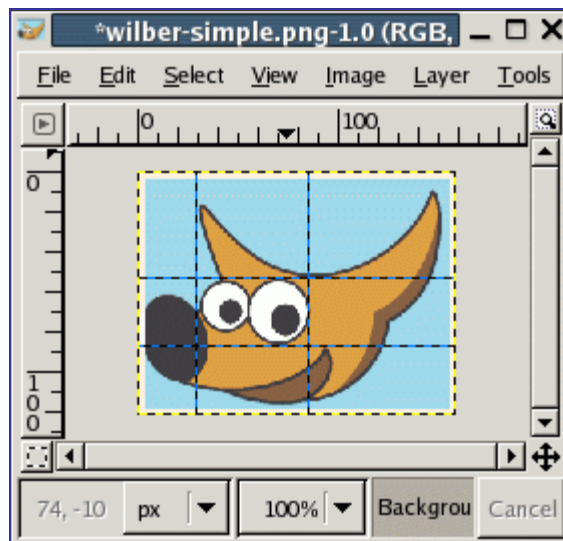
The Image Grid
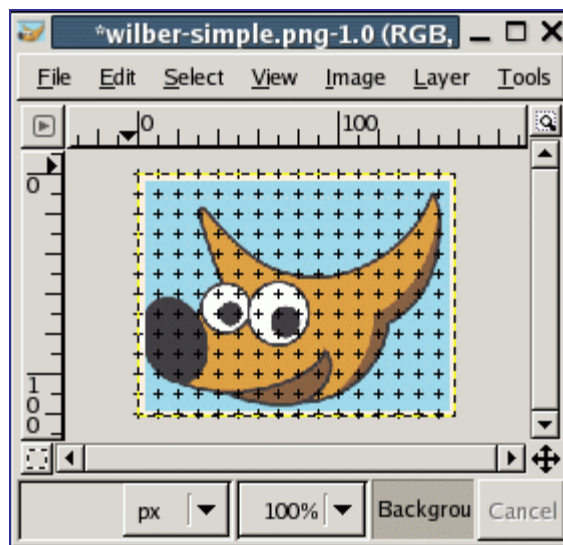
Each image has a grid. It is always present, but by default it is not visible until you activate it by toggling View Show Grid in the image menu. If you want grids to be present more often than not, you can change the default behavior by checking "Show grid" in the Image Window Appearance page of the Preferences dialog. (Note that there are separate settings for Normal Mode and Fullscreen Mode.)

The default grid appearance, set up when you install GIMP, consists of plus-shaped black crosshairs at the grid line intersections, with grid lines spaced every 10 pixels both vertically and horizontally. You can customize the default grid using the Default Image Grid page of the Preferences dialog. If you only want to change the grid appearance for the current image, you can do so by choosing Image Configure Grid from the image menu: this brings up the Configure Grid dialog.

Not only can a grid be helpful for judging distances and spatial relationships, it can also permit you to align things exactly with the grid, if you toggle View Snap to Grid in the image menu: this causes the pointer to "warp" perfectly to any grid line located within a certain distance. You can customize the snap distance threshold by setting "Snap distance" in the Tool Options page of the Preferences dialog, but most people seem to be happy with the default value of 8 pixels. (Note that it is perfectly possible to snap to the grid even if the grid is not visible. It isn't easy to imagine why you might want to do this, though.)

Guides

In addition to the image grid, GIMP also gives you a more flexible type of positioning aid: *guides*. These are horizontal or vertical lines that you create by clicking on one of the rulers and dragging into the image. You can create as many guides as you like, positioned whereever you like. To move a guide after you have created it, activate the Move tool in the Toolbox (or press the M key), you can then click and drag a guide. To delete a guide, simply drag it outside the image. Holding down the Shift key, you can move everything but a guide, using the guides as an effective alignment aid.

As with the grid, you can cause the pointer to snap to nearby guides, by toggling View Snap to Guides in the image menu. If you have a number of guides and they are making it difficult for you to judge the image properly, you can hide them by toggling View Show Guides . It is suggested that you only do this momentarily, otherwise you may get confused the next time you try to create a guide and don't see anything happening.

If it makes things easier for you, you can change the default behavior for guides in the

Image Window Appearance page of the Preferences dialog. Disabling "Show guides" is probably a bad idea, though, for the reason just given.

Another use for guides: the Guillotine plugin can use guides to slice an image into a set of sub-images.

See also Guides in Glossary.

Paths
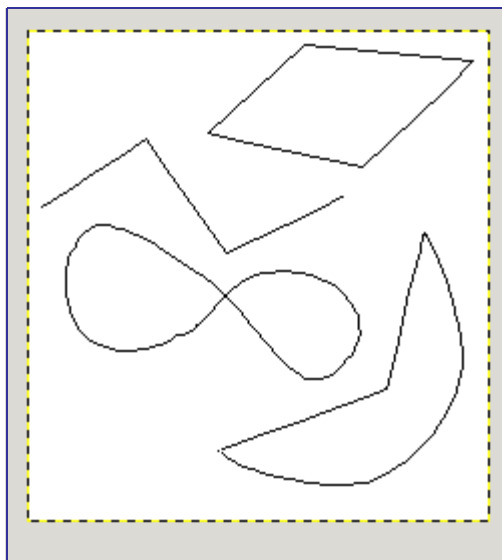
A *path* is a one-dimensional curve. Paths are used for two main purposes:

- A closed path can be converted into a selection.
- An open or closed path can be *stroked*, that is, painted on the image, in a variety of ways.

Paths can be created and manipulated using the Path tool. Paths, like layers and channels, are components of an image. When an image is saved in GIMP's native XCF file format, any paths it has are saved along with it. The list of paths in an image can be viewed and operated on using the Paths dialog. If you want to move a path from one image to another, you can do so by copying and pasting using the popup menu in the Paths dialog, or by dragging an icon from the Paths dialog into the destination image's window.
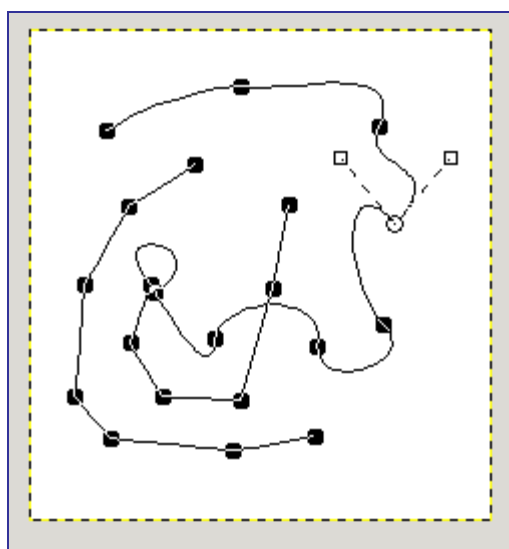
GIMP paths belong to a mathematical type called "*Bezier paths*". What this means in practical terms is that they are defined by *anchors* and *handles*. "*Anchors*" are points the path goes through. "*Handles*" define the direction of a path when it enters or leaves an anchor point: each anchor point has two handles attached to it.

Paths can be very complex. If you create them by hand using the Path tool, unless you are obsessive they probably won't contain more than a few dozen anchor points (often many fewer); but if you create them by transforming a selection into a path, or by transforming text into a path, the result can easily contain hundreds of anchor points, or even thousands.

A path may contain multiple *components*. A "*component*" is a part of a path whose anchor points are all connected to each other by path segments. The ability to have multiple components in paths allows you to convert them into selections having multiple disconnected parts.

Each component of a path can be either *open* or *closed*: "*closed*" means that the last anchor point is connected to the first anchor point. If you transform a path into a selection, any open components are automatically converted into closed components by connecting the last anchor point to the first anchor point with a straight line.

Path segments can be either straight or curved. A path all of whose segments are straight is called "*polygonal*". When you create a path segment, it starts out straight, because the handles for the anchor points are initially placed directly on top of the anchor points, yielding handles of zero length, which produce straight-line segments. You can make a segment curved by dragging a handle away from one of the anchor points.

One nice thing about paths is that they are very light in terms of resource consumption, especially in comparison with images. Representing a path in RAM only requires storing the coordinates of its anchors and handles: 1K of memory is enough to hold quite a complex path, but not enough to hold even a 20x20 pixel RGB layer. Therefore, it is quite possible to have literally hundreds of paths in an image without putting any significant stress of your system. (How much stress managing them would put on *you* is, of course, another question.) Even a path with thousands of segments consumes minimal resources in comparison to a typical layer or channel.

Paths and Selections

GIMP lets you transform the selection for an image into a path; it also lets you transform paths into selections. For information about the selection and how it works, see the Selection section.

When you transform a selection into a path, the path closely follows the "*marching ants*". Now, the selection is a two-dimensional entity, but a path is a one-dimensional entity, so there is no way to transform the selection into a path without losing information. In fact, any information about partially selected areas (i.e., feathering) will be lost when the selection is turned into a path. If the path is transformed back into a selection, the result is an all-or-none selection, similar to what would be obtained by executing "Sharpen" from the Select menu.

Paths and Text

A text item created using the Text tool can be transformed into a path using the Create path from text button in the Tool Options for the Text tool. This can be useful for several purposes, including:

- Stroking the path, which gives you many possibilities for fancy text.
- More importantly, transforming the text. Converting text into a path, then transforming the path, and finally either stroking the path or converting it to a selection and filling it, often leads to much higher-quality results than rendering the text as a layer and transforming the pixel data.

Paths and SVG files

SVG, standing for "*Scalable Vector Graphics*", is an increasingly popular file format for *vector graphics*, in which graphical elements are represented in a resolution-independent format, in contrast to *raster graphics*; in which graphical elements are represented as arrays of pixels. GIMP is mainly a raster graphics program, but paths are vector entities.

Fortunately, paths are represented in SVG files in almost exactly the same way they are represented in GIMP. (Actually fortune has nothing to do with it: GIMP's path handling was rewritten for GIMP 2.0 with SVG paths in mind.) This compatibility makes it possible to store GIMP paths as SVG files without losing any information. You can access this capability in the Paths dialog.

It also means that GIMP can create paths from SVG files saved in other programs, such as Inkscape or Sodipodi, two popular open-source vector graphics applications. This is nice because those programs have much more powerful path-manipulation tools than GIMP does. You can import a path from an SVG file using the Paths dialog.

The SVG format handles many other graphical elements than just paths: among other things, it handles figures such as squares, rectangles, circles, ellipses, regular polygons, etc. GIMP 2.0 cannot do anything with these entities, but GIMP 2.2 can load them as paths.

Creating paths is not the only thing GIMP can do with SVG files. It can also open SVG files as GIMP images, in the usual way.

Brushes
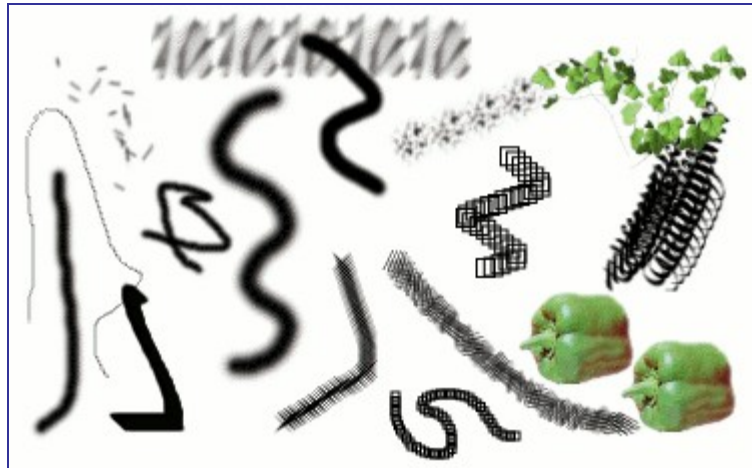
A *brush* is a pixmap or set of pixmaps used for painting. GIMP includes a set of 10 "paint tools", which not only perform operations that you would think of as painting, but also operations such as erasing, copying, smudging, lightening or darkening, etc. All of the paint tools, except the ink tool, use the same set of brushes. The brush pixmaps represent the marks that are made by single "touches" of the brush to the image. A brush stroke, usually made by moving the pointer across the image with the mouse button held down, produces a series of marks spaced along the trajectory, in a way specified by the characteristics of the brush and the paint tool being used.

Brushes can be selected by clicking on an icon in the Brushes dialog. GIMP's *current brush* is shown in the Brush/Pattern/Gradient area of the Toolbox. Clicking on the brush symbol there is one way of activating the Brushes dialog.

When you install GIMP, it comes presupplied with a number of basic brushes, plus a few bizarre ones that serve mainly to give you examples of what is possible (i. e., the "green pepper" brush in the illustration). You can also create new brushes, or download them and install them so that GIMP will recognize them.

GIMP can use several different types of brushes. All of them, however, are used in the same way, and for most purposes you don't need to be aware of the differences when you paint with them. Here are the available types of brushes:

One category that GIMP does not have is full-fledged *procedural* brushes: brushes whose marks are calculated procedurally, instead of being taken from a fixed pixmap. (Actually this is not quite correct: the Ink tool uses a procedural brush, but it is the only one available in GIMP.) A more extensive implementation of procedural brushes is a goal of future development for GIMP.

In addition to the brush pixmap, each GIMP brush has one other important property: the brush *Spacing*. This represents the distance between consecutive brush-marks when a continuous brushstroke is painted. Each brush has an assigned default value for this, which can be modified using the Brushes dialog.

Gradients
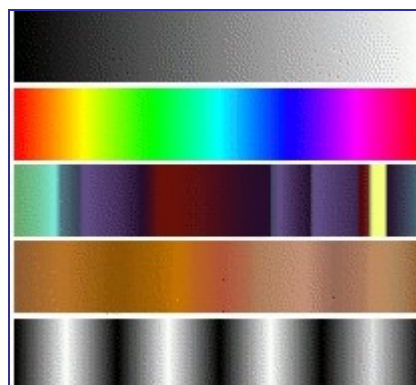
A *gradient* is a set of colors arranged in a linear order. The most basic use of gradients is by the Blend tool, sometimes known as the "*gradient tool*" or "*gradient fill tool*": it works by filling the selection with colors from a gradient. You have many options to choose from for controlling the way the gradient colors are arranged within the selection. There are also other important ways to use gradients, including:

When you install GIMP, it comes presupplied with a large number of interesting gradients, and you can add new ones that you create or download from other sources. You can access the full set of available gradients using the Gradients dialog, a dockable dialog that you can either activate when you need it, or keep around as a tab in a dock. The "*current gradient*", used in most gradient-related operations, is shown in the Brush/Pattern/Gradient area of the Toolbox. Clicking on the gradient symbol in the Toolbox is an alternative way of bringing up the Gradients dialog.
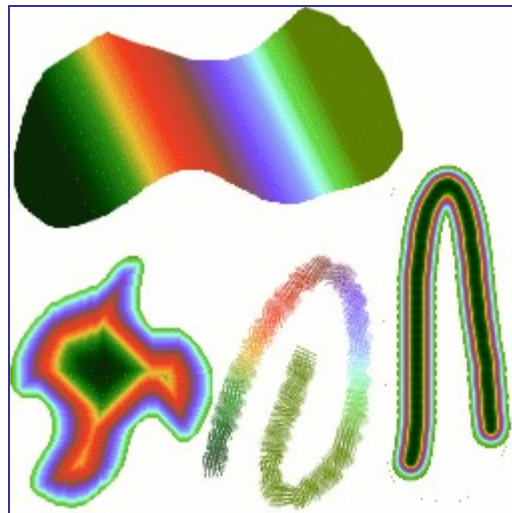
A few useful things to know about GIMP's gradients:

- The first four gradients in the list are special: they use the Foreground and Background colors from the Toolbox Color Area, instead of being fixed. FG to BG (RGB) is the RGB representation of the gradient from the Foreground color to the Background color in Toolbox. FG to BG (HSV counter-clockwise) represents the hue succession in Color Circle from the selected hue to 360°. FG to BG (HSV clockwise represents the hue succession in Color Circle from the selected hue to 0°. With FG to transparent , the selected hue becomes more and more transparent. You can modify these colors by using the Color Selector. Thus, by altering the foreground and background colors, you can make these gradients transition smoothly between any two colors you want.

- Gradients can involve not just color changes, but also changes in opacity. Some of the gradients are completely opaque; others include transparent or translucent parts. When you fill or paint with a non-opaque gradient, the existing contents of the layer will show through behind it.

- You can create new *custom* gradients, using the Gradient Editor. You cannot modify the gradients that are supplied with GIMP, but you can duplicate them or create new ones, and then edit those.

The gradients that are supplied with GIMP are stored in a system `gradients` folder. By default, gradients that you create are stored in a folder called `gradients` in your personal GIMP directory. Any gradient files (ending with the extension `.ggr`) found in one of these folders, will automatically be loaded when you start GIMP. You can add more directories to the gradient search path, if you want to, in the Gradients tab of the Data Folders pages of the Preferences dialog.

New in GIMP 2.2 is the ability to load gradient files in SVG format, used by many vector graphics programs. To make GIMP load an SVG gradient file, all you need to do is place it in the `gradients` folder of your personal GIMP directory, or any other folder in your gradient search path.

You can find a large number of interesting SVG gradients on the web, in particular at OpenClipArt Gradients . You won't be able to see what these gradients look like unless your browser supports SVG, but that won't prevent you from downloading them.

Patterns

A *pattern* is an image, usually small, used for filling regions by *tiling*, that is, by placing copies of the pattern side by side like ceramic tiles. A pattern is said to be *tileable* if copies of it can be adjoined left-edge-to-right-edge and top-edge-to-bottom-edge without creating obvious seams. Not all useful patterns are tileable, but tileable patterns are nicest for many purposes. (A *texture*, by the way, is the same thing as a pattern.)

In GIMP there are three main uses for patterns:

- With the Bucket Fill tool, you can choose to fill a region with a pattern instead of a solid color.
- With the Clone tool, you can paint using a pattern, with a wide variety of paintbrush shapes.
- When you *stroke* a path or selection, you can do it with a pattern instead of a solid color. You can also use the Clone tool as your choice if you stroke the selection using a painting tool.

Note: Patterns do not need to be opaque. If you fill or paint using a pattern with translucent or transparent areas, then the previous contents of the area will show through from behind it. This is one of many ways of doing "*overlays*" in GIMP.

When you install GIMP, it comes presupplied with a few dozen patterns, which seem to have been chosen more or less randomly. You can also add new patterns, either ones you create yourself, or ones you download from the vast number available online.

GIMP's *current pattern*, used in most pattern-related operations, is shown in the Brush/Pattern/Gradient area of the Toolbox. Clicking on the pattern symbol brings up the Patterns dialog, which allows you to select a different pattern. You can also access the Patterns dialog by menu, or dock it so that it is present continuously.

To add a new pattern to the collection, so that it shows up in the Patterns dialog, you need to save it in a format GIMP can use, in a folder included in GIMP's pattern search path. There are several file formats you can use for patterns:

To make a pattern available, you place it in one of the folders in GIMP's pattern search path. By default, the pattern search path includes two folders, the system `patterns`

folder, which you should not use or alter, and the `patterns` folder inside your personal GIMP directory. You can add new folders to the pattern search path using the Pattern Folders page of the Preferences dialog. Any PAT file (or, in GIMP 2.2, any of the other acceptable formats) included in a folder in the pattern search path will show up in the Patterns dialog the next time you start GIMP.

There are countless ways of creating interesting patterns in GIMP, using the wide variety of available tools and filters -- particularly the rendering filters. You can find tutorials for this in many locations, including the Gimp home page. Some of the filters have options that allow you to make their results tileable. Also, the Tileable Blur filter allows you to blend the edges of an image in order to make it more smoothly tileable.
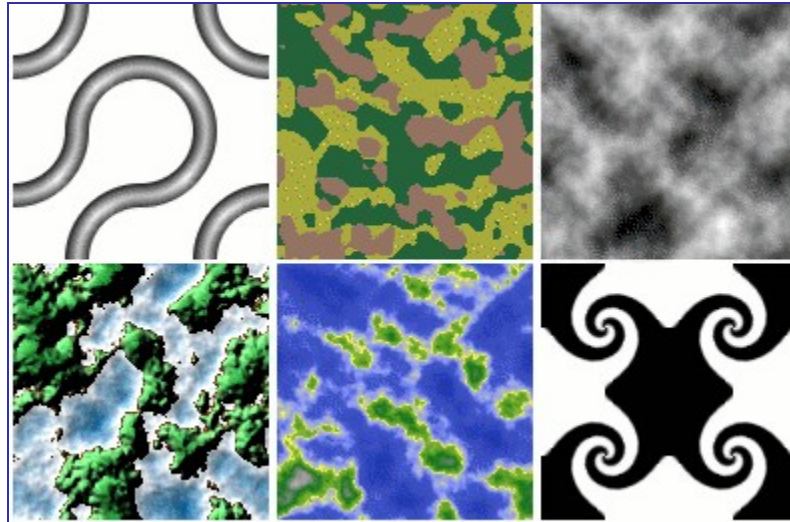
Also of interest are a set of pattern-generating scripts that come with GIMP: you can find them in the Toolbox menu, under Xtns Script-Fu Patterns . Each of the scripts creates a new image filled with a particular type of pattern: a dialog pops up that allows you to set parameters controlling the details of the appearance. Some of these patterns are most useful for cutting and pasting; others serve best as bumpmaps.

Palettes

A *palette* is a set of discrete colors. In GIMP, palettes are used mainly for two purposes:

- They allow you to paint with a selected set of colors, in the same way an oil painter works with colors from a limited number of tubes.
- They form the colormaps of indexed images. An indexed image can use a maximum of 256 different colors, but these can be any colors. The colormap of an indexed image is called an "indexed palette" in GIMP.

Actually neither of these functions fall very much into the mainstream of GIMP usage: it is possible to do rather sophisticated things in GIMP without ever dealing with palettes. Still, they are something that an advanced user should understand, and even a less advanced user may need to think about them in some situations, as for example when working with GIF files.
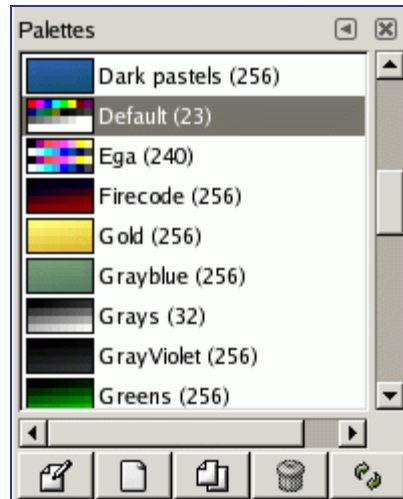
When you install GIMP, it comes supplied with several dozen predefined palettes, and you can also create new ones. Some of the predefined palettes are commonly useful, such as the "*Web*" palette, which contains the set of colors considered "*web safe*"; many of the palettes seem to have been chosen more or less whimsically. You can access all of the available palettes using the Palettes dialog. This is also the starting point if you want to create a new palette.
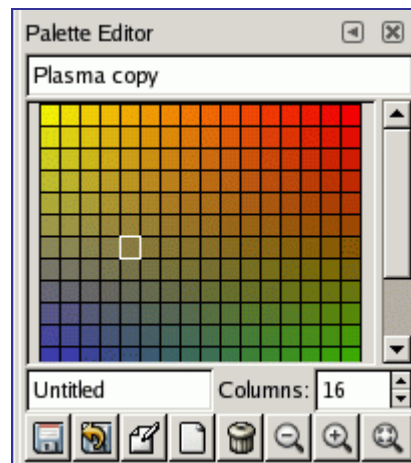
Double-clicking on a palette in the Palettes dialog brings up the Palette Editor, showing the colors from the palette you clicked on. You can use this to paint with the palette: clicking on a color sets GIMP's foreground to that color, as shown in the Color Area of the Toolbox. Holding down the Ctrl key while clicking, on the other hand, sets GIMP's background color to the color you click on.

You can also, as the name implies, use the Palette Editor to change the colors in a palette, so long as it is a palette that you have created yourself. You cannot edit the palettes that are supplied with GIMP; however you can duplicate them and then edit the copies.

When you create palettes using the Palette Editor, they are automatically saved as soon as you exit GIMP, in the `palettes` folder of your personal GIMP directory. Any palette files in this directory, or in the system `palettes` directory created when GIMP is installed, are automatically loaded and shown in the Palettes dialog the next time you start GIMP. You can also add other folders to the palette search path using the Palette Folders page of the Preferences dialog.

GIMP palettes are stored using a special file format, in files with the extension `.gpl`. It is a very simple format, and they are ASCII files, so if you happen to obtain palettes from another source, and would like to use them in GIMP, it probably won't be very hard to convert them: just take a look at any `.gpl` and you will see what to do.

Colormap

Confusingly, GIMP makes use of two types of palettes. The more noticeable are the type shown in the Palettes dialog: palettes that exist independently of any image. The second type, *indexed palettes*, form the colormaps of indexed images. Each indexed image has its own private indexed palette, defining the set of colors available in the image: the maximum number of colors allowed in an indexed palette is 256. These palettes are called "*indexed*" because each color is associated with an index number. (Actually, the colors in ordinary palettes are numbered as well, but the numbers have no functional significance.)

The colormap of an indexed image is shown in the Indexed Palette dialog , which should not be confused with the Palettes dialog. The Palettes dialog shows a list of all of the palettes available; the Colormap dialog shows the colormap of the currently active image, if it is an indexed image - otherwise it shows nothing.

You can, however, create an ordinary palette from the colors in an indexed image--- actually from the colors in any image. To do this, choose Import Palette from the right- click popup menu in the Palettes dialog: this pops up a dialog that gives you several options, including the option to import the palette from an image. (You can also import any of GIMP's gradients as a palette.) This possibility becomes important if you want to create a set of indexed images that all use the same set of colors.

When you convert an image into indexed mode, a major part of the process is the creation of an indexed palette for the image. How this happens is described in detail in . Briefly, you have several methods to choose from, one of which is to use a specified palette from the Palettes dialog.

Thus, to sum up the foregoing, ordinary palettes can be turned into indexed palettes when you convert an image into indexed mode; indexed palettes can be turned into ordinary palettes by importing them into the Palettes dialog.

Text and Fonts

One of the greatest improvements of GIMP 2.0 over GIMP 1.2 is in the handling of text. In GIMP 2.0 and 2.2, each text item goes in a separate Text layer, and you can come back later to the layer and edit the text in it. You can also move the text around in the image, or change the font, or the font size. You can use any font available on your system. You can control justification, indentation, and line spacing.

Actually, you can operate on a text layer in the same ways as any other layer, but doing so often means giving up the ability to edit the text without losing the results of your
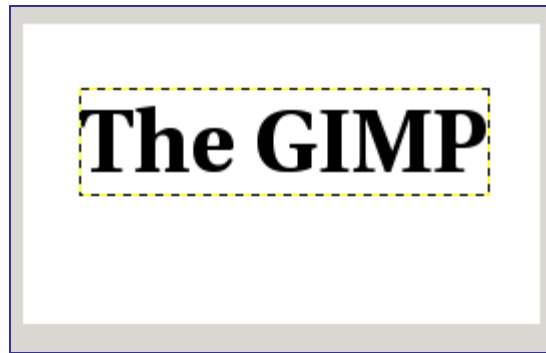
work.
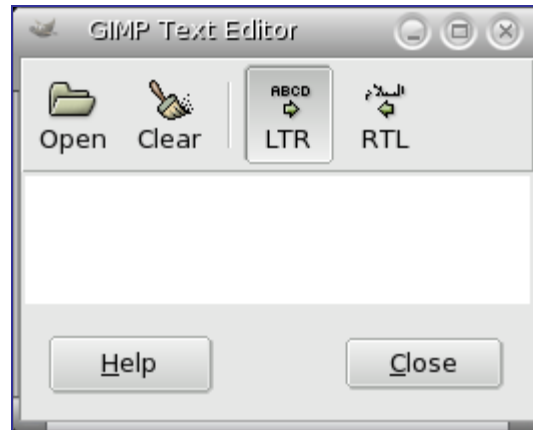
To understand some of the idiosyncrasies of text handling, it may help for you to realize that a text layer contains more information than the pixel data that you see: it also contains a representation of the text in a text-editor format. You can see this in the text-editor window that pops up while you are using the Text tool. Every time you alter the text, the image layer is redrawn to reflect your changes.

Now suppose you create a text layer, and then operate on it in some way that does not involve the Text tool: rotate it, for example. Suppose you then come back and try to edit it using the Text tool. As soon as you edit the text, the Text tool will redraw the layer, wiping out the results of the operations you performed in the meantime.

Because this danger is not obvious, the Text tool tries to protect you from it. If you operate on a text layer, and then later try to edit the text, a message pops up, warning you that your alterations will be undone, and giving you three options: (1) edit the text anyway; (2) cancel; (3) create a new text layer with the same text as the existing layer, leaving the existing layer unchanged.

Chapter

Getting Unstuck

revhistory:

Stuck!

All right, okay: you're stuck. You're trying to use one of the tools on an image, and nothing is happening, and nothing you try makes any difference. Your fists are starting to clench, and your face is starting to feel warm. Are you going to have to kill the program, and lose all your work? This sucks!

Well, hold on a second. This happens pretty frequently, even to people who've used the GIMP for a long time, but generally the cause is not so hard to figure out (and fix) if you know what to look at. Lets be calm, and go through a checklist that will probably get you GIMPing happily again.

Common causes of GIMP non-responsiveness

Chapter

Concepts for the Intermediate

Plugins

Introduction

One of the nicest things about GIMP is how easily its functionality can be extended, by using plugins. GIMP plugins are external programs that run under the control of the main GIMP application and interact with it very closely. Plugins can manipulate images in almost any way that users can. Their advantage is that it is much easier to add a capability to GIMP by writing a small plugin than by modifying the huge mass of complex code that makes up the GIMP core. Many valuable plugins have C source code that only comes to 100-200 lines or so.

Several dozen plugins are included in the main GIMP distribution, and installed automatically along with GIMP. Most of them can be accessed through the Filters menu (in fact, everything in that menu is a plugin), but a number are located in other menus. In many cases you can use one without ever realizing that it is a plugin: for example, the "Normalize" function for automatic color correction is actually a plugin, although there is nothing about the way it works that would tell you this.

In addition to the plugins included with GIMP, many more are available on the net. A large number can be found at the GIMP Plugin Registry, a web site whose purpose is to provide a central repository for plugins. Creators of plugins can upload them there; users in search of plugins for a specific purpose can search the site in a variety of ways.

Anybody in the world can write a GIMP plugin and make it available over the web, either via the Registry or a personal web site, and many very valuable plugins can be obtained in this way some are described elsewhere in the User's Manual. With this freedom from constraint comes a certain degree of risk, though: the fact that anybody can do it means that there is no effective quality control. The plugins distributed with GIMP have all been tested and tuned by the developers, but many that you can download were just hacked together in a few hours and then tossed to the winds. Some plugin creators just don't care about robustness, and even for those who do, their ability to test on a variety of systems in a variety of situations is often quite limited. Basically, when you download a plugin, you are getting something for free, and sometimes you get exactly what you pay for. This is not said in an attempt to discourage you, just to make sure you understand reality.

Plugins, being full-fledged executable programs, can do any of the things that any other program can do, including install back-doors on your system or otherwise compromise its security. Don't install a plugin unless it comes from a trusted source.

These caveats apply as much to the Plugin Registry as to any other source of plugins. The Registry is available to any plugin creator who wants to use it: there is no systematic oversight. Obviously if the maintainers became aware that something evil was there, they would remove it. (That hasn't happened yet.) There is, however, for GIMP and its plugins the same warranty as for any other free software: namely, none.

Plugins have been a feature of GIMP for many versions. However, plugins written for one version of GIMP can hardly ever be used successfully with other versions. They need to be ported: sometimes this is easy, sometimes not. Many plugins are already available in several versions. Bottom line: before trying to install a plugin, make sure that it is written for your version of GIMP.

Using Plugins

For the most part you can use a plugin like any other GIMP tool, without needing to be aware that it is a plugin. But there are a few things about plugins that are useful to understand.

One is that plugins are generally not as robust as the GIMP core. When GIMP crashes, it is considered a very serious thing: it can cost the user a lot of trouble and headache. When a plugin crashes, the consequences are usually not so serious. In most cases you can just continuing working without worrying about it.

Because plugins are separate programs, they communicate with the GIMP core in a special way: The GIMP developers call it "*talking over a wire*". When a plugin crashes, the communication breaks down, and you will see an error message about a "*wire read error*".

When a plugin crashes, GIMP gives you a very ominous-looking message telling you that the plugin may have left GIMP in a corrupted state, and you should consider saving your images and exiting. Strictly speaking, this is quite correct, because plugins have the power to alter almost anything in GIMP, but for practical purposes, experience has shown that corruption is actually quite rare, and many users just continue working and don't worry about it. Our advice is that you simply think about how much trouble it would cause you if something went wrong, and weigh it against the odds.

Because of the way plugins communicate with GIMP, they do not have any mechanism for being informed about changes you make to an image after the plugin has been started. If you start a plugin, and then alter the image using some other tool, the plugin will often crash, and when it doesn't will usually give a bogus result. You should avoid running more than one plugin at a time on an image, and avoid doing anything to the image until the plugin has finished working on it. If you ignore this advice, not only will you probably screw up the image, you will probably screw up the undo system as well, so that you won't even be able to recover from your foolishness.

Installing New Plugins

The plugins that are distributed with GIMP don't require any special installation. Plugins that you download yourself do. There are several scenarios, depending on what OS you are using and how the plugin is structured. In Linux it is usually pretty easy to install a new plugin; in Windows, it is either easy or very hard. In any case, the two are best considered separately.

Linux

Most plugins fall into two categories: small ones whose source code is distributed as a single .c file, and larger ones whose source code is distributed as a directory containing multiple files including a `Makefile`.

For a simple one-file plugin, call it `borker.c`, installing it is just a matter of running the command gimptool-2.0 --install borker.c. This command compiles the plugin and installs it in your personal plugin directory, `~/gimp-2.2/plugins` unless you have changed it. This will cause it to be loaded automatically the next time you start GIMP. You don't need to be root to do these things; in fact, you shouldn't be. If the plugin fails to compile, well, be creative.

Once you have installed the plugin, how do you activate it? The menu path is determined by the plugin itself, so to answer this you need to either look at the documentation for the plugin (if there is any), or launch the Plugin Description dialog (from Xtns/Plugins Details) search the plug-in by its name and look ot the Tree view tab. If you still don't find, finally explore the menus or look at the source code in the Register section -- whichever is easiest.

For more complex plugins, organized as a directory with multiple files, there ought to be a file inside called either `INSTALL` or `README`, with instructions. If not, the best advice is to toss the plugin in the trash and spend your time on something else: any code written with so little concern for the user is likely to be frustrating in myriad ways.

Some plugins (specifically those based on the GIMP Plugin Template) are designed to be

installed in the main system GIMP directory, rather than your home directory. For these, you will need to be root to perform the final stage of installation (when issuing the make install command).

If you install in your personal plugin directory a plugin that has the same name as one in the system plugin directory, only one can be loaded, and it will be the one in your home directory. You will receive messages telling you this each time you start GIMP. This is probably a situation best avoided.

Windows

Windows is a much more problematic environment for building software than Linux. Every decent Linux distribution comes fully supplied with tools for compiling software, and they are all very similar in the way they work, but Windows does not come with such tools. It is possible to set up a good software-building environment in Windows, but it requires either a substantial amount of money or a substantial amount of effort and knowledge.

What this means in relation to GIMP plugins is the following: either you have an environment in which you can build software, or you don't. If you don't, then your best hope is to find a precompiled version of the plugin somewhere (or persuade somebody to compile it for you), in which case you simply need to put it into your personal plugin directory. If you do have an environment in which you can build software (which for present purposes means an environment in which you can build GIMP), then you no doubt already know quite a bit about these things, and just need to follow the Linux instructions.

If you would like to set up a build environment, and are ready for the heroism involved, you can find a reasonably recent description of how to go about it in the GIMP Wiki, at HowToCompileGimp/MicrosoftWindows . Since it is a Wiki, anybody is free to edit it, so please keep it up to date by adding advice based on your own experiences.

Macintosh

We could use some material here.

Writing Plugins

If you want to learn how to write a plugin, you can find plenty of help at the GIMP Developers web site, developer.gimp.org. GIMP is a complex program, but the development team has made strenuous efforts to flatten the learning curve for plugin writing: there are good instructions and examples, and the main library that plugins use to interface with GIMP (called "*libgimp*") has a well-documented API. Good programmers, learning by modifying existing plugins, are often able to accomplish interesting things after just a couple of days of work.

Using Script-Fu Scripts

Script-Fu is what the Windows world would call "macros" But Script-Fu is more powerful than that. Script-Fu is based on an interpreting language called Scheme, and works by using querying functions to the Gimp database. You can do all kinds of things with Script-Fu, but an ordinary Gimp user will probably use it for automating things that:

- You want to do frequently.

- Are really complicated to do, and hard to remember.

Remember that you can do a whole lot with Script-Fu. The scripts that come with Gimp can be quite useful, but they can also serve as models for learning Script-Fu, or at least as a framework and source of modification when you make your own script. Read the Script-Fu Tutorial in the next section if you want to learn more about how to make scripts.

We will describe some of the most useful scripts in this chapter, but we won't cover them all. There are simply too many scripts. Some of the scripts are also very simple and you will probably not need any documentation to be able to use them.

Script-Fu (a dialect of Scheme) isn't the only scripting language available for Gimp. But Script-Fu is the only scripting language that is installed by default. Other available scripting extensions are Perl and Tcl. You can download and install both extensions at the Gimp Plugin Registry.

One of the great things about Script-Fu is that you can share your script with all your Gimp friends. There are many scripts that come with Gimp by default, but there are also vast quantities of scripts that are available for download all around the Internet.

If you have downloaded a script, copy or move it to your scripts directory. It can be found in the Preferences: Folders Scripts .

Do a refresh by using Exts Script-Fu Refresh Scripts from the toolbox. The script will now appear in one of your menus. If you don't find it, look for it under the root file menu filters. If it doesn't appear at all, something was wrong with the script (e.g. it contains syntax errors).

A common error when you are dealing with Script-Fus is that you simply bring them up and press the OK button. When nothing happens, you probably think that the script is broken or buggy, but there is most likely nothing wrong with it.

Think again. Did you really read the information in the dialog, or did you just press the button? If you forgot an input the script needs, or if you gave it the wrong input, the script will fail. One of the most common errors is that the font specified in the script dialog hasn't been installed on your system. So please check the information in the dialog before blaming the script.

There are two kinds of Script-Fus -- standalone scripts and image-dependent scripts. You will find the standalone variants under Xtns Script-Fu Type of Script in the main toolbox menu, and the image-dependent scripts are placed under Script-Fu Type of Script in the image menu.

We will not try to describe every script in depth. Most Script-Fus are very easy to understand and use. At the time of this writing, the following types are installed by default:

- Patterns

- Web page themes

- Logos

- Buttons

- Utils

- Make Brush
- Misc.

These are scripts that perform operations on an existing image. In many ways they are like the plug-ins in the Filters menu. The following script groups are installed by default:

- Alchemy
- Alpha to logo
- Animators
- Decor
- Render
- Selection
- Shadow
- Stencil Ops
- Utils

Chapter

Using GIMP as a Beginner

Files

The GIMP is capable of reading and writing a large variety of graphics file formats. With the exception of GIMP's native XCF file type, file handling is done by plug-ins. Thus, it is relatively easy to extend GIMP to new file types when the need arises.

Not all file types are equally good for all purposes. This part of the documentation should help you understand the advantages and disadvantages of each type.

Creating new Files

You can create new files in GIMP by using the following menuitem: File New . This opens the Create a new image dialog, where you can modify the initial width and height of the file or using the standard values. More information about this dialog can be found in .

Opening Files

There are several ways of opening an existing image in GIMP:

- **Open File**

  The most obvious is to open it using a menu, by choosing File Open from either the Toolbox menu or an image menu. This brings up a File Chooser dialog, allowing you to navigate to the file and click on its name. This method works well if you know the name of the file you want to open, and where it is located. It is not so convenient if you want to find the file on the basis of a thumbnail.
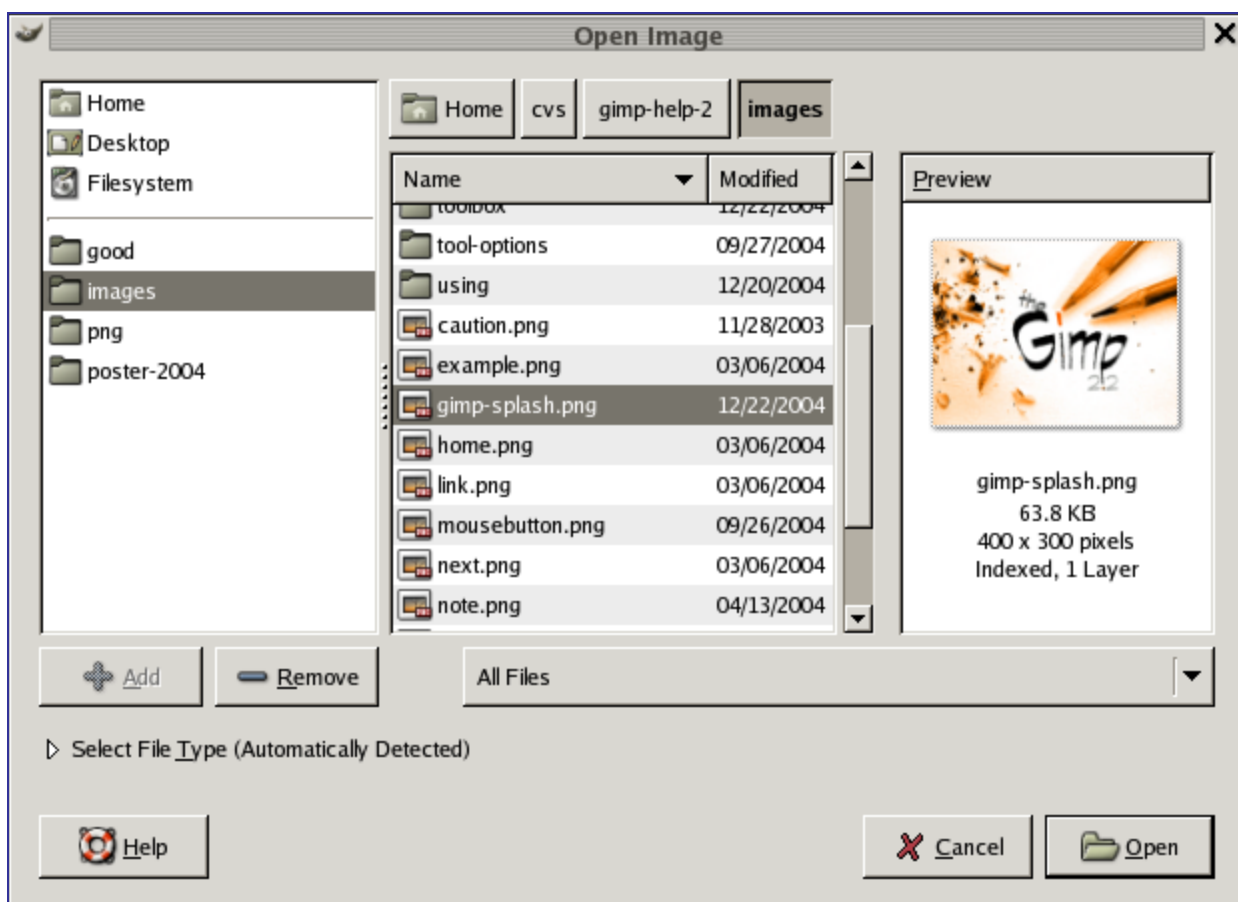
  GIMP 2.2 introduced a new File Chooser that provides several features to help you navigate quickly to the file you are looking for. Perhaps the most important is the ability to create "*bookmarks*" for folders that you use often. Your list of bookmarks

appears on the left side of the dialog. The ones at the top ("*Home*", "*Desktop*", etc) come automatically; the others you create using the "*Add*" button at the bottom of the list. Double-clicking on a bookmark takes you straight to that directory.

At the center of the dialog appears a listing of the contents of the selected directory. Subdirectories are shown at the top of the list, files below them. By default all files in the directory are listed, but you can restrict the listing to image files of a specific type using the File Type selection menu that appears beneath the directory listing.

When you click on a file entry in the listing, if it is an image file, a preview will appear on the right side of the dialog, along with some basic information about the properties of the image. Note that previews are cached when they are generated, and there are some things you can do that may cause a preview to be incorrect. If you suspect that this may be happening, you can force a new preview to be generated by holding down the Ctrl key and clicking in the Preview area.

One thing that strikes many people when they first see the File Open dialog is that there is no way to enter the name of the file using the keyboard. Actually this can be done, but the feature is a bit hidden: if you type CtrlL with the dialog focused, an "Open Location" dialog pops up, with a space to type the file name. This dialog is described in more detail below.

In the great majority of cases, if you select a file name from the list, and click the "*Open*" button in the lower right corner or the dialog, GIMP will automatically determine the file type for you. On rare occasions, mainly if the file type is unusual and the name lacks a meaningful extension, this may fail. If this happens, you can tell GIMP specifically what type of file it is by expanding the "*Select File Typ*" option at the bottom of the dialog, and choosing an entry from the list that appears. More commonly, though, if GIMP fails to open an image file, it is either corrupt or not in a supported format.

- **Open Location**

  If instead of a file name, you have a URI (i.e., a web address) for the image, you can open it using the menu, by choosing File Open Location from either the Toolbox menu or an image menu. This brings up a small dialog that allows you to enter (or paste) the URI.
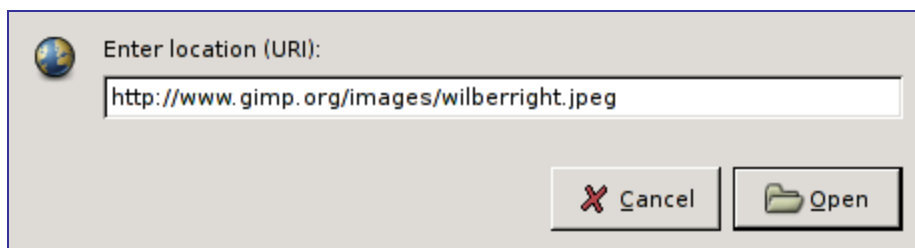
- **Open Recent**

  If the image is one that you previously created using GIMP, perhaps the easiest way to open it is from the menu, using File Open Recent . This gives you a scrollable list of the images you have most recently worked on in, with icons beside them. You need only select the one you want, and it will be opened.

- **File Browser**

  If you have associated the file type of the image with GIMP, either when you installed GIMP or later, then you can navigate to the file using a file manager (such as Nautilus in Linux, or Windows Explorer in Windows), and once you have found it, double-click on the icon. If things are set up properly, this will cause the image to open in GIMP.

- **Drag and Drop**

Alternatively, once you have found the file, you can click on its icon and drag it into the GIMP Toolbox. (If instead you drag it into an existing GIMP image, it will be added to that image as a new layer or set of layers.)

For many applications, you can click on a displayed image (a full image, not just a thumbnail) and drag it into the GIMP toolbox.

- **Copy and Paste**

  For some applications, if the application gives you a way of copying the image to the clipboard, you can then open the image in GIMP by choosing File Acquire Paste as New from the Toolbox menu. Support for this is somewhat variable, however, so your best bet is to try it and see whether it works.

- **Image Browser**

  In Linux, you might want to take a look at a program called gthumb, an image-management application that in several ways nicely complements GIMP. In gthumb, you can cause an image to open in GIMP either by right-clicking on the icon and selecting GIMP from among the list of options, or by dragging the icon into the GIMP Toolbox. See the gthumb home page for more information. Other similar applications : gqview, xnview

When you open a file, using the File menu or any other method, GIMP needs to determine what type of file it is. Unless there is no alternative, GIMP does not simply rely on the extension (such as ".jpg") to determine the file type, because extensions are not reliable: they vary from system to system; any file can be renamed to have any extension; and there are many reasons why a file name might lack an extension. Instead, GIMP first tries to recognize a file by examining its contents: most of the commonly used graphics file formats have "magic headers" that permit them to be recognized. Only if the magic yields no result does GIMP resort to using the extension.

Saving Files

There are several commands for saving images. A list, and information on how to use them, can be found in the section covering the File menu.

GIMP allows you to save the images you create in a wide variety of formats. It is important to realize that the only format capable of saving *all* of the information in an image, including layers, transparency, etc., is GIMP's native XCF format. Every other format preserves some image properties and loses others. When you save an image, GIMP tries to let you know about this, but basically it is up to you to understand the capabilities of the format you choose.

As stated above, there is no file format, with the exception of GIMP's native XCF format, that is capable of storing all the data in a GIMP image. When you ask to save an image in a format that will not completely represent it, GIMP notifies you of this, tells you what kind of information will be lost, and asks you whether you would like to "export" the image in a

form that the file type can handle. Exporting an image does not modify the image itself, so you do not lose anything by doing this.

When you close an image (possibly by quitting GIMP), you are warned if the image is "dirty"; that is, if it has been changed without subsequently being saved. Saving an image in any file format will cause the image to be considered "not dirty", even if the file format does not represent all of the information from the image.

Drawing Simple Objects

In this section, you will learn how to create simple objects in Gimp. It's pretty easy once you figure out how to do it. Gimp provides a huge set of Tools and Shortcuts which most new users get lost in.

Drawing a Straight Line

Let's begin by painting a straight line. The easiest way to create a straight line is by using your favorite painting tool, the mouse and the keyboard.
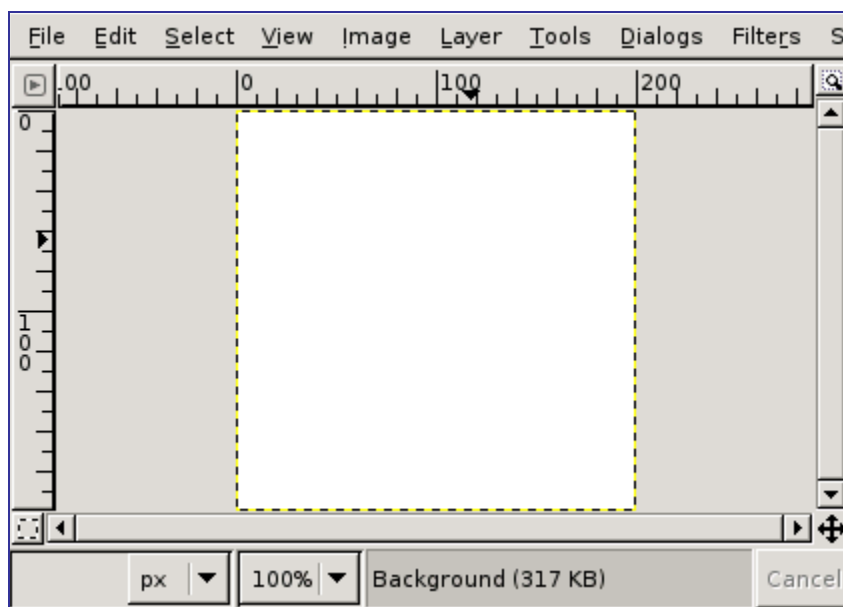
Create a new image. Select your favorite painting tool or use the pencil, if in doubt. Select a foreground color, but be sure that the foreground and background colors are different.
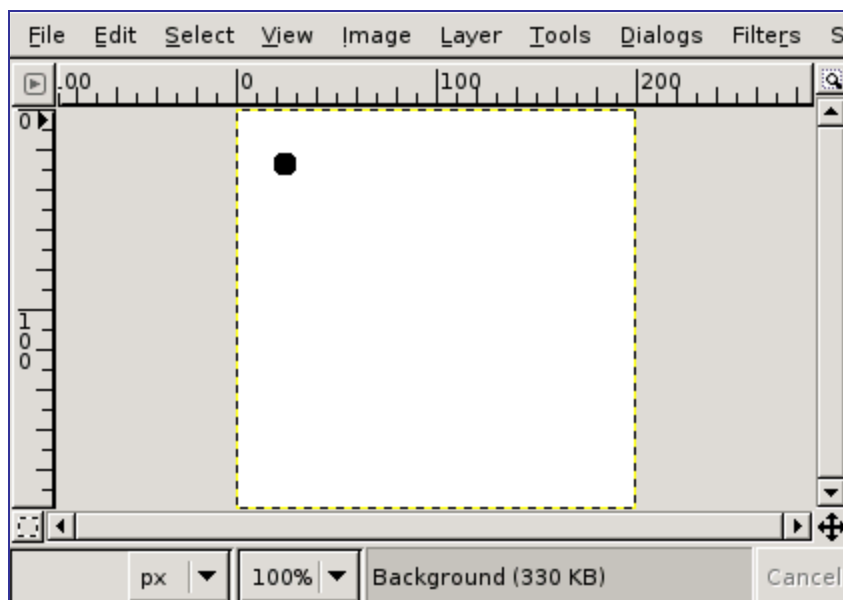
Create a starting point by clicking on the image display area with the left mouse button. Your canvas should look similar to .
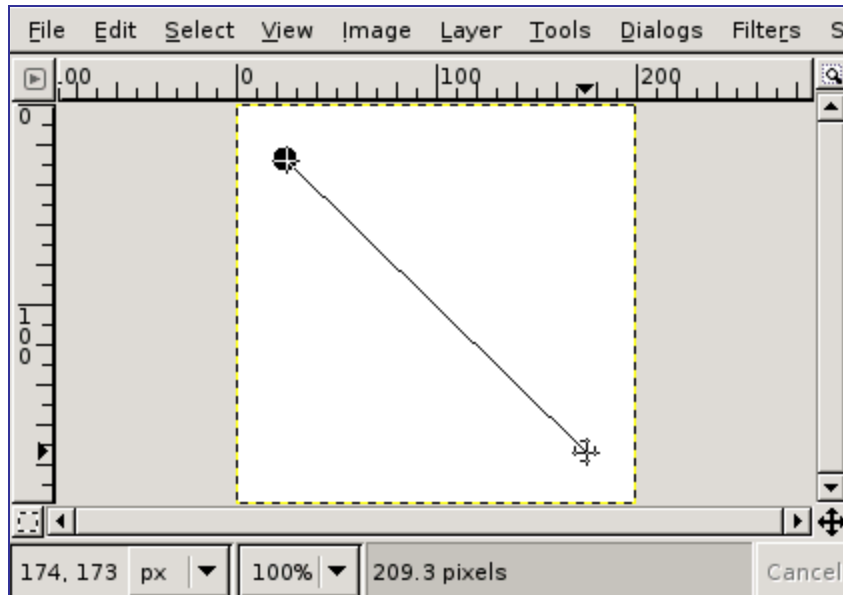
Now, hold down the Shift button on your keyboard and move the mouse away from the starting point you created. You'll see a thin line indicating how the line will look.
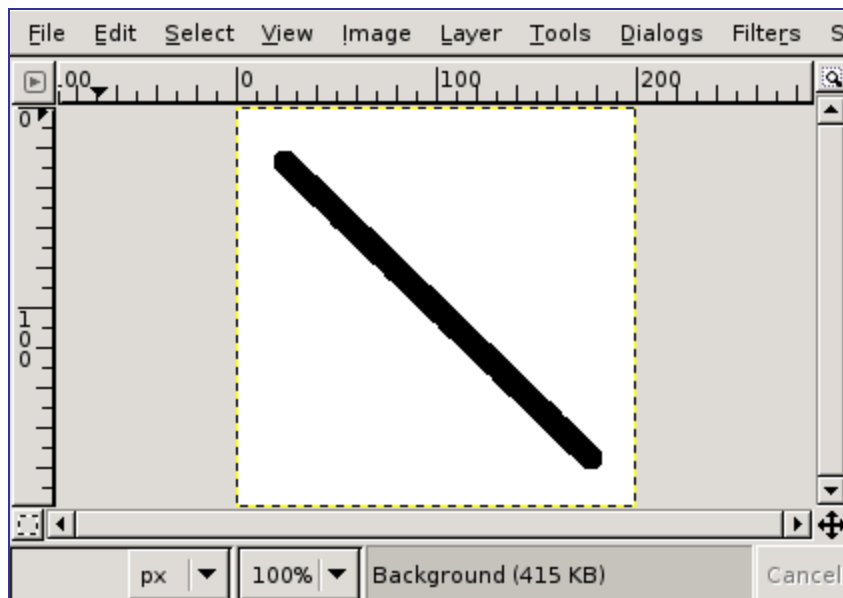
If you're satisfied with the direction and length of the line, click the left mouse button again to finish the line. The Gimp displays a straight line now. If the line doesn't appear, check the foreground and background colors and be sure that you kept the Shift key pressed while painting. You can keep creating lines by continuing to hold the Shift key and creating additional end points.

Creating a Basic Shape

Drawing shapes is not the main purpose for using GIMP. However, you may create shapes by either painting them using the technique described in or by using the selection tools. Of course, there are various other ways to paint a shape, but we'll stick to the easiest ones here. So, create a new image and check that the foreground and background colors are different.
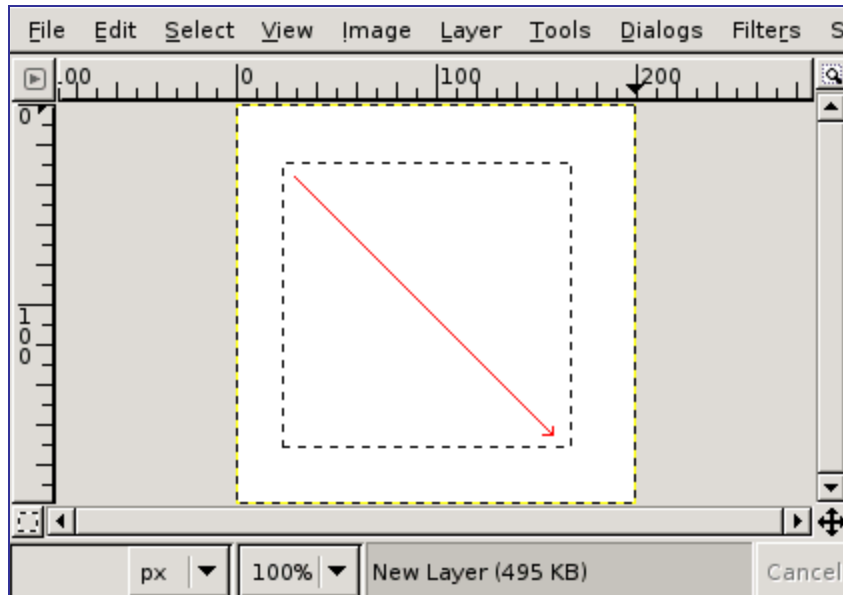
Basic shapes like rectangles, triangles or ellipses, can be created using the selection tools. This tutorial uses a rectangular selection as an example. So, choose the rectangular selection tool and create a new selection: press and hold the left mouse button while you move the mouse to another position in the image (illustrated in figure). The selection is created when you release the mouse button. For more information about key modifiers see selection tools.
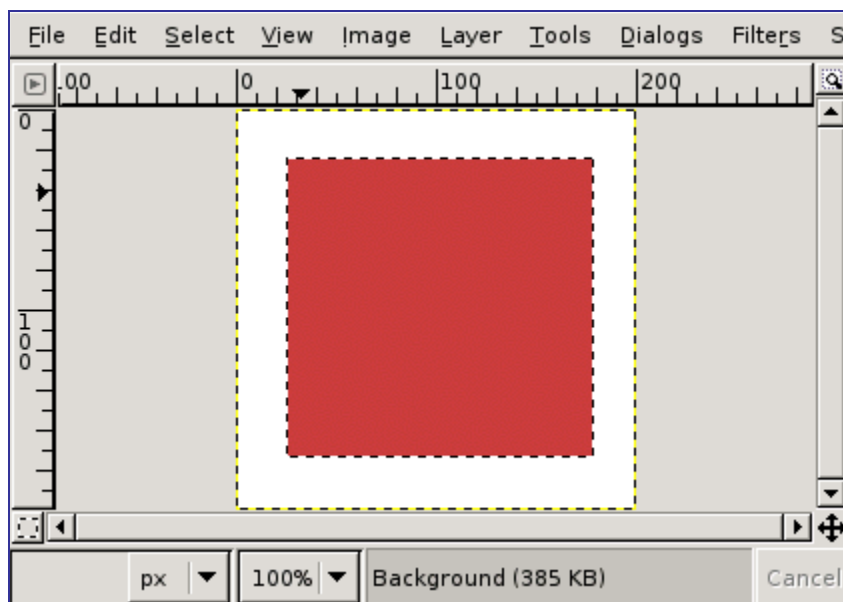
After creating the selection, you can either create a filled or an outlined shape with the foreground color of your choice. If you go for the first option, choose a foreground color and fill the selection with the bucket fill tool. If you choose the latter option, create an outline by using theStroke selection menu item from the Edit menu. If you're satisfied with the result, remove the selection.

Creating and Using Selections

Moving a Selection
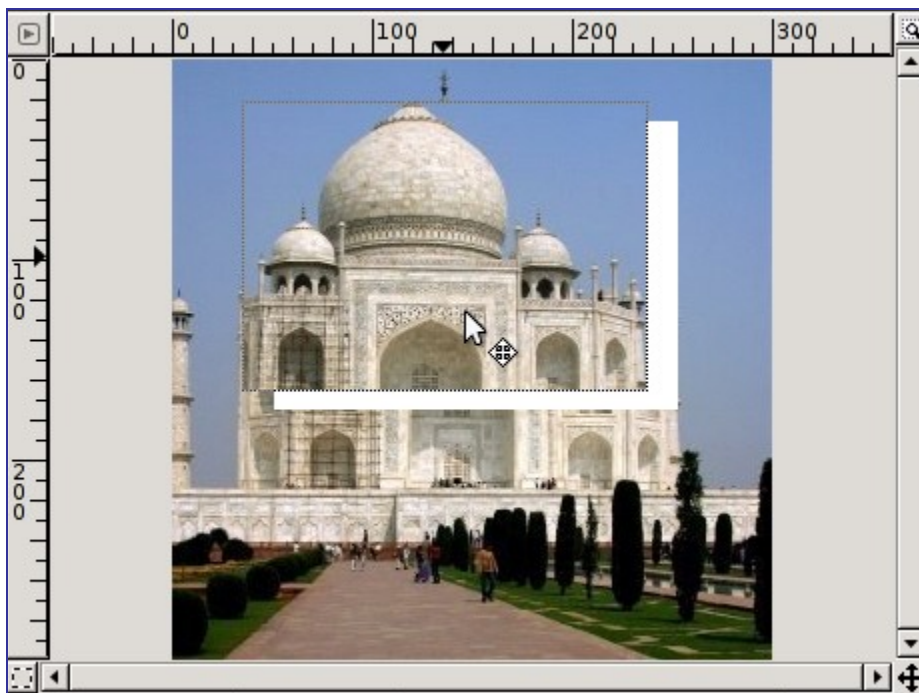
After creating a rectangular, elliptic or free selection, or when you are using the Magic wand, the default mouse pointer is the moving cross. Click-and-drag then allows you to move the selection and its contents, while the initial position remains empty.

If you only want to move the selection border and not its contents, then press the Alt key and click-and-drag the selection.

Sometimes the Alt key is used by the window manager and you move the image window instead of the selection. If this is the case, you have two possibilities:

1. Select the move tool and change the "*Affect*" option.

2. Try to use the AltShift or AltCtrl keys to move the selection.

Moving a selection without emptying its initial position is more complicated: while pressing the Ctrl key, move the mouse pointer a little bit, then also press the Alt key, then click-and-drag the selection. This can be done more easily by using the Move tool in Selection mode.

Moving a selection automatically creates a floating layer (floating selection). See Floating selection . The mouse pointer then looks like an anchor when it is outside of the selection. This means that the selection will be permanently anchored at the place you choose when you click the mouse button.

As soon as this floating selection is created in the Layer dialog (and you can create it with Selection/Float), you can use the keyboard arrow keys to move the selection horizontally or vertically.

Creating a Free Selection
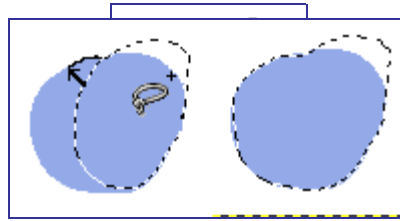
When using the lasso to select an object, some parts of the object and its proximity may be incorrectly either selected or not selected. You can correct these defects by pressing the Shift or Ctrl keys while using the lasso. Here is how to do it: While pressing Shift, draw the new border with the lasso and close the selection, including a part of the first selection. As soon as you release the mouse button, both selections are added together. You could subtract the extra part of the first selection in a similar way by pressing Ctrl.

To correct selection defects precisely, use the Quick Mask.

Dialogs and Docking

Creating Dialogs

Most dockable dialogs can be created in more than one way, but all of them can be created using the File Dialogs menu from the Main Toolbox, or by using the Add command in the Tab menu from any dialog. As a convenience, there are also three pre-built docks you can create using the File Dialogs Create New Dock menu path from the Main Toolbox:

Just because you have a lot of flexibility does not mean that all choices are equally good. There are at least two things we recommend:

1. Keep the Tool Options dialog docked directly beneath the Main Toolbox at all times.

2. Keep the Layers dialog around at all times, in a separate dock from the Main Toolbox, with an Image Menu above it. (Use "*Show Image Menu*" in the dialog Tab menu to display the Image menu if you have somehow lost it.)

Removing Tabs
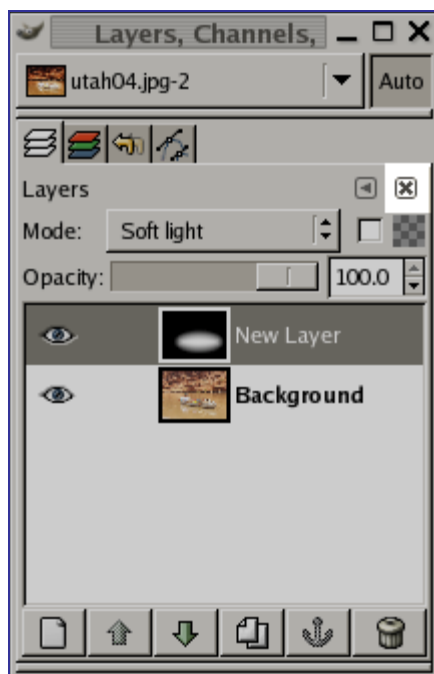
If you want to remove a dialog from a dock, there are two ways you can do it. First, if you click on the drag handle area and drag the dialog away, releasing it someplace other than a docking bar, it will form a new dock in its own right. Second, clicking on the "*Close Tab*" button (highlighted in the figure to the right) will close the frontmost dialog.

How to Set Your Tile Cache

A low value for tile cache means that Gimp sends data to the disk very quickly, not making real use of the available RAM, and making the disks work for no real reason. Too high a value for tile cache, and other applications start to have less system resources, forcing them to use swap space, which also makes the disks work too hard; some of them may even terminate or start to malfunction due lack of RAM.

How do you choose a number for the Tile Cache size? Here are some tips to help you decide what value to use, as well as a few tricks:

- The easiest method is to just forget about this and hope the default works. This was a usable method when computers had little RAM, and most people just tried to make small images with GIMP while running one or two other applications at the same time. If you want something easy and only use GIMP to make screenshots and logos, this is probably the best solution.

- If you have a modern computer with plenty of memory–say, 512 MB or more–setting the Tile Cache to half of your RAM will probably give good performance for GIMP in most situations without depriving other applications. Probably even 3/4 of your RAM would be fine.

- Ask someone to do it for you, which in the case of a computer serving multiple users at the same time can be a good idea: that way the administrator and other users do not get mad at you for abusing the machine, nor do you get a badly underperfoming GIMP. If it is your machine and only serves a single user at a given time, this could mean money, or drinks, as price for the service.

- Start changing the value a bit each time and check that it goes faster and faster with each increase, but the system does not complain about lack of memory. Be forewarned that sometimes lack of memory shows up suddenly with some applications being killed to make space for the others.

- Do some simple math and calculate a viable value. Maybe you will have to tune it later, but maybe you have to tune it anyway with the other previous methods. At least you know what is happening and can get the best from your computer.

Let's suppose you prefer the last option, and want to get a good value to start with. First, you need to get some data about your computer. This data is the amount of RAM installed in your system, the operating system's swap space available, and a general idea about the speed of the disks that store the operating system's swap and the directory used for GIMP's swap. You do not need to do disk tests, nor check the RPM of the disks, the thing is to see which one seems clearly faster or slower, or whether all are similar. You can change GIMP's swap directory in the Folders page of the Preferences dialog.

The next thing to do is to see how much resources you require for other apps you want to run at the same time than GIMP. So start all your tools and do some work with them, except GIMP of course, and check the usage. You can use applications like free or top, depending in what OS and what environment you use. The numbers you want is the memory left, including file cache. Modern Unix keeps a very small area free, in order to be able to keep large file and buffer caches. Linux's *free* command does the maths for you: check the column that says "*free*", and the line "*-/+ buffers/cache*". Note down also the free swap

Now time for decisions and a bit of simple math. Basically the concept is to decide if you want to base all Tile Cache in RAM, or RAM plus operating system swap:

Do you change applications a lot? Or keep working in GIMP for a long time? If you spend a lot of time in GIMP, you can consider free RAM plus free swap as available; if not, you need to go to the following steps. (If you're feeling unsure about it, check the following steps.) If you are sure you switch apps every few minutes, only count the free RAM and

just go to the final decision; no more things to check.

Does the operating system swap live in the same physical disk as GIMP swap? If so, add RAM and swap. Otherwise go to the next step.

Is the disk that holds the OS swap faster or the same speed as the disk that holds the GIMP swap? If slower, take only the free RAM; if faster or similar, add free RAM and swap.

You now have a number, be it just the free RAM or the free RAM plus the free OS swap. Reduce it a bit, to be on the safe side, and that is the Tile Cache you could use as a good start.

As you can see, all is about checking the free resources, and decide if the OS swap is worth using or will cause more problems than help.

There are some reasons you want to adjust this value, though. The basic one is changes in your computer usage pattern, or changing hardware. That could mean your assumptions about how you use your computer, or the speed of it, are no longer valid. That would require a reevaluation of the previous steps, which can drive you to a similar value or a completly new value.

Another reason to change the value is because it seems that GIMP runs too slowly, while changing to other applications is fast: this means that GIMP could use more memory without impairing the other applications. On the other hand, if you get complaints from other applications about not having enough memory, then it may benefit you to not let GIMP hog so much of it.

If you decided to use only RAM and GIMP runs slowly, you could try increasing the value a bit, but never to use also all the free swap. If the case is the contrary, using both RAM and swap, and you have problems about lack of resources, then you should decrease the amount of RAM available to GIMP.

Another trick is to put the Swap Dir on a very fast disk, or on a different disk than the one where most of your files reside. Spreading the operating system swap file over multiple disks is also a good way to speed things up, in general. And of course, you might have to buy more RAM or stop using lots of programs at the same time: you can not expect to edit a poster on a computer with 16MB and be fast.

You can also check what memory requirements your images have. The larger the images, and the number of undos, the more resources you need. This is another way to choose a number, but it is only good if you always work with the same kind of images, and thus the real requirements do not vary. It is also helpful to know if you will require more RAM and/or disk space.

Chapter

Using GIMP as an Intermediate

Using the Quickmask

Open an image or begin a new document;

Activate the Quickmask using the left-bottom button in the image window. If a selection is present the mask is initialized with the content of the selection;

Choose any drawing tool. Paint on the Quick Mask using black color to remove selected areas and white color to add selected areas. You can use grey colors to get partially selected areas.

You can also use selection tools and fill these selections with the Bucket Fill tool. This does not destroy the Qmask selections!

Toggle off the Quickmask using the left-bottom button in the image window: the selection will be displayed with its marching ants.

Creating New Layers

There are several ways to create new layers in an image. Here are the most important ones:

- Selecting Layer New Layer in the image menu. This brings up a dialog that allows you to set the basic properties of the new layer; see the New Layer dialog section for help with it.

- Selecting Layer Duplicate Layer in the image menu. This creates a new layer, that is a perfect copy of the currently active layer, just above the active layer.

- When you "*cut*" or "*copy*" something, and then paste it using Ctrl-V or Edit Paste , the result is a "*floating selection*", which is a sort of temporary layer. Before you can do anything else, you either have to anchor the floating selection to an existing layer, or convert it into a normal layer. If you do the latter, the new layer will be sized just large enough to contain the pasted material.

Paths

Stroking a Path
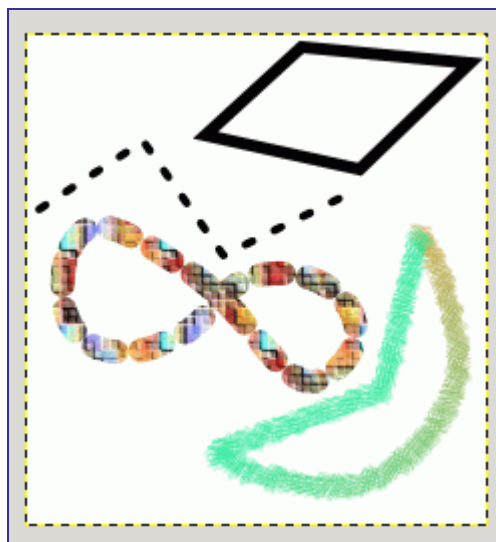
Paths do not alter the appearance of the image pixel data unless they are *stroked*, using Edit Stroke Path from the image menu or the Paths dialog right-click menu, or the "*Stroke Path*" button in the Tool Options dialog for the Path tool.
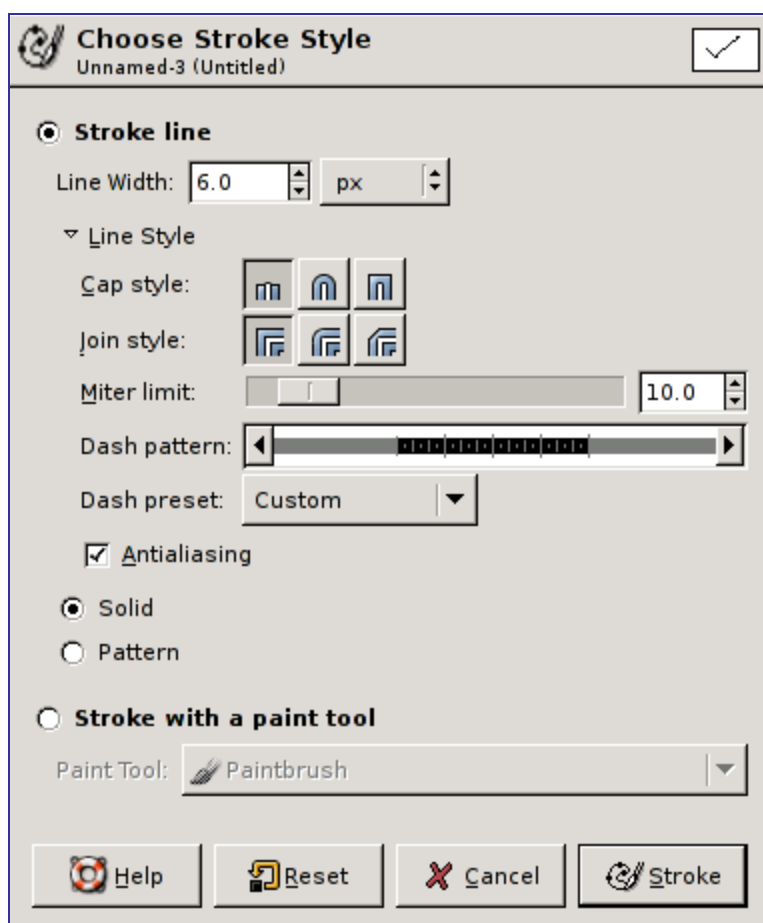
Choosing "*Stroke Path*" by any of these means brings up a dialog that allows you to control the way the stroking is done. You can choose from a wide variety of line styles, or

you can stroke with any of the Paint tools, including unusual ones such as the Clone tool, Smudge tool, Eraser, etc.

You can further increase the range of stroking effects by stroking a path multiple times, or by using lines or brushes of different widths. The possibilities for getting interesting effects in this way are almost unlimited.

Transforming Paths

Each of the Transform tools (Rotate, Scale, Perspective, etc) can be set to act specifically on paths, using the "*Affect:*" option in the tool's Tool Options dialog. This gives you a powerful set of methods for altering the shapes of paths without affecting other elements of the image.

By default a Transform tool, when it is set to affect paths, only acts on a single path: the *active path* for the image, which is shown highlighted in the Paths dialog. You can make a transformation affect more than one path, and possibly other things as well, using the "*transform lock*" buttons in the Paths dialog. Not only paths, but also layers and channels, can be transform-locked. If you transform one element that is transform-locked, all others will be transformed in the same way. So, for example, if you want to scale a layer and a path by the same amount, click the transform-lock buttons so that "*chain*" symbols appear next to the layer in the Layers dialog, and the path in the Paths dialog; then use the Scale tool on either the layer or the path, and the other will automatically follow.

Working with Digital Camera Photos

Introduction

One of the most common uses of the GIMP is to fix digital camera images that for some reason are less than perfect. Maybe the image is overexposed or underexposed; maybe rotated a bit; maybe out of focus: these are all common problems for which GIMP has good tools. The purpose of this chapter is to give you an overview of those tools and the situations in which they are useful. You will not find detailed tutorials here: in most cases it is easier to learn how to use the tools by experimenting with them than by reading about them. (Also, each tool is described more thoroughly in the Help section devoted to it.) You will also not find anything in this chapter about the multitude of "special effects" that you can apply to an image using GIMP. You should be familiar with basic GIMP concepts before reading this chapter, but you certainly don't need to be an expert–if you are, you probably know most of this anyway. And don't hesitate to experiment: GIMP's powerful "undo" system allows you to recover from almost any mistake with a simple CtrlZ.

Most commonly the things that you want to do to clean up an imperfect photo are of four types: improving the composition; improving the colors; improving the sharpness; and removing artifacts or other undesirable elements of the image.

Improving Composition

Rotating an Image

It is easy, when taking a picture, to hold the camera not quite perfectly vertical, resulting in a picture where things are tilted at an angle. In GIMP, the way to fix this is to use the Rotate tool. Activate this by clicking its icon in the Toolbox, or by pressing the "*R*" key capitalized) while inside the image. Make sure the Tool Options are visible, and at the top, make sure for "*Affect:*" that the left button ("*Transform Layer*") is selected. If you then click the mouse inside the image and drag it, you will see a grid appear that rotates as you drag. When the grid looks right, click rotate or press the enter key, and the image will be rotated.

Now as a matter of fact, it isn't so easy to get things right by this method: you often find that things are better but not quite perfect. One solution is to rotate a bit more, but there is a disadvantage to that approach. Each time you rotate an image, because the rotated pixels don't line up precisely with the original pixels, the image inevitably gets blurred a little bit. For a single rotation, the amount of blurring is quite small, but two rotations cause twice as much blurring as one, and there is no reason to blur things more than you have to. A better alternative is to undo the rotation and then do another, adjusting the angle.

Fortunately, GIMP provides another way of doing it that is considerably easier to use: in the Rotate Tool Options, for the Transform Direction you can select "Backward (Corrective)". When you do this, instead of rotating the grid to compensate for the error, you can rotate it to *line up* with the error. If this seems confusing, try it and you will see that it is quite straightforward.

Note: New in GIMP 2.2 is the option to preview the results of transformations, instead of just seeing a grid. This makes it easier to get things right on the first try.

After you have rotated an image, there will be unpleasant triangular "holes" at the corners. One way to fix them is to create a background that fills the holes with some unobtrusive or neutral color, but usually a better solution is to crop the image. The greater the rotation, the more cropping is required, so it is best to get the camera aligned

as well as possible when you take the picture in the first place.

Cropping

When you take a picture with a digital camera, you have some control over what gets included in the image but often not as much as you would like: the result is images that could benefit from trimming. Beyond this, it is often possible to enhance the impact of an image by trimming it so that the most important elements are placed at key points. A rule of thumb, not always to be followed but good to keep in mind, is the "*rule of thirds*", which says that maximum impact is obtained by placing the center of interest one-third of the way across the image, both widthwise and heightwise.

To crop an image, activate the Crop tool in the Toolbox, or by pressing the "*C*" key (capitalized) while inside the image. With the tool active, clicking and dragging in the image will sweep out a crop rectangle. It will also pop up a dialog that allows you to adjust the dimensions of the crop region if they aren't quite right. When everything is perfect, hit the Crop button in the dialog.

Improving Colors

Automated Tools

In spite of sophisticated exposure-control systems, pictures taken with digital cameras often come out over- or under-exposed, or with color casts due to imperfections in lighting. GIMP gives you a variety of tools to correct colors in an image, ranging to automated tools that run with a simple button-click to highly sophisticated tools that give you many parameters of control. We will start with the simplest first.

GIMP gives you five automated color correction tools. Unfortunately they don't usually give you quite the results you are looking for, but they only take a moment to try out, and if nothing else they often give you an idea of some of the possibilities inherent in the image. Except for "Auto Levels", you can find them in the Layer menu, by following the menu path Layer Colors Auto in the image menu.

Here they are, with a few words about each:

Those are the automated color adjustments: if you find that none of them quite does the job for you, it is time to try one of the interactive color tools. All of these, except one, can be accessed via Tools->Color Tools in the image menu. After you select a color tool, click on the image (anywhere) to activate it and bring up its dialog.

Exposure Problems

The simplest tool to use is the Brightness/Contrast tool. It is also the least powerful, but in many cases it does everything you need. This tool is often useful for images that are overexposed or underexposed; it is not useful for correcting color casts. The tool gives you two sliders to adjust, for "*Brightness*" and "*Contrast*". If you have the option "*Preview*" checked (and almost certainly you should),you will see any adjustments you make reflected in the image. When you are happy with the results, press Okay and they will take effect. If you can't get results that you are happy with, press Cancel and the image will revert to its previous state.

A more sophisticated, and only slightly more difficult, way of correcting exposure problems is to use the Levels tool. The dialog for this tool looks very complicated, but for the basic usage we have in mind here, the only part you need to deal with is the "*Input Levels*" area, specifically the three triangular sliders that appear below the histogram. We refer you to the Levels Tool Help for instructions; but actually the easiest way to learn how to use it is to experiment by moving the three sliders around, and watching how the image is affected. (Make sure that "*Preview*" is checked at the bottom of the dialog.)

A very powerful way of correcting exposure problems is to use the *Curves* tool. This tool allows you to click and drag control points on a curve, in order to create a function mapping input brightness levels to output brightness levels. The Curves tool can replicate any effect you can achieve with Brightness/Contrast or the Levels tool, so it is more powerful than either of them. Once again, we refer you to the Curves Tool Help for detailed instructions, but the easiest way to learn how to use it is by experimenting.

The most powerful approach to adjusting brightness and contrast across an image, for more expert GIMP users, is to create a new layer above the one you are working on, and then in the Layers dialog set the Mode for the upper layer to "*Multiply*". The new layer then serves as a "*gain control*" layer for the layer below it, with white yielding maximum gain and black yielding a gain of zero. Thus, by painting on the new layer, you can selectively adjust the gain for each area of the image, giving you very fine control. You should try to paint only with smooth gradients, because sudden changes in gain will give rise to spurious edges in the result. Paint only using shades of gray, not colors, unless you want to produce color shifts in the image.

Actually, "*Multiply*" is not the only mode that is useful for gain control. In fact, "*Multiply*" mode can only darken parts of an image, never lighten them, so it is only useful where some parts of an image are overexposed. Using "*Divide*" mode has the opposite effect: it can brighten areas of an image but not darken them. Here is a trick that is often useful for bringing out the maximum amount of detail across all areas of an image:

Duplicate the layer (producing a new layer above it).

Desaturate the new layer.

Apply a Gaussian blur to the result, with a large radius (100 or more).

Set Mode in the Layers dialog to Divide.

Control the amount of correction by adjusting opacity in the Layers dialog, or by using Brightness/Contrast, Levels, or Curves tools on the new layer.

When you are happy with the result, you can use Merge Down to combine the control layer and the original layer into a single layer.

In addition to "*Multiply*" and "*Divide*", you may every so often get useful effects with other layer combination modes, such as "*Dodge*", "*Burn*", or "*Soft Light*". It is all too easy, though, once you start playing with these things, to look away from the computer for a moment and suddenly find that you have just spent an hour twiddling parameters. Be warned: the more options you have, the harder it is to make a decision.

Adjusting Hue and Saturation

In our experience, if your image has a color cast---too much red, too much blue, etc---the easiest way to correct it is to use the Levels tool, adjusting levels individually on the red, green, and blue channels. If this doesn't work for you, it might be worth your while to try the Color Balance tool or the Curves tool, but these are much more difficult to use effectively. (They are very good for creating certain types of special effects, though.)

Sometimes it is hard to tell whether you have adjusted colors adequately. A good, objective technique is to find a point in the image that you know should be either white or a shade of gray. Activate the Color Picker tool (the eyedropper symbol in the Toolbox), and click on the aforesaid point: this brings up the Color Picker dialog. If the colors are correctly adjusted, then the red, green, and blue components of the reported color should all be equal; if not, then you should see what sort of adjustment you need to make. This technique, when well used, allows even color-blind people to color-correct an image.

If your image is washed out---which can easily happen when you take pictures in bright light---try the Hue/Saturation tool, which gives you three sliders to manipulate, for Hue, Lightness, and Saturation. Raising the saturation will probably make the image look better. In same cases it is useful to adjust the lightness at the same time. ("*Lightness*"

here is similar to "*Brightness*" in the Brightness/Contrast tool, except that they are formed from different combinations of the red, green, and blue channels.) The Hue/Saturation tool gives you the option of adjusting restricted subranges of colors (using the buttons at the top of the dialog), but if you want to get natural-looking colors, in most cases you should avoid doing this.

Even if an image does not seemed washed out, often you can increase its impact by pushing up the saturation a bit. Veterans of the film era sometimes call this trick "*Fujifying*", after Fujichrome film, which is notorious for producing highly saturated prints.

When you take pictures in low light conditions, in some cases you have the opposite problem: too much saturation. In this case too the Hue/Saturation tool is a good one to use, only by reducing the saturation instead of increasing it.

Adjusting Sharpness

Unblurring

If the focus on the camera is not set perfectly, or the camera is moving when the picture is taken, the result is a blurred image. If there is a lot of blurring, you probably won't be able to do much about it with any technique, but if there is only a moderate amount, you should be able to improve the image.

The most generally useful technique for sharpening a fuzzy image is called the Unsharp Mask. In spite of the rather confusing name, which derives from its origins as a technique used by film developers, its result is to make the image sharper, not "*unsharp*". It is a plug-in, and you can access it as Filters->Enhance->Unsharp Mask in the image menu. There are two parameters, "*Radius*" and "*Amount*". The default values often work pretty well, so you should try them first. Increasing either the radius or the amount increases the strength of the effect. Don't get carried away, though: if you make the unsharp mask too strong, it will amplify noise in the image and also give rise to visible artifacts where there are sharp edges.

Sometimes using Unsharp Mask can cause color distortion where there are strong contrasts in an image. When this happens, you can often get better results by decomposing the image into separate Hue-Saturation-Value (HSV) layers, and running Unsharp Mask on the Value layer only, then recomposing. This works because the human eye has much finer resolution for brightness than for color. See the sections on Decompose and Compose for more information.

Next to "Unsharp Mask" in the Filters menu is another filter called Sharpen, which does similar things. It is a little easier to use but not nearly as effective: our recommendation is that you ignore it and go straight to Unsharp Mask.

In some situations, you may be able to get useful results by selectively sharpening specific parts of an image using the Blur or Sharpen tool from the Toolbox, in "Sharpen" mode. This allows you to increase the sharpness in areas by painting over them with any paintbrush. You should be restrained about this, though, or the results will not look very natural: sharpening increases the apparent sharpness of edges in the image, but also amplifies noise.

Reducing Graininess

When you take pictures in low-light conditions or with a very fast exposure time, the camera does not get enough data to make good estimates of the true color at each pixel, and consequently the resulting image looks grainy. You can "*smooth out*" the graininess by blurring the image, but then you will also lose sharpness. There are a couple of approaches that may give better results. Probably the best, if the graininess is not too bad, is to use the filter called Selective Blur, setting the blurring radius to 1 or 2 pixels. The other approach is to use the Despeckle filter. This has a nice preview, so you can play

with the settings and try to find some that give good results. When graininess is really bad, though, it is often very difficult to fix by anything except heroic measures (i.e., retouching with paint tools).

Softening

Every so often you have the opposite problem: an image is *too* crisp. The solution is to blur it a bit: fortunately blurring an image is much easier than sharpening it. Since you probably don't want to blur it very much, the simplest method is to use the "*Blur*" plug-in, accessed via Filters->Blur->Blur from the image menu. This will soften the focus of the image a little bit. If you want more softening, just repeat until you get the result you desire.

Removing Unwanted Objects from an Image

There are two kinds of objects you might want to remove from an image: first, artifacts caused by junk such as dust or hair on the lens; second, things that were really present but impair the quality of the image, such as a telephone wire running across the edge of a beautiful mountain landscape.

Despeckling

A good tool for removing dust and other types of lens grunge is the Despeckle filter, accessed as Filters->Enhance->Despeckle from the image menu. Very important: to use this filter effectively, you must begin by making a small selection containing the artifact and a small area around it. The selection must be small enough so that the artifact pixels are statistically distinguishable from the other pixels inside the selection. If you try to run despeckle on the whole image, you will hardly ever get anything useful. Once you have created a reasonable selection, activate Despeckle, and watch the preview as you adjust the parameters. If you are lucky, you will be able to find a setting that removes the junk while minimally affecting the area around it. The more the junk stands out from the area around it, the better your results are likely to be. If it isn't working for you, it might be worthwhile to cancel the filter, create a different selection, and then try again.

If you have more than one artifact in the image, it is necessary to use Despeckle on each individually.

Garbage Removal

The most useful method for removing unwanted "*clutter*" from an image is the Clone tool, which allows you to paint over one part of an image using pixel data taken from another part (or even from a different image). The trick to using the clone tool effectively is to be able to find a different part of the image that can be used to "*copy over*" the unwanted part: if the area surrounding the unwanted object is very different from the rest of the image, you won't have much luck. For example, if you have a lovely beach scene, with a nasty human walking across the beach who you would like to teleport away, you will probably be able to find an empty part of the beach that looks similar to the part he is walking across, and use it to clone over him. It is quite astonishing how natural the results can look when this technique works well.

Consult the Clone Tool Help for more detailed instructions. Cloning is as much an art as a science, and the more you practice at it, the better you will get. At first it may seem impossible to produce anything except ugly blotches, but persistence will pay off.

In some cases you may be able to get good results by simply cutting out the offending object from the image, and then using a plug-in called "*Resynthesizer*" to fill in the void. This plug-in is not included with the main GIMP distribution, but it can be obtained from the author's Resynthesizer web site. As with many things, your mileage may vary.

Removing Red-eye

When you take a flash picture of somebody who is looking directly toward the camera, the iris of the eye can bounce the light of the flash back toward the camera in such a way as to make the eye appear bright red: this effect is called "*red eye*", and looks very bizarre. Many modern cameras have special flash modes that minimize red-eye, but they only work if you use them, and even then they don't always work perfectly. Interestingly, the same effect occurs with animals, but the eyes may show up as other colors, such as green.

GIMP does not include a special tool for removing red-eye, but it isn't all that hard to do. Basically the idea is to zoom the area around the eye so that it is nice and large and easy to work with; then make a selection of the red part of the eye and a bit of the area around it; feather the selection so that you don't create sharp-looking edges; and finally desaturate the red channel inside the selection using one of the color tools---Levels, Curves, or Hue/Saturation. It takes a little practice the first few times, but once you have the technique mastered, you should be able to quickly and easily create quite a natural looking eye color.

If you would like a more automated approach, you can try downloading a recently created redeye plug-in from the GIMP Plug-in Registry. We have not received any feedback so far about how well it works. It comes in source code form, so you will need to be able compile it in order to use it. (See Installing New Plug-ins for information on how to do this.)

Saving Your Results

Files

What file format should you use to save the results of your work, and should you resize it? The answers depend on what you intend to use the image for.

- If you intend to open the image in GIMP again for further work, you should save it in GIMP's native XCF format (i. e., name it something.xcf), because this is the only format that guarantees that none of the information in the image is lost.

- If you intend to print the image on paper, you should avoid shrinking the image, except by cropping it. The reason is that printers are capable of achieving much higher dot resolutions than video monitors---600 to 1400 dots per inch for typical printers, as compared to 72 to 100 dots per inch for monitors. A 3000 x 5000 image looks huge on a monitor, but it only comes to about 5 inches by 8 inches on paper at 600 dpi. There is usually no good reason to *expand* the image either: you can't increase the true resolution that way, and it can always be scaled up at the time it is printed. As for the file format, it will usually be fine to use JPEG at a quality level of 75 to 85. In rare cases, where there are large swaths of nearly uniform color, you may need to set the quality level even higher or use a lossless format such as TIFF instead.

- If you intend to display the image on screen or project it with a video projector, bear in mind that the highest screen resolution for most commonly available systems is 1600 x 1200, so there is nothing to gain by keeping the image larger than that. For this purpose, the JPEG format is almost always a good choice.

- If you want to put the image on a web page or send it by email, it is a good idea to make every effort to keep the file size as small as possible. First, scale the image down to the smallest size that makes it possible to see the relevant details (bear in mind that other people may be using different sized monitors and/or different monitor resolution settings). Second, save the image as a JPEG file. In the JPEG save dialog, check the option to "*Preview in image window*" , and then adjust the Quality slider to the lowest level that gives you acceptable image quality. (You will see in the image the effects of each change.) Make sure that the image is zoomed at 1:1 while

you do this, so you are not misled by the effects of zooming.

See the File Formats section for more information.

Printing Your Photos

[This needs to be written.]

EXIF Data

Modern digital cameras, when you take a picture, add information to the data file about the camera settings and the circumstances under which the picture was taken. This data is included in JPEG or TIFF files in a structured format called EXIF. For JPEG files, GIMP is capable of maintaining EXIF data, if it is built appropriately: it depends on a library called "*libexif*" , which may not be available on all systems. If GIMP is built with EXIF support enabled, then loading a JPEG file with EXIF data, and resaving the resulting image in JPEG format, will cause the EXIF data to be preserved unchanged. This is not, strictly speaking, the right way for an image editor to handle EXIF data, but it is better than simply removing it, which is what earlier versions of GIMP did.

If you would like to see the contents of the EXIF data, you can download from the registry an Exif Browser plug-in . If you are able to build and install it on your system, you can access it as Filters->Generic->Exif Browser from the image menu. (See Installing New Plug-ins for help.)

Preparing your Images for the Web

One of the most common purposes GIMP is used for is to prepare images for adding them to a web site. This means that images should look as nice as possible while keeping the file size as small as possible. This little step-by-step guide will tell you how to achieve a smaller file size with minimal degradation of image quality.

Images with an Optimal Size/Quality Ratio

An optimal image for the web depends upon the image type and the file format you have to use. If you want to put a photograph with a lot of colors online, you have to use JPEG as your primary file format. If your image contains fewer colors, that is, if it is not a photograph, but is more a drawing you created (such as a button or a screenshot), you would be better off using PNG format. We will guide you through the process of doing this.

First, open the image as usual. I have opened our Wilber as an example image.

The image is now in RGB mode, with an additional Alpha channel (RGBA). There is usually no need to have an alpha channel for your web image. You can remove the alpha channel by flattening the image.

If you open a photograph, you probably won't have to remove the alpha channel, because a photograph doesn't usually have one, so the file is already opened in RGB mode.

After you have flattened the image, you are able to save the image in PNG format for your web site.

You can save your image in PNG format with the default settings, but using maximum compression. Doing this will have no negative affects on the quality of the picture, as it would have with JPEG format. If your image is a photograph with lots of colors, you would be better off saving it as jpeg. The main thing is to find the best tradeoff between quality and compression. You can find more information about this topic in .

Reducing the File Size Even More

If you want to reduce the size of your image a bit more, you could convert your image to Indexed mode. That means that all of the colors will be reduced to only 256 values. Converting images with smooth color transitions or gradients to indexed mode will often give poor results, because it will turn the smooth gradients into a series of bands. This method is also not recommended for photographs because it will make the image look coarse and grainy.

Use the Convert Mode Dialog to convert your RGB image to indexed mode.

After you have converted the image to indexed mode, you are once again able to save your image in PNG format.

Saving Images with Transparency

There are two different approaches used by graphic file formats for supporting transparent image areas: simple binary transparency and alpha transparency. Simple binary transparency is supported in GIF format. Here, one color from the indexed color palette is marked as the transparent color. Alpha transparency is supported in PNG format. Here, the transparency information is stored in a separate channel, the Alpha channel.

There is usually no need to save images in GIF format any more, because PNG supports all the features of GIF and offers additional features (e.g., alpha transparency). Nevertheless, this format is still used for animations.

First of all, we will use the same image as in the previous tutorials, Wilber the GIMP mascot.

To save an image with alpha transparency, you must have an alpha channel. To check if the image has an alpha channel, go to the channel dialog and verify that an entry for "*Alpha*" exists, besides Red, Green and Blue. If this is not the case, add a new alpha channel from the layers menu.
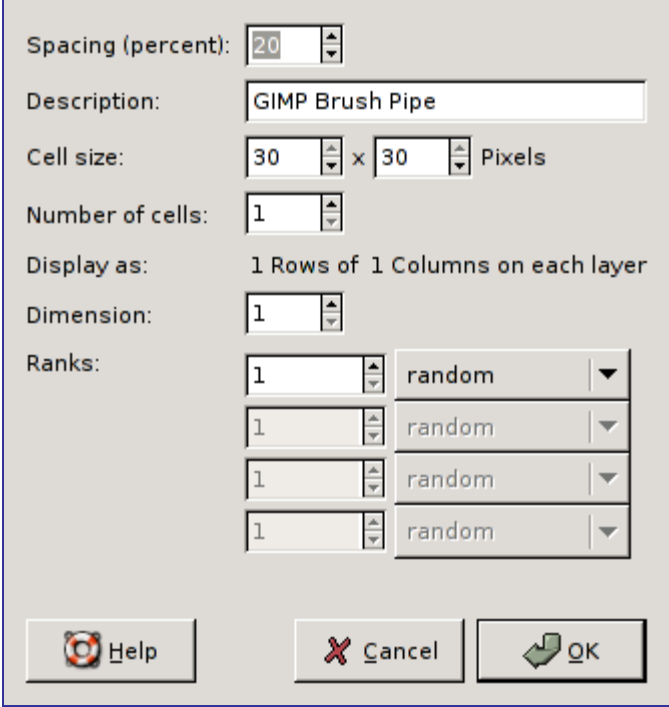
You can now remove the background layer to get a completely transparent background, or create a gradient from color to transparency. You are only limited by your imagination. To demonstrate the cabilities of alpha transparency, we'll make a soft glow in the background around our Wilber.

After you're done with your image, you can save it in PNG format.

Adding New Brushes

To add a new brush, after either creating or downloading it, you need to save it in a format GIMP can use. The brush file needs to be placed in the GIMP's brush search path, so that GIMP is able to index and display it in the Brushes dialog. You can hit the Refresh button, which reindexes the brush directory. GIMP uses three file formats for brushes:

To make a brush available, place it in one of the folders in GIMP's brush search path. By default, the brush search path includes two folders, the system `brushes` folder, which you should not use or alter, and the `brushes` folder inside your personal GIMP directory. You can add new folders to the brush search path using the Brush Folders page of the Preferences dialog. Any GBR, GIH, or VBR file included in a folder in the brush search path will show up in the Brushes dialog the next time you start GIMP, or as soon as you press the Refresh button in the Brushes dialog.

When you create a new parametric brush using the Brush Editor, it is automatically saved in your personal `brushes` folder.

There are a number of web sites with downloadable collections of GIMP brushes. Rather than supplying a list of links that will soon be out of date, the best advice is to do a search with your favorite search engine for "*Gimp brushes*". There are also many collections of brushes for other programs with painting functionality. Some can be converted easily into GIMP brushes, some require special conversion utilities, and some cannot be converted at all. Most fancy procedural brush types fall into the last category. If you need to know, look around on the web, and if you don't find anything, look for an expert to ask.

Chapter

Using GIMP as an Expert

Text

Embellishing Text

There are many things you can do to vary the appearance of text beyond just rendering it with different fonts or different colors. By converting a text item to a selection or a path, you can fill it, stroke the outlines, transform it, or generallly apply the whole panoply of GIMP tools to get interesting effects. As a demonstration of some of the possibilities, try out the "logo" scripts in the Toolbox menu, at Xtns Script-Fu Logos . Each of these scripts allows you to enter some text, and then creates a new image showing a logo constructed out of that text. If you would like to modify one of these scripts, or construct a logo script of your own, the Using Script-Fu and Script-Fu Tutorial sections should help you get started. Of course, you don't need Script-Fu to create these sorts of effects, only to automate them.

Adding Fonts

For the most authoritative and up-to-date information on fonts in GIMP, consult the Fonts in GIMP 2.0 page at the GIMP web site. This section attempts to give you a helpful overview.

GIMP uses the FreeType 2 font engine to render fonts, and a system called Fontconfig to manage them. GIMP will let you use any font in Fontconfig's font path; it will also let you use any font it finds in GIMP's font search path, which is set on the Font Folders page of the Preferences dialog. By default, the font search path includes a system GIMP-fonts folder (which you should not alter, even though it is actually empty), and a `fonts` folder inside your personal GIMP directory. You can add new folders to the font search path if it is more convenient for you.

FreeType 2 is a very powerful and flexible system. By default, it supports the following font file formats:

- TrueType fonts (and collections)
- Type 1 fonts
- CID-keyed Type 1 fonts
- CFF fonts
- OpenType fonts (both TrueType and CFF variants)

- SFNT-based bitmap fonts
- X11 PCF fonts
- Windows FNT fonts
- BDF fonts (including anti-aliased ones)
- PFR fonts
- Type42 fonts (limited support)

You can also add modules to support other types of font files. See FREETYPE 2 for more information.

Linux

On a Linux system, if the Fontconfig utility is set up as usual, all you need to do to add a new font is to place the file in the directory `~/.fonts`. This will make the font available not only to GIMP, but to any other program that uses Fontconfig. If for some reason you want the font to be available to GIMP only, you can place it in the `fonts` subdirectory of your personal GIMP directory, or some other location in your font search path. Doing either will cause the font to show up the next time you start GIMP. If you want to use it in an already running GIMP, press the *Refresh* button in the Fonts dialog.

Windows

The easiest way to install a font is to drag the file onto the Fonts directory and let the shell do its magic. Unless you've done something creative, it's probably in its default location of `C:\windows\fonts` or `C:\winnt\fonts`. Sometimes double-clicking on a font will install it as well as display it; sometimes it only displays it. This method will make the font available not only to GIMP, but also to other Windows applications.

To install a Type 1 file, you need both the `.pfb` and `.pfm` files. Drag the one that gets an icon into the fonts folder. The other one doesn't strictly need to be in the same directory when you drag the file, since it uses some kind of search algorithm to find it if it's not, but in any case putting it in the same directory does no harm.

In principle, GIMP can use any type of font on Windows that FreeType can handle; however, for fonts that Windows can't handle natively, you should install them by placing the font files in the `fonts` folder of your personal GIMP directory, or some other location in your font search path. The support Windows has varies by version. All that GIMP runs on support at least TrueType, Windows FON, and Windows FNT. Windows 2000 and later support Type 1 and OpenType. Windows ME supports OpenType and possibly Type 1 (but the most widely used Windows GIMP installer does not officially support Windows ME, although it may work anyway).

GIMP uses Fontconfig to manage fonts on Windows as well as Linux. The instructions above work because Fontconfig by default uses the Windows fonts directory, i. e., the same fonts that Windows uses itself. If for some reason your Fontconfig is set up differently, you will have to figure out where to put fonts so that GIMP can find them: in any case, the `fonts` folder of your personal GIMP directory should work.

Font Problems

Problems with fonts have probably been responsible for more GIMP 2 bug reports than any other single cause, although they have become much less frequent in the most recent releases in the 2.0 series. In most cases they have been caused by malformed font files giving trouble to Fontconfig. If you experience crashes at startup when GIMP scans your font directories, the best solution is to upgrade to a version of Fontconfig newer than 2.2.0. As a quick workaround you can start gimp with the `--no-fonts` command-line option, but then you will not be able to use the text tool.

Another known problem is that Pango 1.2 cannot load fonts that don't provide an Unicode character mapping. (Pango is the text layout library used by GIMP.) A lot of symbol fonts

fall into this category. On some systems, using such a font can cause GIMP to crash. Updating to Pango 1.4 will fix this problem and makes symbol fonts available in GIMP.

A frequent source of confusion occurs on Windows systems, when GIMP encounters a malformed font file and generates an error message: this causes a console window to pop up so that you can see the message. *Do not close that console window. It is harmless, and closing it will shut down GIMP.* When this happens, it often seems to users that GIMP has crashed. It hasn't: closing the console window causes Windows to shut GIMP down. Unfortunately, this annoying situation is caused by an interaction between Windows and the libraries that GIMP links to: it cannot be fixed within GIMP. All you need to do, though, if this happens, is minimize the console window and ignore it.

Rendering a Grid

How can you create a grid that is actually part of the image? You can't do this using the image grid: that is only an aid, and is only visible on the monitor or in a screenshot. You can, however, use the Grid plugin to render a grid very similar to the image grid. (Actually, the plugin has substantially more options.)

See also Grid and Guides.

A Script-Fu Tutorial

In this training course, we'll introduce you to the fundamentals of Scheme necessary to use Script-Fu, and then build a handy script that you can add to your toolbox of scripts. The script prompts the user for some text, then creates a new image sized perfectly to the text. We will then enhance the script to allow for a buffer of space around the text. We will conclude with a few suggestions for ways to ramp up your knowledge of Script-Fu.

This section as adapted from a tutorial written for the Gimp 1 User Manual by Mike Terry.

Getting Acquainted With Scheme

Let's Start Scheme'ing

The first thing to learn is that:

Every statement in Scheme is surrounded by parentheses ().

The second thing you need to know is that:

The function name/operator is always the first item in the parentheses, and the rest of the items are parameters to the function.

However, not everything enclosed in parentheses is a function -- they can also be items in a list -- but we'll get to that later. This notation is referred to as prefix notation, because the function prefixes everything else. If you're familiar with postfix notation, or own a calculator that uses Reverse Polish Notation (such as most HP calculators), you should have no problem adapting to formulating expressions in Scheme.

The third thing to understand is that:

Mathematical operators are also considered functions, and thus are listed first when writing mathematical expressions.

This follows logically from the prefix notation that we just mentioned.

Examples Of Prefix, Infix, And Postfix Notations

Here are some quick examples illustrating the differences between *prefix*, *infix*, and *postfix* notations. We'll add a 1 and 3 together:

- Prefix notation: + 1 3 (the way Scheme will want it)
- Infix notation: 1 + 3 (the way we "normally" write it)
- Postfix notation: 1 3 + (the way many HP calculators will want it)

Practicing In Scheme

Now, let's practice what we have just learned. Start up Gimp, if you have not already done so, and choose Xtns Script-Fu Console . This will start up the Script-Fu Console window, which allows us to work interactively in Scheme. In a matter of moments, the Script-Fu Console will appear:

The Script-Fu Console Window

At the bottom of this window is an entry-field entitled Current Command. Here, we can test out simple Scheme commands interactively. Let's start out easy, and add some numbers:

```
████████(+■3■5)
██████
```

Typing this in and hitting Enter yields the expected answer of 8 in the center window.

Now, what if we wanted to add more than one number? The "+" function can take two or more arguments, so this is not a problem:

```
████████(+■3■5■6)
██████
```

This also yields the expected answer of 14.

So far, so good -- we type in a Scheme statement and it's executed immediately in the Script-Fu Console window. Now for a word of caution....

Watch Out For Extra Parens

If you're like me, you're used to being able to use extra parentheses whenever you want to -- like when you're typing a complex mathematical equation and you want to separate the parts by parentheses to make it clearer when you read it. In Scheme, you have to be careful and not insert these extra parentheses incorrectly. For example, say we wanted to add 3 to the result of adding 5 and 6 together:

```
████████3■+■(5■+■6)■+■7=■?
██████
```

Knowing that the + operator can take a list of numbers to add, you might be tempted to convert the above to the following:

```
████████(+■3■(5■6)■7)
██████
```

However, this is incorrect -- remember, every statement in Scheme starts and ends with parens, so the Scheme interpreter will think that you're trying to call a function named "5" in the second group of parens, rather than summing those numbers before adding them to 3.

The correct way to write the above statement would be:

```
████████(+■3■(+■5■6)■7)
██████
```

Make Sure You Have The Proper Spacing, Too

If you are familiar with other programming languages, like C/C++, Perl or Java, you know that you don't need white space around mathematical operators to properly form an expression:

```
████████3+5,■3■+5,■3+■5
██████
```

These are all accepted by C/C++, Perl and Java compilers. However, the same is not true for Scheme. You must have a space after a mathematical operator (or any other function name or operator) in Scheme for it to be correctly interpreted by the Scheme interpreter.

Practice a bit with simple mathematical equations in the Script-Fu Console until you're totally comfortable with these initial concepts.

Variables And Functions

Now that we know that every Scheme statement is enclosed in parentheses, and that the function name/operator is listed first, we need to know how to create and use variables, and how to create and use functions. We'll start with the variables.

Declaring Variables

Although there are a couple of different methods for declaring variables, the preferred method is to use the let* construct. If you're familiar with other programming languages, this construct is equivalent to defining a list of local variables and a scope in which they're active. As an example, to declare two variables, a and b, initialized to 1 and 2, respectively, you'd write:

```
        (let*  (
                    (a 1)
                    (b 2)
                 )
                 (+ a b)
        )
```

or, as one line:

```
        (let* ( ((a 1) (b 2) ) (+ a b) )
```

You'll have to put all of this on one line if you're using the console window. In general, however, you'll want to adopt a similar practice of indentation to help make your scripts more readable. We'll talk a bit more about this in the section on White Space.

This declares two local variables, a and b, initializes them, then prints the sum of the two variables.

What Is A Local Variable?

You'll notice that we wrote the summation (+ a b) within the parens of the let* expression, not after it.

This is because the let* statement defines an area in your script in which the declared variables are usable; if you type the (+ a b) statement after the (let* ...) statement, you'll get an error, because the declared variables are only valid within the context of the let* statement; they are what programmers call local variables.

The General Syntax Of let*

The general form of a let* statement is:

```
        (let* ( variables ) expressions )
```

where variables are declared within parens, e.g., (a 2), and expressions are any valid Scheme expressions. Remember that the variables declared here are only valid within the let* statement -- they're local variables.

White Space

Previously, we mentioned the fact that you'll probably want to use indentation to help clarify and organize your scripts. This is a good policy to adopt, and is not a problem in

Scheme -- white space is ignored by the Scheme interpreter, and can thus be liberally applied to help clarify and organize the code within a script. However, if you're working in Script-Fu's Console window, you'll have to enter an entire expression on one line; that is, everything between the opening and closing parens of an expression must come on one line in the Script-Fu Console window.

Assigning A New Value To A Variable

Once you've initialized a variable, you might need to change its value later on in the script. Use the set! statement to change the variable's value:

```
        (let* ( (theNum 10) ) (set! theNum (+ theNum \
        theNum)) )
```

Try to guess what the above statement will do, then go ahead and enter it in the Script-Fu Console window.

The "\" indicates that there is no line break. Ignore it (don't type it in your Script-Fu console and don't hit Enter), just continue with the next line.

Functions

Now that you've got the hang of variables, let's get to work with some functions. You declare a function with the following syntax:

```
        (define (name param-list) expressions)
```

where name is the name assigned to this function, param-list is a space-delimited list of parameter names, and expressions is a series of expressions that the function executes when it's called. For example:

```
        (define (AddXY inX inY) (+ inX inY) )
```

AddXY is the function's name and inX and inY are the variables. This function takes its two parameters and adds them together.

If you've programmed in other imperative languages (like C/C++, Java, Pascal, etc.), you might notice that a couple of things are absent in this function definition when compared to other programming languages.

- First, notice that the parameters don't have any "types" (that is, we didn't declare them as strings, or integers, etc.). Scheme is a type-less language. This is handy and allows for quicker script writing.

- Second, notice that we don't need to worry about how to "return" the result of our function -- the last statement is the value "returned" when calling this function. Type the function into the console, then try something like:

```
            (AddXY (AddXY 5 6) 4)
```

Lists, Lists And More Lists

We've trained you in variables and functions, and now enter the murky swamps of Scheme's lists.

Defining A List

Before we talk more about lists, it is necessary that you know the difference between atomic values and lists.

You've already seen atomic values when we initialized variables in the previous lesson. An atomic value is a single value. So, for example, we can assign the variable "x" the single value of 8 in the following statement:

```
████████(let*█(█(x█8)█)█x)
██████
```

(We added the expression `x` at the end to print out the value assigned to `x`-- normally you won't need to do this. Notice how let* operates just like a function: The value of the last statement is the value returned.)

A variable may also refer to a list of values, rather than a single value. To assign the variable `x` the list of values 1, 3, 5, we'd type:

```
████████(let*█(█(x█'(1█3█5)))█x)
██████
```

Try typing both statements into the Script-Fu Console and notice how it replies. When you type the first statement in, it simply replies with the result:

```
████████8
██████
```

However, when you type in the other statement, it replies with the following result:

```
████████(1█3█5)
██████
```

When it replies with the value 8 it is informing you that `x` contains the atomic value 8. However, when it replies with (1 3 5), it is then informing you that `x` contains not a single value, but a list of values. Notice that there are no commas in our declaration or assignment of the list, nor in the printed result.

The syntax to define a list is:

```
█████████'(a█b█c)
██████
```

where `a`, `b`, and `c` are literals. We use the apostrophe (') to indicate that what follows in the parentheses is a list of literal values, rather than a function or expression.

An empty list can be defined as such:

```
████████'()
██████
```

or simply:

```
█████████()
██████
```

Lists can contain atomic values, as well as other lists:

```
████████(let*
```

```
██████████(
████████████████(x
███████████████████'("The█Gimp"█(1█2█3)█("is"█("great"█()█)█)█)
████████████████)
█████████████)

████████████x
██████████)
██████
```

Notice that after the first apostrophe, you no longer need to use an apostrophe when defining the inner lists. Go ahead and copy the statement into the Script-Fu Console and see what it returns.

You should notice that the result returned is not a list of single, atomic values; rather, it is a list of a literal ("The Gimp"), the list (1 2 3), etc.

How To Think Of Lists

It's useful to think of lists as composed of a "head" and a "tail." The head is the first element of the list, the tail the rest of the list. You'll see why this is important when we discuss how to add to lists and how to access elements in the list.

Creating Lists Through Concatenation (The Cons Function)

One of the more common functions you'll encounter is the cons function. It takes a value and prepends it to its second argument, a list. From the previous section, I suggested that you think of a list as being composed of an element (the head) and the remainder of the list (the tail). This is exactly how cons functions -- it adds an element to the head of a list. Thus, you could create a list as follows:

```
████████(cons█1█'(2█3█4)█)
██████
```

The result is the list (1 2 3 4).

You could also create a list with one element:

```
████████(cons█1█()█)
██████
```

You can use previously declared variables in place of any literals, as you would expect.

Defining A List Using The list Function

To define a list composed of literals or previously declared variables, use the list function:

```
████████(list█5█4█3█a█b█c)
██████
```

This will compose and return a list containing the values held by the variables a, b and c. For example:

```
████████(let*██(
███████████████████(a█1)
███████████████████(b█2)
███████████████████(c█3)
█████████████████)
█████████████████(list█5█4█3█a█b█c)
████████)
██████
```

This code creates the list (5 4 3 1 2 3).

Accessing Values In A List

To access the values in a list, use the functions car and cdr, which return the first element of the list and the rest of the list, respectively. These functions break the list down into the head::tail construct I mentioned earlier.

The car Function

car returns the first element of the list (the head of the list). The list needs to be non-null. Thus, the following returns the first element of the list:

```
(car '("first" 2 "third"))
```

which is:

```
"first"
```

The cdr function

cdr returns the rest of the list after the first element (the tail of the list). If there is only one element in the list, it returns an empty list.

```
(cdr '("first" 2 "third"))
```

returns:

```
(2 "third")
```

whereas the following:

```
(cdr '("one and only"))
```

returns:

```
()
```

Accessing Other Elements In A List

OK, great, we can get the first element in a list, as well as the rest of the list, but how do we access the second, third or other elements of a list? There exist several "convenience" functions to access, for example, the head of the head of the tail of a list (caadr), the tail of the tail of a list (cddr), etc.

The basic naming convention is easy: The a's and d's represent the heads and tails of lists, so

```
(car (cdr (car x) ) )
```

could be written as:

```
████████(cadar█x)
██████
```

To view a full list of the list functions, refer to the Appendix, which lists the available functions for the version of Scheme used by Script-Fu.

To get some practice with list-accessing functions, try typing in the following (except all on one line if you're using the console); use different variations of car and cdr to access the different elements of the list:

```
████████(let*█(
████████████████(x██'(█(1█2█(3█4█5)█6)██7██8██(9█10)█)
██████████████████)
████████████████)
██████████████;█place█your█car/cdr█code█here
█████████)
██████
```

Try accessing the number 3 in the list using only two function calls. If you can do that, you're on your way to becoming a Script-Fu Master!

In Scheme, a semicolon (";") marks a comment. It, and anything that follows it on the same line, are ignored by the script interpreter, so you can use this to add comments to jog your memory when you look at the script later.

Your First Script-Fu Script

Do you not need to stop and catch your breath? No? Well then, let's proceed with your fourth lesson -- your first Script-Fu Script.

Creating A Text Box Script

One of the most common operations I perform in Gimp is creating a box with some text in it for a web page, a logo or whatever. However, you never quite know how big to make the initial image when you start out. You don't know how much space the text will fill with the font and font size you want.

The Script-Fu Master (and student) will quickly realize that this problem can easily be solved and automated with Script-Fu.

We will, therefore, create a script, called Text Box, which creates an image correctly sized to fit snugly around a line of text the user inputs. We'll also let the user choose the font, font size and text color.

Editing And Storing Your Scripts

Up until now, we've been working in the Script-Fu Console. Now, however, we're going to switch to editing script text files.

Where you place your scripts is a matter of preference -- if you have access to Gimp's default script directory, you can place your scripts there. However, I prefer keeping my personal scripts in my own script directory, to keep them separate from the factory-installed scripts.

In the `.gimp-2.2` directory that Gimp made off of your home directory, you should find a directory called `scripts`. Gimp will automatically look in your `.gimp-2.2` directory for a scripts directory, and add the scripts in this directory to the Script-Fu database. You should place your personal scripts here.

The Bare Essentials

Every Script-Fu script defines at least one function, which is the script's main function. This is where you do the work.

Every script must also register with the procedural database, so you can access it within Gimp.

We'll define the main function first:

```
(define (script-fu-text-box inText inFont inFontSize inTextColor))
```

Here, we've defined a new function called script-fu-text-box that takes four parameters, which will later correspond to some text, a font, the font size, and the text's color. The function is currently empty and thus does nothing. So far, so good -- nothing new, nothing fancy.

Naming Conventions

Scheme's naming conventions seem to prefer lowercase letters with hyphens, which I've followed in the naming of the function. However, I've departed from the convention with the parameters. I like more descriptive names for my parameters and variables, and thus add the "in" prefix to the parameters so I can quickly see that they're values passed into the script, rather than created within it. I use the prefix "the" for variables defined within the script.

It's Gimp convention to name your script functions script-fu-abc, because then when they're listed in the procedural database, they'll all show up under script-fu when you're listing the functions. This also helps distinguish them from plug-ins.

Registering The Function

Now, let's register the function with Gimp. This is done by calling the function script-fu-register. When Gimp reads in a script, it will execute this function, which registers the script with the procedural database. You can place this function call wherever you wish in your script, but I usually place it at the end, after all my other code.

Here's the listing for registering this function (I will explain all its parameters in a minute):

```
(script-fu-register
    "script-fu-text-box"                        ;func name
    "Text Box"                                  ;menu label
    "Creates a simple text box, sized to fit\
      around the user's choice of text,\
      font, font size, and color."             ;description
    "Michael Terry"                             ;author
    "copyright 1997, Michael Terry"             ;copyright notice
    "October 27, 1997"                          ;date created
    ""                        ;image type that the script works on
    SF-STRING     "Text:"      "Text Box"   ;a string variable
    SF-FONT       "Font:"      "Charter"    ;a font variable
    SF-ADJUSTMENT "Font size"  '(50 1 1000 1 10 0 1)
                                            ;a spin-button
    SF-COLOR      "Color:"     '(0 0 0)     ;color variable
)
(script-fu-menu-register "script-fu-text-box" "<Toolbox>/Xtns/Script-Fu/Text")
```

If you save these functions in a text file with a `.scm` suffix in your script directory, then

choose Xtns Script-Fu Refresh Scripts , this new script will appear as Xtns Script-Fu Text Text Box .

If you invoke this new script, it won't do anything, of course, but you can view the prompts you created when registering the script (more information about what we did is covered next).

Finally, if you invoke the Procedure Browser -- Xtns Procedure Browser), you'll notice that our script now appears in the database.

Steps For Registering The Script

To register our script with Gimp, we call the function script-fu-register, fill in the seven required parameters and add our script's own parameters, along with a description and default value for each parameter.

The Required Parameters

- The **name** of the function we defined. This is the function called when our script is invoked (the entry-point into our script). This is necessary because we may define additional functions within the same file, and Gimp needs to know which of these functions to call. In our example, we only defined one function, text-box, which we registered.

- The **location** in the menu where the script will be inserted. The exact location of the script is specified like a path in Unix, with the root of the path being either toolbox or right-click.

  If your script does not operate on an existing image (and thus creates a new image, like our Text Box script will), you'll want to insert it in the toolbox menu -- this is the menu in Gimp's main window (where all the tools are located: the selection tools, magnifying glass, etc.).

  If your script is intended to work on an image being edited, you'll want to insert it in the menu that appears when you right-click on an open image. The rest of the path points to the menu lists, menus and sub-menus. Thus, we registered our Text Box script in the Text menu of the Script-Fu menu of the Xtns menu of the toolbox (Xtns Script-Fu Text Text Box).

  If you notice, the Text sub-menu in the Script-Fu menu wasn't there when we began -- Gimp automatically creates any menus not already existing.

- A **description** of your script, to be displayed in the Procedure Browser.

- **Your name** (the author of the script).

- **Copyright** information.

- The **date** the script was made, or the last revision of the script.

- The **types** of images the script works on. This may be any of the following: RGB, RGBA, GRAY, GRAYA, INDEXED, INDEXEDA. Or it may be none at all -- in our case, we're creating an image, and thus don't need to define the type of image on which we work.

Registering The Script's Parameters

Once we have listed the required parameters, we then need to list the parameters that correspond to the parameters our script needs. When we list these params, we give hints as to what their types are. This is for the dialog which pops up when the user selects our script. We also provide a default value.

This section of the registration process has the following format:

Param Type	Description	Example
SF-VALUE	Accepts numbers and strings. Note that quotes must be escaped for default text, so better use SF-STRING.	42
SF-STRING	Accepts strings.	"Some text"
SF-COLOR	Indicates that a color is requested in this parameter.	'(0 102 255)
SF-TOGGLE	A checkbox is displayed, to get a Boolean value.	TRUE or FALSE
SF-IMAGE	If your script operates on an open image, this should be the first parameter after the required parameters. Gimp will pass in a reference to the image in this parameter.	3
SF-DRAWABLE	If your script operates on an open image, this should be the second parameter after the SF-IMAGE param. It refers to the active layer. Gimp will pass in a reference to the active layer in this parameter.	17

Giving Our Script Some Guts

Let us continue with our training and add some functionality to our script.

Creating A New Image

In the previous lesson, we created an empty function and registered it with Gimp. In this lesson, we want to provide functionality to our script -- we want to create a new image, add the user's text to it and resize the image to fit the text exactly.

Once you know how to set variables, define functions and access list members, the rest is all downhill -- all you need to do is familiarize yourself with the functions available in Gimp's procedural database and call those functions directly. So fire up the DB Browser and let's get cookin'!

Let's begin by making a new image. We'll create a new variable, `theImage`, set to the result of calling Gimp's built-in function gimp-image-new.

As you can see from the DB Browser, the function gimp-image-new takes three parameters -- the image's width, height and the type of image. Because we'll later resize the image to fit the text, we'll make a 10x10 RGB image. We'll store the image's width and sizes in some variables, too, as we'll refer to and manipulate them later in the script.

```
        (define (script-fu-text-box inText inFont inFontSize inTextColor)
        (let*
              (
```

```
                 ;define our local variables
                 ;create a new image:
                (theImageWidth  10)
                (theImageHeight 10)
                (theImage (car
                          (gimp-image-new
                          theImageWidth
                          theImageHeight
                          RGB
                          )
                     )
                )
                (theText)     ;a declaration for the text
                              ;we create later
```

Note: We used the value RGB to specify that the image is an RGB image. We could have also used 0, but RGB is more descriptive when we glance at the code.

You should also notice that we took the head of the result of the function call. This may seem strange, because the database explicitly tells us that it returns only one value -- the ID of the newly created image. However, all Gimp functions return a list, even if there is only one element in the list, so we need to get the head of the list.

Adding A New Layer To The Image

Now that we have an image, we need to add a layer to it. We'll call the gimp-layer-new function to create the layer, passing in the ID of the image we just created. (From now on, instead of listing the complete function, we'll only list the lines we're adding to it. You can see the complete script here.) Because we've declared all of the local variables we'll use, we'll also close the parentheses marking the end of our variable declarations:

```
        ;create a new layer for the image:
        (theLayer
                (car
                (gimp-layer-new
                theImage
                theImageWidth
                theImageHeight
                RGB-IMAGE
                "layer 1"
                100
                NORMAL
                )
            )
        )
      ) ;end of our local variables
```

Once we have the new layer, we need to add it to the image:

```
       (gimp-image-add-layer theImage theLayer 0)
```

Now, just for fun, let's see the fruits of our labors up until this point, and add this line to show the new, empty image:

```
        (gimp-display-new theImage)
```

Save your work, select Xtns Script-Fu Refresh Scripts , run the script and a new image should pop up. It will probably contain garbage (random colors), because we haven't erased it. We'll get to that in a second.

Adding The Text

Go ahead and remove the line to display the image (or comment it out with a ; as the first character of the line).

Before we add text to the image, we need to set the background and foreground colors so that the text appears in the color the user specified. We'll use the gimp-context-set-back/foreground functions:

```
■■■■■■■■(gimp-context-set-background■'(255■255■255)■)
■■■■■■■■(gimp-context-set-foreground■inTextColor)
■■■■■■
```

With the colors properly set, let's now clean out the garbage currently in the image by filling the drawable with the background color:

```
■■■■■■■■(gimp-drawable-fill■theLayer■BACKGROUND-FILL)■
■■■■■■
```

With the image cleared, we're ready to add some text:

```
■■■■■■■■(set!■theText
■■■■■■■■■■■■■■■■■■■■■■■■(car
■■■■■■■■■■■■■■■■■■■■■■■■■■(gimp-text-fontname
■■■■■■■■■■■■■■■■■■■■■■■■■■theImage■theLayer
■■■■■■■■■■■■■■■■■■■■■■■■■■0■0
■■■■■■■■■■■■■■■■■■■■■■■■■■inText
■■■■■■■■■■■■■■■■■■■■■■■■■■0
■■■■■■■■■■■■■■■■■■■■■■■■■■TRUE
■■■■■■■■■■■■■■■■■■■■■■■■■■inFontSize■PIXELS
■■■■■■■■■■■■■■■■■■■■■■■■■■"Sans")
■■■■■■■■■■■■■■■■■■■■■■■■)
■■■■■■■■)■■
■■■■■■
```

Although a long function call, it's fairly straightforward if you go over the parameters while looking at the function's entry in the DB Browser. Basically, we're creating a new text layer and assigning it to the variable theText.

Now that we have the text, we can grab its width and height and resize the image and the image's layer to the text's size:

```
■■■■■■■■(set!■theImageWidth■■■(car■(gimp-drawable-width■■theLayer)■)■)
■■■■■■■■(set!■theImageHeight■■(car■(gimp-drawable-height■theText)■)■)

■■■■■■■■(gimp-image-resize■theImage■theImageWidth■theImageHeight■0■0)

■■■■■■■■(gimp-layer-resize■theLayer■theImageWidth■theImageHeight■0■0)
■■■■■■
```

If you're like me, you're probably wondering what a drawable is when compared to a layer. The difference between the two is that a drawable is anything that can be drawn into, including layers but also channels, layer masks, the selection, etc; a layer is a more specific version of a drawable. In most cases, the distinction is not important.

With the image ready to go, we can now re-add our display line:

```
■■■■■■■■(gimp-display-new■theImage)
■■■■■■
```

Save your work, refresh the database and give your first script a run!

Clearing The Dirty Flag

If you try to close the image created without first saving the file, Gimp will ask you if you want to save your work before you close the image. It asks this because the image is marked as dirty, or unsaved. In the case of our script, this is a nuisance for the times when we simply give it a test run and don't add or change anything in the resulting image -- that is, our work is easily reproducible in such a simple script, so it makes sense to get rid of this dirty flag.

To do this, we can clear the dirty flag after displaying the image:

```
        (gimp-image-clean-all theImage)
```

This will set dirty count to 0, making it appear to be a "clean" image.

Whether to add this line or not is a matter of personal taste. I use it in scripts that produce new images, where the results are trivial, as in this case. If your script is very complicated, or if it works on an existing image, you will probably not want to use this function.

Extending The Text Box Script

Handling Undo Correctly

When creating a script, you want to give your users the ability to undo their actions, should they make a mistake. This is easily accomplished by calling the functions gimp-undo-push-group-start and gimp-undo-push-group-end around the code that manipulates the image. You can think of them as matched statements that let Gimp know when to start and stop recording manipulations on the image, so that those manipulations can later be undone.

If you are creating a new image entirely, it doesn't make sense to use these functions because you're not changing an existing image. However, when you are changing an existing image, you most surely want to use these functions.

Undoing a script works nearly flawlessly when using these functions.

Extending The Script A Little More

Now that we have a very handy-dandy script to create text boxes, let's add two features to it:

- Currently, the image is resized to fit exactly around the text -- there's no room for anything, like drop shadows or special effects (even though many scripts will automatically resize the image as necessary). Let's add a buffer around the text, and even let the user specify how much buffer to add as a percentage of the size of the resultant text.
- This script could easily be used in other scripts that work with text. Let's extend it so that it returns the image and the layers, so other scripts can call this script and use the image and layers we create.

Modifying The Parameters And The Registration Function

To let the user specify the amount of buffer, we'll add a parameter to our function and the registration function:

```
        (define (script-fu-text-
box inTest inFont inFontSize inTextColor inBufferAmount)
```

```
        (let*
            (
                ;▮define▮our▮local▮variables
                ;▮create▮a▮new▮image:
                (theImageWidth▮▮10)
                (theImageHeight▮▮10)
                (theImage▮(car▮
                            (gimp-image-new
                                theImageWidth
                                theImageHeight
                                RGB
                            )
                        )
                )
                (theText)          ;a▮declaration▮for▮the▮text
                                   ;we▮create▮later

                (theBuffer)        ;added
                (theLayer▮
                            (car
                                (gimp-layer-new
                                    theImage
                                    theImageWidth
                                    theImageHeight
                                    RGB-IMAGE
                                    "layer▮1"
                                    100
                                    NORMAL
                                )
                            )
                )
            )▮;end▮of▮our▮local▮variables

        [Code▮here]
    )
)
```

```
    )
        (script-fu-register
            "script-fu-text-box"                        ;func▮name
            "Text▮Box"                                  ;menu▮label
            "Creates▮a▮simple▮text▮box,▮sized▮to▮fit\
             around▮the▮user's▮choice▮of▮text,▮\
             font,▮font▮size,▮and▮color."               ;description
            "Michael▮Terry"                             ;author
            "copyright▮1997,▮Michael▮Terry"             ;copyright▮notice
            "October▮27,▮1997"                          ;date▮created
            ""                                          ;image▮type▮that▮the▮script▮works▮on
            SF-STRING      "Text:"        "Text▮Box"  ;a▮string▮variable
            SF-FONT        "Font:"        "Charter"   ;a▮font▮variable
            SF-ADJUSTMENT  "Font▮size"    '(50▮1▮1000▮1▮10▮0▮1)
                                                      ;a▮spin-button
            SF-COLOR       "Color:"       '(0▮0▮0)    ;color▮variable
            SF-ADJUSTMENT  "Buffer▮amount"▮'(35▮0▮100▮1▮10▮1▮0)
                                                      ;a▮slider
        )
        (script-fu-menu-register▮"script-fu-text-box"▮"<Toolbox>/Xtns/Script-
Fu/Text")
```

Adding The New Code

We're going to add code in two places: right before we resize the image, and at the end of the script (to return the new image, the layer and the text).

After we get the text's height and width, we need to resize these values based on the buffer amount specified by the user. We won't do any error checking to make sure it's in the range of 0-100% because it's not life-threatening, and because there's no reason why the user can't enter a value like "200" as the percent of buffer to add.

```
        (set! theBuffer (* theImageHeight (/ inBufferAmount 100) ) )

        (set! theImageHeight (+ theImageHeight theBuffer theBuffer) )
        (set! theImageWidth  (+ theImageWidth  theBuffer theBuffer) )
      
```

All we're doing here is setting the buffer based on the height of the text, and adding it twice to both the height and width of our new image. (We add it twice to both dimensions because the buffer needs to be added to both sides of the text.)

Now that we have resized the image to allow for a buffer, we need to center the text within the image. This is done by moving it to the (x, y) coordinates of (`theBuffer`, `theBuffer`). I added this line after resizing the layer and the image:

```
        (gimp-layer-set-offsets theText theBuffer theBuffer)
      
```

Go ahead and save your script, and try it out after refreshing the database.

All that is left to do is return our image, the layer, and the text layer. After displaying the image, we add this line:

```
        (list theImage theLayer theText)
      
```

This is the last line of the function, making this list available to other scripts that want to use it.

To use our new text box script in another script, we could write something like the following:

```
        (set! theResult (script-fu-text-box
                           "Some text"
                           "Charter" "30"
                           '(0 0 0)
                           "35"
                         )
        )
        (gimp-image-flatten (car theResult))
      
```

Congratulations, you are on your way to your Black Belt of Script-Fu!

Creating Shortcuts to Menu Functions

Many functions which are accessible via the image menu have a default keyboard shortcut. You may want to create a new shortcut for a command that you use a lot and doesn't have one or, more rarely, edit an existing shortcut. There are two methods for doing this.

First, you have to activate this capability by checking the Use dynamic keyboard shortcuts option in the Interface item of the Preferences menu. This option is usually not checked, to prevent accidental key presses from creating an unwanted shortcut.

While you're doing that, also check the Save keyboard shortcuts on exit option so that your shortcut will be saved.

To create a keyboard shortcut, simply place the mouse pointer on a command in the menu: it will then be highlighted. Be careful that the mouse pointer doesn't move and type a sequence of three keys, keeping the keys pressed. You will see this sequence appear on the right of the command.

If you type a sequence which has already been used, the command which is associated with this shortcut will be executed and no new shortcut will be created.

It is best to use the CtrlAltKey sequence for your custom shortcuts.
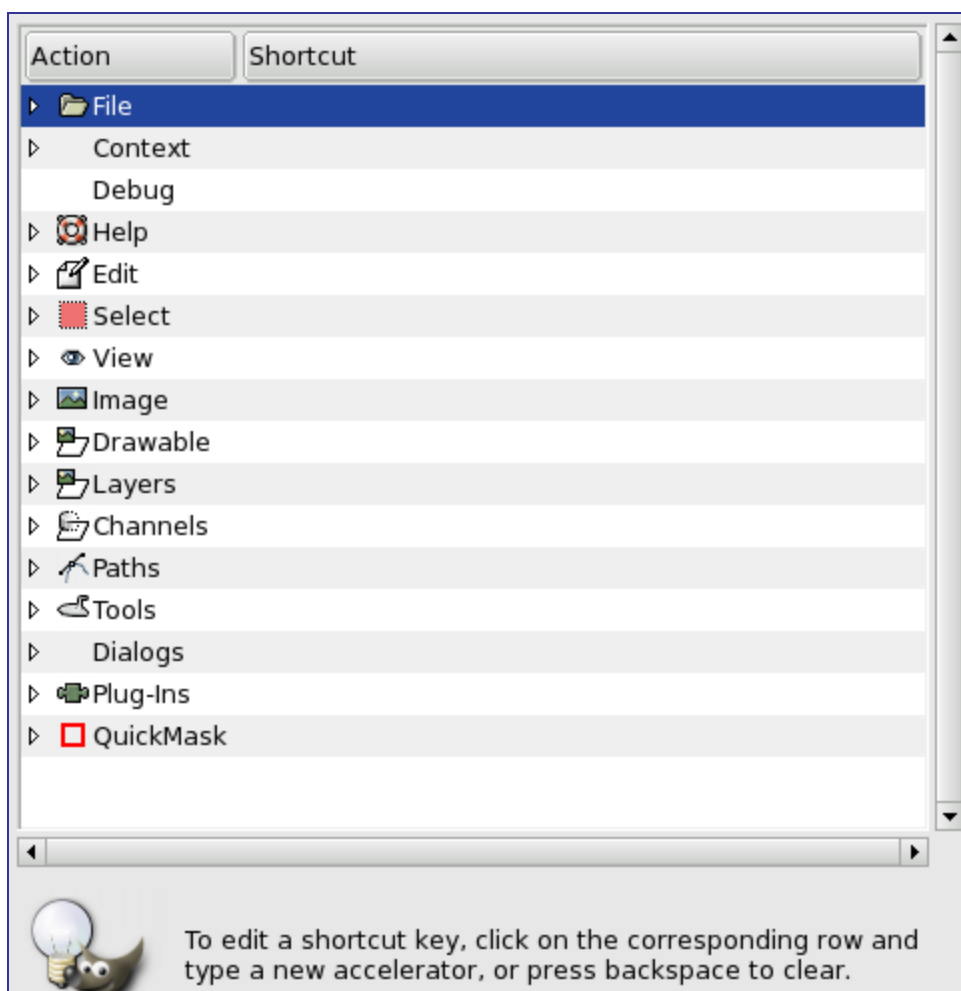
You get to this Editor by clicking on Configure keyboard shortcuts in the "*Interface*" item of the Preferences menu.

As shown in this dialog, you can select the command you want to create a shortcut for, in the "*Action*" area. Then you type your key sequence as above. In principle, the Space bar

should clear a shortcut. (In practice, it clears it, but doesn't delete it.)

This shortcut editor also allows you to *control the tool parameter settings* with the keyboard. At the top of this dialog, you can find a Context menu that takes you to the tool parameters. To make your work easier, tool types are marked with small icons.

Custom Keyboard shortcuts are stored in one of Gimp's hidden directory (`/home/[username]/.gimp-2.2/menurc`) under Linux, and `C:\Documents and Settings\[Username]\.gimp-2.2\menurc` under Windows XP. It is a simple text file that you can transport from one computer to another.

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The GIH dialog box
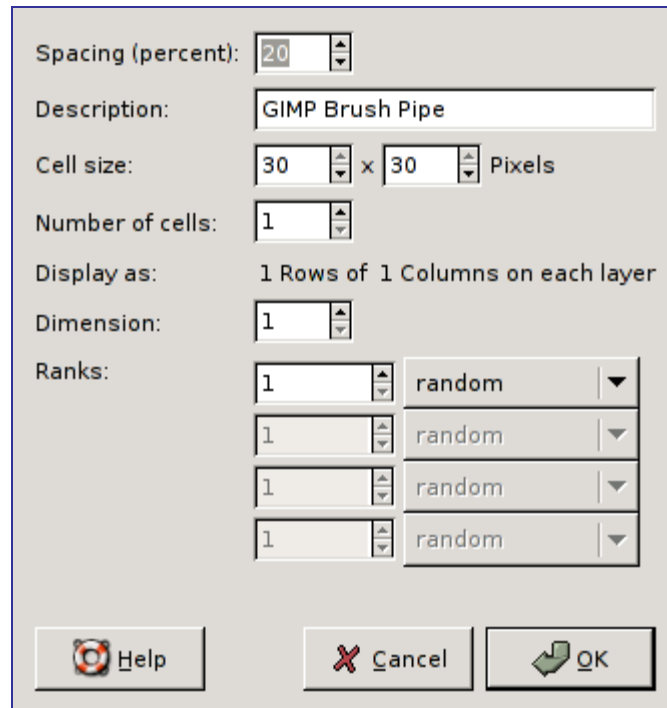
This dialog box has several options not easy to understand. They allow you to determine the way your brush is animated.

Creating a brush with variable size

You can create a brush with a size which will vary by rotating the mouse wheel or by using the keyboard arrow keys.

1. Start with opening the Brush dialog by double_clicking on the Brush area in Toolbox, or by going through File Dialogs Brushes .

2. Click on the New Brush button to open the Brush Editor dialog. Name your brush at once, "*Dynamic*" for instance. Your brush will appear in the Brush Dialog with a blue corner.

    - Check the Enable this controller box.

    - Scroll through the Events list and select Scroll up (Shift). Avoid Scroll up (Ctrl) because Ctrl is yet used by tools to turn to the Color Picker mode.

    - Click on the Edit button to open a window that allows you to assign an action to the selected event. If an action is assigned to the event yet, the window opens on this event; else, click on the small triangular button close to the Context item to drop the list down. Scroll through this list and select the context-brush-radius-increase item. (You could choose context-brush-radius-increase-skip). Click on OK.

    - Do the same way to assign the "*context-brush-radius-decrease*" action to the "*Scroll down (Shift)*" event to decrease the brush size.

3. Save your brush by clicking on the Save button in the Brush Editor.

Now, if you have selected your Dynamic brush, when you work with a tool that has a "*Brush*" option while pressing the Shift key, the brush size will vary by using the mouse wheel. This change will be visible in real time in the brush area of the Toolbox and in the Brush Dialog.

By enabling the "*Main Keyboard*" tab, you can, in the same way, assign an action to the events of the keyboard arrow keys.

Actions are not removed from the window when you delete the brush. You have to delete them manually by clicking on the Delete button after selecting them.

Chapter

Toolbox

The Toolbox

The GIMP provides a comprehensive toolbox in order to quickly perform basic tasks such as making selections or drawing paths. The many tools contained within The GIMP 's toolbox are discussed in detail here.

The GIMP has a diverse assortment of tools that let you perform a large variety of tasks. The tools can be thought of as falling into five categories: *Selection tools*, which specify or modify the portion of the image that will be affected by subsequent actions; *Paint tools*, which alter the colors in some part of the image; *Transform tools*, which alter the geometry of the image; *Color tools*, which alter the distribution of colors across the entire image; and *Other tools*, which don't fall into the other four categories.

(In case you're curious, in Gimp lingo a "tool" is a way of acting on an image that requires access to its display, either to let you indicate what you want to do by moving the pointer around inside the display, or to show you interactively the results of changes that you have made. But if you want to think of a tool as a saw, and an image as a piece of wood, it probably won't do you a great deal of harm.)

Most tools can be activated by clicking on an icon in the Toolbox. Some, however (namely, the Color tools), are accessible only via the menus, either as *Tools->Color Tools* or as *Layer->Colors*. Every tool, in fact, can be activated from the *Tools* menu; also, every tool can be activated from the keyboard using an accelerator key.

In the default setup, created when GIMP is first installed, not all tools show icons in the Toolbox: the Color tools are omitted. You can customize the set of tools that are shown in the Toolbox using the Tools dialog. There are two reasons you might want to do this: first, if you only rarely use a tool, it might be easier to find the tools you want if the distracting icon is removed; second, if you use the Color tools a lot, you might find it convenient to have icons for them easily available. In any case, regardless of the Toolbox, you can always access any tool at any time using the Tools menu from an image menubar.

The shape of the cursor changes when it is inside an image, to one that indicates which tool is active.

Tool Options
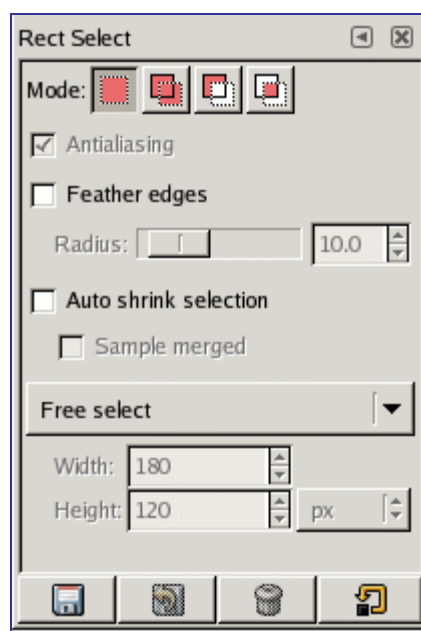
If you have things set up like most people do, activating a tool causes its Tool Options dialog to appear below the Toolbox. If you don't have things set up this way, you probably

should: it is very difficult to use tools effectively without being able to manipulate their options.

The Tool Options appear beneath the Toolbox in the default setup. If you lose it somehow, you can get it back by creating a new Tool Options dialog using *File->Dialogs->Tool Options*, and then docking it below the Toolbox. See the section on Dialogs and Docking if you need help.

Each tool has its own specific set of options. The choices you make for them are kept throughout the session, until you change them. In fact, the tool options are maintained from session to session. The persistence of tool options across sessions can sometimes be an annoying nuisance: a tool behaves very strangely, and you can't figure out why until you remember that you were using some unusual option the last time you worked with it, two weeks ago.

At the bottom of the Tool Options dialog appear four buttons:

- **Save Options to**

  This button allows you to save the settings for the current tool, so that you can restore them later. It brings up a small dialog allowing you to give a name to the array of saved options. When you Restore options, only saved sets for the active tool are shown, so you need not worry about including the name of the tool when you assign a name here.

- **Restore Options**

  This button allows you to restore a previously saved set of options for the active tool. If no option-sets have ever been saved for the active tool, the button will be insensitive. Otherwise, clicking it will bring up a menu showing the names of all saved option sets: choosing a menu entry will apply those settings.

- **Delete Options**

  This button allows you to delete a previously saved set of options for the active tool. If no option-sets have ever been saved for the active tool, the button will be insensitive. Otherwise, clicking it will bring up a menu showing the names of all saved option sets: choosing a menu entry will delete those settings.

- **Reset Options**

  This button resets the options for the active tool to their default values.

Selection Tools

Common Features

Selection tools are designed to select regions from images or layers so you can work on them without affecting the unselected areas. Each tool has its own individual properties, but the selection tools also share a number of options and features in common. These common features are described here; the variations are explained in the following sections for each tool specifically. If you need help with what a "*selection*" is in GIMP, and how it works, see Selection.

There are six selection tools:

- Rectangle Select
- Ellipse Select
- Free Select (the Lasso)
- Select Contiguous Regions (the Magic Wand)
- Select by Color
- Select Shapes from Image (Intelligent Scissors)

In some ways the Path tool can also be thought of 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.

Key modifiers (Defaults)

The behavior of selection tools is modified if you hold down the Ctrl, Shift, and/or Alt keys while you use them.

Advanced users find the modifier keys very valuable, but novice users often find them confusing. Fortunately, it is possible for most purposes to use the Mode buttons (described below) instead of modifier keys.

Options

Here we describe the tool options that apply to all selection tools: options that apply only to some tools, or that affect each tool differently, are described in the sections devoted to the individual tools. The current settings for these options can be seen in the Tool Options dialog, which you should always have visible when you are using tools. (Most users keep it docked directly below the Toolbox.) To make the interface consistent, the same options are presented for all selection tools, even though some of them don't have any effect for some of the tools.

Additional information

When moving a selection beyond the boundaries of the image canvas, the selection will be cropped to the image area. Selections can exist on the visible canvas only. Selection movements and changes are, however, kept in the undo buffer should you need to repair an error.

Rectangle Selection Tool

The Rectangle Selection tool is designed to select rectangular regions of an image: it is the most basic of the selection tools, but very commonly used. For information on selections and how they are used in GIMP see Selections; for information on features common to all selection tools see Selection Tools.

This tool is also used for rendering a rectangle on an image. To render a filled rectangle, create a rectangular selection, and then fill it using the Bucket Fill tool. To create a rectangular outline, the simplest and most flexible approach is to create a rectangular selection and then stroke it.

If you want to round the edges of a rectangular selection, the easiest method is using Select Rounded Rectangle from the image menu.

How to Activate

- From the image menu bar Tools Selection Tools Rect Select ;
- By clicking on the tool icon in the ToolBox,
- By using the keyboard shortcut R.

Key modifiers

See Selection Tools for help with modifier keys that affect all these tools in the same way. Only effects that are specific to the Rectangle Select tool are explained here.

- Ctrl: Pressing the Ctrl key after starting your selection, and holding it down until you are finished, causes your starting point to be used as the center of the selected rectangle, instead of a corner. Note that if you press the Ctrl key *before* starting to make the selection, the resulting selection will be subtracted from the existing selection.

- Shift: Pressing the Shift key after starting your selection, and holding it down until you are finished, constrains the selection to be square. Note that if you press the Shift key *before* starting to make the selection, the resulting selection will be added to the existing selection.

- Ctrl Shift : Pressing both keys after starting your selection combines the two effects, giving you a square selection centered on your starting point. Note that pressing these keys before starting your selection intersects the resulting selection with the existing one.

Tool Options
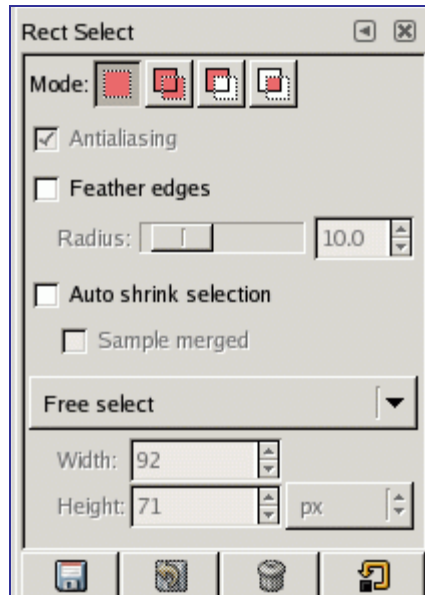
See Selection Tools for help with options that are common to all these tools. Only options that are specific to the Rectangle Select tool are explained here.

Ellipse Selection Tool

The Ellipse Selection tool is designed to select circular and elliptical regions from an image, with high-quality anti-aliasing if you want it. For information on selections and how they are used in GIMP see Selections; for information on features common to all selection tools see Selection Tools.

This tool is also used for rendering a circle or ellipse on an image. To render a filled ellipse, create an elliptical selection, and then fill it using the Bucket Fill tool. To create an elliptical outline, the simplest and most flexible approach is to create an elliptical selection and then stroke it. However, the quality of anti-aliasing with this approach is rather crude. A higher quality outline can be obtained by creating two elliptical selections with different sizes, subtracting the inner one from the outer one; however this is not always easy to get right.

How to Activate

 The Ellipse Selection Tool can be activated from an image menu as Tools Selection Tools Ellipse Select ; from the Toolbox by clicking on the tool icon ; or from the keyboard using the shortcut e.

Key modifiers

See Selection Tools for help with modifier keys that affect all these tools in the same way. Only effects that are specific to the Ellipse Select tool are explained here.

- Ctrl: Pressing the Ctrl key after starting your selection, and holding it down until you are finished, causes your starting point to be used as the center of the selected ellipse, instead of a corner of the rectangle that may contain it. Note that if you press the Ctrl key *before* starting to make the selection, the resulting selection will be subtracted from the existing selection.

- Shift: Pressing the Shift key after starting your selection, and holding it down until you are finished, constrains the selection to be a circle. Note that if you press the Shift key *before* starting to make the selection, the resulting selection will be added to the existing selection.

- Ctrl Shift : Pressing both keys combines the two effects, giving you a circular selection centered on your starting point.

Options
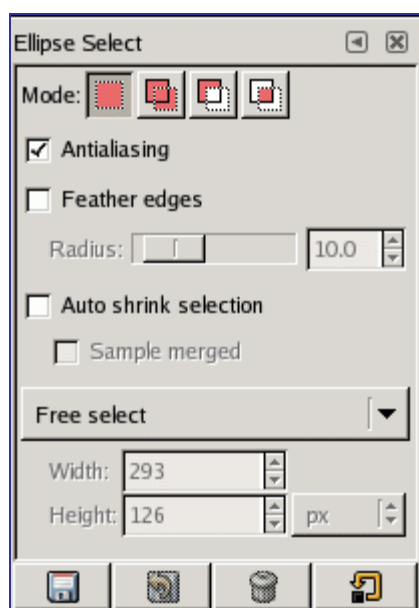
See Selection Tools for help with options that are common to all these tools. Only options that are specific to the Ellipse Select tool are described here.

You can access to the Ellipse Selection options by double-clicking on the icon.

Free Selection Tool (Lasso)
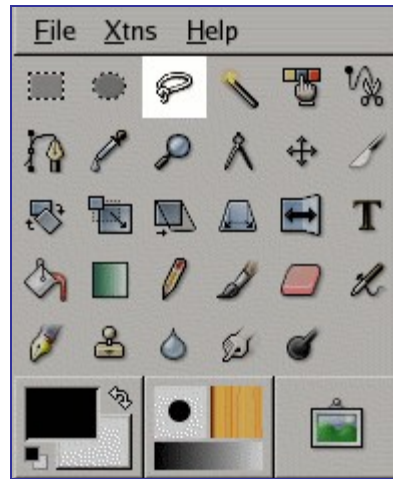
The Free Selection tool, or Lasso, lets you create a selection by drawing it free-hand with the pointer, while holding down the left mouse button (or, for a stylus, pressing it against the tablet). When you release the mouse button, the selection is closed by connecting the current pointer location to the start location with a straight line. You can go outside the edge of the image display and come back in if you want to. The Lasso is often a good tool to use for "*roughing in*" a selection; it is not so good for precise definition. Experienced users find that it is often convenient to begin with the lasso tool, but then switch to QuickMask mode for detail work.

For information on selections and how they are used in GIMP see Selections. For information on features common to all selection tools see Selection Tools.

The Free Selection tool is much easier to use with a tablet than with a mouse.

How to Activate

 The Lasso Tool can be activated from an image menu as Tools Selection Tools Free Select ; from the Toolbox by clicking on the tool icon ; or from the keyboard using the shortcut f.

Key modifiers

The Free Select tool does not have any special key modifiers, only the ones that affect all selection tools in the same way. See Selection Tools for help with these.
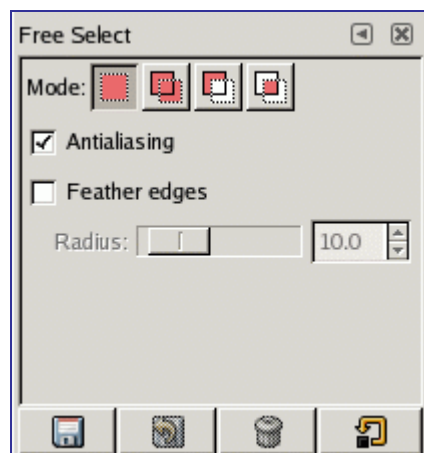
Options

The Free Select tool has no special tool options, only the ones that affect all selection tools in the same way. See Selection Tools for help with these.

Fuzzy Selection Tool (Magic Wand)

The Fuzzy Select (Magic Wand) tool is designed to select areas of the current layer or image based on color similarity. It starts selecting when you click at a spot in the image, and expands outward like water flooding low-lying areas, selecting contiguous pixels whose colors are similar to the starting pixel. You can control the threshold of similarity by dragging the mouse downward or to the right: the farther you drag it, the larger the selected region. And you can reduce the selection by dragging upwards or to the left.

When using this tool, it is very important to pick the right starting point. If you select the wrong spot, you might get something very different from what you want, or even the opposite.

The Wand is a good tool for selecting objects with sharp edges. It is fun to use, so beginners often start out using it a lot. You will probably find, however, that the more you use it, the more frustrated you become with the difficulty of selecting exactly what you what, no more, no less. Perhaps the most frustrating aspect is that after you have released the mouse button, you can't make small adjustments to the threshold: you have to start over again from scratch. More experienced users find that the Path and Color Select tools are often more efficient, and use the Wand less. Still, it is useful for selecting an area within a contour, or touching up imperfect selections. It often works very well for selecting a solid-colored (or nearly solid-colored) background area.

Note that as the selected area expands outward from the center, it does not only propagate to pixels that touch each other: it is capable of jumping over small gaps. The distance it can jump over is set in the Tool Options page of the Preferences dialog: the "Default threshold" for Finding Contiguous Regions. By raising or lowering this value, you can make the Magic Wand either more or less aggressive. (Filling with the Bucket Fill and Blend tools will also be affected.)

How to Activate

The Magic Wand Tool can be activated from an image menu as Tools Selection Tools Fuzzy Select ; from the Toolbox by clicking on the tool icon ; or from the keyboard using the shortcut z. ("Z" stands for "Zauber", the German word for Magic.)

Key modifiers (Defaults)

The Fuzzy Select tool does not have any special key modifiers, only the ones that affect all selection tools in the same way. See Selection Tools for help with these.
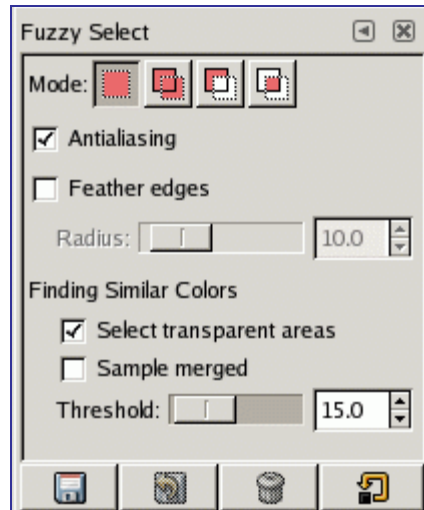
Options

See Selection Tools for help with options that are common to all these tools. Only options that are specific to the Magic Wand tool are explained here.

Select By Color Tool
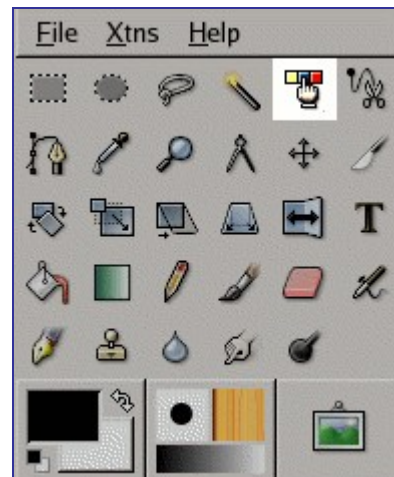
The Select by Color tool is designed to select areas of an image based on color similarity. It works a lot like the Fuzzy Select tool ("Magic Wand"). The main difference between them is that the Magic Wand selects *contiguous* regions, with all parts connected to the starting point by paths containing no large gaps; while the Select by Color tool selects all pixels that are sufficiently similar in color to the pixel you click on, regardless of where they are located. Also, clicking and dragging in the image has no effect on the Select by Color tool.

How to Activate

 The Select By Color Tool can be activated from an image menu as Tools Selection Tools Select by Color ; from the Toolbox by clicking on the tool icon ; or from the keyboard using the shortcut Shift CtrlC

Key modifiers (Defaults)

The select by color tool does not have any special key modifiers, only the ones that affect all selection tools in the same way. See Selection Tools for help with these.
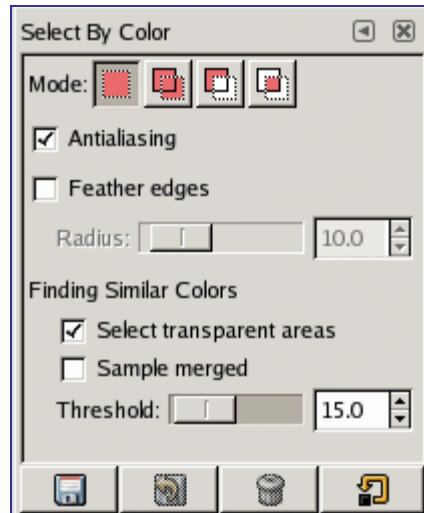
Options

See Selection Tools for help with options that are common to all these tools. Only options that are specific to the Select by Color tool are explained here. Note that they are the same options as the Magic Wand tool has.

Regarding moving selection, this tool does'nt work like others: when selection by color is created, you can move it only if you select another selection tool...

Scissors Tool
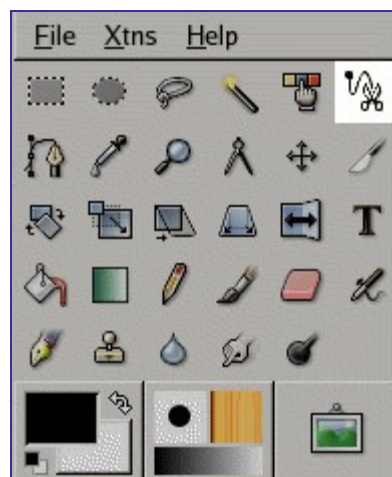
The Intelligent Scissors tool is an interesting piece of equipment: it has some features in common with the Lasso, some features in common with the Path tool, and some features all its own. It is useful when you are trying to select a region defined by strong color-changes at the edges. To use the Scissors, you click to create a set of "control nodes" at the edges of the region you are trying to select. The tool produces a continuous curve passing through these control nodes, following any high-contrast edges it can find. If you are lucky, the path that the tool finds will correspond to the contour you are trying to select.

Each time you left-click with the mouse, you create a new control point, which is connected to the last control point by a curve that tries to follow edges in the image. To finish, click on the first point (the cursor changes to indicate when you are in the right spot). You can adjust the curve by dragging the control nodes, or by clicking to create new control nodes. When you are satisfied, click anywhere inside the curve to convert it into a selection.

Be sure not to click inside the curve until you are completely done adjusting it. Once you have converted it into a selection, undoing takes you back to zero, and you will have to to start constructing the curve again from scratch if you need to change it. Also be sure not

to switch to a different tool, or again all of your carefully created control nodes will be lost. (But you still can transform your selection into a path and work it with the Path tool.)

Unfortunately, there seem to be some problems with the edge-following logic for this tool, with the result that the selections it creates tend to be pretty crude in a lot of cases. A good way to clean them up is to switch to QuickMask mode, and use paint tools to paint in the problematic parts. On the whole, most people find the Path tool to be more useful than the Scissors, because, even though it does not have the intelligent edge-finding capability, the paths it produces persist until you delete them, and can be altered at any time.

How to Activate

The Intelligent Scissors can be activated from an image menu as Tools Selection Tools Intelligent Scissors ; from the Toolbox by clicking on the tool icon ; or from the keyboard using the shortcut i.

Key modifiers (Defaults)

The Scissor tool does not have any special key modifiers, only the ones that affect all selection tools in the same way. See Selection Tools for help with these.
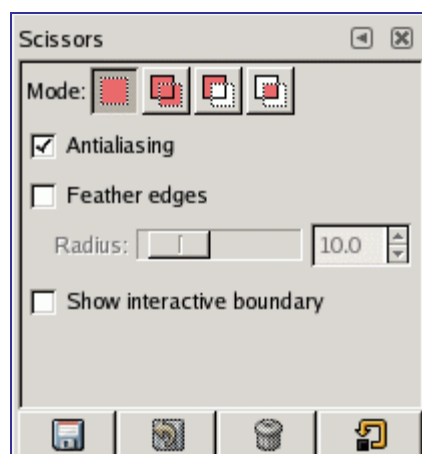
Options

See Selection Tools for help with options that are common to all these tools. Only options that are specific to the Intelligent Scissors tool are explained here.

Brush Tools

Common Features

The GIMP Toolbox includes nine "brush tools", all grouped together at the bottom (in the default arrangement). The feature they all have in common is that all of them are used by moving the pointer across the image display, creating brushstrokes. Four of them – the Pencil, Paintbrush, Airbrush, and Ink tools – behave like the intuitive notion of "painting" with a brush. The others use a brush to modify an image in some way rather than paint on it: the Eraser erases; the Clone tool copies from a pattern or image; the Convolve tool blurs or sharpens; the Dodge/Burn tool lightens or darkens; and the Smudge tool smears.

The advantages of using GIMP with a tablet instead of a mouse probably show up more clearly for brush tools than anywhere else: the gain is fine control is invaluable. These tools also have special "*Pressure sensitivity*" options that are only usable with a tablet.

In addition to the more common "hands-on" method, it is possible to apply brush tools in an automated way, by creating a selection or path and then "stroking" it. You can choose to stroke with any of the brush tools, including nonstandard ones such as the Eraser, Smudge tool, etc., and any options you set for the tool will be applied. See the section on Stroking for more information.

Brush tools work not only on image layers, but on other types of drawable objects as well: layer masks, channels, and the selection. To apply a brush tool to a layer mask or channel, simply make it the image's active drawable by clicking on it in the Layers dialog or Channels dialog. To apply a brush tool to the selection, switch to QuickMask mode. "Painting the selection" in this way is a very powerful method for efficiently creating precise selections.

Key modifiers

- Ctrl: Holding down the Ctrl key has a special effect on every brush tool except the ink tool. For the Pencil, Paintbrush, Airbrush, Eraser, and Smudge tools, it switches them into "color picker" mode, so that clicking on an image pixel causes GIMP's foreground to be set to the active layer's color at that point (or, for the Eraser, GIMP's background color). For the Clone tool, the Ctrl key switches it into a mode where clicking sets the reference point for copying. For the Convolve tool, the Ctrl key switches between blur and sharpen modes; the the Dodge/Burn tool, it switches between dodging and burning.

- Straight Line Shift: Holding down the Shift key has the same effect on all brush tools: it places the tool into *straight line* mode. To create a straight line with any of the brush tools, first click on the starting point, *then* press the Shift key. As long as you hold it down, you will see a thin line connecting the previously clicked point with the current pointer location. If you click again, while continuing to hold down the Shift key, a straight line will be rendered. You can continue this process to create a series of connected line segments.

- Ctrl Shift : Holding down both keys puts the tool into *constrained straight line* mode. This is similar to the effect of the Shift key alone, except that the orientation of the line is constrained to the nearest multiple of 15 degrees. Use this if you want to create perfect horizontal, vertical, or diagonal lines.

Tool Options
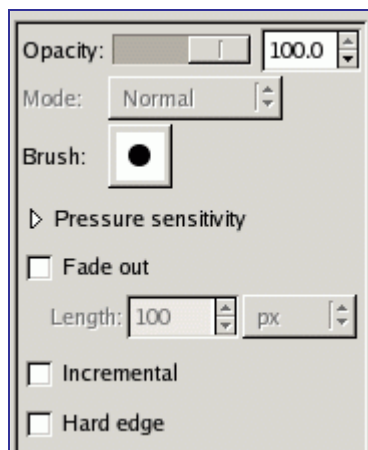
Many tool options are shared by several brush tools: these are described here. Options that apply only to one specific tool, or to a small number of tools, are described in the sections devoted to those tools.

Further Information

Advanced users may be interested to know that brush tools actually operate at a sub-pixel level, in order to avoid producing jagged-looking results. One consequence of this is that even if you work with a hard-edged brush, such as one of the Circle brushes, pixels on the edge of the brushstroke will only be partially affected. If you need to have all-or-nothing effects (which may be necessary for getting a good selection, or for cutting and pasting, or for operating pixel-by-pixel at a high zoom level), there are two things you can do: (1) for painting, use the Pencil tool, which makes all brushes perfectly hard and disables sub-pixel anti-aliasing, or (2) for other types of brush tools, check the "Hard edge" box in the Tool Options.

Bucket Fill
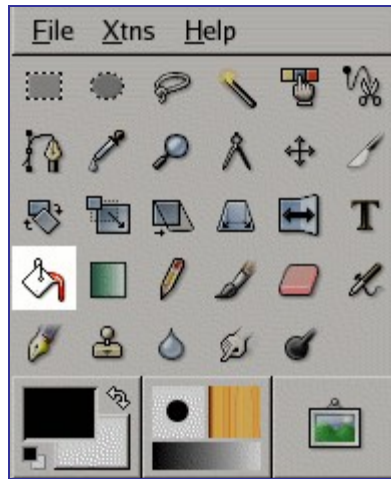
This tool fills a selection with the current foreground color. If you Shift+click and use the Bucket tool, it will use the background color instead. Depending on how the tool options are set, the Bucket Fill tool will either fill the entire selection, or only parts whose colors are similar to the point you click on. The tool options also affect the way transparency is handled.

The amount of fill depends on what Fill Threshold you have specified. The fill threshold determines how far the fill will spread (similar to the way in which the magic wand works). The fill starts at the point where you click and spreads outward until the color or alpha value becomes "*too different*".

When you fill objects in a transparent layer (such as letters in a text layer) with a different color than before, you may find that a border of the old color still surrounds the objects. This is due to a low fill-threshold in the Bucket Fill options dialog. With a low threshold, the bucket tool won't fill semi-transparent pixels, and they will stand out against the fill because they have kept their original color. If you want to fill areas that are totally transparent, you have to choose right-click|Select|Select All, and make sure that the layer's "*Keep Transparency*" button (in the Layers dialog) is unchecked. If the Keep Transparency button is checked, only the opaque parts of the layer will be filled, and if you don't use the Select All command, only the opaque "*island*" that you clicked on will be filled.

Activate Tool

- The Bucket Fill can be called in the following order, from the image-menu: Tools/ Paint Tools/Bucket Fill.

    • The Tool can also be called by clicking the tool icon:

Key modifiers (Defaults)

Options

Gradient Tool
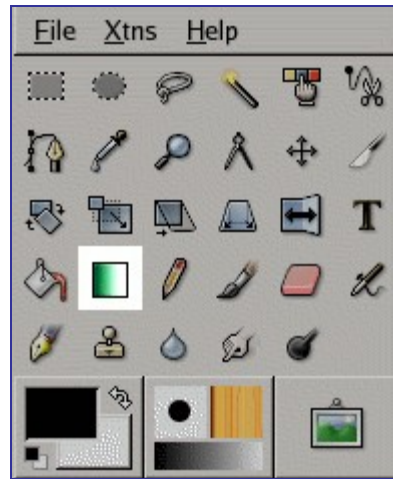
This tool fills the selected area with a gradient blend of the foreground and background colors by default, but there are many options. To make a blend, drag the cursor in the direction you want the gradient to go, and release the mouse button when you feel you have the right position and size of your blend. The softness of the blend depends on how far you drag the cursor. The shorter the drag distance, the sharper it will be.

There are an astonishing number of things you can do with this tool, and the possibilities may seem a bit overwhelming at first. The two most important options you have are the Gradient and the Shape. Clicking the Gradient button in the tool options brings up a Gradient Select window, allowing you to choose from among a variety of gradients supplied with GIMP; you can also construct and save custom gradients.

For Shape, there are 11 options: Linear, Bilinear, Radial, Square, Conical (symmetric), Conical (asymmetric), Shapeburst (angular), Shapeburst (spherical), Shapeburst (dimpled), Spiral (clockwise), and Spiral (counterclockwise); these are described in detail below. The Shapeburst options are the most interesting: they cause the gradient to follow the shape of the selection boundary, no matter how twisty it is. Unlike the other shapes, Shapeburst gradients are not affected by the length or direction of the line you draw: for them as well as every other type of gradient you are required to click inside the selection and move the mouse, but a Shapeburst appears the same no matter where you click or how you move.

Check out the Difference option in the Mode menu, where doing the same thing (even with full opacity) will result in fantastic swirling patterns, changing and adding every time you drag the cursor.

Activate Tool
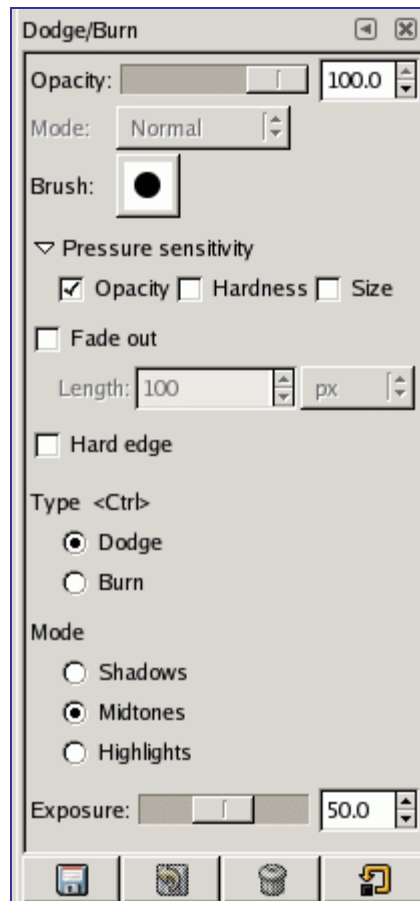
- The Blend Tool can be called in the following order, from the image-menu: Tools/ Paint Tools/ Blend.

- The Tool can also be called by clicking the tool icon:

Key modifiers (Defaults)

Options

Painting Tools (Pencil, Paintbrush, Airbrush)
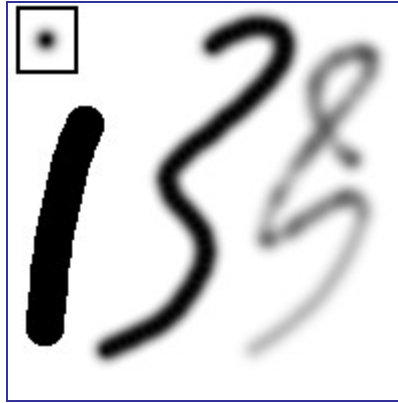
The tools in this group are GIMP's basic painting tools, and they have enough features in common to be worth discussing together in this section. Features common to all brush tools are described in the Common Features section. Features specific to an individual tool are described in the section devoted to that tool.

The Pencil is the crudest of the tools in this group: it makes hard, non-anti-aliased brushstrokes. The Paintbrush is intermediate: it is probably the most commonly used of the group. The Airbrush is the most flexible and controllable: it is the only one for which the amount of paint applied depends on the speed of brush movement. This flexibility also makes it a bit more difficult to use than the Paintbrush, however.

All of these tools share the same brushes, and the same options for choosing colors, either from the basic palette or from a gradient. All are capable of painting in a wide variety of modes.

Key modifiers

Options

Pencil

The Pencil tool is used to draw free hand lines with a hard edge. The pencil and paintbrush are similar tools. The main difference between the two tools is that although both use the same type of brush, the pencil tool will not produce fuzzy edges, even with a very fuzzy brush. It does not even do anti-aliasing.

Why would you want to work with such a crude tool? Perhaps the most important usage is when working with very small images, such as icons, where you operate at a high zoom level and need to get every pixel exactly right. With the pencil tool, you can be confident that every pixel within the brush outline will be changed in exactly the way you expect.

If you want to draw straight lines with the Pencil (or any of several other paint tools), click at the starting point, then hold down Shift and click at the ending point.

Activate Tool

- The Pencil Tool can be called in the following order, from the image-menu: Tools Paint Tools Pencil

- The Tool can also be called by clicking the tool icon:

- or by clicking on the N keyboard shortcut.
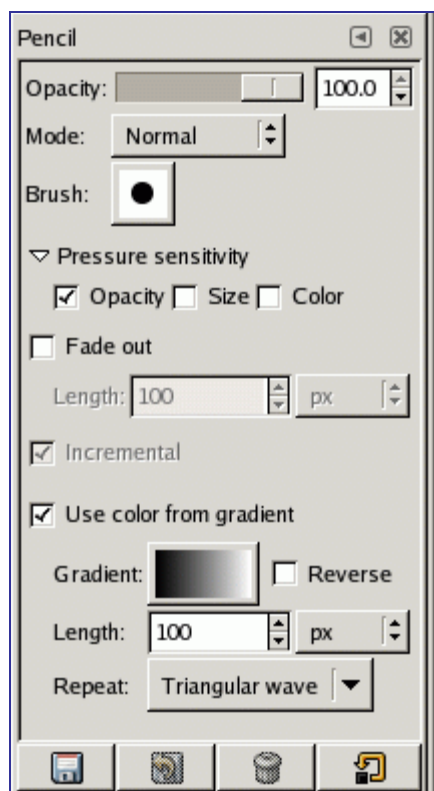
Key modifiers (Defaults)

Options

See the Brush Tools Overview for a description of tool options that apply to many or all brush tools.

Paintbrush Tool
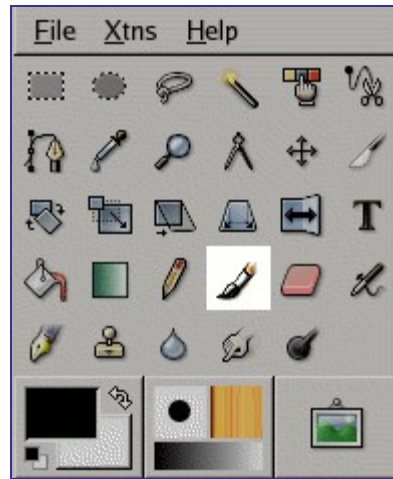
The paintbrush tool paints fuzzy brush strokes. All strokes are rendered using the current brush.

Activate Tool

- You can call the Paintbrush Tool in the following order, from the image-menu: Tools/ Paint Tools/Paintbrush .

- The Tool can also be called by clicking the tool icon:

- or by using the P keyboard shortcut.
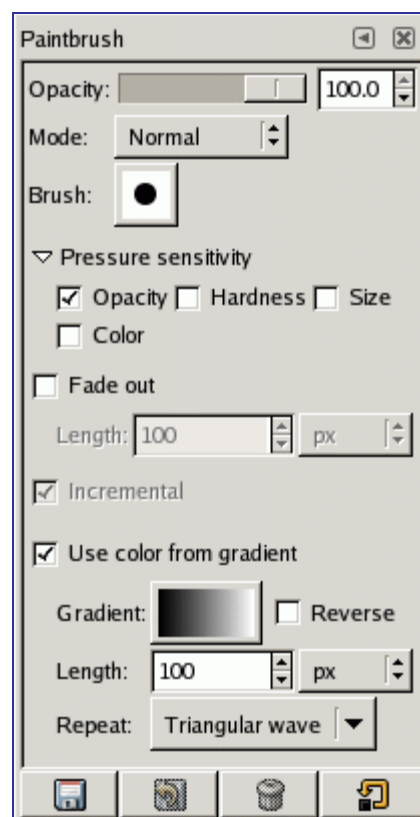
Key modifiers (Defaults)

Options

See the Brush Tools Overview for a description of tool options that apply to many or all brush tools.

Eraser

The Eraser is used to remove areas of color from the current layer or from a selection of this layer. If the Eraser is used on something that does not support transparency (a selection mask channel, a layer mask, or the Background layer if it lacks an alpha channel), then erasing will show the background color, as displayed in the Color Area of the Toolbox (in case of a mask, the selection will be modified). Otherwise, erasing will produce either partial or full transparency, depending on the settings for the tool options.

If you need to erase some group of pixels completely, leaving no trace behind of their previous contents, you should check the "Hard edge" box in the Tool Options. Otherwise, sub-pixel brush placement will cause partial erasure at the edges of the brush-stroke, even if you use a hard-edged brush.

If you use GIMP with a tablet, you may find it convenient to treat the reverse end of the stylus as an eraser. To make this work, all you need to do is click the reverse end on the Eraser tool in the Toolbox. Because each end of the stylus is treated as a separate input device, and each input device has its own separate tool assignment, the reverse end will then continue to function as an Eraser as long as you don't select a different tool with it.

How to Activate

 The Eraser can be activated from an image menu as Tools Paint Tools Eraser ; from the Toolbox by clicking on the tool icon ; or from the keyboard using the shortcut E.

Key modifiers

See the Brush Tools Overview for a description of key modifiers that have the same effect on all brush tools.

- Ctrl: For the Eraser, holding down the Ctrl key puts it into "*color picker*" mode, so that it selects the color of any pixel it is clicked on. Unlike other brush tools, however, the Eraser sets the *background* color rather than the foreground color. This is more useful, because on drawables that don't support transparency, erasing replaces the erased areas with the current background color.

- Alt: For the Eraser, holding down the Alt key switches it into "*anti-erase*" mode, as described below in the Tool Options section. Note that on some systems, the Alt key is trapped by the Window Manager. If this happens to you, you may be able to use Shift-Alt instead.

Tool Options

See the Brush Tools Overview for a description of tool options that apply to many or all
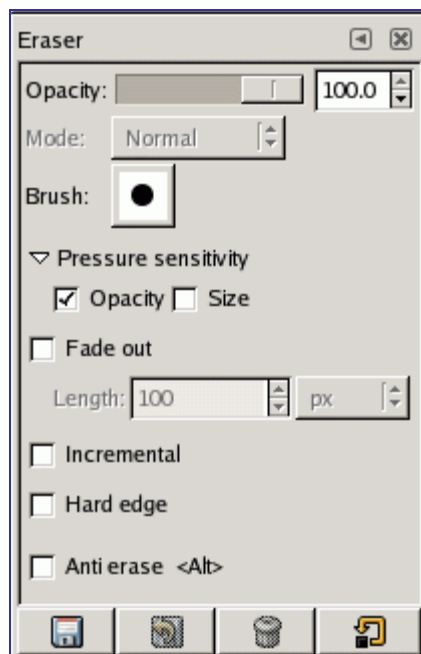
brush tools.

See the Brush Tools Overview for a description of tool options that apply to many or all brush tools. The Eraser tool has only one special option (Anti-Erase), but the Opacity control is mentioned here as well because its name may be a bit confusing.

Airbrush Tool

Activate Tool

- The Airbrush Tool can be called from the image-menu: Tools/ Paint Tools/Airbrush .

  • The Tool can also be called by clicking the tool icon:
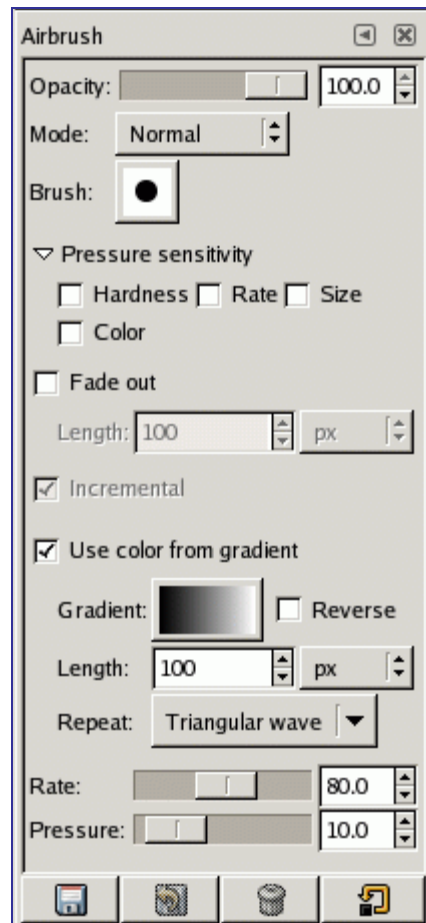
Key modifiers (Defaults)

Options

See the Brush Tools Overview for a description of tool options that apply to many or all brush tools.

Ink Tool
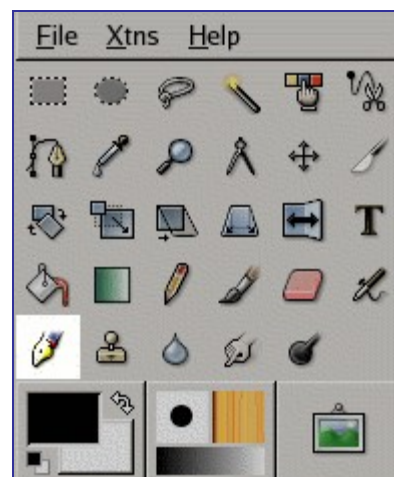
The Ink tool uses a simulation of an ink pen with a controllable nib to paint solid brush strokes with an antialiased edge. The size, shape and angle of the nib can be set to determine how the strokes will be rendered.

Activate Tool

- You can call the Ink Tool in the following order, from the image-menu: Tools/ Paint Tools/Ink .

- You can also call this Tool by clicking on the tool icon:

⬚ Key modifiers (Defaults)
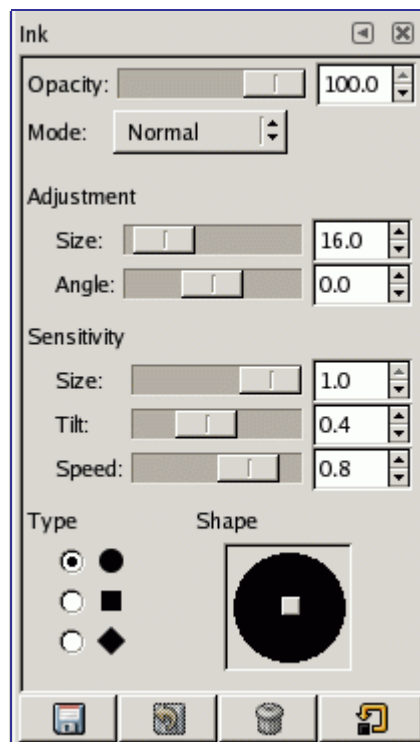
Options

See the Brush Tools Overview for a description of tool options that apply to many or all brush tools.

Clone Tool
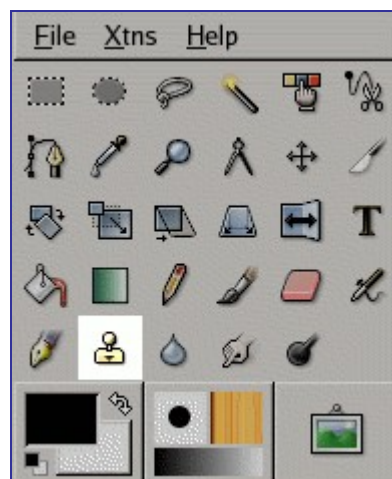
The Clone tool uses the current brush to copy from an image or pattern. It has many uses: one of the most important is to repair problem areas in digital photos, by "painting over" them with pixel data from other areas. This technique takes a while to learn, but in the hands of a skilled user it is very powerful. Another important use is to draw patterned lines or curves: see Patterns for examples.

If you want to clone from an image, instead of a pattern, you must tell GIMP which image you want to copy from. You do this by holding down the Ctrl key and clicking in the desired source image. Until you have set the source in this way, you will not be able to paint with the Clone tool: the tool cursor tells you this by showing a "*forbidden*" symbol.

If you clone from a pattern, the pattern is *tiled*; that is, when the point you are copying from moves past one of the edges, it jumps to the opposite edge and continues, as though the pattern were repeated side-by-side, indefinitely. When you clone from an image this does not happen: if you go beyond the edges of the source, the Clone tool stops producing any changes.

You can clone from any drawable (that is, any layer, layer mask, or channel) to any other drawable. You can even clone to or from the selection mask, by switching to QuickMask mode. If this means copying colors that the target does not support (for example, cloning from an RGB layer to an Indexed layer or a layer mask), then the colors will be converted to the closest possible approximations.

How to Activate

The Clone tool can be activated from an image menu as Tools Paint Tools Clone ; from the Toolbox by clicking on the tool icon ; or from the keyboard using the shortcut c, or S under GIMP-2.10.

Key modifiers

See the Brush Tools Overview for a description of key modifiers that have the same effect on all brush tools.

Tool Options
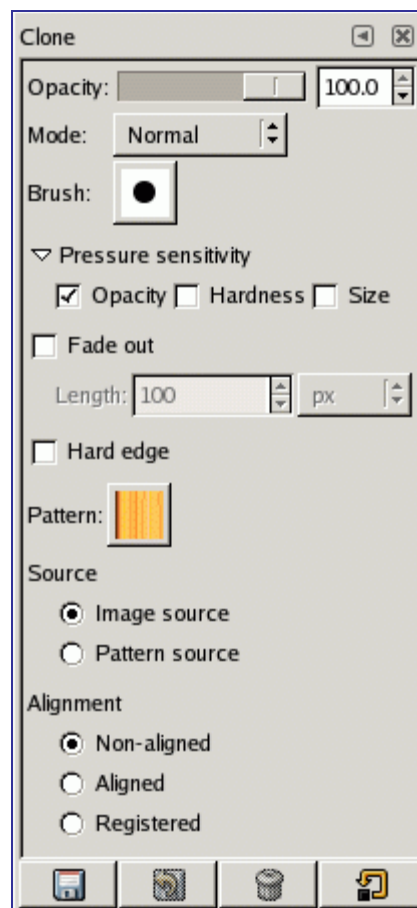
See the Brush Tools Overview for a description of tool options that apply to many or all brush tools.

Further Information

Convolve (Blur/Sharpen)

The Convolve tool uses the current brush to locally blur or sharpen your image. Blurring with it can be useful if some element of your image stands out too much, and you would like to soften it. If you want to blur a whole layer, or a large part of one, you will probably be better off using one of the Blur Filters. The direction of a brushstroke has no effect: if you want directional blurring, use the Smudge tool.

In "Sharpen" mode, the tool works by increasing the contrast where the brush is applied. A little bit of this may be useful, but overapplication will produce noise. Some of the Enhancement Filters, particularly the Unsharp Mask, do a much cleaner job of sharpening areas of a layer.

You can create a more sophisticated sharpening brush using the Clone tool. To do this, start by duplicating the layer you want to work on, and run a sharpening filter, such as Unsharp Mask, on the copy. Then activate the Clone tool, and in its Tool Options set Source to "*Image source*" and Alignment to "*Registered*". Set the Opacity to a modest value, such as 10. Then Ctrl-click on the copy to make it the source image. If you now paint on the original layer, you will mix together, where the brush is applied, the sharpened version with the unsharpened version.

Both blurring and sharpening work incrementally: moving the brush repeatedly over an area will increase the effect with each additional pass. The Rate control allows you to determine how quickly the modifications accumulate. The Opacity control, however, can be used to limit the amount of blurring that can be produced by a single brushstroke, regardless of how many passes are made with it.

How to Activate

The Convolve tool can be activated from an image menu as Tools Paint Tools Convolve ; from the Toolbox by clicking on the tool icon ; or from the keyboard using the shortcut V.

Key modifiers

See the Brush Tools Overview for a description of key modifiers that have the same effect on all brush tools.

- Ctrl: Holding down the Ctrl key toggles between Blur and Sharpen modes; it reverses the setting shown in the Tool Options.

Tool Options
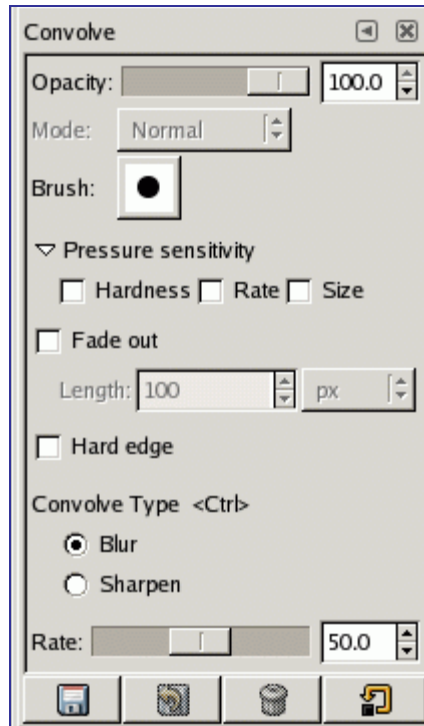
See the Brush Tools Overview for a description of tool options that apply to many or all brush tools.

Dodge or Burn
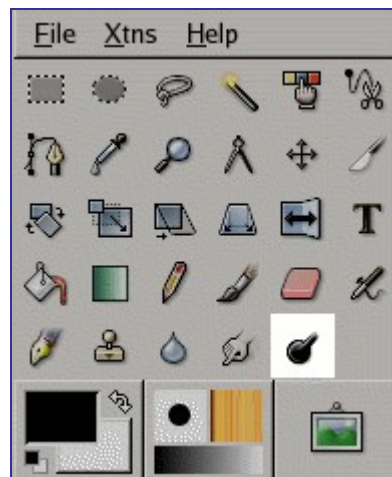
The Dodge or Burn tool uses the current brush to lighten or darken the colors in your image. The mode will determine which type of pixels are affected.

Activate Tool

- The Dodge or Burn Tool can be called in the following order, from the image-menu: Tools/ Paint Tools /DodgeBurn.

  • The Tool can also be called by clicking the tool icon:

Key modifiers (Defaults)

Options

See the Brush Tools Overview for a description of tool options that apply to many or all brush tools.

Smudge Tool

The Smudge tool uses the current brush to smudge colors on the active layer or a selection. It takes color in passing and uses it to mix it to the next colors it meets, on a distance you can set.

Activate Tool

- The Smudge Tool can be called in the following order, from the image-menu: Tools Paint Tools Smudge.

　　• The Tool can also be called by clicking the tool icon:

- or by pressing the S key on keyboard.

Key modifiers (Defaults)
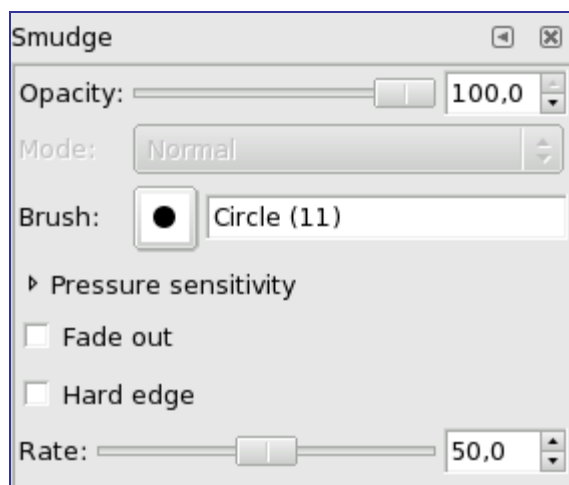
Options

See the Brush Tools Overview for a description of tool options that apply to many or all brush tools.

Transform Tools

Common Features
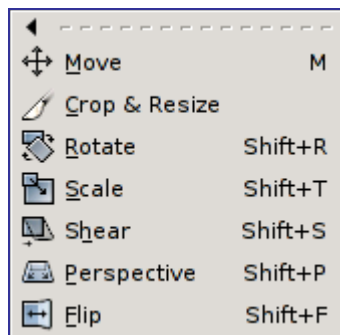
Inside the Transformation tool dialog, you will find seven tools to modify the presentation of the image or the presentation of an element of the image, selection, layer or path. Each transform tool has an Option dialog and an Information dialog to set parameters.

Move Tool

The Move Tool is used to move layers, selections or guides. It works also on texts.

Activate Tool

- The Move Tool can be called in the following order, from the image-menu: Tools Transform Tools Move

  - The Tool can also be called by clicking the tool icon:

   or by the M keyboard shortcut.

- The Move tool is automatically activated when you create a guide.

  Holding down the space bar changes the active tool to Move temporarily. The Move tool remains active as long as the space bar is held down. The original tool is reactivated after releasing the space bar.

Default behaviour

By default, this tool works on the active layer and the Select a Layer or a Guide option is

checked. Let's suppose that your image has more than one layer, a selection and a guide. The mouse pointer takes the shape of the familiar 4-way arrow when it passes over the image elements originating from the active layer; then, click-and-drag will move the active layer. When the mouse pointer is on an image element originating from a non-active layer or on a guide, it looks like a small hand; then, click-and-drag will move this layer or this guide.

To move a selection frame, without moving its content, Use the CtrlAlt key-combination. This has the same action as selecting " *Selection*" in Affect.

Key modifiers (Defaults)

Options
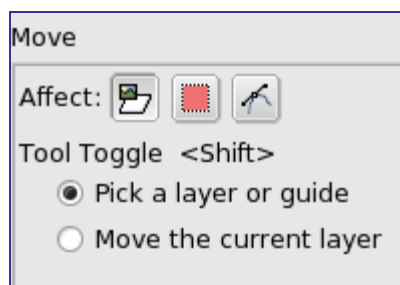
Crop and Resize Tool

The Crop Tool is used to crop or clip an image or layer. This tool is often used to remove borders, or to eliminate unwanted areas to provide you with a more focused working area. It is also useful if you need a specific image size that does not match the original dimensions of your image.

To use the tool, click inside the image and drag out a rectangular region before releasing the mouse button. When you click, a dialog pops up showing you the dimensions of the crop region, and allowing you to perform various actions. If you want to alter the crop region, you can do so either by clicking and dragging on the corners, or by changing the values in the dialog. When you are ready, you can complete the operation either by clicking inside the crop region, or by pressing the Crop or Resize buttons on the dialog. (See below for what these mean.)

If you find that the dialog gets in your way more than it helps you, you can prevent it from appearing by holding down the Shift key when you first click on the image. Working this way means altering the crop region by dragging the corners, and executing the operation by clicking inside the image.

Activate Tool

- The Crop Tool can be called way the following way, from the image-menu: Tools Transform Tools Crop and Resize .

- The Tool can also be called by clicking the tool icon:

A different and quicker way to crop selections is using the Image Crop Image function in the Image menu.

Key modifiers (Defaults)

Options
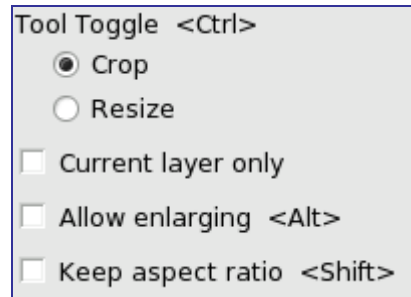
Rotate Tool
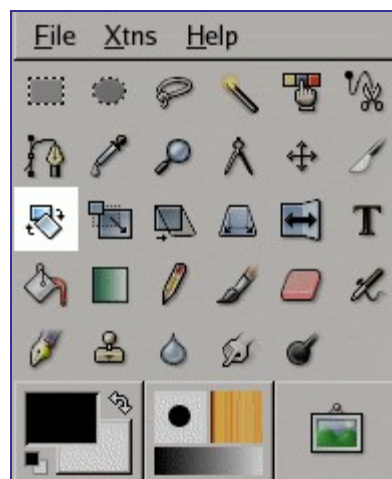
Overview

This tool is used to rotate the active layer, a selection or a path. When you click on the image or the selection with this tool, a grid or an outline is superimposed and a *Rotation Information* dialog is opened. There, you can set the rotation axis, marked with a point, and the rotation angle. You can do the same by dragging the mouse pointer on the image or the rotation point.

Activate Tool

- You can call the Rotate tool in the following order, from the image-menu: Tools Transform Tools Rotate

- The Tool can also be called by clicking the tool icon: in the Toolbox.

- or by using the ShiftR key combination.

Key modifiers (Defaults)

Rotation tool options

The Rotation Information dialog window

Scale Tool
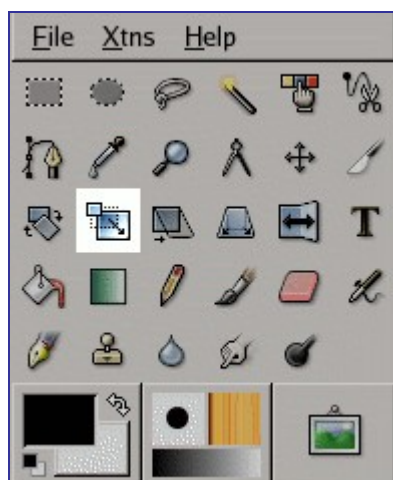
Overview

The Scale Tool is used to scale layers, selections or paths (the Object).

When you click on image with the tool the Scaling Information dialog box is opened, allowing to change separately Width and Height. At the same time a Preview with a grid or an outline is superimposed on the object and handles appear on corners that you can click and drag to change these dimensions. A small circle appears at center of the Preview allowing to move this preview.

Activate Tool

*   The Scale Tool can be called in the following order, from the image-menu: Tools Transform Tools Scale

*   The Tool can also be called by clicking the tool icon:
    *   or by using the Shift T key combination.

Key modifiers (Defaults)

Options
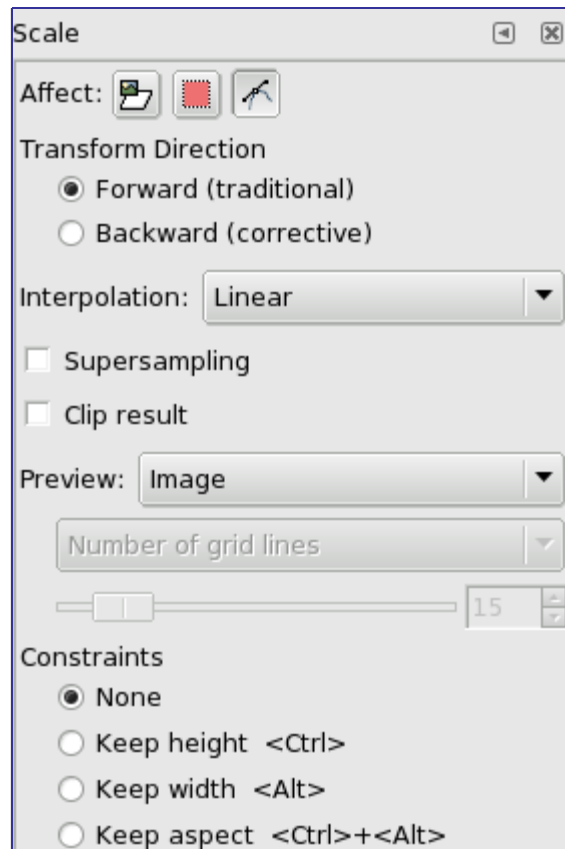
The Scaling Information dialog window

Shear Tool
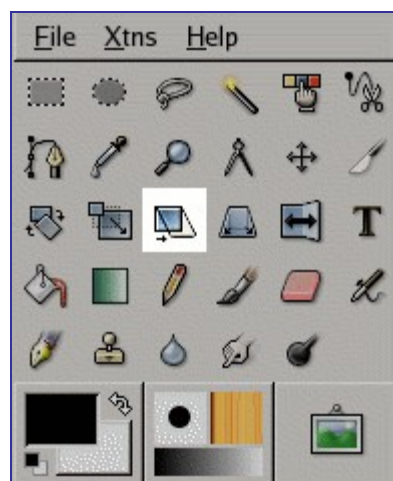
Shear tool is used to shift one part of an image, a layer, a selection or a path to a direction and the other part to the opposite direction. For instance, a horizontal shearing will shift the upper part to the right and the lower part to the left. A rectangle becomes a diamond. This is not a rotation: the image is distorted. To use this tool after selecting, click on the image or the selection: a grid is surperimposed and the Shearing Information dialog is opened. By dragging the mouse pointer on the image you distort the image, horizontally or vertically according to the the direction given to the pointer. When you are satisfied, click on the Shear button in the info dialog to validate.
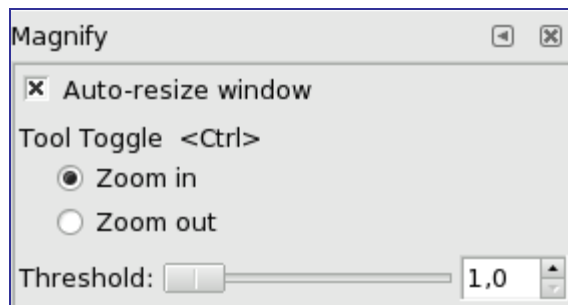
Activate Tool

- The Shear Tool can be called in the following order, from the image-menu: Tools Transform Tools Shear

- The Tool can also be called by clicking the tool icon:
- or by using the ShiftS key combination.

Options
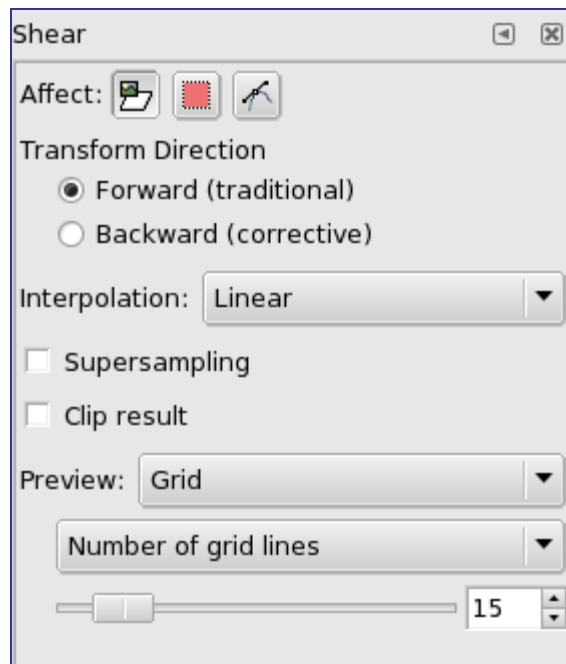
Shearing Information window

Perspective Tool
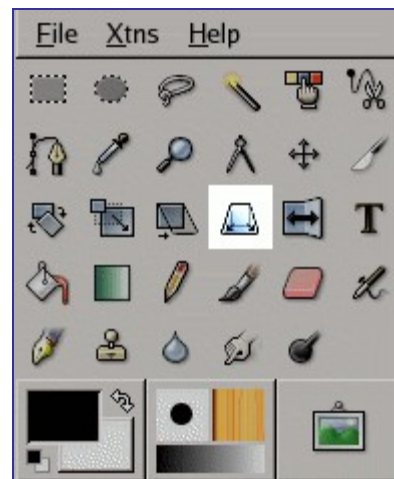
The Perspective Tool is used to change the perspective of the active layer content, of the selection boundaries or of a path. When you click on the image, according to the Preview type you have selected, a rectangular frame or a grid pops up around the selection (or around the whole layer if there is no selection), with a handle on each of the four corners. By moving these handles by click-and-drag, you can modify the perspective. At the same time, a "*Transformation informations* " pop up, which lets you valid the transformation. At the center of the element, a point lets you move the element by click-and-drag.

Activate Tool

- The Perspective Tool can be called in the following order, from the image-menu: Tools/ Transform Tools/Perspective .

- The Tool can also be called by clicking the tool icon:

Key modifiers (Defaults)

Options
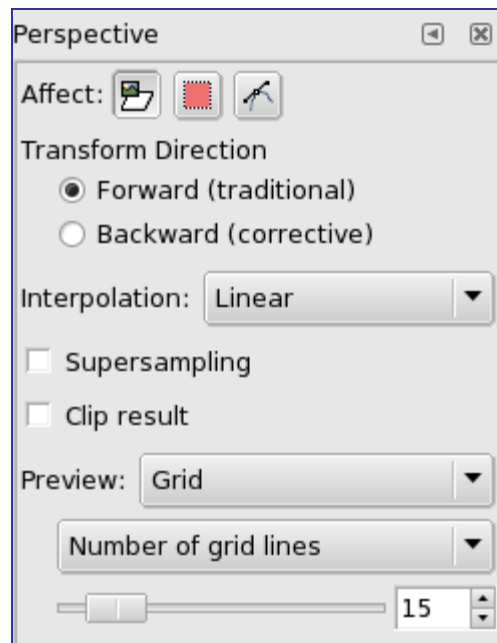
The dialog window of the "*Perspective*" tool

Flip Tool

The Flip tool provides the ability to flip layers or selections either horizontally or vertically. When a selection is flipped, a new layer with a Floating Selection is created. You can use this tool to create reflexions.

Activate Tool

- The Flip Tool can be called in the following order, from the image-menu: Tools/ Transform Tools/Flip .

- The Tool can also be called by clicking the tool icon:

Key modifiers (Defaults)

Options

Affect:

Flip Type <Ctrl>
- ⦿ Horizontal
- ○ Vertical
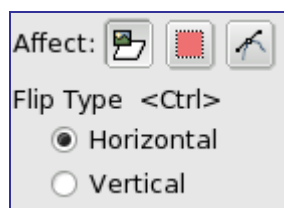
Color Tools

Color Balance Tool

The color balance tool modifies the color balance of the active selection or layer.

Activate Tool

The Color Balance Tool can be called in the following order, from the image-menu: Tools/ Color Tools/Color Balance .

Options
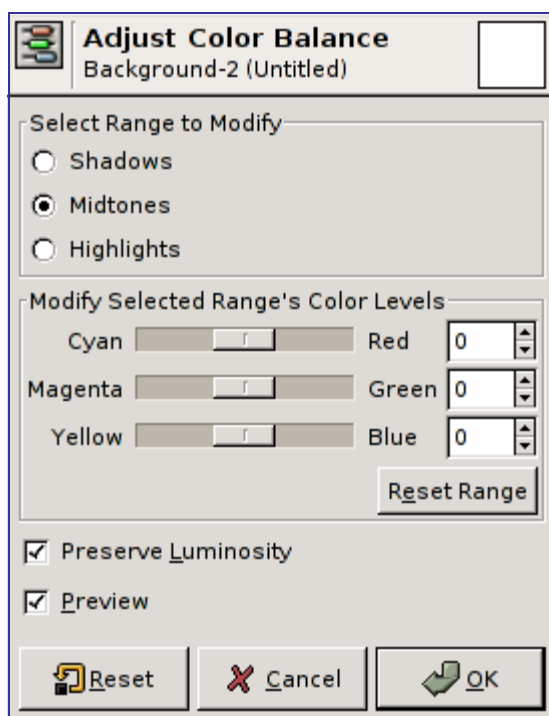
Hue-Saturation Tool

The Hue-Saturation tool is used to adjust hue, saturation and lightness levels on a range of color weights for the selected area or active layer.

Activate Tool

You can call the Hue-Saturation Tool in the following order, from the image-menu: Tools/ Color Tools/Hue-Saturation .

Options
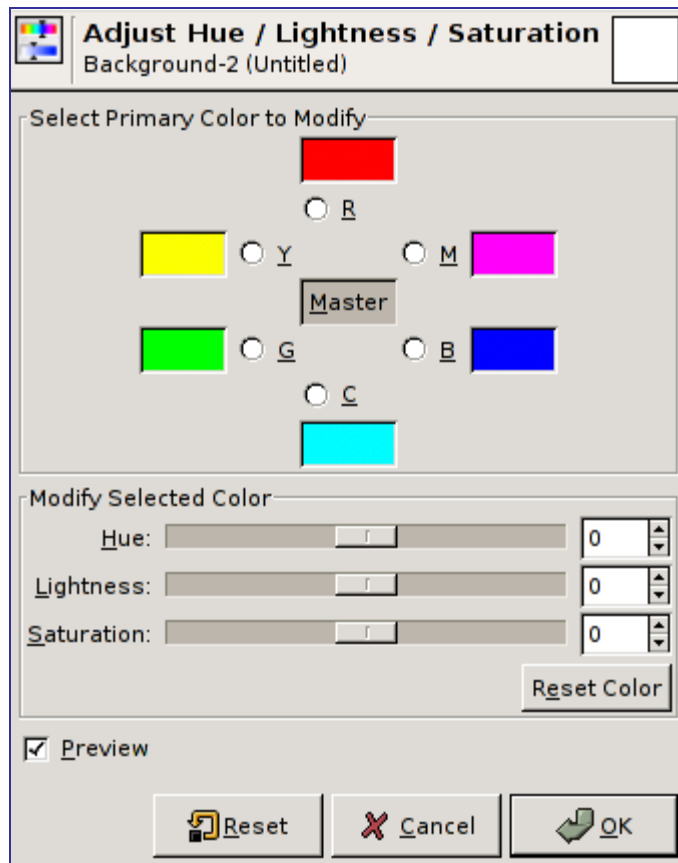
Colorize Tool

The Colorize tool renders the active layer or selection into a greyscale image seen through a colored glass. See HSV Color Model for Hue, Saturation, Luminosity.

Activate Tool

The Colorize Tool can be called in the following order, from the image-menu: Tools/ Color Tools/Colorize .

Options
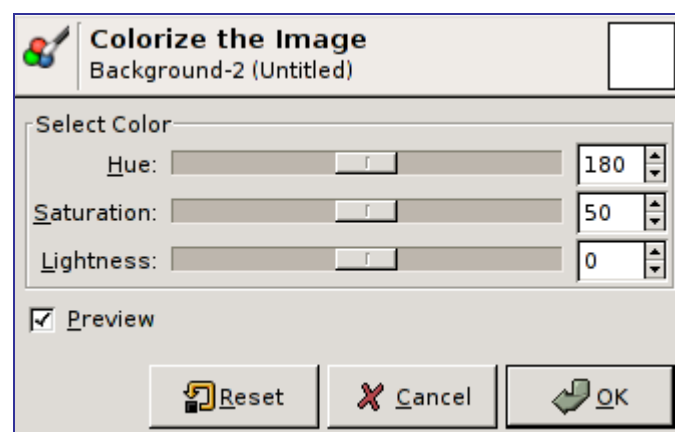
Brightness-Contrast tool

The Brightness-Contrast tool adjusts the brightness and contrast levels for the active layer or selection. This tool is easy to use, but relatively unsophisticated. The Levels and Curve tools allow you to make the same types of adjustments, but also give you the

---

ability to treat bright colors differently from darker colors. Generally speaking, the BC tool is great for doing a "quick and dirty" adjustment in a few seconds, but if the image is important and you want it to look as good as possible, you will use one of the other tools.

In GIMP 2.4, a new way of operating this tool has been added: by clicking the mouse inside the image, and dragging while keeping the left mouse button down. Moving the mouse vertically changes the brightness; moving horizontally changes the contrast. When you are satisfied with the result, you can either press the "OK" button on the dialog, or hit the Return key on your keyboard.

Activate Tool

The Brightness-Contrast Tool can be called from an image menu: Tools Color Tools Brightness-Contrast . If you find yourself using this tool often, you can add it to the Toolbox using the Tools dialog.

Options

Threshold Tool

The Threshold tool transforms the current layer or the selection into a black and white image, where white pixels represent the pixels of the image whose Value is in the threshold range, and black pixels represent pixels with Value out of the threshold range.

You can use it to enhance a black and white image (a scanned text for example) or to create selection masks.

As this tool creates a black and white image, the anti-aliasing of the original image disappears. If this poses a problem, rather use the Levels tool.

Activate Tool

The Threshold Tool can be called in the following order, from the image-menu: Tools Color Tools Threshold,

or by clicking on the icon in Toolbox if this tool has been installed in it. You can do that through the Tool dialog.

Options
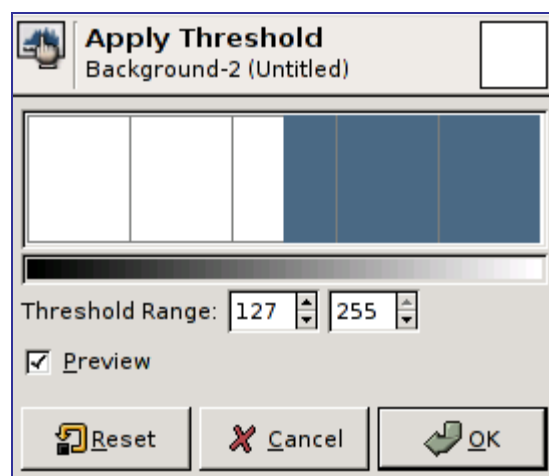
Using Threshold and Quick Mask to create a selection mask

That's not always the case, but an element you want to extract from an image can stand

out well against the background. In this case, you can use the Threshold tool to select this element as a whole. Grokking the GIMP described a method based on a channel mask, but now, using the Quick mask is easier.

First start decomposing you image into its RGB and HSV components by using the Decompose filter. A new grey-scaled image is created and the components are displayed as layers in the Layer Dialog. These layers come with a thumbnail but it is too small for an easy study. You can, of course, increase the size of this preview with the dialog menu (the small triangular button), but playing with the "*eyes* " is more simple to display the wanted layer in the decompose image. Select the layer that isolates the element the best.
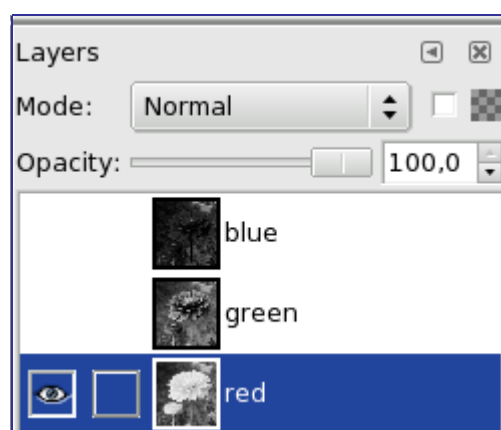
Call the Threshold tool from the decompose image. By moving the black cursor, fit threshold to isolate the best the element you want to extract. This will probably not be perfect: we will enhance the result with the selection mask we are going to create.

Make sure you have selected the right layer when you call the Threshold tool: when it is opened, you can't change to another layer.

Make sure the image displaying the selected layer is active and copy it to the clipboard with CtrlC.

Now, make the original image active. Click on the Quick Mask button at the bottom-left corner of the image window: the image gets covered with a red (default) translucent mask. This red color does not suit well to our image with much red: go to the Channel Dialog, activate the "*Quick mask*" channel and change this color with the Edit Channel Attributs. Come back to the original image. Press CtrlV to paste the previously copied layer.

Voilà. Your selection mask is ready: you can improve the selection as usually. When the selection is ready, disable the Quick mask by clicking again on its button: you will see the marching ants around the selection.

We used the Zoom to work at a pixel level, the Lasso to remove large unwanted areas,the pencil (to get hard limits), black paint to remove selected areas, white paint to add selected areas, especially for stem.

Levels tool

The Level tool provides features similar to the Histogram tool but can also change the intensity range of the active layer or selection.

Activate Tool

You can call the Level Tool in the following order, from the image-menu: Tools Color Tools Levels

Options
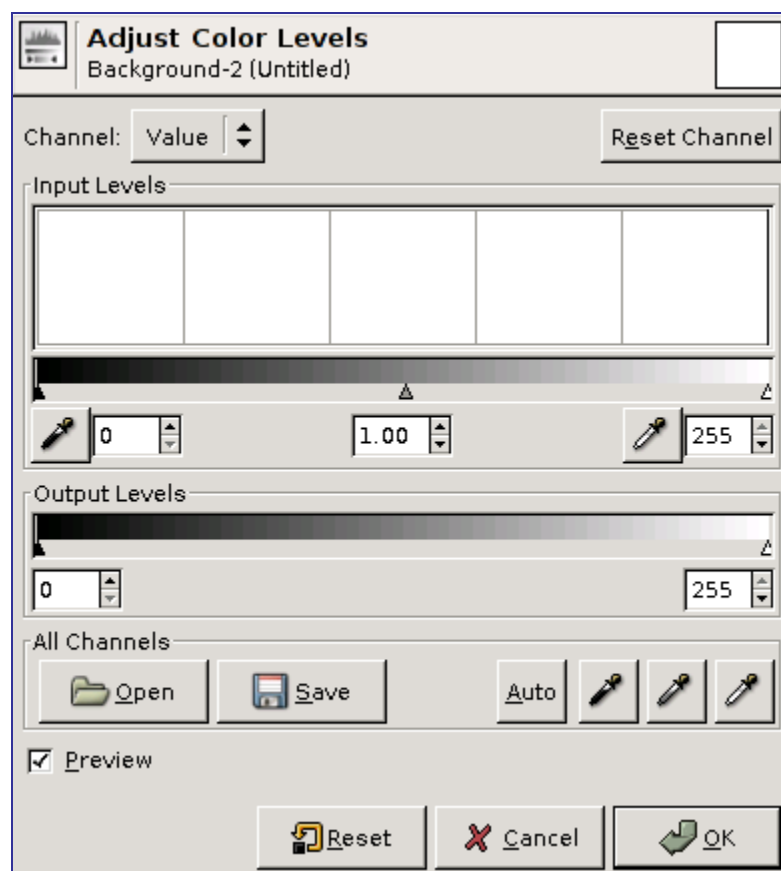
Although this tool is not present in Tool box, nevertheless it has a Tool Option Dialog under the Toolbox. These options are described here:

Curves Tool

The Curves tool is the most sophisticated tool used to adjust the tonality of images.

Activate Tool

The Curves Tool can be called in the following order, from the image-menu: Tools/ Color Tools/Curves .

Adjust Color Curves
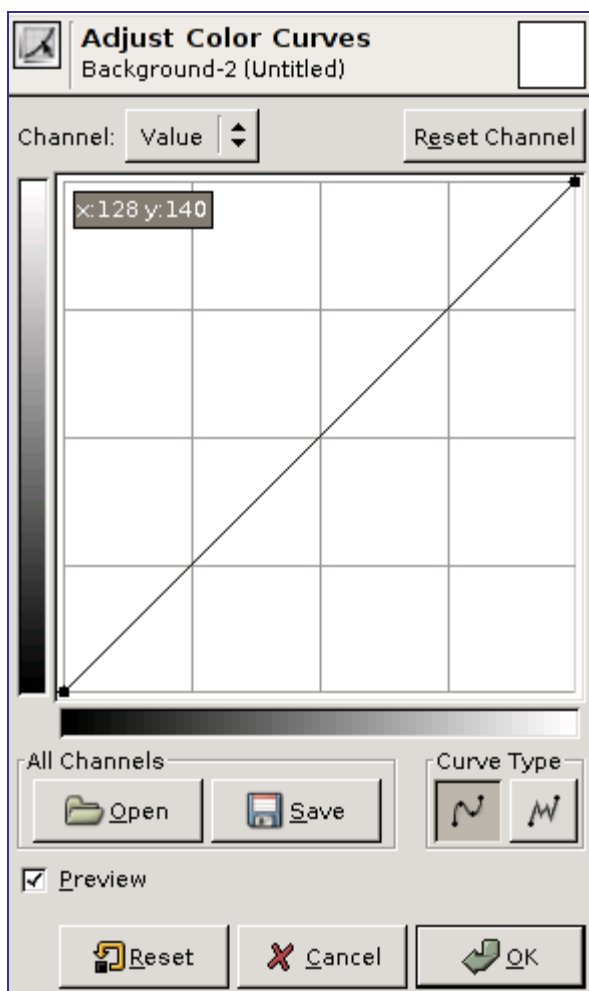
Although this tool is not present in Tool box, nevertheless it has a Tool Option Dialog under the Toolbox. These options are described here:

Posterize Tool

This tool is designed to intelligently weigh the pixel colors of the selection or active layer and reduce the number of colors while maintaining a semblance of the original image characteristics.

Activate Tool

The Posterize Dialog can be called in the following order, from the image-menu: Tools Color Tools Posterize

or by double-cliking on the icon in ToolBox, if Color Tools have been added to it.

Options

Posterize (Reduce Number of Colors)
Background-2 (Untitled)

Posterize Levels: 3

☑ Preview

Reset   Cancel   OK

Generated by docbook2odf
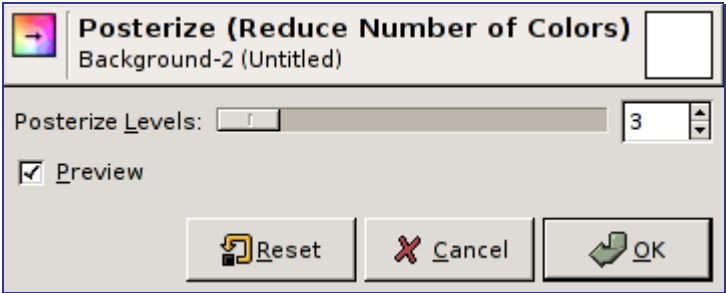
Other

Path Tool

The Path tool allows to create complex selections called Bezier Curves, a bit like Lasso but with all the adaptability of vectorial curves. You can edit your curve, you can paint with your curve, or even save, import, and export the curve. You can also use paths to create geometrical figures. Paths have their own dialog box: Dialog.

Activate Tool

- You can call the Path Tool in the following order, from the image-menu: Tools Paths .

- The Tool can also be called by clicking the tool icon:
- or by using the B keyboard shortcut.

Key modifiers (Defaults)

Options

See The "*Path*" concept.

Color Picker Tool
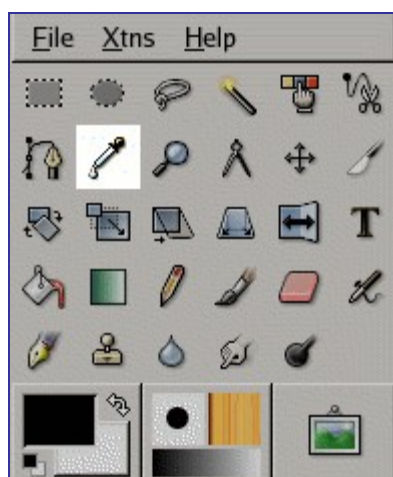
The Color Picker Tool is used to select a color on the active layer. By clicking a point on a layer, you can change the active color to that which is located under the pointer. The Sample Merge option lets you grab the color as it is in the image, resulting of the combination of all layers.

Activate Tool

- The Color Picker Tool can be called in the following order, from the image-menu: Tools Color Picker.

  - The Tool can also be called by clicking the tool icon:

If you hold Ctrl key down while using a paint tool, mouse pointer turns to the color-picker icon. If you click then, you select the color pointed by the color-picker as foreground color. Color-picker dialog is not opened during this operation.

Key modifiers (Defaults)

Options
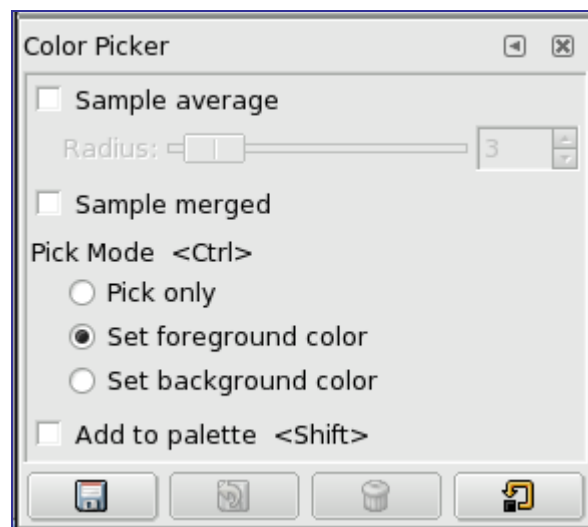
Magnify Tool
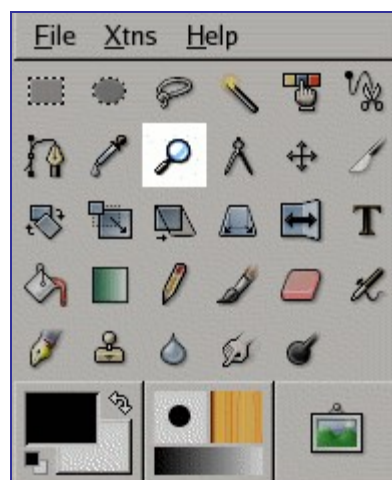
The Magnify Tool is used to change the zoom level of your working image. If you only click on the image, the zoom is applied to the whole image. But you can also click-and-drag the mouse pointer to create a zoom rectangle. Then, the action of this rectangle is better

understood if the "*Allow window resizing*" option is unchecked: you can see that the content of this rectangle will be enlarged or reduced so that its biggest dimension fit the corresponding dimension of the image window (if the biggest dimension of the rectangle is width, then it will fit the width of the image window).

Activate Tool

- The Magnify Tool can be called in the following order, from the image-menu: Tools Magnify .

   - The Tool can also be called by clicking the tool icon:

Key modifiers (Defaults)

Options

The Measure Tool is used to gain knowledge about pixel distances in your working image. By clicking and holding the mouse button, you can determine the angle and number of pixels between the point of click and where the mouse pointer is located. The information is displayed on the status bar or can also be displayed in the Info Window.

Zoom menu

Using the Magnify tool is not the only way to zoom an image. The Zoom menu provides access to several functions for changing the image magnification level. For example, you can easily choose an exact magnification level from this menu.

Measure Tool
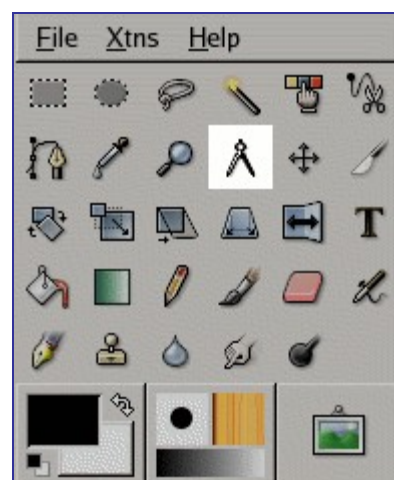
The Measure Tool is used to gain knowledge about pixel distances in your working image. By clicking and holding the mouse button, you can determine the angle and number of pixels between the point of click and where the mouse pointer is located. The information is displayed on the status bar or can also be displayed in the Info Window.

When you pass the mouse pointer over the end point it turns to a move pointer. Then if you click you can resume the measure.

Status Bar

Informations are displayed in the status bar, at the bottom of the Image window. The status bar shows a pair of numbers. The first number is the *distance between the origine point and the mouse pointer*. Mostly the measure unit is shown as *Pixel*. The second number is the *angle* in every quadrant, from 0° to 90°.

Activate Tool

- You can call the Measure Tool in the following order, from the image-menu: Tools Measure .

  - You can also access to it by clicking the tool icon:

Key modifiers

Options

Measuring surfaces

You can't measure surfaces directly, but you can use the Histogram that gives you the number of pixels in a selection.

Texttool

The Text tool places text into an image. When you click on an image with this tool the *Text Editor dialog* is opened where you can type your text, and a text layer is added in the Layer Dialog. In the *Text Option dialog*, you can change the font, color and size of your text, and justify it, interactively.

Activate Tool

- The Text Tool can be called in the following order, from the image-menu: Tools Text .

  - The Tool can also be called by clicking the tool icon:
  - or by using the T keyboard shortcut.

Options
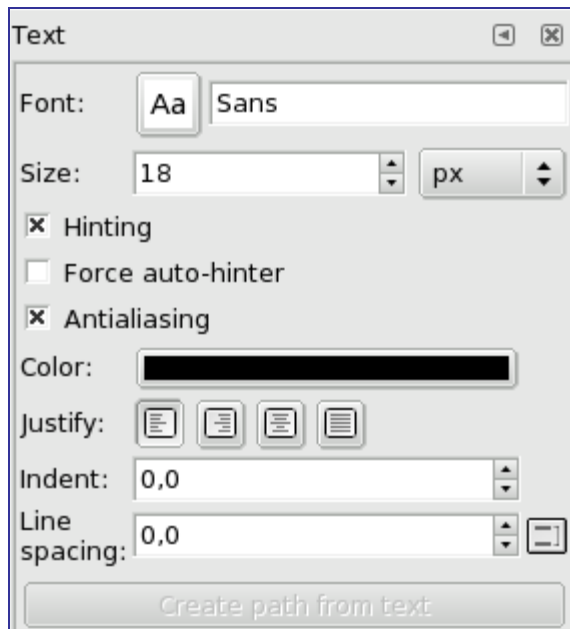
Text Editor
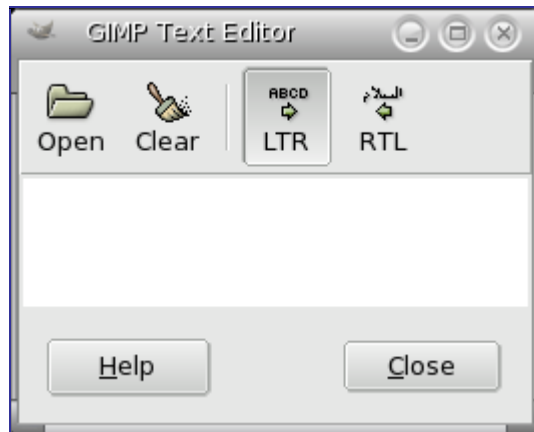
Color and Indicator Area

Color Area

Indicator Area

This part of the Toolbox shows the currently selected brush, pattern, and gradient. Clicking on any of them brings up a dialog that allows you to change it.

Active image area

A thumbnail of the active image can be displayed in this area if the "*Display Active Image*" option is checked in Preferences/Toolbox.

Chapter

Dialogs

Dialog introduction

Dialogs are the most common means of setting options and controls in the GIMP. The most important dialogs are explained in this section.

Image structure related dialogs

Layers dialog
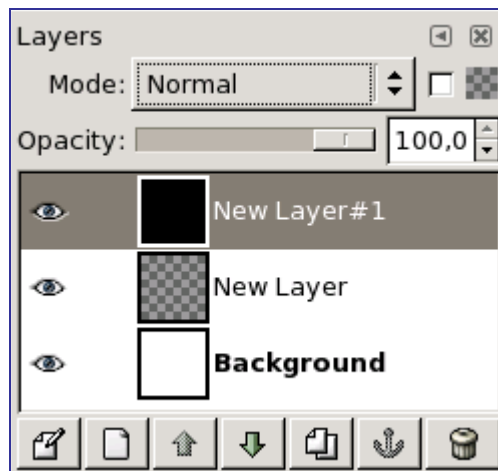
The Layers dialog is the main interface to edit, modify and manage your layers. You can think of layers as a stack of slides or clothes on your body. Using layers, you can construct an image of several conceptual parts, each of which can be manipulated without affecting any other part of the image. Layers are stacked on top of each other. The bottom layer is the background of the image, and the components in the foreground of the image come above it.

Activate Dialog

The Layer dialog can be called in many ways :

- from the toolbox-menu: File Dialog Layers
- from the image-menu: Dialog Layers
- from an other dialog-menu: Add Tab Layers
- from the (default) shortcut: CtrlL

Using the Layerdialog

Layer masks
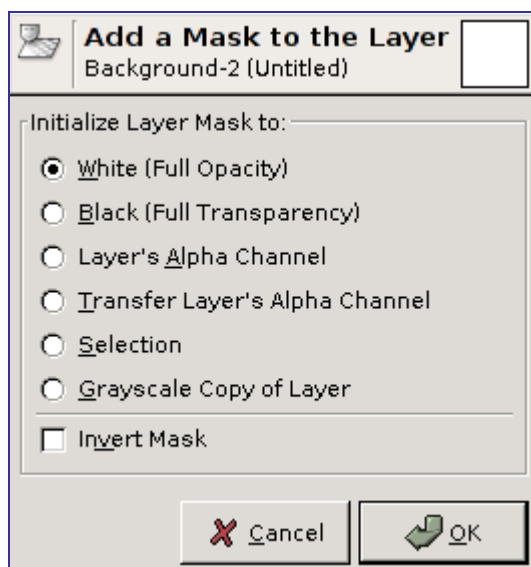
Channels dialog
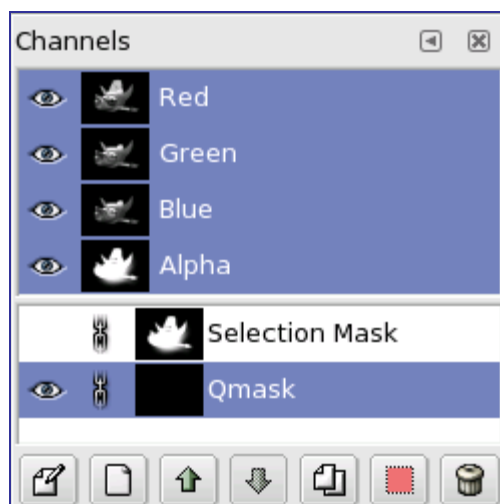
The Channels dialog is the main interface to edit, modify and manage your channels. Channels have a double usage. This is why the dialog is divided into two parts: the first part for color channels and the second part for selection masks.

Color channels: Color channels apply to the image and not to a specific layer. Basically, three primary colors are necessary to render all the wide range of natural colors. As other digital software, the Gimp uses Red, Green, and Blue as primary colors. The first and primary channels display the Red, Green, and Blue values of each pixel in your image. In front of each channel is a thumbnail displaying a grayscale representation of each channel, where white is 100% and black is 0% of the primary color. Alternatively, if your image is not a colored but a Grayscale image, there is only one primary channel called Gray. For an Indexed image with a fixed number of known colors there is also only one primary channel called Indexed. Then there is a optional channel called Alpha. This channel displays transparency values of each pixel in your image. In front of this channel is a thumbnail displaying a grayscale representation of the transparency where white is opaque and visible, and black is transparent and invisible. If you create your image without transparency then the Alpha channel is not present, but you can add it from the Layers dialog menu. Also, if you have more than one layer in your image, Gimp automatically creates an Alpha channel.

Gimp doesn't support CMYK or YUV color models.

The right image is decomposed in three color channels (red, green, and blue) and the Alpha channel for transparency. On the right image the transparency is displayed as a gray checkerboard. In the color channel white is always white because all the colors are present and black is black. The red hat is visible in the red channel but quite invisible in the other channels. This is the same for plain green and blue which are visible only in their own channels and invisible in others.

Calling the Dialog

The Channel dialog can be activated in many ways :

- from the toolbox-menu: File Dialogs Channels
- from the image-menu: Dialogs Channels
- from another dialog-menu: Add Tab Channels

Using the Channeldialog

Overview

The top channels are the color channels and the optional Alpha channel. They are always organized in the same order and they cannot be erased. Selection masks are described below and displayed as a list in the dialog. Every channel appears in the list in form of a thumbnail. A right-click in a channel thumbnail opens the channel menu.

Channel attributes

Every channel is shown in the list with its own attributes. The main attribute is the name of the channel itself. You can edit selection masks by double-clicking on their name. A double_click on the thumbnail opens a full dialog where you can also set the visual aspect of the channel in the image window. In front of the thumbnail there is an eye icon: by clicking on it you define whether the channel is visible or not. As a result of this visibility, the view of the image changes in the image window and a white image becomes yellow if you remove the view of the blue because yellow is the complementary color for blue. If you remove the view of the Alpha channel, everything becomes transparent and nothing else than a grey checkerboard is visible. The aspect of this virtual background can be changed in the Preferences. The chain icon enables grouping of channels for operations on multiple channels.

Activated channels appear highlighted in blue in the dialog. If you click on a channel in the list you toggle activation of the corresponding channel. Disabling a color channel red, blue, or green has severe consequencies. For instance if you disable the blue channel, all

pixels from now on added to the image will not have blue component, and so a white pixel will have the yellow complementary color.

Managing channels

Under the channel list is a set of buttons allowing you to perform some basic operations on channel list.

Channels Menu
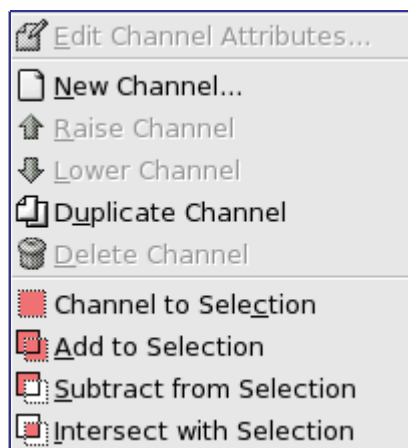
Selection masks
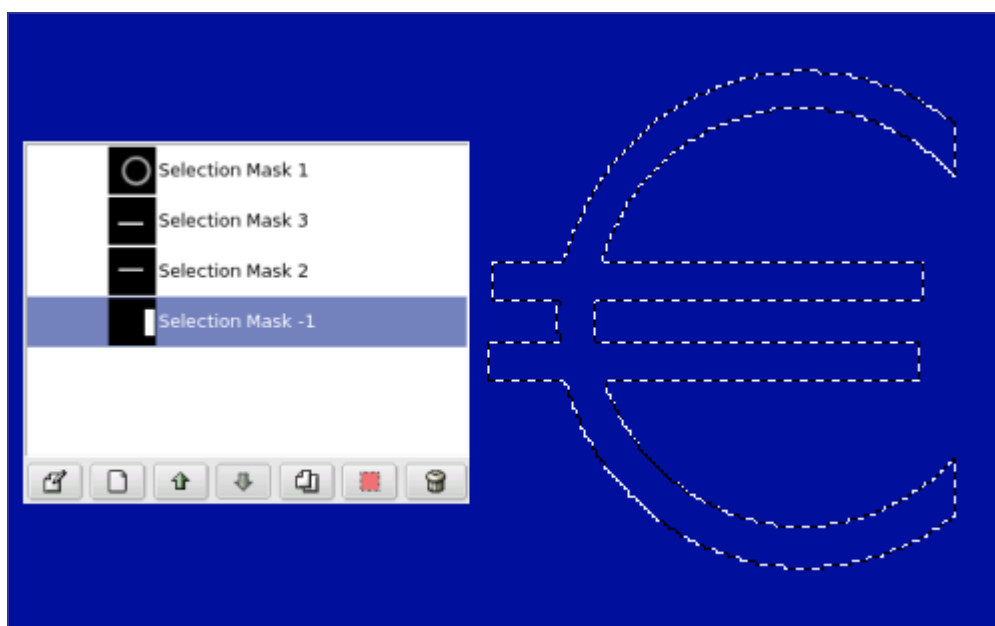
Channels can be used to save and restore your selections. Clicking on the Quick mask button on the Image window automatically creates a new channel called Qmask and saves the displayed active selection to a thumbnail in front of the channel.There are many selection tools in the Gimp like rectangular selection tool or fuzzy selection for continuous selections. Selection Masks are a graphical way to build selections into a gray level channel where white pixels are selected and black pixels are not selected. Therefore gray pixels are partially selected. You can think of them as feathering the selection, a smooth transition between selected and not selected. This is important to avoid the ugly pixelization effect when you fill the selection or when you erase its content after isolating a subject from background.

Using Selectionmasks

Once the channel is initialized, selected (highlighted in blue), visible (eye-icon in the dialog), and displayed as you want (color and opacity attributes), you can start to work with all the paint tools. The colors used are important. If you paint with some color other than white, grey, or black, the color Value (luminosity) will be used to define a gray (medium, light, or dark). When your mask is painted, you can transform it to a selection by clicking on the Channel to selection button or from the context menu.

You can work in selection masks not only with the paint tool but also with other tools. For instance, you can use the selection tools to fill areas uniformly with gradients or patterns. By adding many selection masks in your list you can easily compose very complex selections. One can say that a selection mask is to a selection as a layer is to an image.

As long as a selection mask is activated you are working in the mask and not in the image. To work in the image you have to deactivate all selection masks. Don't forget also to stop displaying masks in the image by removing the eye icon. Check also that all RGB and Alpha channels are activated and displayed in the image.

Quick Mask
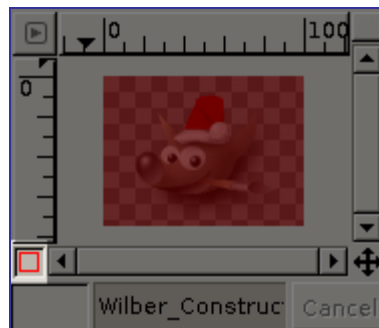
A Quick Mask is a Selection Mask intended to be used temporarily to paint a selection. Temporarily means that, unlike a normal selection mask, it will not be saved in the list after its transformation to selection. The selection tools sometimes show their limits when they have to be used for doing complex drawing selection, as progressive. In this case, using the QuickMask is a good idea which can give very good results.

Activate Tool

- The QuickMask can be activated in the following order, from the image-menu: Select/Toggle QuickMask.
- The QuickMask can also be activated by clicking the left-bottom button showed in red on the screenshot.
- It can also be activated by using Shift+Q shortcut.

Creating a Quick Mask

To initialize a Quick Mask, click the bottom-left button in the image window. If a selection was active in your image, then its content appears unchanged while the border is covered by a tranlucent red color. If no selection was active then all the image is covered by a tranlucent red color. At every moment you can hide the maskby clicking on the eye icon in front of the QMask. From the channel dialog you can double click on the name or the thumbnail to edit the QMask attributes. Then you can changethe Opacity and its filling color. Once a quick mask is initialized click on it to be sure it is selected and blue highlighted in the list, and start to paint on it with any Gimp paint tool. The mask is coded in gray tones, so you must use white or gray to decrease the area limited by the mask and black to increase it. The area painted in light or dark gray will be transition areas for the selection like feathering. When your mask is ready, click again on the bottom-left

button in the image window and the quick maskwill be removed from the channel list and converted to aselection. Quick mask's purpose is to paint a selection and its transitions with the paint tools without worrying about managing selection masks. It's a good way to isolate asubject in a picture because once the selection is made you only have to remove its content (or inverse if the subject is in the selection).

Using Quick Mask's

Screenshot of the image window with activated QuickMask. The QuickMask is filled with a gradient from black (left) to white (right).

The QuickMask is now disabled and a selection is initialised from the QuickMask, which was filled by a gradient before. You see the selection borders in the middle of the image.

A stroke is now added during the enabled selection. The key is, that the black color will have no opacity of the resulting stroke (right) and white color will have a full opacity of the stroke (left).

After the QuickMask Button is pressed, the command generates a temporary 8-bit (0-255) channel, on which the progressive selection work is stored. If a selection is already present the mask is initialized with the content of the selection. Once QuickMask has been activated, the image is covered by a red semi-transparent veil. This one representes the non-selected pixels. Any paint tool can be used to create the selection on the QuickMask. They should use only greyscale color, conforming the channel properties, white enabling to define the future selected place. The selection will be displayed as soon as the QuickMask will be toggled but its temporary channel will not be available anymore.

To save in a channel the selection done with the Quickmask select in the image menu Select/Save to Channel

Usage

Open an image or begin a new document.

Activate the Quickmask using the left-bottom button in the image window. If a selection is present the mask is initialized with the content of the selection.

Choose a drawing tool and use it with greyscale colors on the QuickMask.

Deactivate the Quickmask using the left-bottom button in the image window.

Path dialog
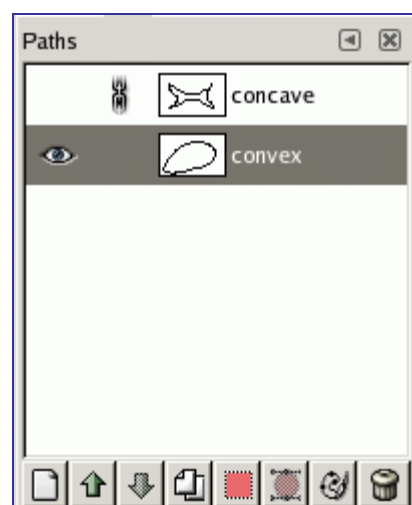
The Paths dialog is used to manage paths, allowing you to create or delete them, save them, convert them to and from selections, etc.

The Paths dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in several ways:

Dialog call

- From the Toolbox menu: File Dialogs Paths .
- From the Toolbox menu: File Dialogs Create New Dock Layers, Channels, and Paths . This gives you a dock containing three dialogs, with the Paths dialog one of them.
- From an image menu: Dialogs Paths .
- From the Tab menu in any dockable dialog: Add Tab Paths .

Using the Paths dialog

Each path belongs to one image: paths are components of images just like layers. The Paths dialog shows you a list of all paths belonging to the currently active image: switching images causes the dialog to show a different list of paths. If the Paths dialog is embedded in a "Layers, Channels, and Paths" dock, you can see the name of the active image in the Image Menu at the top of the dock. (Otherwise, you can add an Image Menu to the dock by choosing "Show Image Menu" from the Tab menu.)

If you are familiar with the Layers dialog, you have a head start, because the Paths dialog is in several ways similar. It shows a list of all paths that exist in the image, with four items for each path:

If the list is non-empty, at any given moment one of the members is the image's *active path*, which will be the subject of any operations you perform using the dialog menu or the buttons at the bottom: the active path is shown highlighted in the list. Clicking on any of the entries will make it the active path.

Right-clicking on any entry in the list brings up the Paths Menu. You can also access the Paths Menu from the dialog Tab menu.

Buttons

The buttons at the bottom of the Paths dialog all correspond to entries in the Paths menu (accessed by right-clicking on a path list entry), but some of them have extra options obtainable by holding down modifier keys while you press the button.

Paths Menu
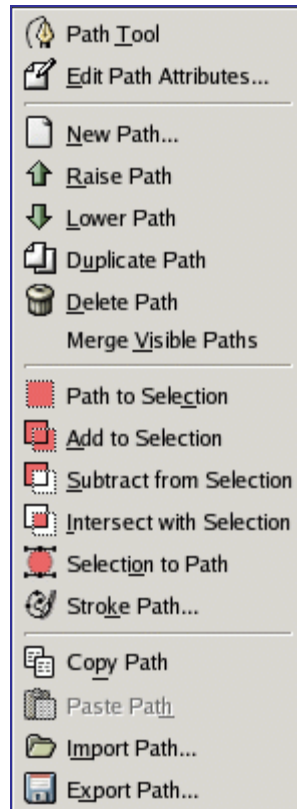
The Paths menu can be brought up by right-clicking on a path entry in the list in the Paths dialog, or by choosing the top entry ("Paths Menu") from the Paths dialog Tab menu. This menu gives you access to most of the operations that affect paths.

Colormap dialog

The Colormap (Indexed Palette is a better name) dialog allows you to edit the colormap of an indexed image. (If the mode of the active image is RGB or Grayscale instead of Indexed, the dialog is empty and unusable.) This is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in two ways:

Dialog call

- From the Toolbox menu: File Dialogs Colormap

- From the image menu: Dialogs Colormap

Colormaps and Indexed Images

In an Indexed image, colors are assigned to pixels by an indirect method, using a lookup table called a *colormap*. In GIMP, the maximum number of entries in a colormap is 256. For a maximum-sized colormap, each index from 0 to 255 is assigned an arbitrary RGB color. There are no rules restricting the colors that can be assigned to an index or the order they appear in: any index can be assigned any color.

In an Indexed image, instead of being assigned a color directly (as happens in RGB and Grayscale images), each pixel is assigned an index. To determine the color that should be shown for that pixel, GIMP looks up the index in the image's colormap. Each indexed image has its own private colormap.

It is important to realize that the colors in the colormap are the *only colors available* for an indexed image (that is, unless you add new colors to the colormap). This has a major effect on many gimp operations: for example, in a pattern fill, GIMP will usually not be able to find exactly the right colors in the colormap, so it will approximate them by Dithering. If the colormap is too limited or poorly chosen, this can easily produce very poor image quality.

The Colormap dialog allows you to alter the colormap for an image, either by creating new entries, or by changing the colors for the existing entries. If you change the color associated with a given index, you will see the changes reflected throughout the image, as a color shift for all pixels that are assigned that index. The entries are numbered with 0 in the upper left corner, 1 to its right, etc.

Using the Colormap dialog

Here are the operations you can perform using this dialog:

If you make a mistake, you can undo it by focusing the pointer in the image whose colormap you have changed, and then pressing Ctrl-Z or choosing Edit Undo in the image menu.

This dialog provides the most commonly used methods for altering the colormap for an indexed image. The color tools, such as Brightness/Contrast, Hue/Saturation, etc, do not operate on indexed images. There are a few plug-ins that do so, including the "Normalize", "Color Enhance", and "Stretch Contrast" operations, and it is possible to create others as well.

Histogram dialog
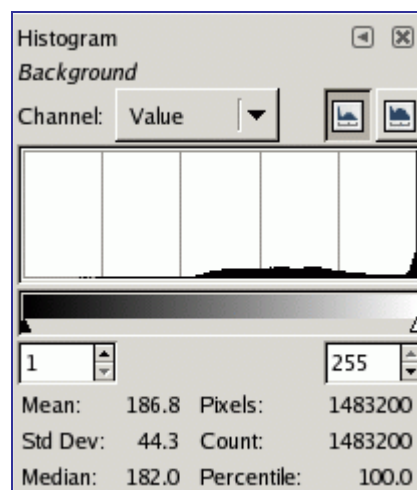
The Histogram dialog shows you information about the statistical distribution of color values in the image that is currently active. This information is often useful when you are trying to *color balance* an image. However, the Histogram dialog is purely informational: nothing you do with it will cause any change to the image. If you want to perform a histogram-based color correction, use the Levels tool.

Dialog call

This is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in two ways:

- From the Toolbox menu: File Dialogs Histogram
- From the image menu: Dialogs Histogram

About Histograms

In GIMP, each layer of an image can be decomposed into one or more color channels: for an RGB image, into R, G, and B channels; for a grayscale image, into a single Value channel. Layers that support transparency have an additional channel, the alpha channel. Each channel supports a range of intensity levels from 0 to 255 (integer valued). Thus, a black pixel is encoded by 0 on all color channels; a white pixel by 255 on all color channels. A transparent pixel is encoded by 0 on the alpha channel; an opaque pixel by 255.

For RGB images, it is convenient to define a Value "pseudochannel". This is not a real color channel: it does not reflect any information stored directly in the image. Instead, the Value at a pixel is given by the equation $V = max(R,G,B)$. Essentially, the Value is what you would get at that pixel if you converted the image to Grayscale mode.

For more information on channels, please consult the Working with Images section.

Using the Histogram dialog

Navigation Dialog

The Navigation dialog is designed to offer easy movement around the active image if the zoom is set higher than what the image window can display. If this is the case, there is an

inversely colored rectangle that shows the location of the current view area in respect to the image. This rectangular outline can be dragged to change the viewing region.

Activate the dialog

The Navigation window dialog can be called in many ways :

- from the toolbox-menu: File/ Dialogs/ Navigation
- from the image-menu: Dialogs/ Navigation
- from the image-menu: View/ Navigation window, the Shift+Ctrl+N will call the Navigation Window.
- from another dialog-menu: Add Tab/ Navigation

You can access more quickly to it (but without the zoom functions) by clicking on the icon, at the right bottom corner of the image window.

Using the Navigation Dialog

Undo History dialog
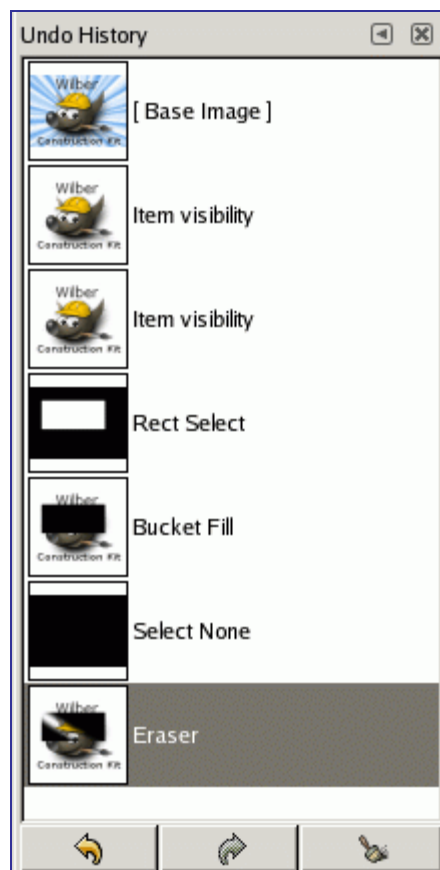
This dialog shows you a list of the actions you have most recently performed on an image, with a small sketch that attempts to illustrate the changes produced by each. You can revert the image to any point in its Undo History simply by clicking on the right entry in the list. For more information on GIMP's Undo mechanism and how it works, see the section on Undoing.

Activate the dialog

The Undo History dialog is a dockable dialog; see the section on Dialogs and Docking for

help on manipulating it. It can be activated in several ways:

- From the Toolbox menu: File Dialogs Undo History .
- From the Toolbox menu: File Dialogs Create New Dock Layers, Channels, and Paths . This gives you a dock containing four dialogs, with the Undo History dialog one of them.
- From an image menu: Edit Undo History .
- From an image menu: Dialogs Undo History .
- From the Tab menu in any dockable dialog: Add Tab Undo History .

Using the Undo History dialog

The most basic thing you can do is to select a point in the Undo History by clicking on it in the list. You can go back and forth between states in this way as much as you please, without losing any information or consuming any resources. In most cases, the changes are very fast.

At the bottom of the dialog are three buttons:

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Image content related dialogs

Colors dialog
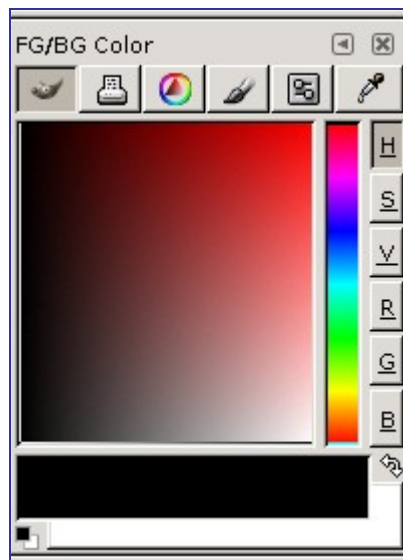
The Channel dialog lets you manage and pick up new colors. It is divided into five separate parts: GIMP, CMYK, Triangle, Watercolor and Scales. You can use the eyedropper, which is the last button of the dialog, to pick up a color anywhere on your screen.

Activate Dialog

The dialog can be called in the following ways :

- from the toolbox-menu: File Dialogs Colors
- from the toolbox: click on the current Foreground or Background color.
- from the image-menu: Dialogs Colors
- from an other dialog-menu: Add Tab Colors

Using the dialog

Brushes dialog
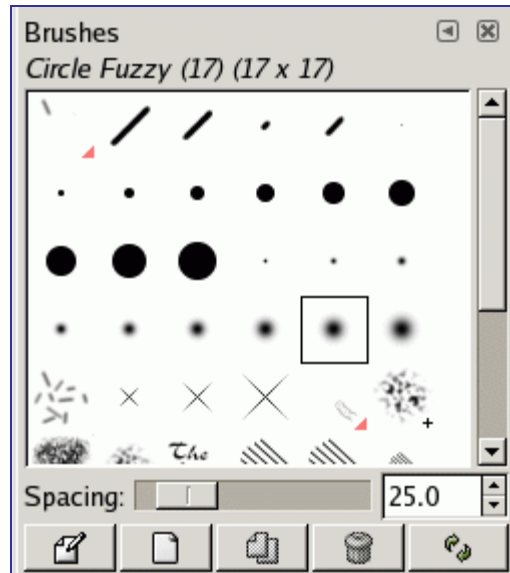
The Brushes dialog is used to select a brush, for use with painting tools: see the Brushes section for basic information on brushes and how they are used in GIMP. The dialog also gives you access to several functions for manipulating brushes. You can select a brush by clicking on it in the list: it will then be shown in the Brush/Pattern/Gradient area of the Toolbox. A few dozen basic brushes come pre-installed with GIMP, along with a few assorted bizarre ones that mainly serve to show you the range of possibilities. You can also create custom brushes using the Brush Editor, or by saving images in a special brush file format.

Activate Dialog

The Brushes dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in several ways:

- From the Toolbox menu: File Dialogs Brushes .
- From the Toolbox menu: File Dialogs Create New Dock Brushes, Patterns, and Gradients . This gives you a dock containing three dialogs, with the Brushes dialog one of them.
- From the Toolbox, by clicking on the brush symbol in the Brush/Pattern/Gradient area.
- From an image menu: Dialogs Brushes .
- From the Tab menu in any dockable dialog: Add Tab Brushes .
- From the Tool Options dialog for any of the paint tools, by clicking on the Brush icon button, you get a popup with similar functionality that permits you to quickly choose a brush from the list; if you clic on the button present on the right botton of the popup, you open the real brush dialog. Note that, depending on your Preferences, a brush selected with the popup may only apply to the currently active tool, not to other paint tools. See the Tool Option Preferences section for more information.

Using the brush dialog

The functions performed by these buttons can also be accessed from the dialog pop-up menu, activated by right-clicking anywhere in the brush grid/list, or by choosing the top item, Brushes menu, from the dialog Tab menu.

Brush Editor
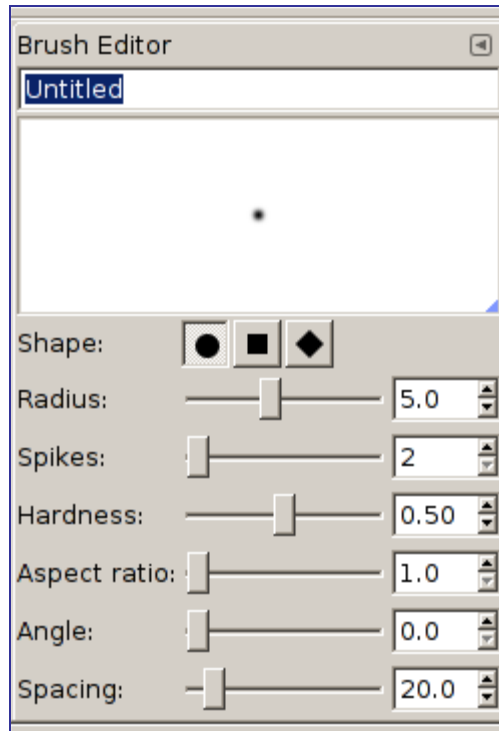
The Brush Editor allows you either to view the brush parameters of a brush supplied by GIMP, and you can't change them, or to create a custom brush from a geometrical shape, a circle, a square, a diamond. This editor has several elements:

The dialog bar: As with all dialog windows, a click on the small triangle prompts a menu allowing you to set the aspect of the Brush Editor.

The title bar: To give a name to your brush.

The preview area: Brush changes appear in real time in this preview.

Settings:

Patterns dialog

In GIMP, a *pattern* is a small image used to fill areas by placing copies of side by side. See the Patterns section for basic information on patterns and how they can be created and used.

You can use them with Bucket Fill et Clone tools and the Fill with pattern command.

The Patterns dialog is used to select a pattern, by clicking on it in a list or grid view: the selected pattern will then be shown in the Brush/Pattern/Gradient area of the Toolbox. A few dozen more or less randomly chosen patterns are supplied with GIMP, and you can easily add new patterns of your own.

Activate Dialog

The Patterns dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in several ways:

- From the Toolbox menu: File Dialogs Patterns .
- From the Toolbox menu: File Dialogs Create New Dock Brushes, Patterns, and Gradients . This gives you a dock containing three dialogs, with the Patterns dialog one of them.
- From the Toolbox, by clicking on the pattern symbol in the Brush/Pattern/Gradient area.
- From an image menu: Dialogs Patterns .
- From the Tab menu in any dockable dialog: Add Tab Patterns .
- From the Tool Options dialog for the Clone tool, by clicking on the Pattern icon button. This option appears because the Clone tool is capable of painting with patterns.

Using the pattern dialog

Gradients dialog
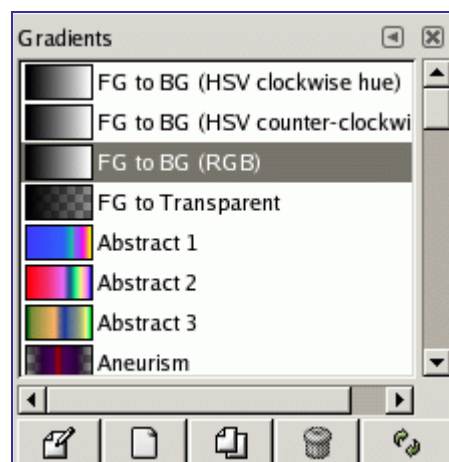
The Gradients dialog offers a gradient palette which is used to select a gradient -- a set of colors arranged in a linear scale -- for use with the Blend tool and numerous other operations. It also gives you access to several functions for manipulating gradients. You can select a gradient by clicking on it in the list: it will then be shown in the Brush/Pattern/Gradient area of the Toolbox. A few dozen nice gradients come pre-installed with GIMP. You can create more using the Gradient Editor. General information about gradients and how they are used in GIMP can be found in the Gradients section.

The first four gradients are particular: they reproduce the gradient between Foreground and background colors of toolbox in different ways.

Activate Dialog

The Gradients dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in several ways:

- From the Toolbox menu: File Dialogs Gradients .

- From the Toolbox menu: File Dialogs Create New Dock Brushes, Patterns, and Gradients . This gives you a dock containing three dialogs, with the Gradients dialog one of them.

- From the Toolbox, by clicking on the current gradient in the Brush/Pattern/Gradient area.

- From an image menu: Dialogs Gradients .

- From the Tab menu in any dockable dialog: Add Tab Gradients .

- From the image by using the G shortcut.

Using the Gradients dialog

The most basic, and most commonly used, operation with the dialog is simply to click on one of the gradients in the scrollable list, in order to make it GIMP's current gradient, which will then be used by any operation that involves a gradient.

If you *double-click* on a gradient, you open the Gradient Editor where you will be able to edit its name. Note, however, that you are only allowed to change the names of gradients that you have created yourself, not the ones that come pre-installed with GIMP. If you try to rename a pre-installed gradient, you will be able to edit the name, but as soon as you hit return or click somewhere else, the name will revert to its original value. It is a general rule that you cannot alter the resources that GIMP pre-installs for you: brushes, patterns, gradients, etc; only ones that you create yourself.

The buttons at the bottom of the dialog allow you to operate on gradients in several ways:

The functions performed by these buttons can also be accessed from the dialog pop-up menu, activated by right-clicking anywhere in the gradient list. The menu also gives you one additional function:

Gradient Editor
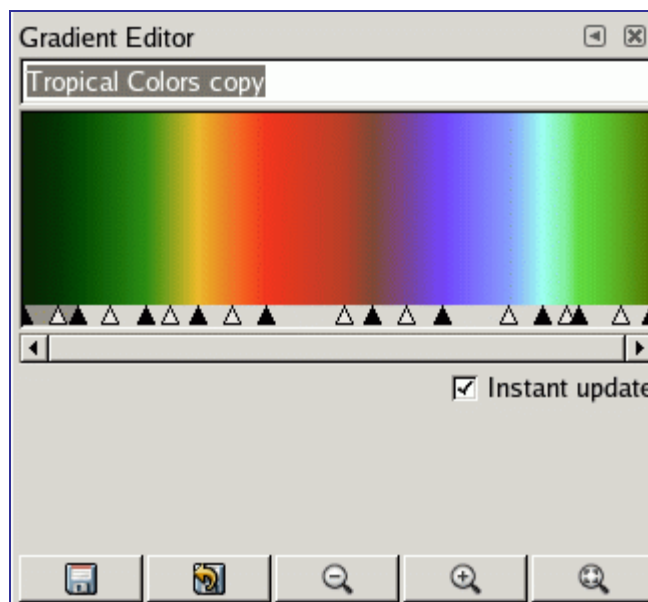
The Gradient Editor allows you to edit the colors in a gradient. It can only be used on gradients you have created yourself (or on a copy of a system gradient), not on system gradients that come pre-installed with GIMP. This is a sophisticated tool that may take a bit of effort to understand. The concept behind it is that a gradient can be decomposed into a series of adjoining *segments*, with each segment consisting of a smooth transition

from the color on the left edge to the color on the right edge. The Gradient Editor allows you to pack together any number of segments, with any colors you want for the left and right edges of each segment, and with several options for the shape of the transition from left to right.

How to Activate the Gradient Editor

You can activate the Gradient Editor in several ways:

- By double-clicking on the gradient stripe in the Gradient dialog.
- From the context menu you get by right clicking on the selected gradient name.
- By clicking on the Edit gradient button in the Gradient Dialog.
- From the Gradient Menu you get by clicking on the small triangle representing the Tab Menu in the Gradient Dialog.

Display

Gradient Editor Menu
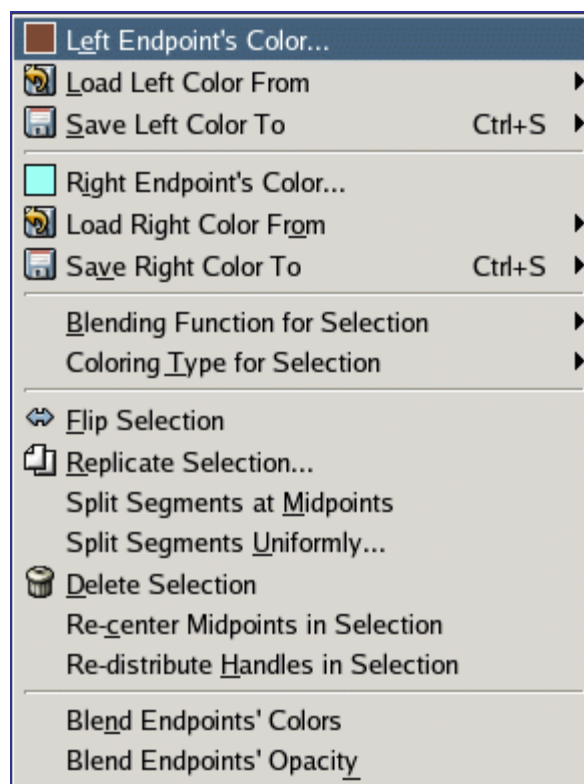
You can access the Gradient Editor menu either by right-clicking on the gradient display, or by choosing the top item in the dialog's tab menu. The menu allows you to set the left and right edge colors for each segment, and control the transition from one color to the other.

The following commands can be found in the menu:

There is no "undo" available within the Gradient Editor, so be careful!

Palettes
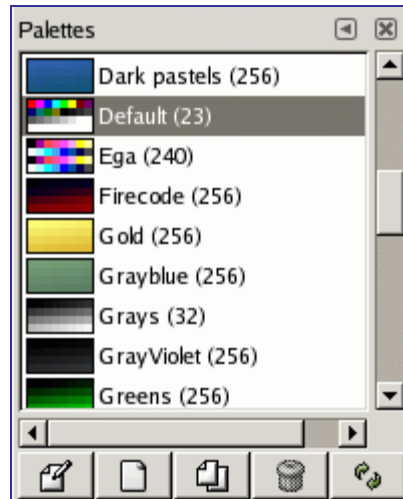
A *palette* is a set of discrete colors, in no particular order. See the Palettes section for basic information on palettes and how they can be created and used.

The Palettes dialog is used to select a palette, by clicking on it in a list or grid view. A few dozen more or less randomly chosen palettes are supplied with GIMP, and you can easily add new palettes of your own. The Palettes dialog also give you access to several operations for creating new palettes or manipulating the ones that already exist.

The Palettes dialog is not the same thing as the Index Palette dialog, which is used to manipulate the colormaps of indexed images.

Activate Dialog

The Palettes dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in several ways:

- From the Toolbox menu: File Dialogs Palettes .
- From an image menu: Dialogs Palettes .
- From the Tab menu in any dockable dialog: Add Tab Palettes .

Using the Palettes dialog

Clicking on a palette in the dialog makes it GIMP's active palette. This does not really have any significance, though. Double-clicking on a palette brings up the Palette Editor, which allows you to set GIMP's foreground or background colors by clicking on colors in the palette display.

Double-clicking on a palette *name* (in List View mode) lets you to edit the name. Note that you are only allowed to change the names of palettes that you have added yourself, not those that are supplied with GIMP. If you edit a name that you are not allowed to change, it will revert back to its previous value as soon as you hit return or move the pointer focus elsewhere.

Palettes Menu
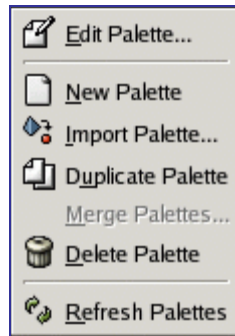
The Palettes Menu can be accessed by right-clicking in the Palettes dialog, or by choosing the top item from the dialog Tab menu.

Palette Editor
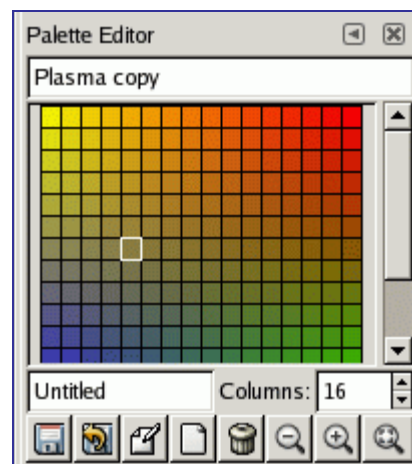
The Palette Editor is used mainly for two purposes: first, for setting GIMP's foreground or background colors (as shown in the Color Area of the Toolbox) to selected colors from the palette; second, for modifying the palette. You can activate the Palette Editor for any palette in the Palettes dialog, but you can only modify palettes that you have created yourself, not the palettes that are supplied when you install GIMP. (You can, however, duplicate any palette and then edit the newly created copy.) If you modify a palette, the results of your work will automatically be saved when you exit from GIMP.

How to Activate the Palette Editor

The Palette Editor is only accessible from the Palettes dialog: you can activate it by double-clicking on a palette, or by pressing the "Edit Palette" button at the bottom, or by choosing "Edit Palette" from the Palettes Menu.

The Palette Editor is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it.

Using the Palette Editor

If you click on a color box in the palette display, GIMP's foreground color will be set to the selected color: you can see this in the Color Area of the Toolbox. If you hold down the Ctrl key while clicking, GIMP's background color will be set to the selected color.

Double-clicking on a color not only sets the foreground, it also brings up a color editor that allows you to modify the selected palette entry. (This only happens if the palette is one you are allowed to modify: that is, one you have added to GIMP yourself.)

Right-clicking in the palette display area brings up the Palette Editor menu. It's functions are mainly the same as those of the buttons at the bottom of the dialog.

Below the palette display area, at the left, appears a text entry area that shows the name

---

of the selected color (or "Unnamed" if it does not have one). This information has no functional significance, and is present only to serve you as a memory aid.

To the right of the name entry is a spinbutton that allows you to set the number of columns used to display the palette. This only affects the display, not how the palette works. If the value is set to 0, a default will be used.

At the bottom of the dialog are a set of buttons, which mostly match the entries in the Palette Editor menu, accessible by right-clicking in the palette display area. Here are the buttons:

Palette Editor Menu
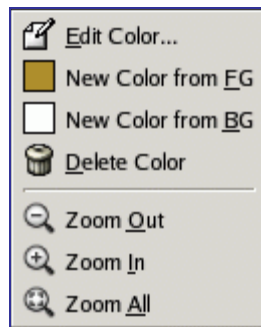
The Palette Editor Menu can be accessed by right-clicking on the palette display in the Palette Editor, or by choosing the top entry from the dialog Tab menu. The operations in it can also be executed using the buttons at the bottom of the Palette Editor dialog.

Fonts dialog

The Fonts dialog is used for selecting fonts for the Text tool. It also allows you to refresh the list of available fonts, if you add new ones to your system while GIMP is running.

Activate Dialog

The Fonts dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in several ways:

- From the Toolbox menu: File Dialogs Fonts .
- From the image menu bar: Dialogs Fonts .
- From the Tab menu in any dockable dialog: Add Tab Fonts .
- From the Tool Options for the Text tool. If you click on the "Font" button, a Font-selector pops up. In the lower right corner is a button that, if pressed, brings up the

Fonts dialog.

Using the Fonts dialog

The most basic thing you can do is to select a font by clicking on it: this font will then be used by the Text tool. If instead of clicking and releasing, you hold down the left mouse button with the pointer positioned over the font example ("Aa"), a window showing a larger text example will pop up ("Pack my box with five dozen liquor jugs.").

Image management related dialogs

Buffers dialog
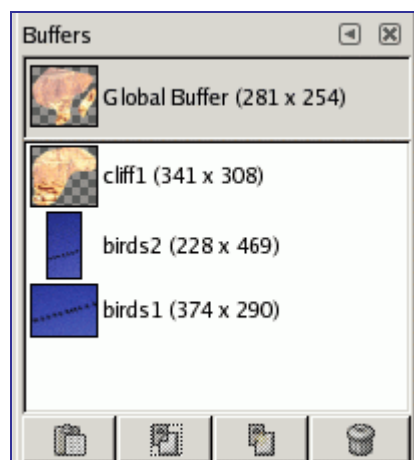
Buffers are temporary repositories for image data, created when you cut or copy part of a drawable (a layer, layer mask, etc.). You can save a document in this buffer in two ways: Edit Buffer Copy Named or Edit Buffer Cut Named A dialog pops up asking you to name a buffer to store the data in. There is no hard limit on the number of named buffers you can create, although, of course, each one consumes a share of memory.

The Buffers dialog shows you the contents of all existing named buffers, and allows you to operate on them in several ways. It also shows you, at the top, the contents of the Global Buffer, but this is merely a display: you can't do anything with it.

The Buffers dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in several ways:

- From the Toolbox menu: File Dialogs Buffer .
- From an image menu: Dialogs Buffer , or Edit Buffer Paste Named .
- From the Tab menu in any dockable dialog: Add Tab Buffer .

Named buffers are not saved across sessions. The only way to save their contents is to paste them into images.
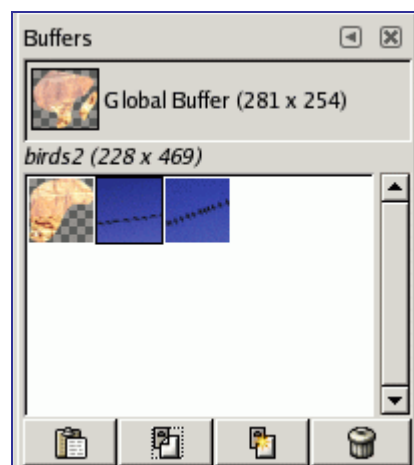
In the Tab menu for the Buffers dialog, you can choose between View as Grid and View as List. In Grid mode, the buffers are laid out in a rectangular array. In List mode, they are lined up vertically, with each row showing a preview of the contents of the buffer, its

name, and its pixel dimensions.
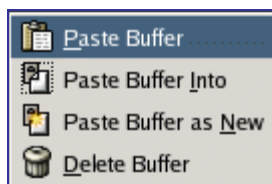
Clicking on a buffer in the display area makes it the active buffer, i. e., the one that will be used for paste commands executed with the Buffers Menu or the buttons at the bottom of the dialog. Double-clicking on a buffer causes its contents to be pasted to the active image; this is a quick way of executing the "Paste Buffer" command.

At the bottom of the dialog are four buttons. The operations they perform can also be accessed from the Buffers Menu that you get by right clicking on the active buffer.

- **Paste Buffer**

  This command pastes the contents of the selected buffer into the active image, as a floating selection. The only difference between this and the ordinary Paste command is that it uses the selected buffer rather than the global clipboard buffer.

- **Paste Buffer Into**

  This command pastes the contents of the selected buffer into the active image's selection, as a floating selection. The only difference between this and the ordinary Paste Into command is that it uses the selected buffer rather than the global clipboard buffer.

- **Paste Buffer as New**

  This command creates a new single-layer image out of the contents of the selected buffer. The only difference between this and the ordinary Paste as New command is that it uses the selected buffer rather than the global clipboard buffer.

- **Delete Buffer**

  This command deletes the selected named buffer, no questions asked. You cannot delete the Global Buffer.

You can change the size of the buffer previews in the dialog using the "Preview Size" submenu of the dialog's Tab menu.

Images dialog

The Images Dialog displays the list of open images on your screen; each of them is represented with a thumbnail. This dialog is useful when you have many overlapping images on your screen: thus, you can raise the wanted image to foreground.

The Images dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in several ways:

- From the Toolbox menu: File Dialogs Images .
- From an image menu: Dialogs Images .
- From the Tab menu in any dockable dialog: Add Tab Ihmages .

Grid/List modes, Previews size

As in all dialogs with thumbnails, the Tab menu gives you the possibility of adapting thumbnail display to your liking. See Docking

Using the Images dialog

At the top of the dialog appears the name of the currently selected image, if the "*Show Image Selection*" option is checked in Tab Menu. Useless if you have selected Grid mode: anyway, the name is displayed.

At center, open images appear, as a list or a grid, according to the selected mode. The current image is highlighted in list mode, outlined in grid mode. With a double click. With a simple click on an image name, you raise this image to the foreground of your screen. With a simple click you select this image so that buttons can act on it.

- *Raise this image's display*: The selected image appears at the foreground of your screen.
- *Create a new display for this image*: Duplicates the image window (not the image) of the selected image.
- *Delete*: this button is not working.

Document History dialog
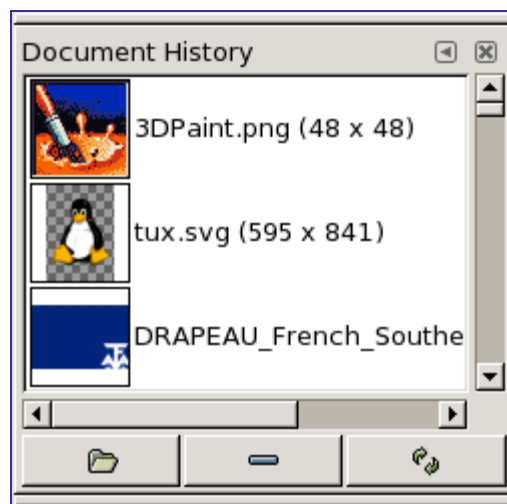
The History Dialog displays the list of the documents you have opened in previous sessions. It is more complete than the list you get with the "*Open Recent*" command.

Activate Dialog

You can access to this dialog in different ways:

- From the toolbox-menu and the image Menu bar: File Open Recent Document History
- From the image Menu-bar: Dialogs Document History

Options

The scroll bar allows you to browse all images you have opened before.

The *Open the selected entry* button allows you to open the image you have selected. With "Shift" key pressed, it raises an image hidden behind others. With "Ctrl" key pressed, it opens the Open Image dialog.

The *Remove the selected entry* button allows you to remove an image from the History dialog. The image is removed from the recently open images list also. But the image itself is not deleted.

The *Recreate Preview* button updates preview in case of change. With "Shift" key pressed, it acts on all previews. With "Ctrl" key pressed, previews that can't be found out are deleted.

Templates

Dialog
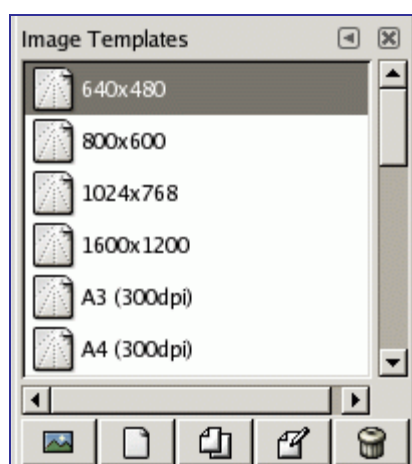
Templates are templates for an image format to be created. Gimp offers you a lot of templates and you can create your owns. When you create a New image, you can access to the list of existing templates but you can't manage them. The "*Templates*" dialog allows you to manage all these templates.

The Templates dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in two ways:

- From the Toolbox menu: File Dialogs Templates .
- From an image menu: Dialogs Templates .

In the Tab menu for the Templates dialog, you can choose between View as Grid and View as List. In Grid mode, templates are laid out in a rectangular array of identical icons (unless you gave them a particular icon, as we will see later). Only the name of the selected template is displayed. In List mode, they are lined up vertically; icons are identical too; all names are displayed.

In this Tab menu, the Preview Size option allows you to change the size of thumbnails.

Using the Templates dialog

You select a template by clicking on its icon. Right clicking reveals a local menu that offers the same functions as buttons.

The buttons at the bottom of the dialog allow you to operate on templates in several ways:

Edit Template
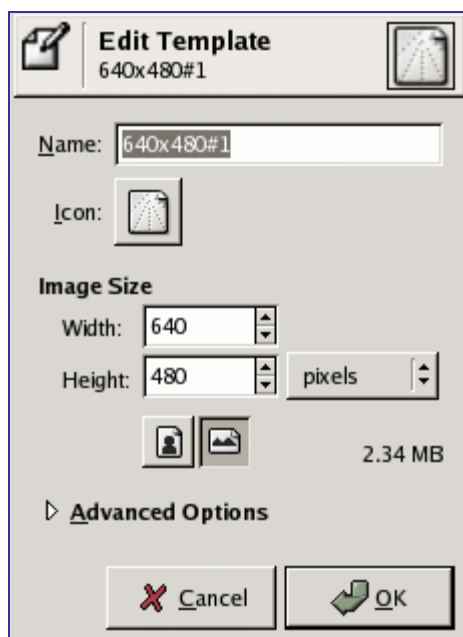
The dialog allows you to set the specifications of the selected template.

You can access to this editor by clicking on the Edit Template button in the Templates dialog.

The Advanced Options dialog

These are options that will mainly be of interest to more advanced users.

Misc dialogs

Tools dialog
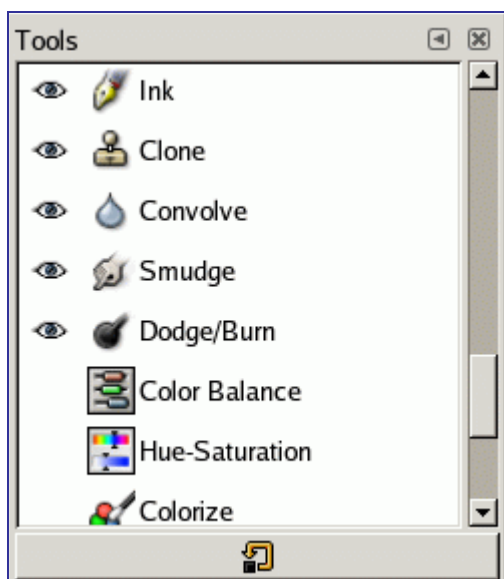
The Tools dialog is used mainly to control the appearance of the Toolbox. It allows you to customize the set of tools for which icons are shown in the Toolbox, and the order in which the icons are arranged. Probably the most common use for it is to make the Color tools available directly from the Toolbox. You can also use the Tools dialog to select a tool by clicking on its symbol, but for this purpose you might as well just use the Toolbox.

The Tools dialog is a dockable dialog; see the section on Dialogs and Docking for help on manipulating it. It can be activated in several ways:

- From the Toolbox menu: File Dialogs Tools .
- From an image menu: Dialogs Tools .
- From the Tab menu in any dockable dialog: Add Tab Tools .

Grid/List modes

In the Tab menu, you can choose between View as Grid and View as List. In Grid mode, the tools are laid out in a rectangular array. In List mode, they are lined up vertically, with each row showing the tool name, tool icon, and an "*eye*" icon if the tool is currently visible in the Toolbox.

Using the Tools dialog

The most basic thing you can do is to select a tool by clicking on its icon: this has the same effect as clicking on an icon in the Toolbox. You can do this in either List or Grid mode: the other functions of the dialog are available only in List mode.

The most important function of the Tools dialog is to let you choose which tools to make visible in the Toolbox, by toggling the "*eye*" icons that appear on the left side of each row in List mode. In particular, if you use the Color tools a lot, you may benefit from toggling visibility on for them here.

You can also change the order of tools in the Toolbox, by clicking on an item in the Tools dialog, in List mode, and dragging it up or down in the list. If you screw things up, you can always press the "Reset" button at the bottom of the dialog, to restore the defaults for

order and visibility.

Right-clicking inside the dialog produces the Tools menu, which gives you an alternative way of toggling visibility or restoring the defaults.

Preferences

Introduction
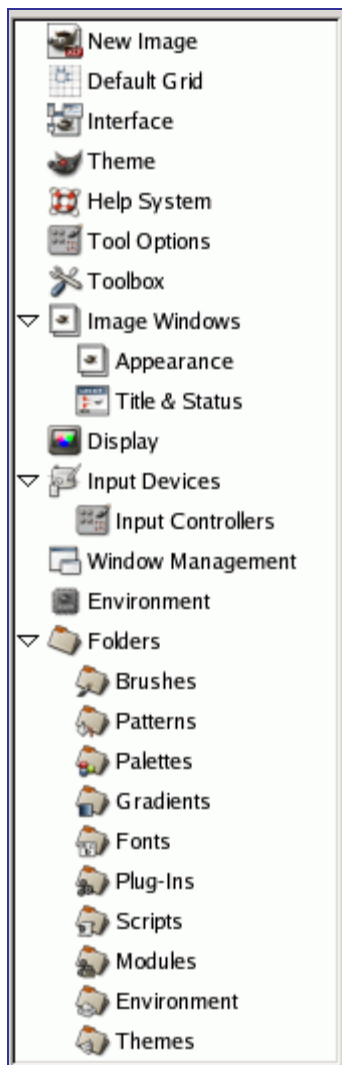
The preferences dialog can be accessed from the Toolbox menu, as File Preferences . It lets you customize many aspects of the way GIMP works. The following sections detail the settings that you can customize, and what they affect. This information applies specifically to Gimp 2.2, but the settings for Gimp 2.0 are similar enough that you should be able to understand them based on the explanations here.

All of the Preferences information is stored in a file called `gimprc` in your personal GIMP directory, so if you are a "*power user*" who would rather work with a text editor than a graphical interface, you can alter preferences by editing that file. If you do, and you are on a Linux system, then man gimprc will give you a lot of technical information about the contents of the file and what they are used for.

New Image Preferences
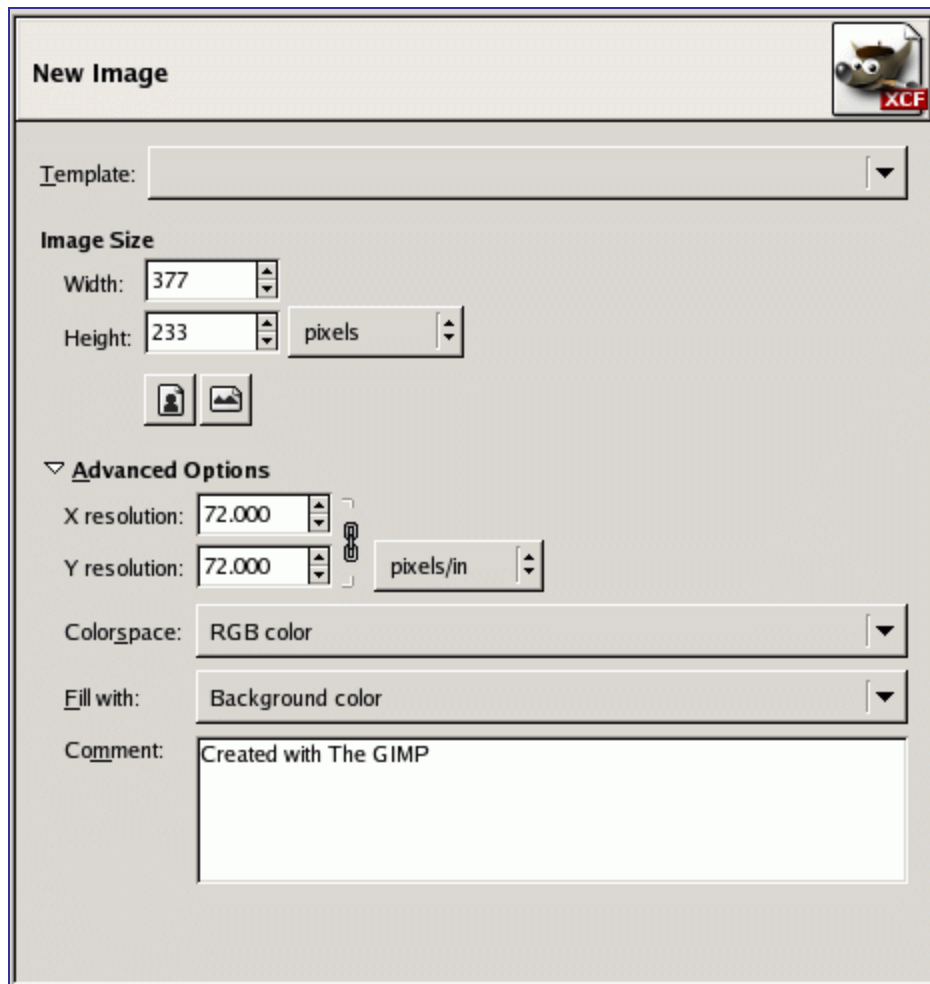
This tab lets you customize the default settings for the New Image dialog. See the New Image Dialog section for an explanation of what each of the values means.

Default Image Grid

Default Image Grid

Appearance

Line Style: Intersections (crosshairs) ▼

Foreground color: ▮

Background color: ▯

Spacing

Width	Height	
10	10	Pixels
0.139	0.139	in

Offset

Width	Height	
0	0	Pixels
0.000	0.000	in
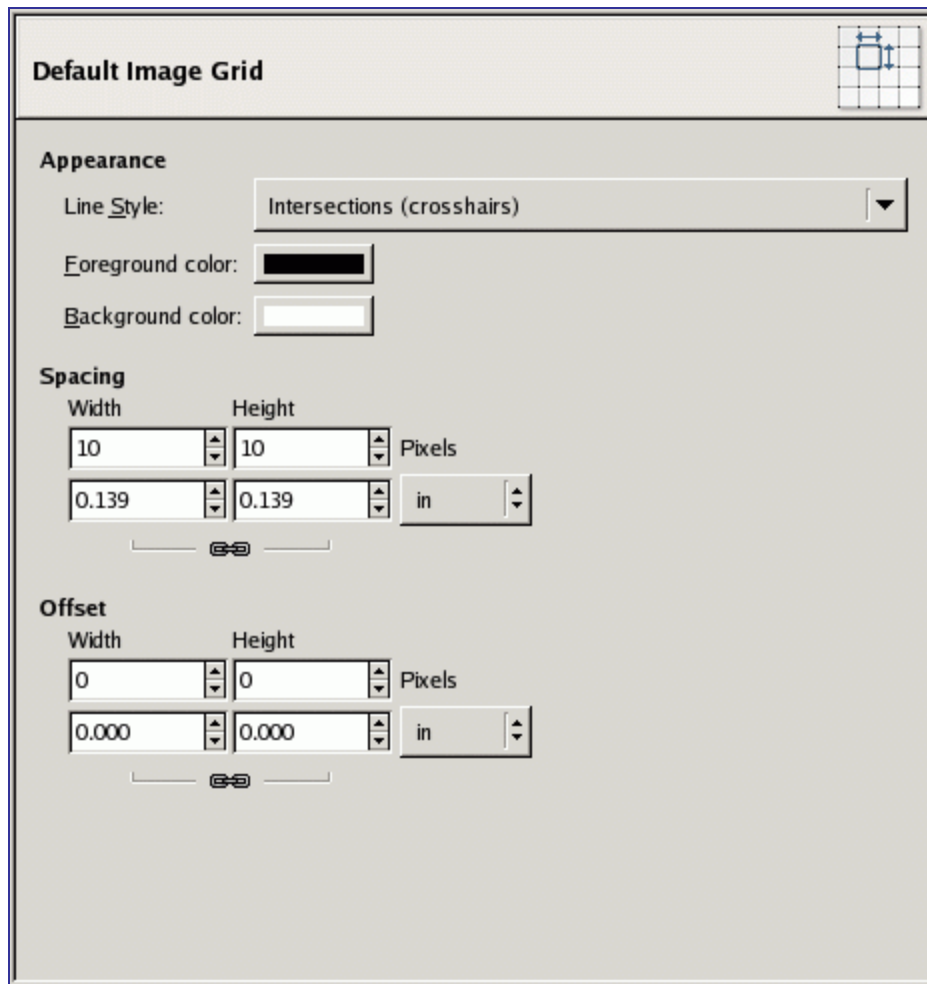
This page lets you customize the default properties of GIMP's grid, which can be toggled on or off using View Show Grid from the image menu. The settings here match those in the Configure Image Grid dialog, which can be used to reconfigure the grid for an existing image, by choosing Image Configure Grid from the image menu. See the Configure Grid dialog section for information on the meaning of each of the settings.

Interface
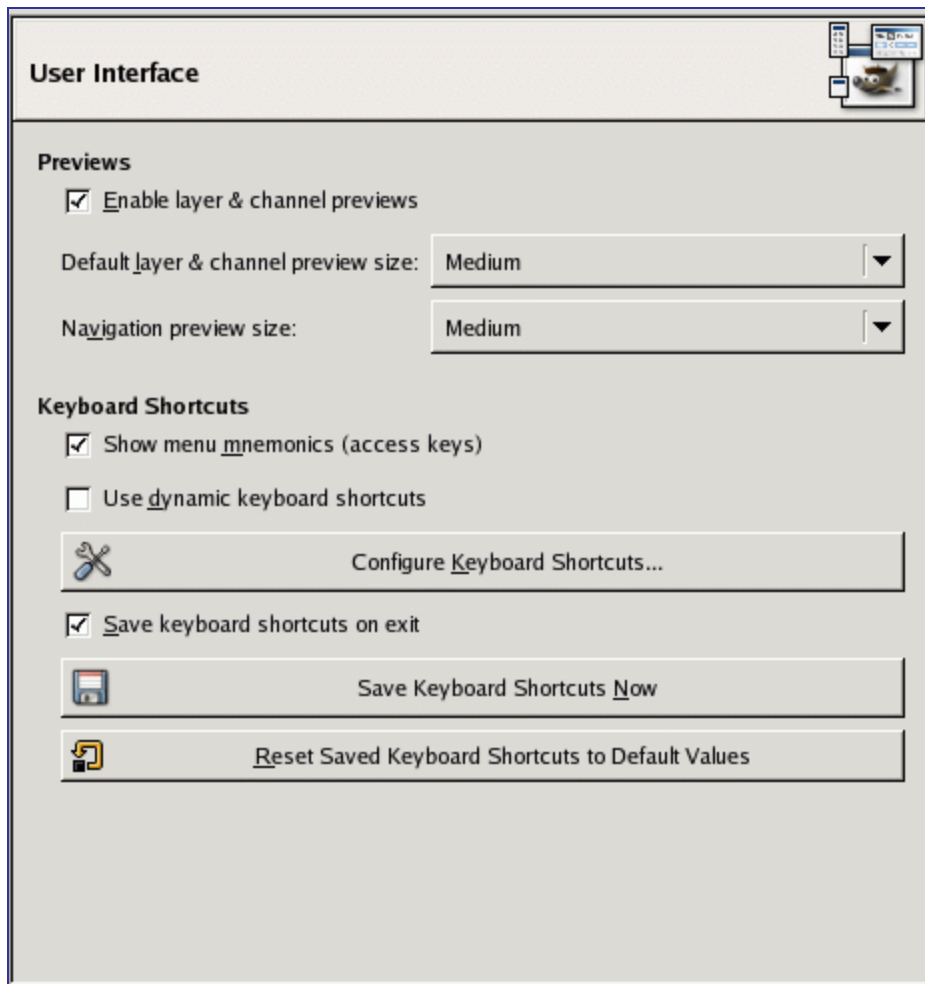
Theme
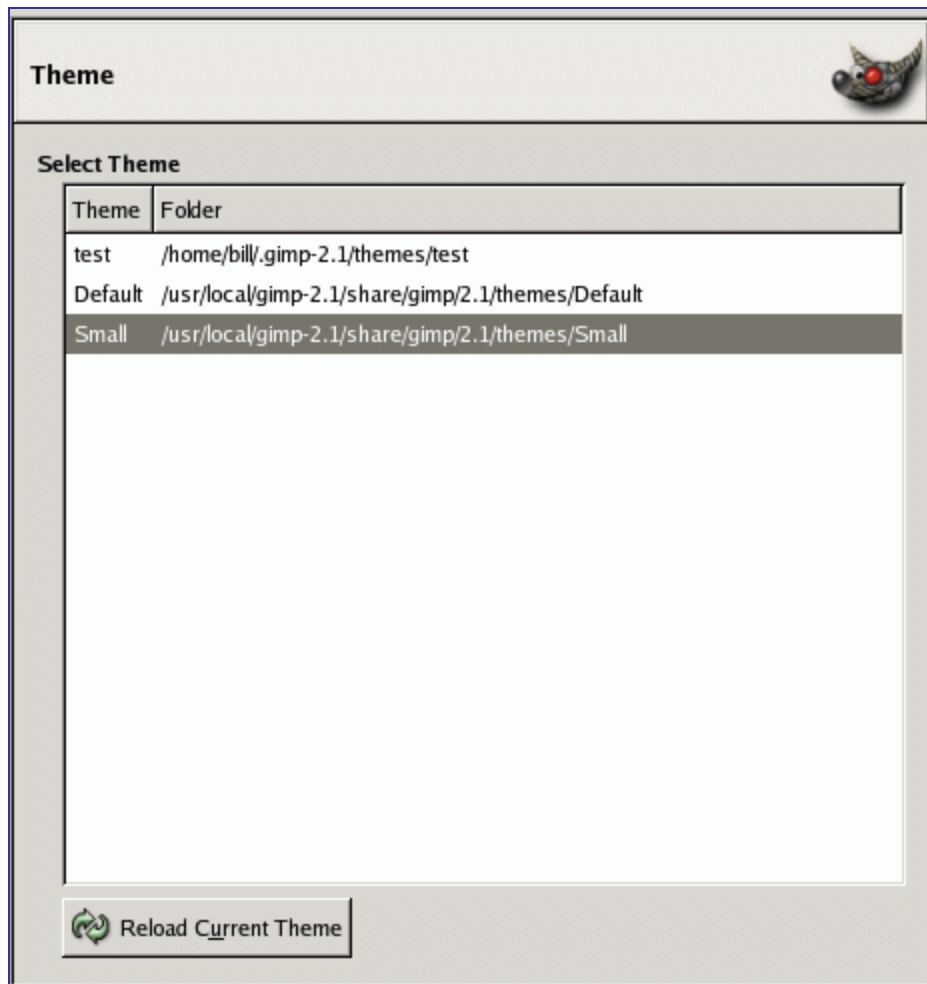
This page lets you select a theme, which determines many aspects of the appearance of the GIMP user interface, including the set of icons used, their sizes, fonts, spacing allowed in dialogs, etc. Two themes are supplied with GIMP: Default, which is probably best for most people, and Small, which may be preferable for those with small or low-resolution monitors. Clicking on a theme in the list causes it to be applied immediately, so it is easy to see the result and change your mind if you don't like it.

You can also use custom themes, either by downloading them from the net, or by copying one of the supplied themes and modifying it. Custom themes should be places in the `themes` subdirectory of your personal GIMP directory: if they are, they will appear in the list here. Each theme is actually a directory containing ASCII files that you can edit. They are pretty complicated, and the meaning of the contents goes beyond the scope of this documentation, but you should feel free to experiment: in the worst case, if you mess things up completely, you can always revert back to one of the supplied themes.

You cannot edit the supplied themes unless you have administrator permissions, and even if you do, you shouldn't: if you want to customize a theme, make a copy in your personal directory and work on it. If you make a change and would like to see the result "on the fly", you can do so by saving the edited theme file and then pressing Reload Current Theme.

Help System

Options

Tool Options

Tool Options

Guide and Grid Snapping

Snap distance: 8

Finding Contiguous Regions

Default threshold: 15

Scaling

Default interpolation: Linear

Paint Options Shared Between Tools

☑ Brush

☑ Pattern

☑ Gradient
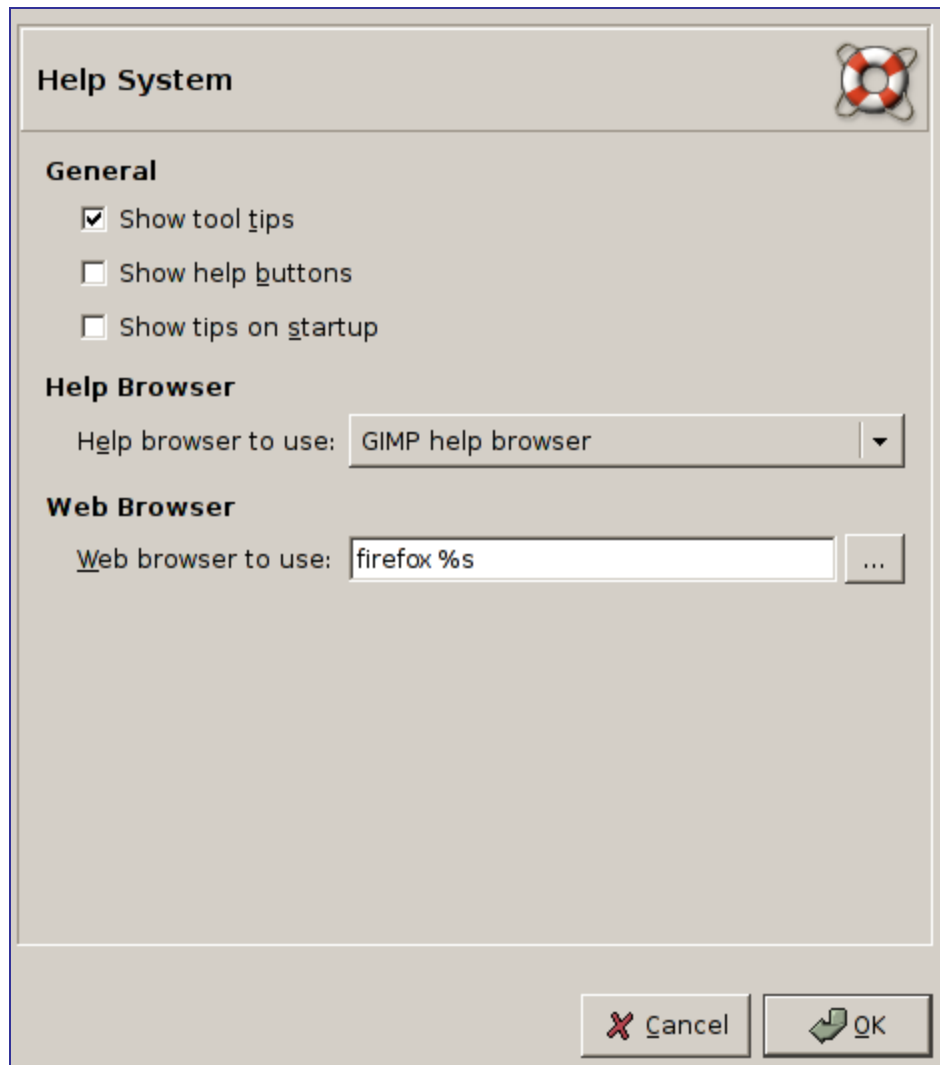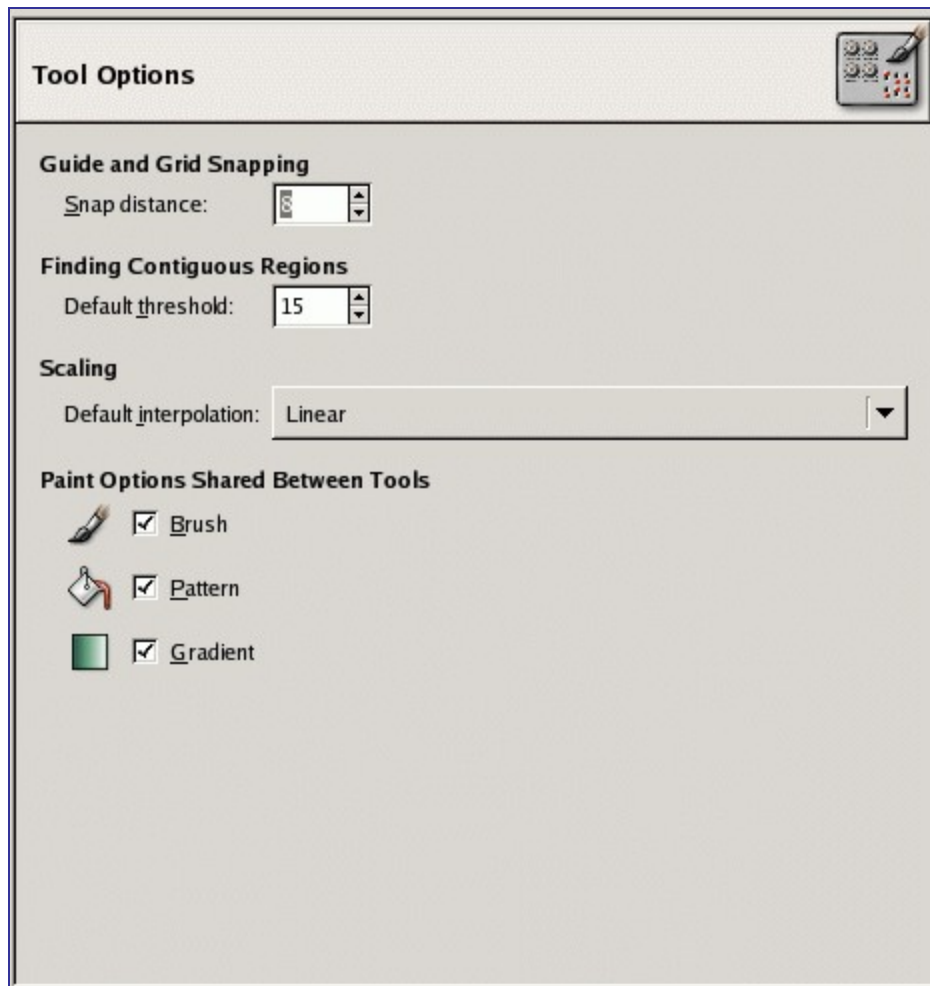
Options

Toolbox

Options
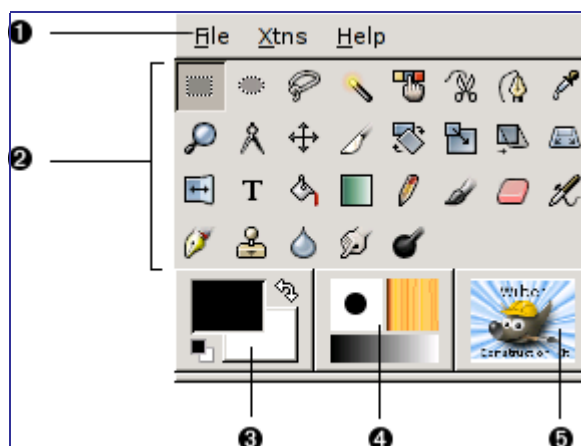
This page lets you customize the appearance of the Toolbox, by deciding whether the three "context information" areas should be shown at the bottom.

Image Windows

Image Windows

General

☑ Use "Dot for dot" by default

Marching ants speed: 300

Zoom & Resize Behavior

☐ Resize window on zoom

☑ Resize window on image size change

Initial zoom ratio: Fit to window ▼

Mouse Cursors

☑ Show brush outline

☑ Show paint tool cursor

Cursor mode: Tool icon ▼

Cursor rendering: Fancy ▼
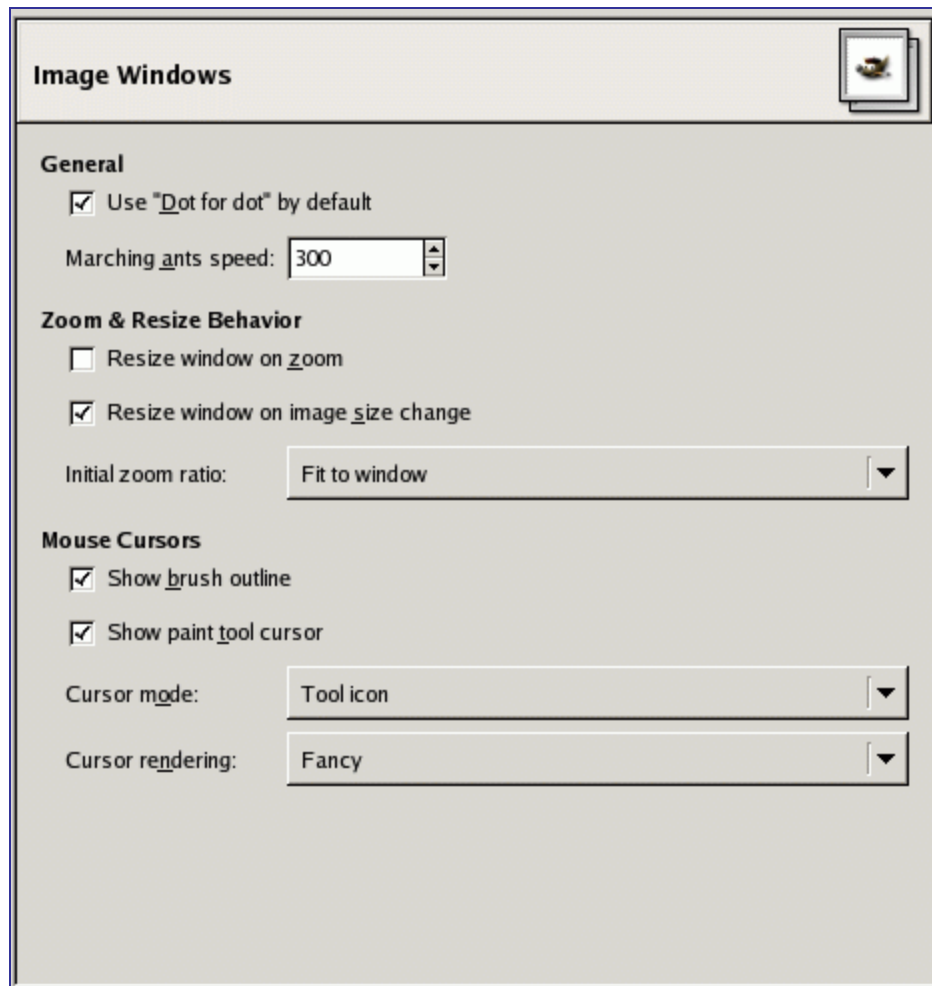
Options

Image Window Appearance

Image Window Appearance

Default Appearance in Normal Mode

☑ Show menubar   ☑ Show selection
☑ Show rulers   ☑ Show layer boundary
☑ Show scrollbars   ☑ Show guides
☑ Show statusbar   ☐ Show grid

Canvas padding mode: From theme ▼

Custom padding color: [   ]

Default Appearance in Fullscreen Mode

☐ Show menubar   ☐ Show selection
☐ Show rulers   ☐ Show layer boundary
☐ Show scrollbars   ☐ Show guides
☐ Show statusbar   ☐ Show grid

Canvas padding mode: Custom color ▼

Custom padding color: [■■■]

The only parts that may need further explanation are the ones related to padding. "*Padding*" is the color shown around the edges of the image, if it does not occupy all of the display area (shown in light gray in all the figures here). You can choose among four colors for the padding color: to use the color specified by the current theme; to use the light or dark colors specified for checks, such as represent transparent parts of the image; or to use a custom color, which can be set using the color button for "*Custom padding color*".

Image Window Title and Statusbar
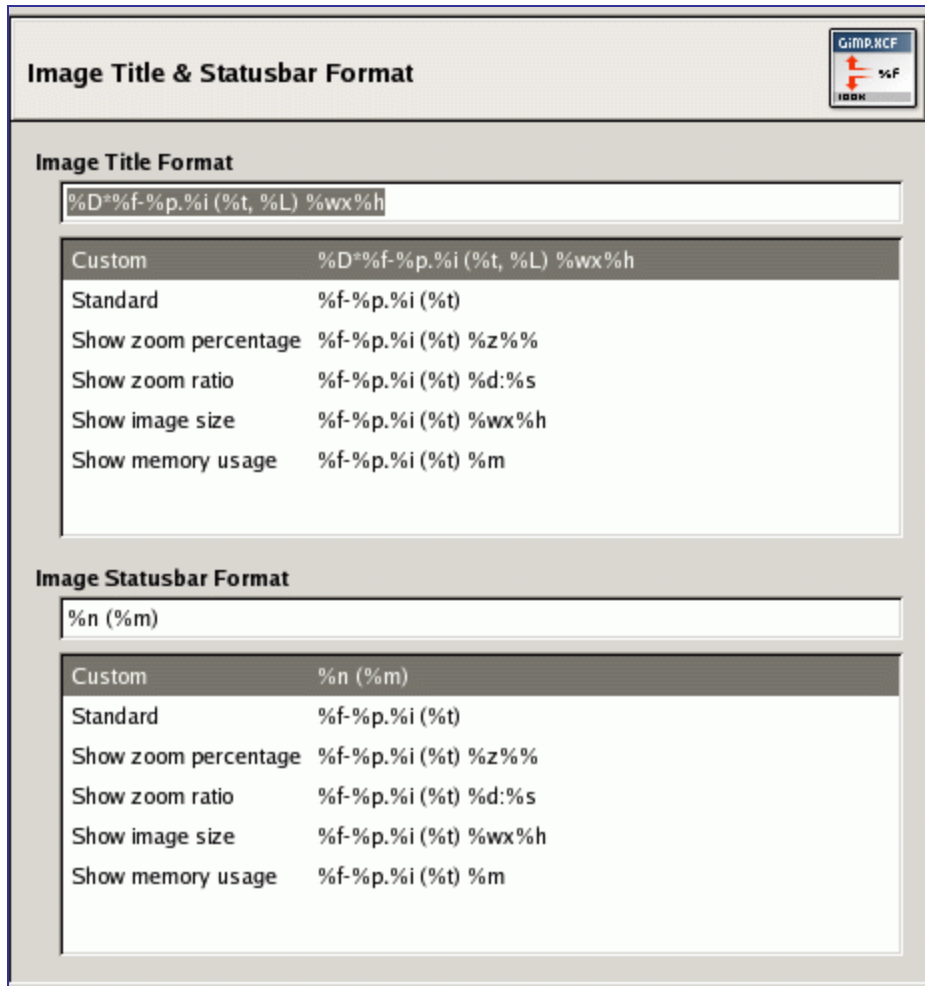
Choosing a Format

You can choose among several predesigned formats, or you can create one of your own, by writing a *format string* in the entry area. Here is how to understand a format string: anything you type is shown exactly as you type it, with the exception of *variables*, whose names all begin with "%". Here is a list of the variables you can use:

Display
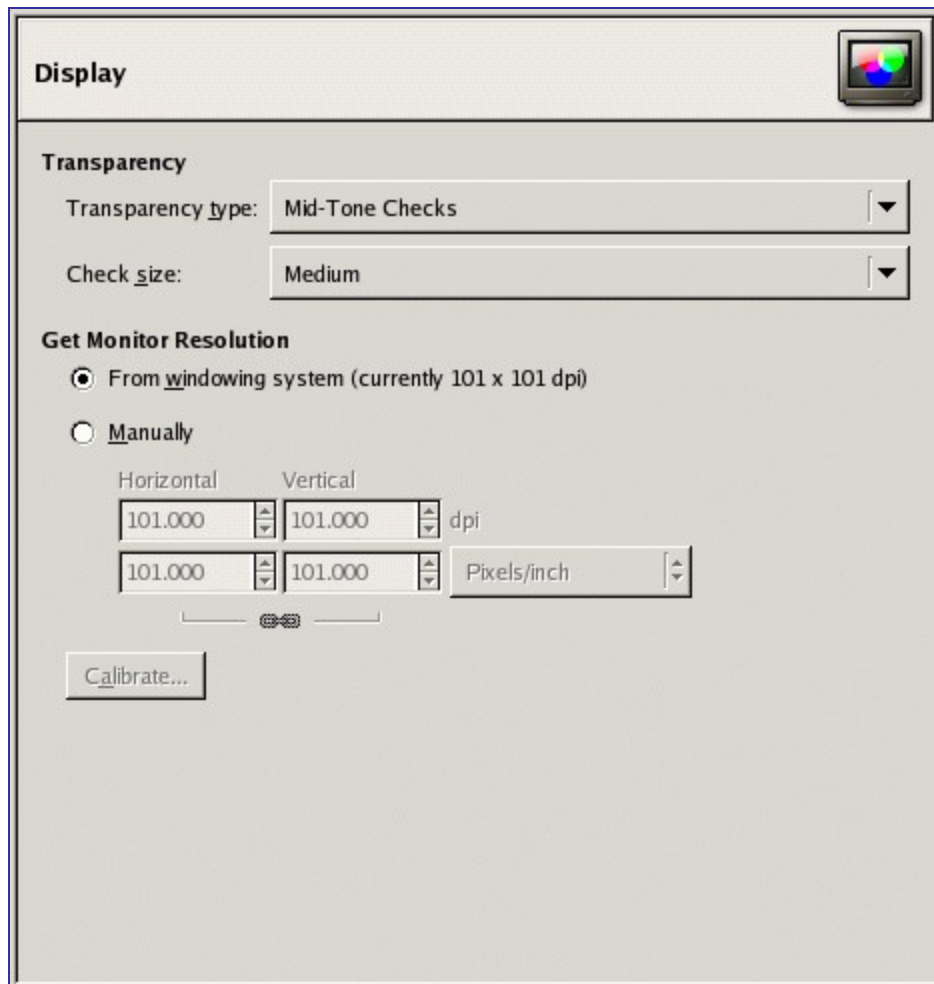
Options

Input Devices
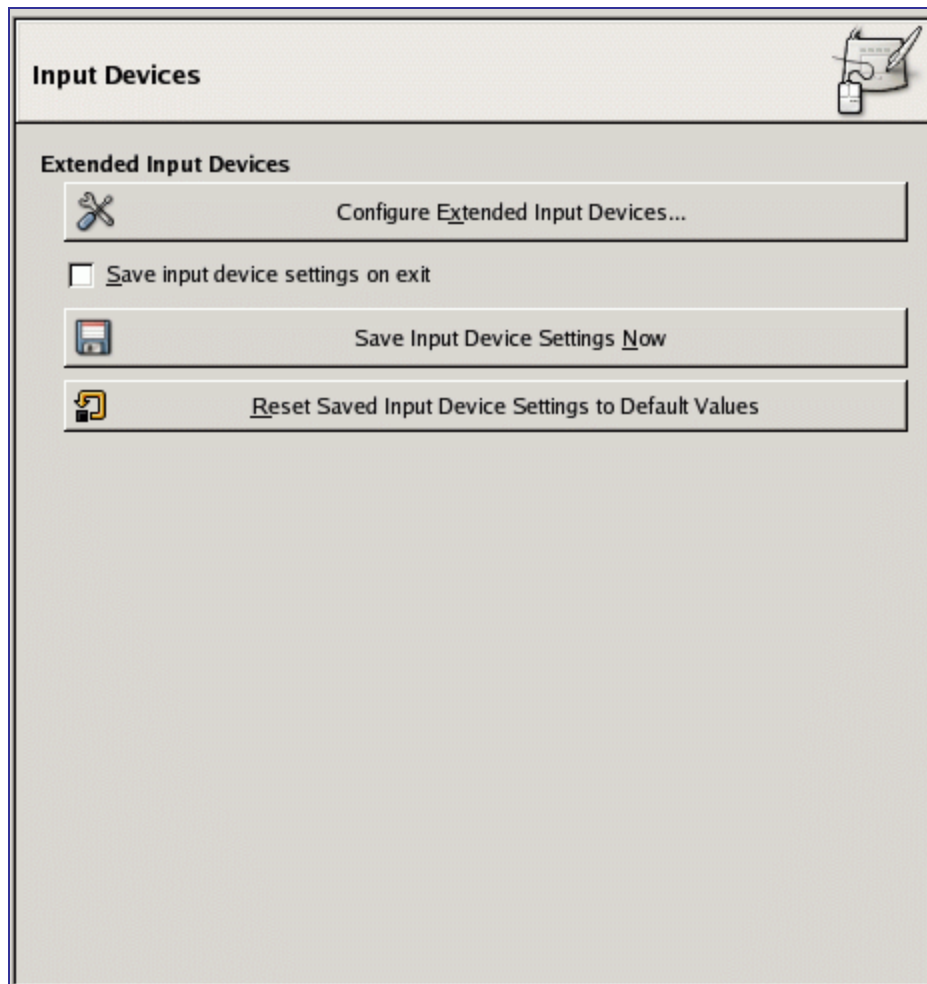
Input Controllers
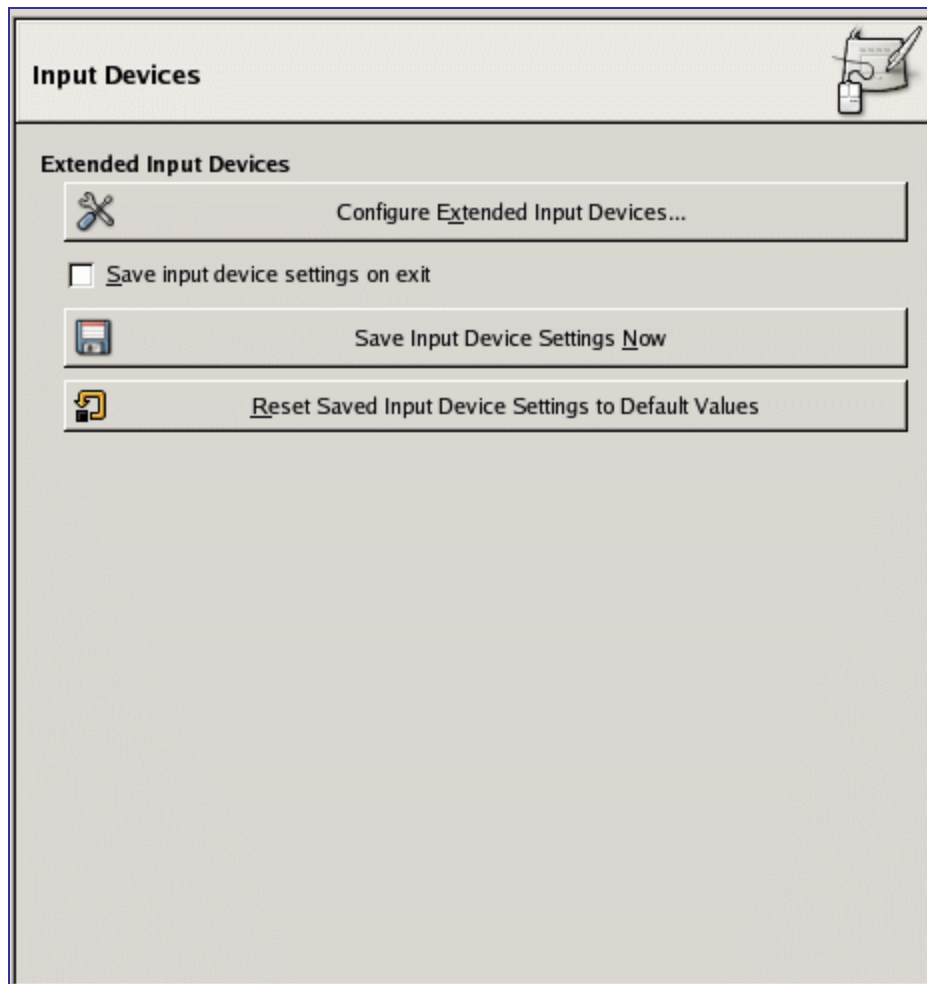
This dialog has two tabs that allow you to assign actions to the mouse wheel and to keyboard keys:

Main Mouse Wheel tab

You will find an example of these notions in Creating a variable size brush .

Window Managment
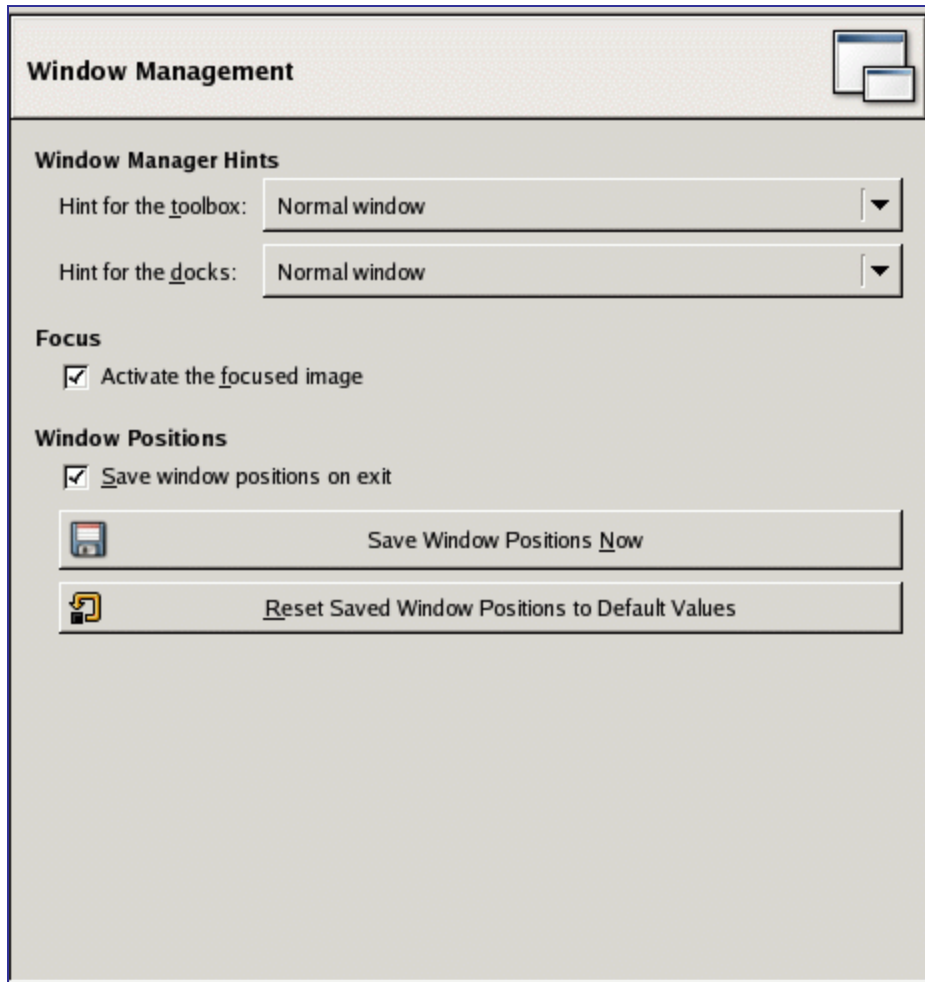
This page lets you customize the way windows are handled in GIMP. You should note that GIMP does not manipulate windows directly, instead it sends requests to the window manager (i. e., to Windows if you are running in Windows; to Metacity if you are running in a standard Gnome setup in Linux; etc). Because there are many window managers, and not all of them are well behaved, it cannot be guaranteed that the functions described here will actually work as described. However, if you are using a modern, standards-compliant window manager, they ought to.

Options

Environment

Options

Folders

Folders

| Temp folder: | /home/bill/.gimp-2.1/tmp | ... |
| Swap folder: | /home/bill/.gimp-2.1 | ... |

This page allows you to set the locations for two important folders used by GIMP for temporary files. The pages below it allow you to customize the locations searched for resources such as brushes etc.; see Data Folders for a description that applies to them. You can change the folders here by editing the entries, or by pressing the buttons on the right to bring up a file chooser window.

Data Folders

Brush Folders

Writable	Folder
☑	/home/bill/.gimp-2.1/brushes
☐	/usr/local/gimp-2.1/share/gimp/2.1/brushes
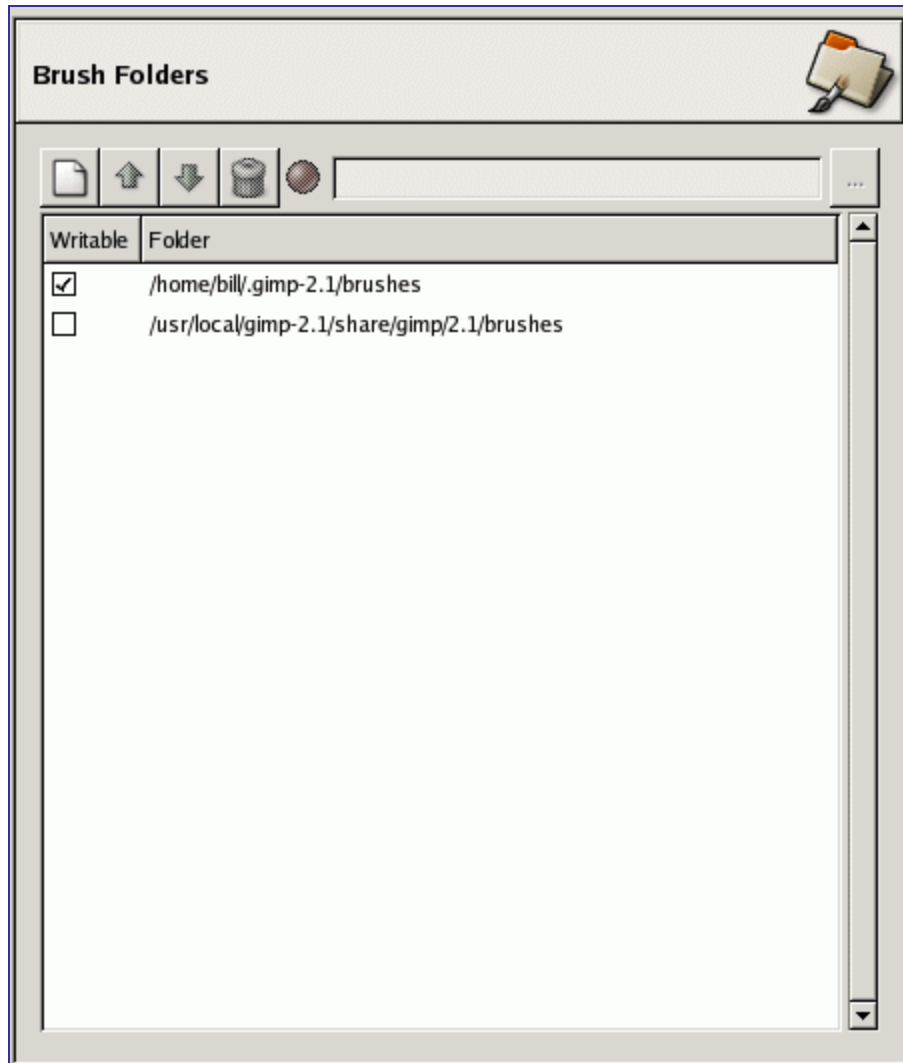
GIMP uses several types of resources – such as brushes, patterns, gradients, etc. – for which a basic set are supplied by GIMP when it is installed, and others can be created or downloaded by the user. For each such resource type, there is a Preference page that allows you to specify the *search path*: the set of directories from which items of the type in question are automatically loaded when GIMP starts. These pages all look very much the same: the page for brushes is shown to the right as an example.

By default, the search path includes two folders: a *system* folder, where items installed along with GIMP are placed, and a *personal* folder, inside your personal GIMP directory, where items added by you should be placed. The system folder should not be marked as writable, and you should not try to alter its contents. The personal folder must be marked as writable or it is useless, because there is nothing inside it except what you put there.

You can customize the search path with the buttons at the top of the dialog.

Device Status dialog
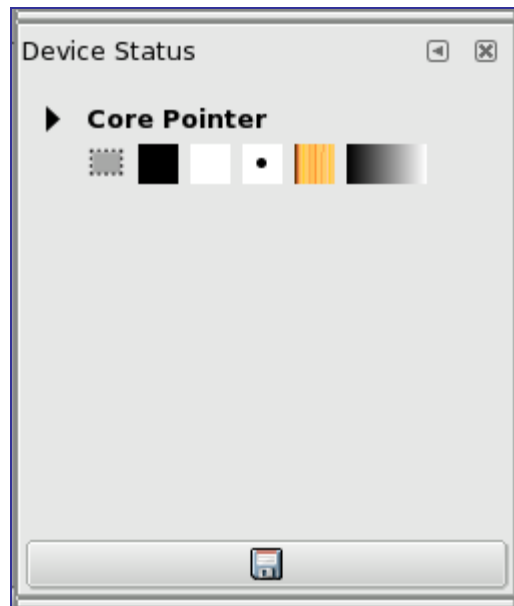
This window gathers together the current options of Toolbox, for each of your input devices: the mouse (named "*Core pointer*") or either the tablet, if you have one. These options are represented by icons: foreground and background colors, brush, pattern and gradient. Excepted for colors, clicking on an icon opens the window which lets you select another option; the tool-box will be updated when changing.

In addition, you can add tabs and other dialog by click-and-drag.

The "*Record device status*" button at the bottom of the window, seems to have the same action as the "*Record device status now*" option in the Input Devices section in preferences.

Activate Dialog

You will find this dialog in the Toolbox menu bar through File Dialogs Device Status

Error Console

The Error console offers more possibilities than the single "*GIMP Message*". This is a log of all errors occuring while GIMP is running. You can save all this log or only a selected part.

Activate Dialog

- You will find this command in the toolbox menu bar through File Dialogs Error Console ,

The Error Console Dialog

- Clear errors: This button lets you delete all errors in the log.

- Save all errors: This button lets you save the whole log. You can also select a part of the log (by click-and-dragging the mouse pointer or by using the ShiftArrow keys key combination) and save only this selected part by pressing the Shift key.

  A dialog window Save Error Log to File lets you choose the name and the destination directory of this file:
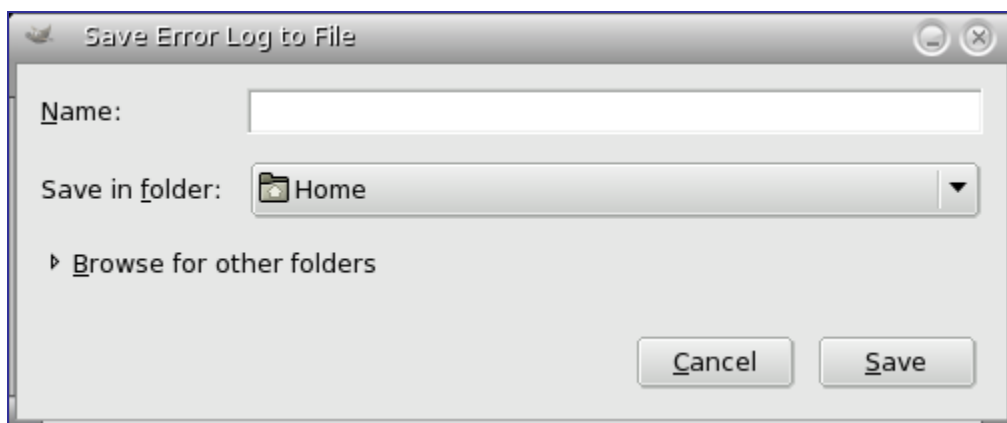
You will as well find these button actions in the dialog sub-menu by clicking on .

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Chapter

Menus

Introduction to the GIMP Menus
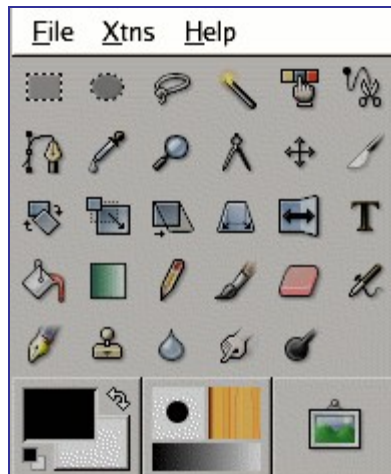
There are many places in GIMP where you can find menus. The aim of this chapter is to explain all the commands that are accessible from the menus in the Toolbox and Image windows. All the context menus and the menu entries for the other dialogs are described elsewhere in the chapters that describe the dialogs themselves.

Context Menus

If you right-click on certain parts of the GIMP interface, a "*context menu*" opens, which leads to a variety of functions. Some places where you can access context menus are:

- Clicking on an image window displays the Image menu. This is useful when you are working in full-screen mode, without a menubar.
- Clicking on a layer in the Layers Dialog or on a channel in the Channels Dialog displays functions for the selected layer or channel.
- Right-clicking on the image menubar has the same effect as left-clicking.
- Right-clicking on the title bar displays functions which do not belong to GIMP, but to the window manager program on your computer.

Detachable Submenus

There is an interesting property associated with some of the menus in GIMP. These are any of the menus from the Toolbox menubar and any of their submenus, as well as the Image context menu you get by right-clicking on the image window and any of its submenus. (You can tell that a menu item leads to a submenu because there is an icon next to it.) When you bring up any of these menus, there is a dotted line at the top of it. By clicking on this dotted line, you detach the menu under it and it becomes a separate window.

Detached submenus originating from the Toolbox are only visible when the Toolbox is active. Detached submenus originating from the Image window are actually independent. They are always visible, their functions always apply to the current image, and they persist when all of the images are closed. You can close a detached submenu by clicking on the dotted line again or closing the window from the window manager on your computer (often by clicking on an X icon in the upper right corner of the window).

Toolbox File Menu

Toolbox File Menu
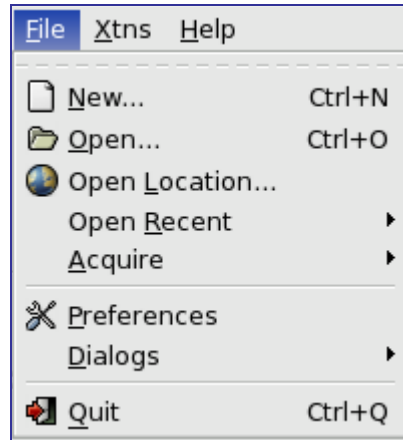
The Toolbox is the heart of the GIMP. It contains the most commonly used controls, and the highest-level menus. Two of the menus, File and Help, can also be accessed from the menubars located above each image display, although their contents are somewhat different. The Toolbox is the only place to access the Xtns (Extensions) menu.

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You may find other entries in this menubar which are not described here. They are not part of standard GIMP, but have been added by some of the plug-ins. You can find more information about the additional menu entries in the documentation for the plug-ins.

Acquire
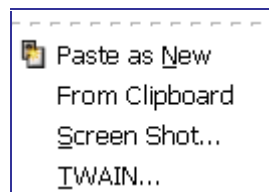
The Acquire submenu of the Toolbox's File menu contains a list of ways you can import images into the GIMP. This allows you to import images from sources other than a disk or the network, such a screen capture or an image from a scanner.

Activating the Submenu

- You can access this command in the Toolbox menu: File Acquire

Submenu entries

These commands vary somewhat, depending upon your system, since the GIMP makes calls to system functions.

The Preferences command

The File Preferences command displays the Preferences dialog, which lets you alter a variety of settings that affect the look, feel, and performance of the GIMP.

Activating the Command

- You can access this command in the Toolbox menu bar through File Preferences

The Dialogs sub-menu
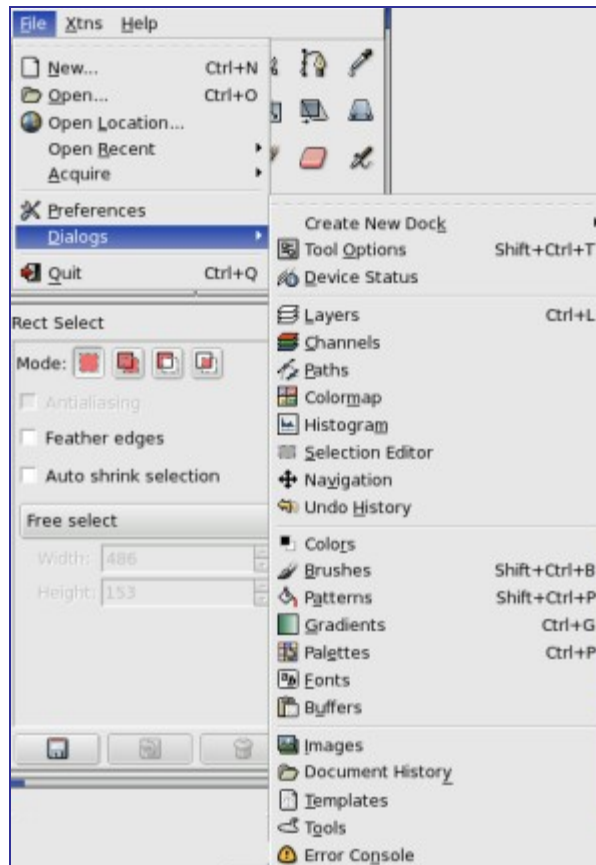
The Dialogs submenu of the Toolbox's File menu contains a list of available dialogs that you can use while you are editing an image -- patterns, palettes, brushes, etc. You can open and close dialogs as needed, or, if you want them to stay around, you can dock them. Dialogs are described in detail in

Accessing the Dialogs Submenu

- You can access this submenu in the Toolbox through: File Dialogs

Xtns

Introduction to the Xtns menu
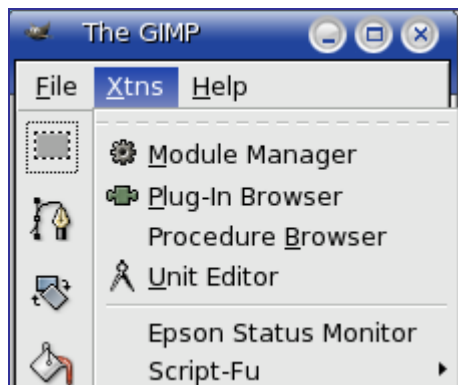
The Xtns menu gets its somewhat cryptic name from the term, "*Extensions*". Accordingly, you will find various commands for managing extensions (also known as "*plug-ins*") and for accessing scripts here.

Besides the commands presented here, you might find other entries on this menu. They are not part of GIMP itself, but are extensions to it. You can find descriptions of their capabilities in the documentation for the extensions.

The Module Manager

With the Module Manager command, you can show the various extension modules which are available and control which of them should be loaded. Modules perform functions such as choosing colors and display filtering. Any changes you make to the settings with the Module Manager command will take effect the next time you start GIMP. These changes affect GIMP's functional capabilities, its size in memory and its startup time.

Activating the Command

- You can access this command from the toolbox menubar through Xtns Module Manager

Description of the Module Manager Dialog
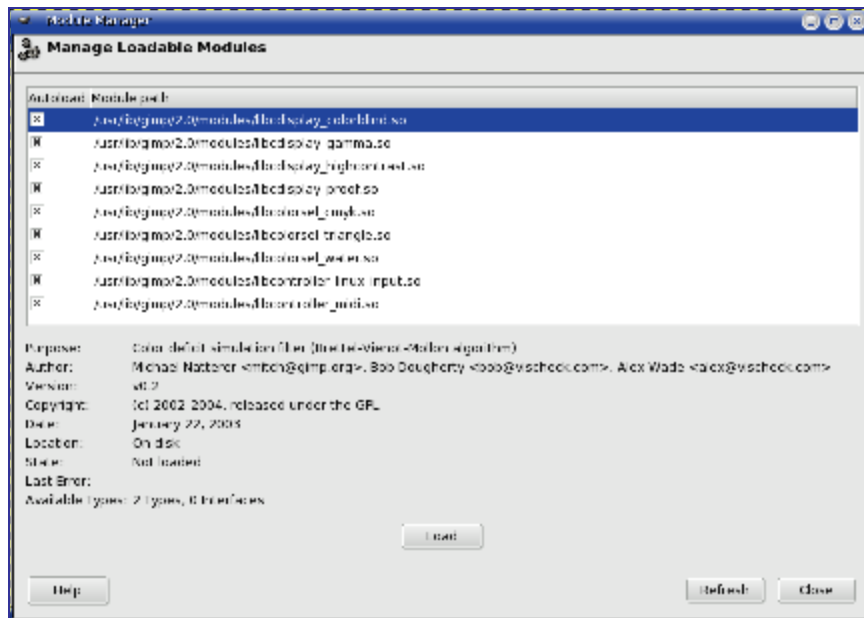
The scrolled window of the Module Manager shows the loadable modules. You can click on the boxes in the Autoload column to check or uncheck them. The directory path for each module is shown in the Module path column. Information about the selected module is displayed at the bottom of the dialog.

The Unit Editor

The Unit Editor command displays a dialog which shows information about the units of measurement that are currently being used by GIMP. It also allows you to create new units which can be used by GIMP in a variety of situations.

Activating the Command

- You can access this command from the toolbox menubar through Xtns Unit Editor> .

Description of the Unit Editor dialog window
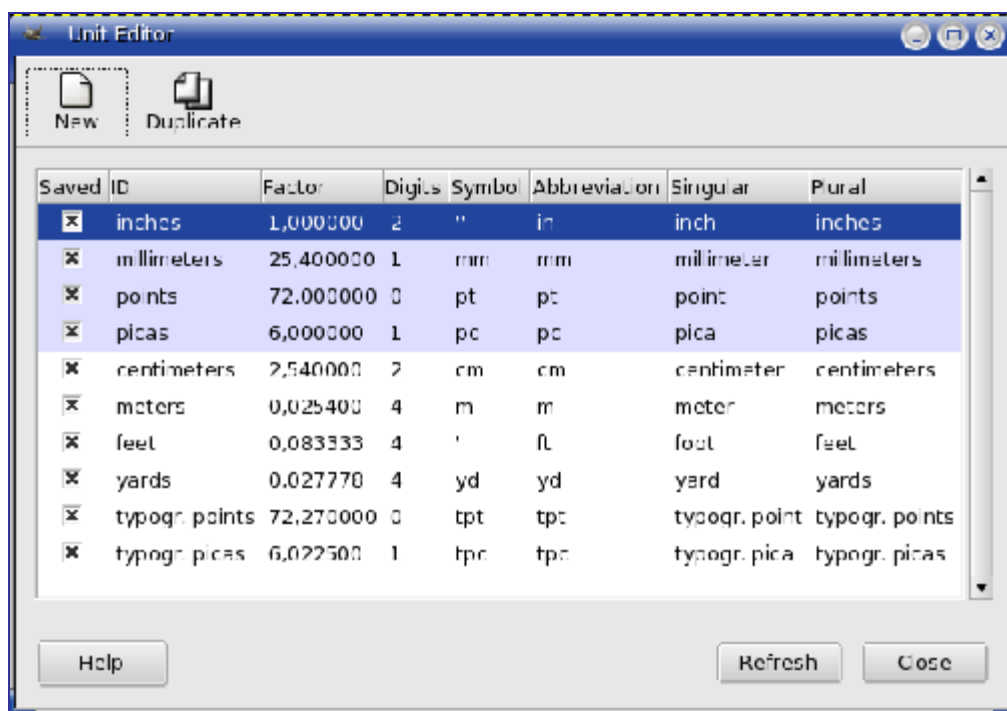
The figure above shows the "*Unit Editor*" dialog window. The list shows the units of measurement which are currently defined. You can click on the New button or the Duplicate button to create a new measurement unit, as described below.

Description of the list elements

- *Saved*: If this column is checked, a unit definition will be saved when GIMP exits. Some units are always kept, even if they are not marked with a check. These are highlighted in the list.

- *ID*: The string GIMP uses to identify the unit in its configuration files.

- *Factor*: How many units make up an inch.

- *Digits*: This field is a hint for numerical input fields. It specifies how many decimal digits the input field should provide to get approximately the same accuracy as an "*inch*" input field with two decimal digits.

- *Symbol*: The unit's symbol if it has one (e.g. " for inches). The unit's abbreviation is used if doesn't have a symbol.

- *Abbreviation*: The unit's abbreviation (e.g. "*cm*" for centimeters).

- *Singular*: The unit's singular form, which GIMP can use to display messages about the unit.

- *Plural*: The unit's plural form, which GIMP can use to display messages about the unit.

Defining New Units

You can display the dialog shown above by clicking on either the New button or the Duplicate button on the Unit Editor dialog. The input fields on the dialog are described above.

If you click on the New button, the dialog looks as shown. If you click on the Duplicate button, the values initially displayed in the input fields of the dialog are the values of the unit you have currently selected in the Unit Editor dialog. You can then edit the values to create your new unit.

Plug-In Browser

The Plug-In Browser command displays a dialog window which shows all of the extensions (plug-ins) which are currently loaded in GIMP, both as a list and as a hierarchical tree structure. Since many of the filters are actually plug-ins, you will certainly see many familiar names here. Please note that you do not run the extensions from this dialog window. Use the appropriate menu entry to do that instead. For example, you can run filter plug-ins by using the Filter command on the image menubar.

Activating the Command

- You can access this command from the toolbox menubar through Xtns Plug-in Browser

Description of the Plug-In Browser dialog window
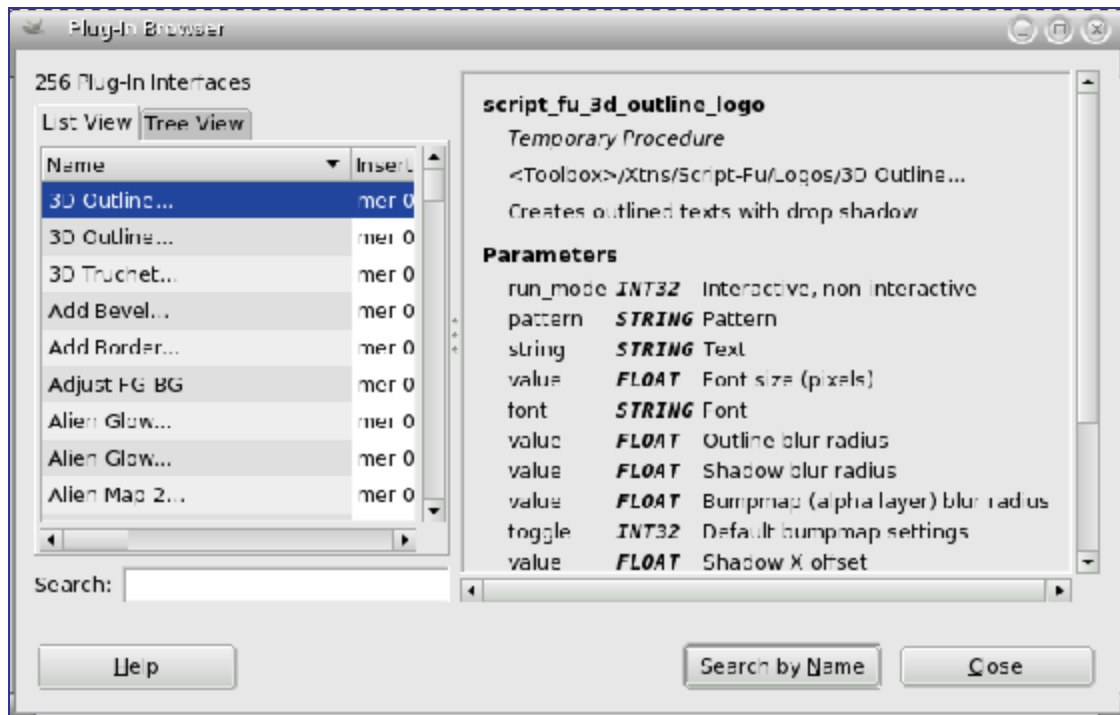
The figure above shows the list view of the Plug-In Browser. You can click on the name of a plug-in in the scrolled window to display more information about it. Select the List View by clicking on the tab at the top of the dialog.

You can search for a plug-in by name by entering part or all of the name in the Search: text box and clicking on the Search by Name button. The left part of the dialog then displays the matches found.

The figure above shows the tree view of the Plug-In Browser. You can click on the name of a plug-in in the scrolled window to display more information about it. You can click on the arrowheads to expand or contract parts of the tree. Select the Tree View by clicking on the tab at the top of the dialog.

You can search for a plug-in by name by entering part or all of the name in the Search: text box and clicking on the Search by Name button. The left part of the dialog then displays the matches found.

Not everything in these huge dialog windows is visible at the same time. Use the scroll bars to view their content.

The Procedure Browser

The Procedure Browser command displays the procedures in the PDB, the Procedure Database. These procedures are functions which are called by the scripts or plug-ins. You can find a more detailed description of the PDB in the glossary. The browser is most useful for advanced users who write scripts or plug-ins.

Activating the Command

- You can access this command from the toolbox menubar through Xtns Procedure Browser

Description of the Procedure Browser dialog window
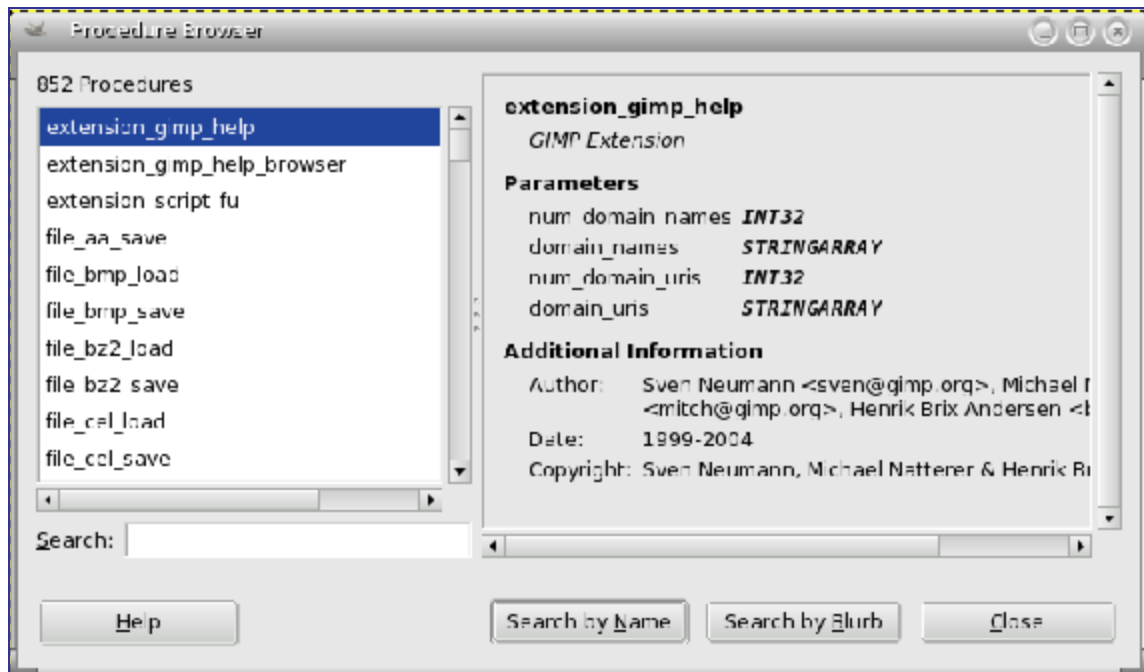
The figure above shows the Procedure Browser dialog window. If you click on an item in the scrolled list on the left, information about it is displayed on the right. You can also search for a specific procedure by name by entering part or all of the name of the procedure in the Search: text box and clicking on the Search by Name button, or search for one by its description by entering a search string in the Search: text box and clicking on the Search by Blurb button.

The Script-Fu submenu
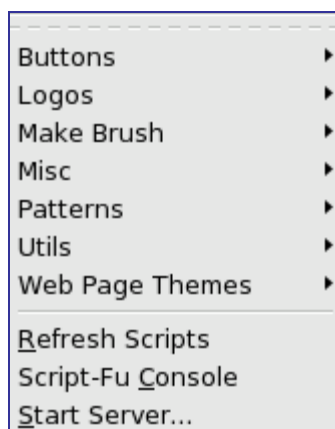
The Script-Fu command displays a submenu which contains a large number of Script-Fu scripts and options, including the Script-Fu console. Script-Fu is a language for writing scripts, which allow you to run a series of GIMP commands automatically.

Activating the submenu

- You can access this command from the toolbox menubar through Xtns Script-Fu

The Help Menu of the Toolbox Window

Introduction to the Help menu
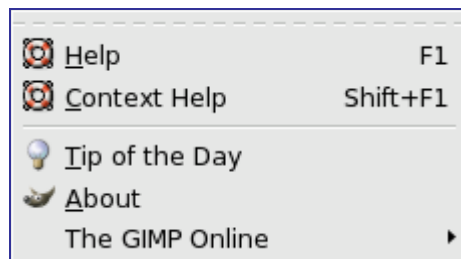
The Help menu contains commands that assist you while you are working with The GIMP.

You may find other commands besides the ones described here on your computer. These commands are not part of The GIMP itself, but have been added by some of the plug-ins. Please refer to the documentation on the extensions for more information about these menu commands.

Help

The Help command displays the GIMP Users Manual in a browser. You can set the browser you would like to use in the Help System section of the Preferences dialog, as described in . The broswer may be the built-in GIMP help browser, or it may be a web browser.

If the help does not seem to work, please verify that the "*Gimp Users Manual*" is installed on your system. You can find the most recent help at http://docs.gimp.org/en/index.html

Activating the Command

- You can access this command from the toolbox menubar through Help Help ,

- or by using the keyboard shortcut F1.

Context Help

The Context Help command makes the mouse pointer context-sensitive and changes its shape to a "*?*". You can then click on a window, dialog or menu entry and GIMP displays help about it, if it is available. You can also access context help at any time by pressing the F1 key while the mouse pointer is over the object you would like help about.

Activating the Command

- You can access this command from the toolbox menu through Help Context Help

- or by using the keyboard shortcut Shift F1 .

Tip of the Day

The Tip of the Day command displays the Tip of the Day dialog. This dialog contains useful tips to help you gain a better understanding of some of the subtle points of using The GIMP. New users will find it very valuable to pay attention to these, because they often suggest ways of doing something that are much easier or more efficient than more obvious approaches.

Description of the dialog window

The layer named "Background" is special because it lacks transparency. This prevents you from moving the layer up in the stack. You may add transparency to it by right-clicking in the Layers dialog and selecting "Add Alpha Channel".

☒ Show tip next time GIMP starts   ← Previous tip   Next tip ➡   ✕ Close
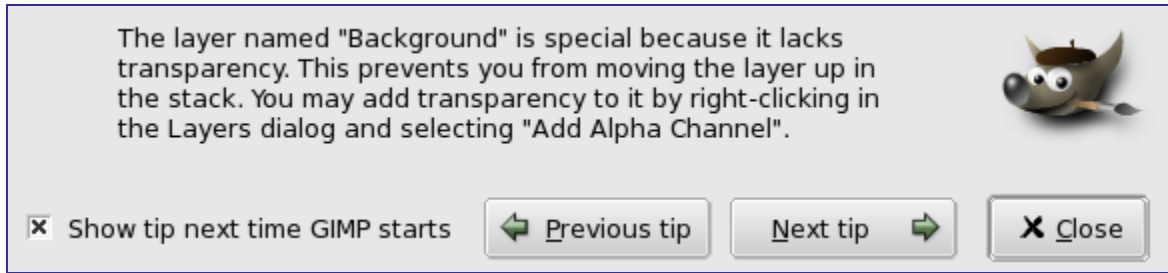
A new tip is displayed each time you start The GIMP. You can disable this by un-checking the Show tip next time GIMP starts box on the dialog.

About

The About command shows the About window, which displays information about the version of The GIMP you are running and the many authors who wrote it.

Activating the About Command

- You can access this command in the toolbox menu through Help About

Description of the dialog window

Version 2.2.4 brought to you by

The GIMP Online

Developer Web Site
Main Web Site
Plug-in Registry

The GIMP online command displays a submenu which lists several helpful web sites that have to do with various aspects of GIMP. You can click on one of the menu items and your web browser will try to connect to the URL.

The File Menu of the Image Window

File menu
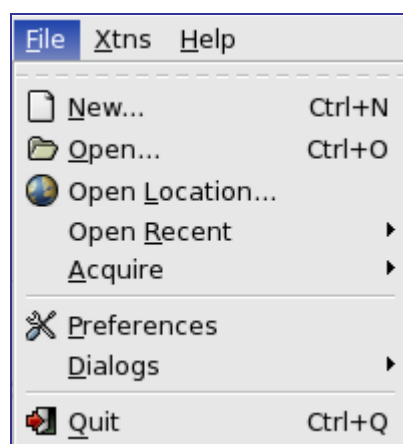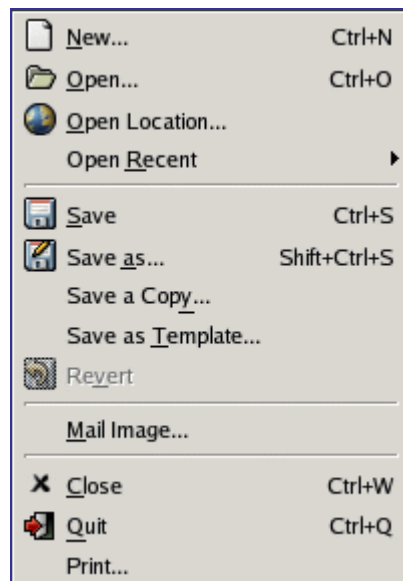
There is a File menu on both the Toolbox window and the image window. Only some of the menu items in these two menus are the same.

The contents of the File menu on your computer may have different entries than the ones shown here. These entries are not part of the GIMP itself, but are added by some of the plug-ins. You can get more information about any of these items by reading the documentation about the plug-in it belongs to.

New

Using the New Image dialog, you can create a new empty image and set its properties. The image is shown in a new image window. You may have more than one image on your screen at the same time.

You can access the command from either the Toolbox menubar or the Image menubar through: File New ,

or by using the keyboard shortcut Ctrl N .

Open

The Open command activates a dialog that lets you load an existing image from your hard-drive or an external medium. For alternative, and sometimes more convenient, ways of opening files, see the Files section.

Activating the Dialog

- You can access the Open dialog from the toolbox window or from an image window through: File Open .
- You can also open the Dialog by using the keyboard shortcut CtrlO.

File browsing

The left panel is divided into two parts. The upper part lists your main directories and your storage devices; you cannot modify this list. The lower part lists your bookmarks; you can add or remove *bookmarks*. To add a bookmark, select a directory or a file in the middle panel and click on the Add button at the bottom of the left panel. You can also use the Add to bookmarks command in the context menu, which you get by clicking the right mouse button. You can delete a bookmark by selecting it and clicking on the Remove button.

The middle panel displays a list of the files in the current directory. Change your current directory by double left clicking on a directory in this panel. Select a file with a single left click. You can then open the file you have selected by clicking on the Open button. Note that a double left click opens the file directly; if you have selected a file different from the current one, a message warns you before GIMP overwrites your work.

Right-clicking on the middle panel displays the Open Location dialog that allows you to type a path to a file. You can also open this dialog by typing CtrlL .

The selected image is displayed in the Preview window if it is an image created by GIMP. File size, resolution and the image's composition are displayed below the preview window.

If your image has been modified by another program, click on the Preview window to update it.

The path of the current directory is displayed above the middle panel. You can navigate along this path by clicking on one of the buttons.

This button shows All Files by default. This means that all file types will be displayed in the middle panel, even if they are not images. You can *filter* the list for a particular file type.

The Determine File Type button has a default of Automatic. In most cases you don't need to pay any attention to this, because the GIMP can determine the file type automatically. In a few rare situations, neither the file extension nor internal information in the file are enough to tell GIMP the file type. If this happens, you can set it by selecting it from the list.

Open Location

The Open Location dialog lets you load an image from a network location, specified by a URI, in any of the formats that GIMP supports, or from a path to your hard disk or any drive. The default directory name is /home/<username>/ on Linux and C:\Documents and Settings\<username>\My Documents\My Images\ on Windows, which is used as the base of the relative address. You can also enter an absolute path.

When you are visiting an Internet site, you can right click on an image and choose "*Copy link address*" in the drop-down menu. Then paste it in the "*Open Location*" dialog to open it in GIMP.

Activating the Command

- You can access this command from the Toolbox menu and the image menu: File Open Location

Description of the dialog window
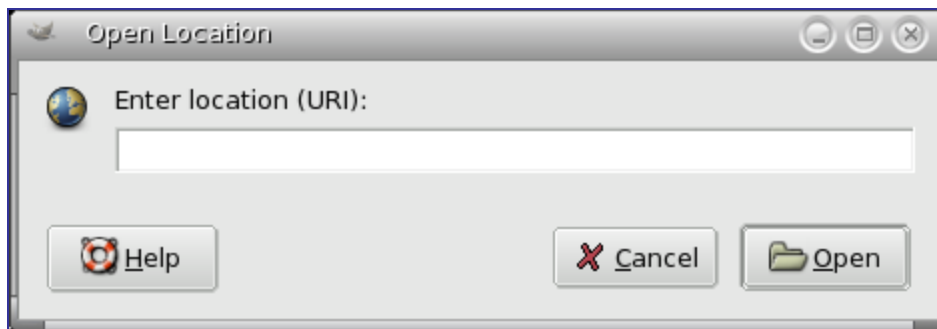
Open Recent

Selecting Open Recent displays a submenu with the names of the files that you have opened recently in GIMP. Simply click on a name to reopen it. You can customize the number of items shown in the menu, by changing the Open Recent Menu Size value in the Interface page of the Preferences dialog. See the Document History dialog at the bottom of the Open Recent submenu, if you cannot find your image.

Activating the Dialog

- This menu item can be accessed from the toolbox or image menus, as File Open Recent ,
- or by using the keyboard shortcut Ctrl O .

Open as Layer

The Open Image as layer dialog is identical to the Open Image dialog. With this dialog, you can open an image file, which is added to the current image as the top layer in the stack.

Activating the Dialog

- This command can be accessed from the image menu bar as File Open as layer... .
- The default shortcut is Ctrl Alt O .

Save

The Save command saves your image to disk. If you have already saved the image, the previous image file is overwritten with the current version. If you have not already saved the image, the Save command does the same thing as the Save As command: GIMP opens the File Save dialog, so that you can choose the data format, the path and the filename of the new image file.

If the image was previously saved, it is automatically saved to the same location, using the same file name, file type, and options. To save it differently in any respect, use either Save As or Save A Copy.

If you quit without having saved your image, GIMP asks you if you really want to do so, if the "*Confirm closing of unsaved images*" option is checked in the Environment page of

the Preferences dialog.

Activating the Dialog

- You can access this command in the image menu bar through File Save ,

- or from the keyboard by using the shortcut CtrlS.

Save as

The Save as command brings up the "*File Save*" dialog. In its basic form, as shown below, this gives you a text box to use to assign a name to the file, and a dropdown list of bookmarks to use to select a directory to save it in. Normally the file format is determined by the extension you use in the file name (i.e., .jpg for a JPEG file). You can use the Select File Type option expander to pick a different file type, but you should avoid doing this unless absolutely necessary, to avoid confusion.

If the directory you want is not in the list of bookmarks, click on Browse for other folders to expand the dialog into its full form. You can find an explanation of the layout, and help on creating and using bookmarks, in the Files section.

If you saved the image previously and don't need to change the file name or any of the options, you can use the Save command instead.

Activating the Command

- You can access this command from the image menubar through File Save as ,

- or by using the keyboard shortcut Shift Ctrl S .

The Basic Save as Dialog

There are two different forms of the Save as dialog. The simple form only lets you type in the filename and choose the directory the file should be saved in. If the folder you want is not on the list, you can type in the path to the directory, along with the filename. You can also click on the small triangle to display the full folder browser. You must also choose the image format, by selecting the file extension (e.g., .xcf or .png).
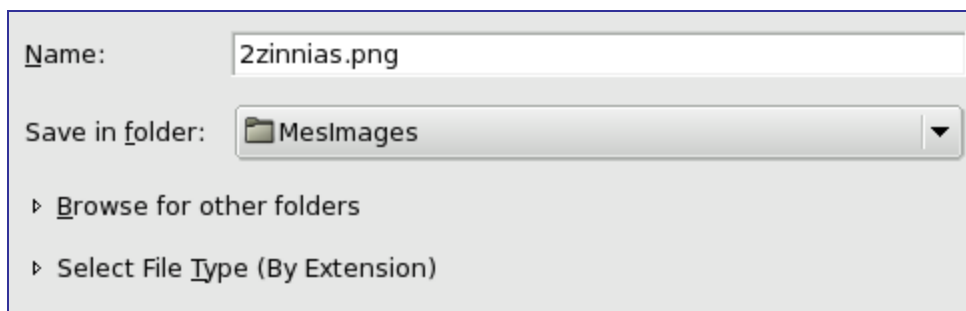
The Save Dialog with a Browser

The left panel is divided into two parts. The upper part lists your main directories and your storage devices; you cannot modify this list. The lower part lists your bookmarks; you can add or remove *bookmarks*. To add a bookmark, select a directory or a file in the middle panel and click on the Add button at the bottom of the left panel. You can also use the Add to bookmarks command in the context menu, which you get by clicking the right mouse button. You can delete a bookmark by selecting it and clicking on the Remove button.

The middle panel displays a list of the files in the current directory. Change your current

directory by double left-clicking on a directory in this panel. Select a file with a single left click. You can then save to the file you have selected by clicking on the Save button. Note that a double left click saves the file directly.

You can right click on the middle panel to access the *Show Hidden Files* command.

The selected image is displayed in the Preview window if it is an image created by GIMP. File size, resolution and the image's composition are displayed below the preview window.

If your image has been modified by another program, click on the preview to update it.

Enter the filename of the new image file here.

If the image has already been saved, GIMP suggests the same filename to you. If you click on *Save*, the file is overwritten.

This drop-down list is only available in the basic form of the dialog. It provides a list of bookmarks for selecting a directory in which to save your file.

Above the middle panel, the path of the current directory is displayed. You can navigate along this path by clicking on one of the buttons.

If you want to save the image into a folder that doesn't yet exist, you can create it by clicking on Create Folder and following the instructions.

This button shows All Files by default. This means that all file types will be displayed in the middle panel, even if they are not images. You can *filter* the list for a particular file type.

At Determine File Type, you have to select the file format for saving the file. If you select By Extension, the file type is determined by the extension you add to the name, for example, "*.jpg*" for JPEG format.

To preserve all the components of your image when you save it — the layers, channels, etc. — use ".xcf" format, which is the GIMP's native format.

Save a Copy

The Save a Copy command does the same thing as the Save command, but with one important difference. It always asks for a file name and saves the image into the specified file, but it does not change the name of the active image or mark it as "*clean*". As a result, if you try to delete the image, or exit from GIMP, you are informed that the image is "*dirty*" and given an opportunity to save it.

This command is useful when you want to save a copy of your image in its current state, but continue to work with the original file without interruption.

Activating the Dialog

- You can access this command from the image menubar as File Save a Copy... . It does not have a default shortcut.

Save as Template

The Save as Template command creates a template with the same dimensions and color space as the current image. A dialog pops up, which asks you to name the new template, then the template is saved and becomes available in the New Image dialog. If you give a name that already exists, GIMP generates a unique name by appending a number to it. You can use the Templates dialog to modify or delete templates.

Activating the Command

- You can access this command from the image menubar through File Save as

Template . There is no default keyboard shortcut.

Revert

The Revert command reloads the image from disk, so that it looks just like it did the last time it was saved — unless, that is, you or some application other than GIMP have modifed the image file, in which case, the new contents are loaded.

When GIMP reverts a file, it actually closes the existing image and creates a new image. Because of this, reverting an image is not undoable, and causes the undo history of the image to be lost. GIMP tries to protect you from losing your work in this way by asking you to confirm that you really want to revert the image.

Activating the Command

- You can access this command from the image menubar through File Revert . There is no default keyboard shortcut.

Print

The Print command is not really part of GIMP. It simply calls the printing interface of your operating system to set the printer options.

Activating the Command

You can access this command from the image menubar through File Print .

Close

The Close command closes the image and removes its window. Closing an image is not undoable: once it is closed, everything is gone, including the undo history. If the image is not "*clean*" — that is, if you have changed it since the last time you saved it — you are asked to confirm that you really want to close it. Note that an image is marked as clean when it is saved to a file, even if the file format chosen does not preserve all the information in the image, so it is a good idea to think for a moment about what you are doing before closing an image. If there is the slightest possibility that you will regret it, it can't hurt to save a copy as an XCF file.

Activating the Command

- You can access this command from the image menubar through File Close ,

- or by using the keyboard shortcut Ctrl W .

- For most systems on which the GIMP runs, you can also execute it by clicking on a "*Close*" button somewhere on the image window titlebar. The location and appearance of this button are determined by the windowing system and the window manager.

  If you close the image window, as described above, GIMP simply closes your image. However, if you close the Toolbox window by using the "*Close*" button, GIMP itself exits.

Quit

The Quit command causes GIMP to close all images and exit. If there are any open images which contain unsaved changes (that is, they are not marked as "*clean*"), GIMP notifies you and displays a list of the unsaved images. You can then choose which images you

would like to save, or you can cancel the command. Note that if you have a large number of images open, or are using a large part of the RAM on your system, it may take a little while for everything to shut down.

Activating the Command

- You can access this command from the Toolbox menubar or the image menubar through File Quit ,

- or by using the keyboard shortcut Ctrl Q .

- For most systems on which the GIMP runs, you can also execute it by clicking on a "*Close*" button somewhere on the Toolbox window's titlebar. The location and appearance of this button are determined by the windowing system and the window manager.

  If you close the image window, as described above, GIMP simply closes your image. However, if you close the Toolbox window by using the "*Close*" button, GIMP itself exits.

The Edit Menu of the Image Window

Edit menu entries
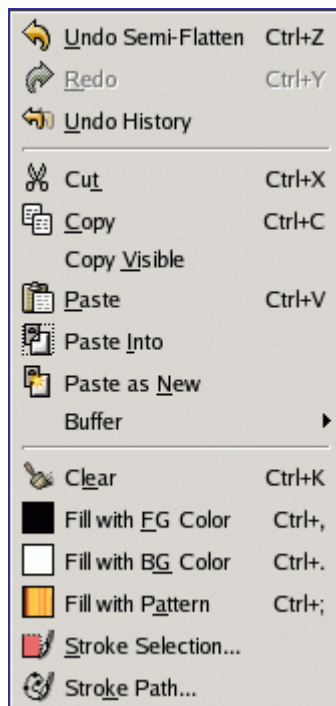
In this section, you will find help for commands in the Edit menu item.

You may find commands in the menu which are not described here. They don't belong to GIMP itself, but have been added by some of the plug-ins. You can find a description of these menu commands in the documentation for the corresponding plug-ins.

Undo

If you have made drawing or editing changes to the image which you don't want to keep, the Undo command allows you to undo the last change and return the image to its previous state. Almost anything you do to an image can be undone in this way (with the exception of scripts, which deactivate this function). Further Undo operations may be performed, depending upon the number of Undo levels configured in the Environment page of the Preferences Dialog. See the section on Undoing for more information about GIMP's very sophisticated "*Undo*" functions.

The operation that has been "*undone*" is not lost immediately: you can get it back by using the Redo command right away. But if you perform another operation, the "*Undo*" will be irretrievably lost.

Activating the Command

- You can access this command from the image menubar through Edit Undo ,
- by using the keyboard shortcut Ctrl Z ,
- or by simply clicking on the status you want in the Undo History dialog.

Redo

The Redo command reverses the effects of the Undo command. Each "*Undo*" action can

be reversed by a single "*Redo*" action. You can alternate "*Undo*" and "*Redo*" as many times as you like. Note that you can only "*Redo*" an operation if the last action you did was an "*Undo*". If you perform any operation on the image after Undoing something, then the former Redo steps are lost, and there is no way to recover them. See the Undoing section for more information.

To see the operations which you have done and undone, use the Undo History dialog.

Activating the Command

- You can access this command from the image menubar through Edit Redo ,
- by using the keyboard shortcut Ctrl Y ,
- or by simply clicking on the status you want in the Undo History dialog.

Undo History

The Undo History command activates the Undo History dialog, which shows you thumbnails representing the operations you have done so far on the current image. This overview makes it easier for you to undo steps or to redo them.

Use the arrows for Undo and Redo, or simply click on the thumbnail, to bring the image back to a previous state. This is especially useful when you are working on a difficult task, where you often need to undo several steps at once. It is much easier to click on step 10 than to type Ctrl Z ten times.

The "*Clear undo History*" command may be useful if you are working on a complex image and you want to free some memory.

Activating the Command

- You can access this command from the image menubar through Edit Undo History . There is no default keyboard shortcut.

Cut

The Cut command deletes the contents of the image's selections, and saves them in a clipboard so that they can later be pasted using the "*Paste*", "*Paste Into*", or "*Paste As New*" commands. If there is no selection, the entire current layer is cut. The areas whose contents are cut are left transparent, if the layer has an alpha channel, or filled with the layer's background color, otherwise.

The Cut command only works on the current active layer. Any layers above or below the active layer are ignored.

Activating the Command

- You can access this command from the image menubar through Edit Cut ,
- or by using the keyboard shortcut Ctrl X .

Copy

The Copy command makes a copy of the current selection and stores it in the Clipboard. The information can be recalled using the Paste, Paste Into, or Paste As New commands. If there is no selection, the entire current layer is copied. "*Copy*" only works on the current active layer. Any layers above or below it are ignored.

Activating the Command

- You can access this command from the image memubar through Edit Copy ,
- or by using the keyboard shortcut Ctrl C .

Copy Visible

The Copy Visible command is similar to the Copy command. However, it does not just copy the contents of the current layer; it copies the contents of the visible layers (or the selection of the visible layers), that is, the ones that are marked with an "*eye*".

Please note that the information about the layers is lost when the image data is put in the clipboard. When you later paste the clipboard contents, there is only one layer, which is the fusion of all the marked layers.

Activating the Command

- You can access this command from the image menubar through Edit Copy Visible .

Paste

The Paste command puts whatever is in the Clipboard from the last "*Copy*" or "*Cut*" command into the current image. The pasted section becomes a "*floating selection*" and is shown as a separate layer in the Layers Dialog.

If there is an existing selection on the canvas, it is used to align the pasted data. If there is already a selection, the data is pasted using the selection as a center point. If you want the selection to be used as a clipping region for the pasted data, you should use the "*Paste Into*" command.

You can have only *one* floating selection at any one time. You cannot work on any other layer while there is a floating selection; you have to either anchor it or remove it.

Activating the Command

- You can access this command from the image menubar through Edit Paste .
- or by using the keyboard shortcut Ctrl V .

Paste Into

The Paste Into command acts in a similar way to the Paste command. The primary difference becomes apparent if there is a selection within the canvas. Unlike the "*Paste*" command, which simply centers the pasted image data over the selection and replaces the selection with its own, "*Paste Into*" clips the pasted image data by the existing selection. The new selection can be moved as usual, but it is always clipped by the original selection area.

If no selection exists, the "*Paste Into*" command places the data from the Clipboard into the center of the canvas, as the "*Paste*" command does.

Activating the Command

- You can access this command from the image menubar through Edit Paste Into .

Paste as New

The Paste As New command creates a new image and pastes the image data from the Clipboard into it. If the data is not rectangular or square in shape, any regions that do not extend to the edge of the canvas are left transparent (an Alpha channel is automatically created). Of course, you have to Copy your selection before you use this command, so

that you get an image with the same dimensions as the selection.

Activating the Command

- You can access this command from the image menubar through Edit Paste as New .

Buffers
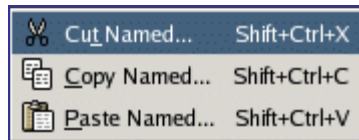
The commands in this submenu operate on *named buffers*. You can use the Buffers dialog to view and manage any named buffers you have created.

Activating the Submenu

- You can access this submenu from the image menubar through Edit Buffer .

Cut Named

The Cut Named command cuts the contents of the selection from the active layer in the usual way, but instead of storing the contents in the global clipboard, it stores it in a special buffer that you name using a pop-up dialog.

Activating the Command

- You can access this command from the image menubar through Edit Buffer Cut ,
- or by using the keyboard shortcut Shift Ctrl X .

Copy Named

The Copy Named command copies the contents of the selection from the active layer in the usual way, but instead of storing the contents in the global clipboard, it stores it in a special buffer that you name using a pop-up dialog.

Activating the Command

- You can access this command from the image menubar through Edit Buffer Copy ,
- or by using the keyboard shortcut Shift Ctrl C .

Paste Named

The Paste Named command simply brings up the Buffers dialog. By selecting one of the listed buffers, and pressing one of the buttons at the bottom, you can either Paste Buffer, Paste Buffer Into, or Paste Buffer as New.

Activating the Command

- You can access this command from the image menubar through Edit Buffer Paste
- or by using the keyboard shortcut Shift Ctrl V .

Clear

The Clear command deletes everything in the current selection. If there is no current

selection, the contents of the active layer are removed. If the active layer has an alpha channel, the deleted selection is made transparent. You can restore the original color to the transparent area using the Eraser tool, by setting it to Anti-Erase. If the layer does not have an alpha channel, the deleted area is filled using the current background color.

Clearing a selection does not delete the selection itself. Unlike "*Cut*", "*Clear*" does not place the deleted contents in the Clipboard and the contents of the clipboard are unaffected.

Activating the Command

- You can access this command from the image menubar through Edit Clear ,
- or by using the keyboard shortcut Ctrl K .

Fill with FG Color

The Fill with FG Color command fills the image's selection with the solid color shown in the foreground part of the Color Area of the Toolbox. (The color is also shown to the left of the menu entry.) If some areas of the image are only partially selected (for example, as a result of feathering the selection), they are filled in proportion to how much they are selected.

Please note that if the image has no selection, the whole active layer is filled.

Activating the Command

- You can access this command from the image menubar through Edit Fill with FG Color ,
- or by using the keyboard shortcut Ctrl , .

You can also fill a selection by click-and-dragging from the Toolbox foreground color.

Fill with BG Color

The Fill with BG Color command fills the active layer selection with the solid color shown in the Background part of the Color Area of the Toolbox. (The color is also shown to the left of the menu entry.) If some areas of the image are only partially selected (for example, as a result of feathering the selection), they are filled in proportion to how much they are selected.

Please note that if the image has no selection, the whole active layer is filled.

Activating the Command

- You can access this command from the image menubar through Edit Fill with BG Color ,
- or by using the keyboard shortcut Ctrl . .

You can also fill a selection by click-and-dragging from the Toolbox background color.

Fill with Pattern

The Fill with Pattern command fills the image's selection with the pattern shown in the Brush/Pattern/Gradient area of the Toolbox. (The pattern is also shown to the left of the menu entry.) If some areas of the image are only partially selected (for example, as a result of feathering the selection), they are filled in proportion to how much they are selected.

You can select another pattern by using the Pattern Dialog.

Please note that if the image has no selection, the whole active layer is filled.

Activating the Command

- You can access this command from the image menubar through Edit Fill with Pattern ,
- or by using the keyboard shortcut Ctrl ; .

Stroke Selection

The Stroke Selection command strokes a selection in the image. There are two ways you can stroke the selection, either by using a paint tool or without using one. This means that the selection border, which is emphasized in the image with a dotted line, can be drawn with a stroke. There are various options which you can use to specify how this stroke should look.

This command is only active if the image has an active selection.

Activating the Command

- You can access this command from the image menubar through Edit Stroke Selection .
- You can also access it through the Selection Editor.

The Stroke Selection dialog

The options for stroking selections and for stroking paths are the same. You can find the documentation about the options in the dialog box in the Stroke Path section.

Stroke Path

The Stroke Path command strokes a path in the image. There are two ways you can stroke the path, either by using a paint tool, or without using one. There are various options which you can use to specify how this stroke should look.

This command is active only if there is a path in your image.

Activating the Command

- You can access this command from the image menubar through Edit Stroke Path .
- You can also access it by clicking on the button with the same name in the Path dialog.

Description of the Dialog Window

Choose Stroke Style
Unnamed-3 (2zinnias.png)

◉ **Stroke line**

Line Width: 6,0   px

▽ Line Style

Cap style:

Join style:

Miter limit: 10,0

Dash pattern:

Dash preset: Custom

☒ Antialiasing

◉ Solid

○ Pattern

○ **Stroke with a paint tool**

Paint Tool: Paintbrush
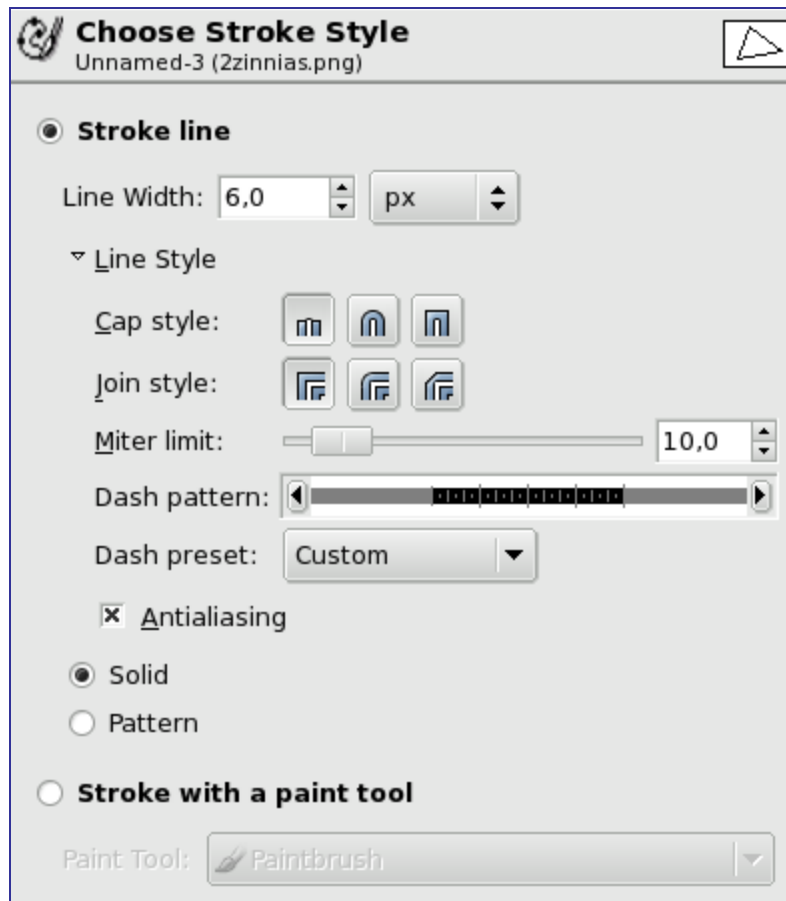
The Choose Stroke Style dialog box allows you to choose between stroking the path with the options you specify or stroking it with a paint tool. If you stroke the path with a paint tool, the current paint tool options are used to draw the stroke.

Select

Introduction to the Select menu

```
┌─────────────────────────────────┐
│  ⬚  All              Ctrl+A      │
│  ✗  None          Shift+Ctrl+A   │
│  ⬛  Invert           Ctrl+I      │
│  🖼  Float         Shift+Ctrl+L   │
│  👆 By Color         Shift+O      │
│  🟥 From Path        Shift+V      │
│  ▦  Selection Editor             │
│  ─────────────────────────────   │
│     Feather...                   │
│     Sharpen                      │
│  ⌗  Shrink...                    │
│  ⌗  Grow...                      │
│  ⌗  Border...                    │
│  ─────────────────────────────   │
│     Toggle QuickMask  Shift+Q    │
│  ⊡  Save to Channel              │
│  🔴 To Path                       │
└─────────────────────────────────┘
```
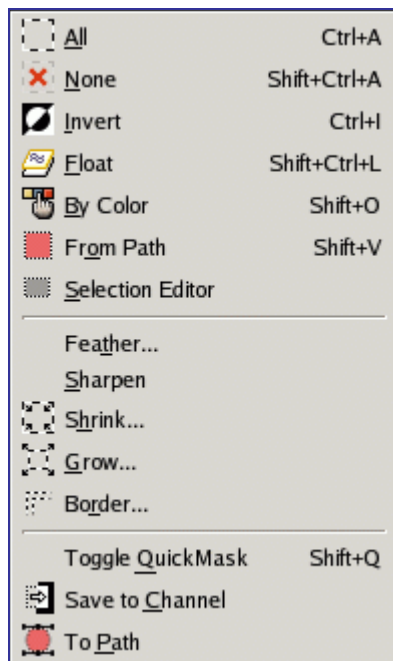
This section explains the commands on the Select menu of the image menubar.

Besides the commands presented here, you might also find other entries on the menu. They are not part of GIMP itself, but are extensions (plug-ins). You can find descriptions of these menu entries with the documentation of the plug-ins.

Select All

The Select All command creates a new selection which contains everything on the current layer.

Activating the Command

- You can access this command from the image menubar through Select All ,
- or by using the keyboard shortcut Ctrl A . You can also access it with the Selection Editor.

None

The None command cancels all selections in the image. If there are no selections, the command doesn't do anything. Floating selections are not affected.

Activating the Command

- You can access this command from the image menubar through Select None . In addition, you can use the Selection Editor to access it.
- You can also use the keyboard shortcut Shift Ctrl A .

Invert

The Invert command inverts the selection in the current image. That means that all of the image contents which were previously outside of the selection are now inside it, and vice versa. If there was no selection before, the command selects the entire image.

Don't mix up this command with the Invert layer command.

Activating the Command

- You can access this command from the image menubar through Select Invert . In addition, you can use the Selection Editor to access it.
- You can also use the keyboard shortcut Ctrl I .

Float

The Float command converts a normal selection into a "*floating selection*". You can find more information about floating selections in the Glossary.

In early versions of GIMP, floating selections were used for performing operations on a limited part of an image. You can do that more easily now with layers, but you can still use this way of working with images. In addition to using the Float command, you can also create a floating selection by moving a selection using the "*Move*" tool, without pressing the Alt key (or ShiftAlt in Linux), which automatically creates a floating selection. You can also create a temporary layer, named "*Floating Selection*", with the entries on the Layer menu.

You cannot perform any operations on other layers if the image has a floating selection, so after you make the changes you want to the floating selection, you have to *anchor* it. That is, you have to attach it to a normal (non-floating) layer, usually the original layer (the one which was active previously). To anchor the floating selection, use the Anchor Layer command. You can also anchor it to an existing layer by clicking anywhere on the image outside of the floating selection, which then merges it with the background layer. You can also anchor it to a new layer by using the New Layer command.

If you display the layer boundary by using the Show Layer Boundary command, you may have difficulty selecting a precise area of the image which you want in a layer. To avoid this problem, you can make a rectangular selection, transform it into a floating selection and anchor it to a new layer. Then simply remove the original layer.

Activating the Command

- You can access this command from the image menubar through Select Float ,
- or by using the keyboard shortcut Shift Ctrl L .

By Color

The Select By Color command is an alternate way of accessing the "*Select By Color*" tool, one of the basic selection tools. You can find more information about using this tool in Select By Color.

Activating the Command

- You can access this command from the image menubar through Select By Color ,
- or by using the keyboard shortcut Shift O .

From Path

The From Path command transforms the current path into a selection. If the path is not

closed, the command connects the two end points with a straight line. The original path is unchanged.

Activating the Command

- You can access this command from the image menubar through Select From Path .
- In addition, you can click on the Path to Selection button in the Path dialog to access the command.
- You can also use the keyboard shortcut Shift V .

Selection Editor

Activating the Command

- You can access this command from the image menubar through Select Selection Editor .

Description of the Selection Editor dialog window
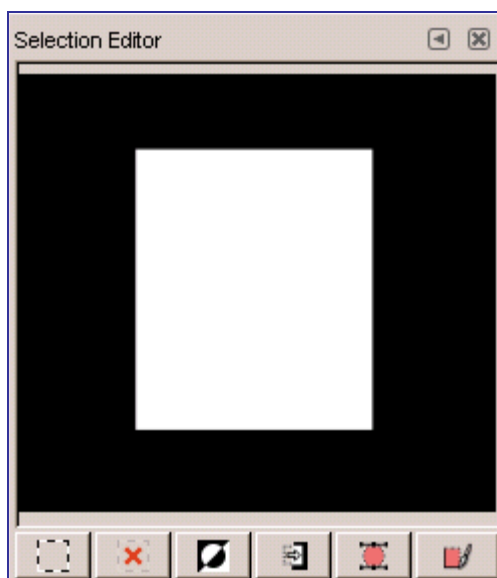
The Selection to Path Advanced Settings dialog

The "*Selection to Path Advanced Settings*" dialog contains a number of options, most of which you can set with either a slider bar or a text box. There is also one check box. These options are mostly used by advanced users. They are:

- *Align Threshold*: If two endpoints are closer than this value, they are made to be equal.
- *Corner Always Threshold*: If the angle defined by a point and its predecessors and successors is smaller than this, it is a corner, even if it is within *Corner Surround* pixels of a point with a smaller angle.
- *Corner Surround*: Number of points to consider when determining if a point is a

corner or not.

- *Corner Threshold*: If a point, its predecessors, and its successors define an angle smaller than this, it is a corner.

- *Error Threshold*: Amount of error at which a fitted spline is unacceptable. If any pixel is further away than this from the fitted curve, the algorithm tries again.

- *Filter Alternative Surround*: A second number of adjacent points to consider when filtering.

- *Filter Epsilon*: If the angles between the vectors produced by *Filter Surround* and *Filter Alternative Surround* points differ by more than this, use the one from *Filter Alternative Surround*.

- *Filter Iteration Count*: The number of times to smooth the original data points. Increasing this number dramatically, to 50 or so, can produce vastly better results. But if any points that "*should*" be corners aren't found, the curve goes wild around that point.

- *Filter Percent*: To produce the new point, use the old point plus this times the neighbors.

- *Filter Secondary Surround*: Number of adjacent points to consider if *Filter Surround* points defines a straight line.

- *Filter Surround*: Number of adjacent points to consider when filtering.

- *Keep Knees*: This check box says whether or not to remove "*knee*" points after finding the outline.

- *Line Reversion Threshold*: If a spline is closer to a straight line than this value, it remains a straight line, even if it would otherwise be changed back to a curve. This is weighted by the square of the curve length, to make shorter curves more likely to be reverted.

- *Line Threshold*: How many pixels (on the average) a spline can diverge from the line determined by its endpoints before it is changed to a straight line.

- *Reparametrize Improvement*: If reparameterization doesn't improve the fit by this much percent, the algorithm stops doing it.

- *Reparametrize Threshold*: Amount of error at which it is pointless to reparameterize. This happens, for example, when the algorithm is trying to fit the outline of the outside of an "*O*" with a single spline. The initial fit is not good enough for the Newton-Raphson iteration to improve it. It may be that it would be better to detect the cases where the algorithm didn't find any corners.

- *Subdivide Search*: Percentage of the curve away from the worst point to look for a better place to subdivide.

- *Subdivide Surround*: Number of points to consider when deciding whether a given point is a better place to subdivide.

- *Subdivide Threshold*: How many pixels a point can diverge from a straight line and still be considered a better place to subdivide.

- *Tangent Surround*: Number of points to look at on either side of a point when computing the approximation to the tangent at that point.

Feather

The Feather command feathers the edges of the selection. This creates a smooth transition between the selection and its surroundings. You normally feather selection borders with the "*Feather Edges*" option of the selection tools, but you may feather them again with this command.

Activating the Command

- You can access this command from the image menubar through Select Feather .

Description of the Feather Selection dialog window

Feather selection by

5,000   pixels
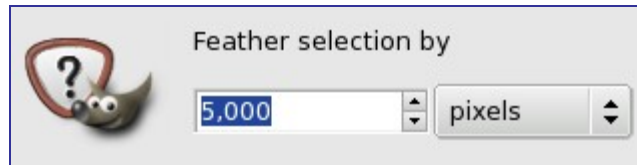
Sharpen

The Sharpen command reduces the amount of blur or fuzziness around the edge of a selection. It reverses the effect of the Feather Selection command. The new edge of the selection follows the dotted line of the edge of the old selection. Anti-aliasing is also removed.

Please do not confuse this command with the Sharpen filter.

Activating the Command

- You can access this command from the image menubar through Select Sharpen .

Shrink

The Shrink command reduces the size of the selected area by moving each point on the edge of the selection a certain distance further away from the nearest edge of the image (toward the center of the selection). Feathering is preserved, but the shape of the feathering may be altered at the corners or at points of sharp curvature.

Activating the Command

- You can access this command from the image menubar through Select Shrink... .

Description of the Shrink dialog

Shrink selection by

10   pixels

☐ Shrink from image border

✗ Cancel   OK
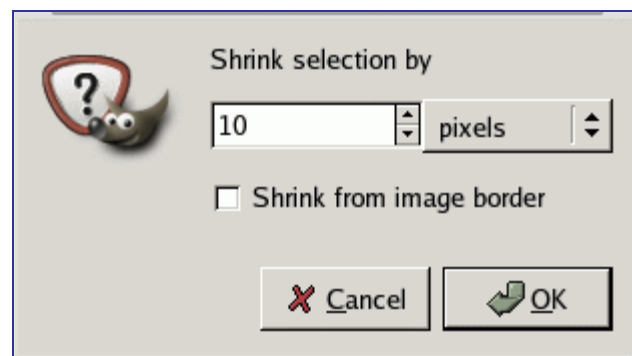
Grow

The Grow command increases the size of a selection in the current image. It works in a similar way to the Shrink command, which reduces the size of a selection.

Activating the Command

- You can access this command from the image menubar through Select Grow .

Description of the Grow Selection dialog

A Peculiarity of Rectangular Selections

When you grow a rectangular selection, the resulting selection has rounded corners. The reason for this is shown in the image below:
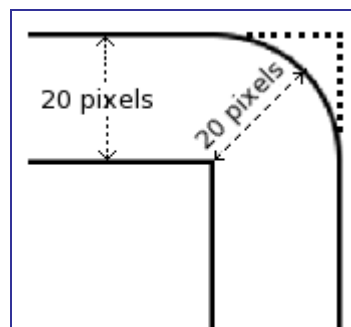
If you do not want rounded corners, you can use the Rounded Rectangle command with a 0% radius.

Border
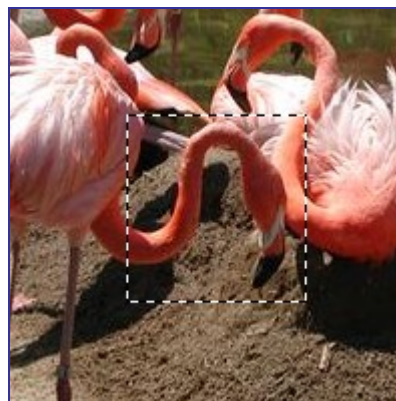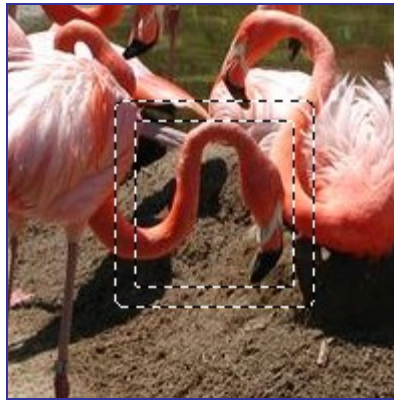
The Select Border command creates a new selection along the edge of an existing selection in the current image. The edge of the current selection is used as a form and the new selection is then created around it. You enter the width of the border, in pixels or some other unit, in the dialog window. Half of the new border lies inside of the selected area and half outside of it.

Activating the Command

- You can access this command from the image menubar through Select Border .

Description of the Border dialog window
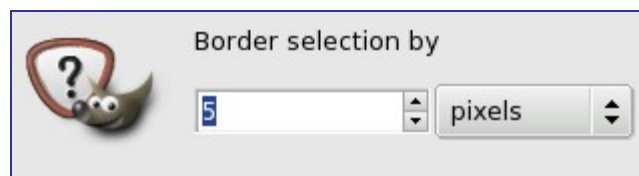
Rounded Rectangle

This script-fu converts a selection (rectangular, elliptic or else) to a rectangular selection with rounded corners. The *Radius* is a percentage of half the selection width or height, whichever the smaller. Select Concave if you want round edges to be indented. Rounded Rectangle works by adding circles to or subtracting circles from the selection.

Activate Dialog

- This command is found at Select Rounded Rectangle... .

Options
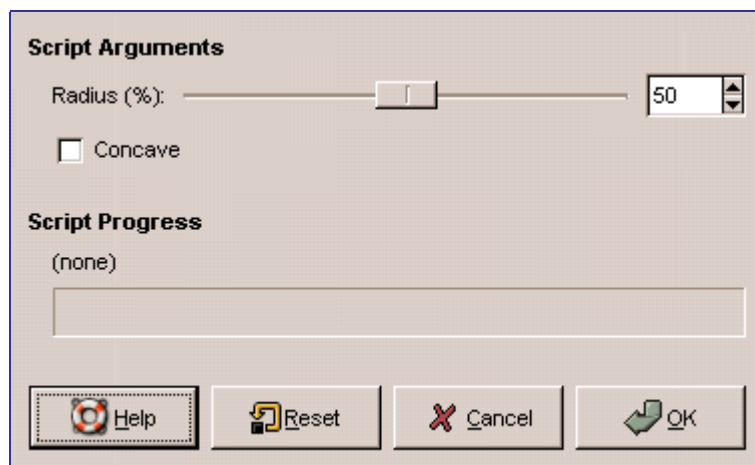
Toggle QuickMask

It has the same action as clicking on the small button in the bottom left corner of the image. See Quick Mask

Activate Dialog

- This command is found at Select Toggle QuickMask
- Default shortcut is ShiftQ

Save to Channel

The Select to Channel command saves the selection as a channel. The channel can then be used as a channel selection mask. You can find more information about them in the Channel Dialog section.

Activating the Command

- You can access this command from the image menubar through Select Save to Channel .
- You can also access it from the Selection Editor.

To Path

The To Path command converts a selection into a path. The image does not seem to change, but you can see the new path in the Paths Dialog. By using the Path tool in the Toolbox, you can precisely adapt the outline of the selection. You can find further information regarding paths in the Paths dialog section.

Activating the Command

- You can access this command from the image menubar through Select To Path .
- You can also access it from the Selection Editor which offers you a lot of Advanced Options.

View

Introduction to the View Menu
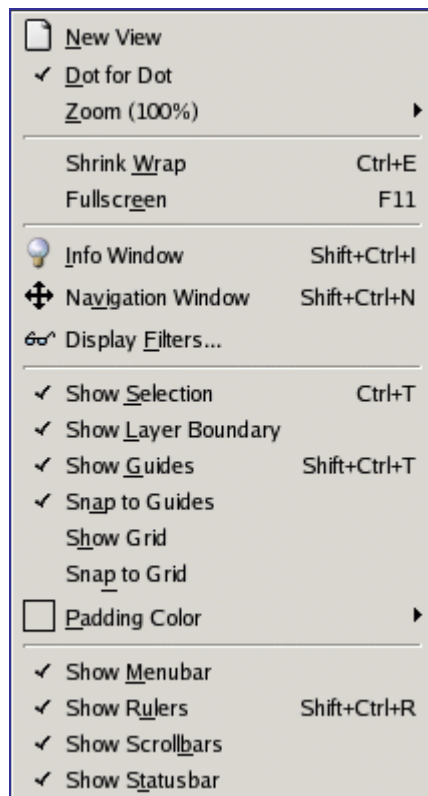
This section describes the View menu, which contains commands that affect the visibility or appearance of the image and various elements of the interface.

Besides the commands described here, you may also find other entries in the menu. They are not part of GIMP itself, but have been added by extensions (plug-ins). You can find information about the functionality of a plug-in by referring to its documentation.

New View

The New View command creates a new image window for the current image, which you can set up differently from the existing display. You can create multiple views of any image, which are numbered .1, .2, etc., but only the zoom factor and other viewing options may be different. Any changes, other than viewing changes, which you make in one window also appear in the other displays which show the same image. The new views are not separate image files; they are simply different aspects of the same image. You might use multiple views, for example, if you were working on individual pixels at a high zoom factor. You could then see the effects your changes would have on the image at a normal size.

You can delete a view by closing its window. If you close the last window displaying an image, the image itself is closed. However, if you have made changes to the image which you have not yet saved, you are asked for confirmation.

Activating the Command

- You can access this command from the image menubar through View New View .

Dot for Dot

The Dot for Dot command enables and disables "*Dot for Dot*" mode. If it is enabled (checked) and the zoom factor is 100%, every pixel in the image is displayed as one pixel on the screen. If it is disabled, the image is displayed at its "*real*" size, the size it will have when it is printed.

For Dot for Dot mode to work properly, the resolution of the image must be the same as the screen resolution in the Preferences menu.

Enabling this mode is recommended if you are working on icons and web graphics. If you are working on images intended to be printed, you should disable Dot-for-Dot mode.

Activating the Command

- You can access this command from the image menubar through View Dot for Dot .

Zoom
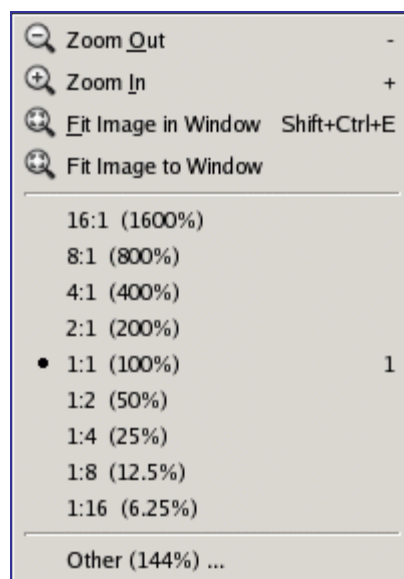
The Zoom submenu contains various commands which affect the magnification of the image in the image window (zooming). Enlarging an image (zooming in) is useful if you need to work with high precision, making pixel-level image modifications or precise selections. On the other hand, reducing an image (zooming out) is handy for getting an overall impression of the image and seeing the results of changes which affect the entire image. Please note that zooming is not undoable, since it does not affect the image data, only the way it is displayed.

Besides the entries in this submenu, there is also a zoom pull-down menu at the bottom edge of the image window (if the status bar is displayed). You can also make settings regarding zooming in the Navigation dialog. You can also use the Magnify tool which lets you zoom a particular area of the image.

Activating the Submenu

- You can access this command from the image menubar through View Zoom . Note that the "*Zoom*" label on the "*View*" menu shows the current zoom factor, for example, Zoom (100%).

Contents of the Zoom submenu

The various "*Zoom*" submenu commands are described below, along with their default

keyboard shortcuts, if any.

When you are working at the pixel level, you can use the New view command. This allows you to see what is happening to the image at its normal size at the same time.

Shrink Wrap

The Shrink Wrap command resizes the window so that it is exactly the same size as the image at the current zoom factor. If the image doesn't completely fit on the screen, the image window is enlarged so that the largest possible part of the image is shown. Please note that GIMP will do this automatically if you set the "*Resize window on zoom*" and "*Resize window on image size change*" options in the Image Window page of the Preferences dialog.

Please note also that the behavior described here is not performed by GIMP itself, but by the "*window manager*", a part of the operating system of your computer. For that reason, the functionality described may be different on your computer, or in the worst case, might not be available at all.

Activating the Command

- You can access this command from the image menubar through View Shrink Wrap ,
- or by using the keyboard shortcut Ctrl E .

Full Screen

The Fullscreen command enables and disables displaying the image window on the entire screen. When it is enabled, the image window takes up the whole screen, but the image stays the same size. When you enable full-screen mode, the menubar may not be displayed, but if this happens, you can right-click on the image to access the image menu. You can set the default appearance for full-screen mode in the Preferences menu.

If you use GIMP on an *Apple Macintosh* computer, full-screen mode may not work, since Apple doesn't provide the necessary functionality. Instead, you can maximize the image window by clicking on the *Green Button*, so the image occupies most of the screen.

Activating the Command

- You can access this command from the image menubar through View Full Screen ,
- or by using the keyboard shortcut F11.

Info Window

The Info Window command displays general information about the current image, as well as information about the pixel which is currently under the mouse pointer.

Activating the Command

- You can access this command from the image menubar through View Info window ,
- or by using the keyboard shortcut Shift Ctrl I .

Description of the Info Window

The Info Window displays basic information about the current image, including its name and a thumbnail, as well as about the pixel which is currently under the mouse pointer.

Navigation Window

The Navigation Window command opens the navigation window. This allows you to easily navigate through the image, to set zoom levels and to move the visible parts of the image. You can find more information about using it in the Navigation dialog chapter.

Activating the Command

- You can access this command from the image menubar through View Navigation Window ,

- or by using the keyboard shortcut Shift Ctrl N .

- You can also access it more rapidly by clicking on the icon in the lower right corner of the image window.

Display Filters

The images you create, we hope, will be seen by many people on many different systems. The image which looks so wonderful on your screen may look somewhat different to people with sight deficiencies or on a screen with different settings from yours. Some information might not even be visible.

Display Filters allow you to view your image as if it were seen by people with a sight deficiency or on a different screen. Don't worry, the filters display the image in a different way, but they never change the image. Besides that, if you save the image that is displayed, the original image is saved. For the same reason, you can't undo the action of a filter with CtrlZ.

The filters available are called "*Color Deficient Vision*", "*Gamma*", "*Contrast*" and "*Color Proof*":

Activating the Command

- You can access this command from the image menubar through View Display Filters .

Description of the Display Filters Dialog
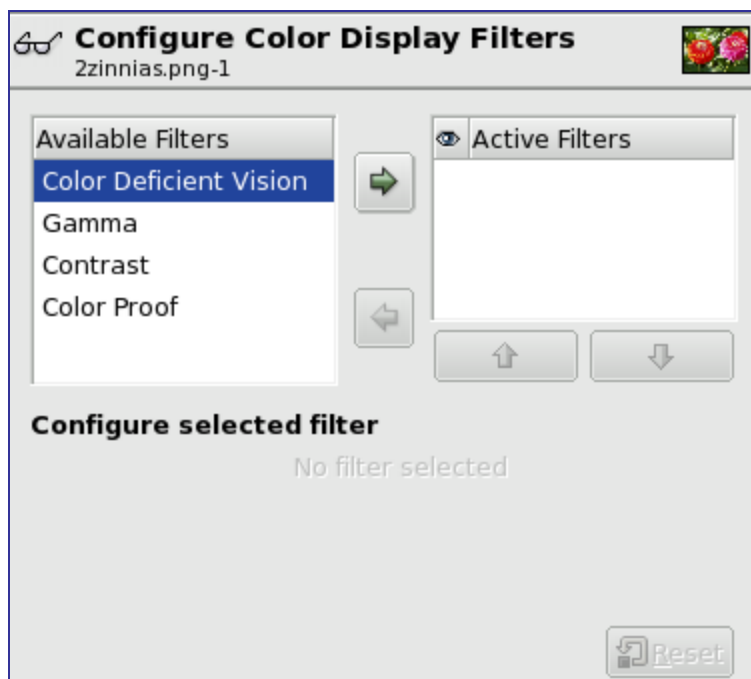
This dialog has two small windows. The left window displays the Available Filters. You can move a filter to the right window by selecting it and clicking on the right arrow button. The Active Filters window on the right displays filters you have chosen and which will be applied if the adjacent box is checked. You can move filters from the right window to the left window by using the left arrow button. If you select a filter by clicking on its name, its options are displayed below the two windows, in the Configure Selected Filter area.

Color Deficient Vision

Description of the "*Color Deficient Vision*" dialog

In this drop-down menu you can select from among:

Gamma

The "*Gamma*" dialog

The correspondence between electrical intensity and color brightness is not exact and it depends upon the device (the camera, the scanner, the monitor, etc.). "*Gamma*" is a coefficient used to correct this correspondence. Your image must be visible in both dark and bright areas, even if it is displayed on a monitor with too much luminence or not enough. The "*Gamma*" Display Filter allows you to get an idea of the appearance of your image under these conditions.

Contrast

The "*Contrast*" dialog

Here, we are back in the medical domain. "*Contrast Sensitivity*" is the capacity of the visual system to distinguish slight differences in contrast. Some people with cataracts (which means that the lens has opaque crystals that scatter light over the retina) or retinal disease (for instance, due to diabetes, which destroys the rods and cones) have a deficiency in sensitivity to contrast: for example, they would have difficulties distinguishing spots on a dress.

With the "*Contrast*" Filter, you can see the image as if you were suffering from cataracts. You may have to increase the contrast of the image so that your grandmother can see it well. In most cases, only very low values of the Contrast Cycles parameter are of interest. Higher values create a side-effect which doesn't interest us here: if you increase the luminosity value above 255, the complementary color appears.

If you are interested in this subject, you can browse the Web for "*contrast sensitivity*".

Color Proof

The various systems for reproducing colors cannot represent the infinity of colors available. Even if there are many colors in common between the various systems and nature, some of the colors will not be the same. The "*gamut*" is the color range of a system. *Color Profiles* allow you to compensate for these differences.

Before you print an image, it may be useful for you to see if you will get the result you want by applying a profile. The "*Color Proof*" filter shows you how your image will look after a color profile has been applied.
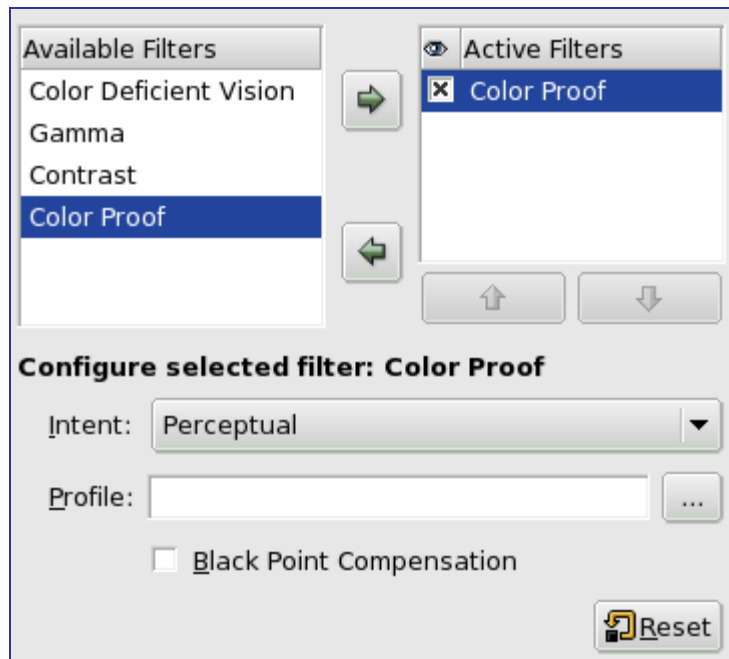
You can apply the filter you have selected in one of four ways:

Show Selection

The Show Selection command enables and disables displaying the dotted line surrounding the selection in the image window. Please note that the selection still exists, even if displaying this line is disabled.

You can set the default for displaying the selection in the Image Window Appearance dialog.

Activating the Command

- You can access this command from the image menubar through View Show Selection ,
- or by using the keyboard shortcut Ctrl T .

Show Layer Boundary

The Show Layer Boundary command enables and disables displaying the yellow dotted line that surrounds a layer in the image window. The dotted line is actually only visible when the layer is smaller than the image window. When the layer is the same size as the image window, the layer boundary is obscured by the image border.

You can set the default for the layer boundary in the Image Window Appearance dialog.

Activating the Command

- You can access this command from the image menubar through View Show Layer Boundary .

Show Guides

The Show Guides command enables and disables diplaying of Guides in the image window.

You can set the default for the guides in the Image Window Appearance dialog.

Activating the Command

- You can access this command from the image menubar through View Show Guides ,
- or by using the keyboard shortcut Shift Ctrl T .

Snap to Guides

The Snap to Guides command enables and disables snap to guides. When snap to guides is enabled, the guides you set (see Show Guides) almost seems magnetic; when you move a layer or selection, the guides appear to pull on it when it approaches. This is enormously useful for accurate placement of image elements.

Activating the Command

- You can access this command from the image menubar through View Snap to Guides .

Show Grid

By using the Show Grid command, you can enable and disable displaying the grid. When you enable it, the grid overlays the image and makes it easier for you to line up selected image elements.

You can set the default for the grid in the Image Window Appearance dialog.

See also the Configure Grid command and the Snap to Grid command.

Activating the Command

- You can access this command from the image menubar through View Show Grid .

Snap to Grid

The Snap to Grid command enables and disables snap to grid. When snap to grid is enabled, the grid you set (see Show Grid) almost seems magnetic; when you move a layer or selection, the grid points appear to pull on it when it approaches. This is enormously useful for accurate placement of image elements.

Activating the Command

- You can access this command from the image menubar through View Snap to Grid .

Padding Color
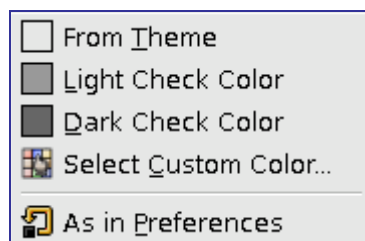
You can change the color of the canvas which surrounds the image by using the Padding Color command. The canvas is the surface the image lies on. It looks like a frame around the image in the image window. This is just a matter of personal preference, since the padding color does not have any effect on the image itself. Please note that this color is not the same as the color used by the Fill tool.

Activating the submenu

- You can access this command from the image menubar through View Padding Color .

Padding Color Options

- *From Theme*: The color of the theme defined in Preferences Theme is used.
- *Light/Dark Check Color*: The check representing transparency, which is defined in Preferences Display is used.
- *Select Custom Color*: Opens the Color Selector window to let you choose a color to use.
- *As in Preferences*: The color selected in the Image Window Appearance is used.

Show Menubar

The Show Menubar command enables and disables displaying the menubar. It may be useful to disable it if you are working in full-screen mode. If the menubar is not displayed, you can right-click on the image to access the menubar entries.

You can set the default for the menubar in the Image Window Appearance dialog.

Activating the Command

- You can access this command from the image menubar through View Show Menubar .

Show Rulers

The Show Rulers command enables and disables displaying the rulers. It may be useful to disable them if you are working in full-screen mode.

You can set the default for the rulers in the Image Window Appearance dialog.

Activating the Command

- You can access this command from the image menubar through View Show Rulers ,
- or by using the keyboard shortcut Shift Ctrl R .

Show Scrollbars

The Show Scrollbars command enables and disables displaying the scrollbars. It may be useful to disable them if you are working in full-screen mode.

You can set the default for the scrollbars in the Image Window Appearance dialog.

Activating the Command

- You can access this command from the image menubar through View Show Scrollbars .

Show Statusbar

The Show Statusbar command enables and disables displaying the status bar. It may be useful to disable it when you are working in full-screen mode.

You can set the default for the status bar in the Image Window Appearance dialog.

Activating the Command

- You can access this command from the image menubar through View Show Statusbar .

The Image Menu of the Image Window

The Image Menu of the Image Window
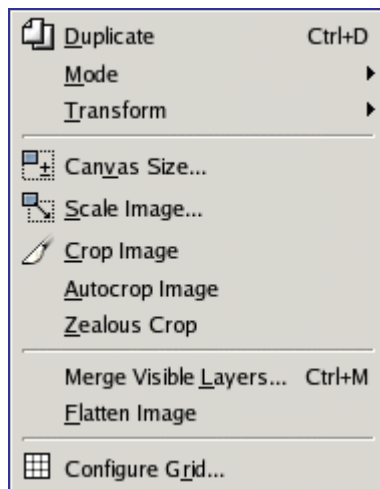
The Image menu contains commands which use or affect the entire image in some way, not just the active layer or some other specific part of the image.

You may find other commands in the menu besides the ones described here. These commands are not part of The GIMP itself, but are added by some of the plug-ins. Please refer to the documentation on the extensions for more information about these menu commands.

Duplicate

The Duplicate image command creates a new image which is an exact copy of the current one, with all of its layers, channels and paths. The GIMP Clipboard and the History are not affected.

Activating the command

- You can access this command from the image menu through Image Duplicate ,

- or by using the keyboard shortcut Ctrl D .

Mode
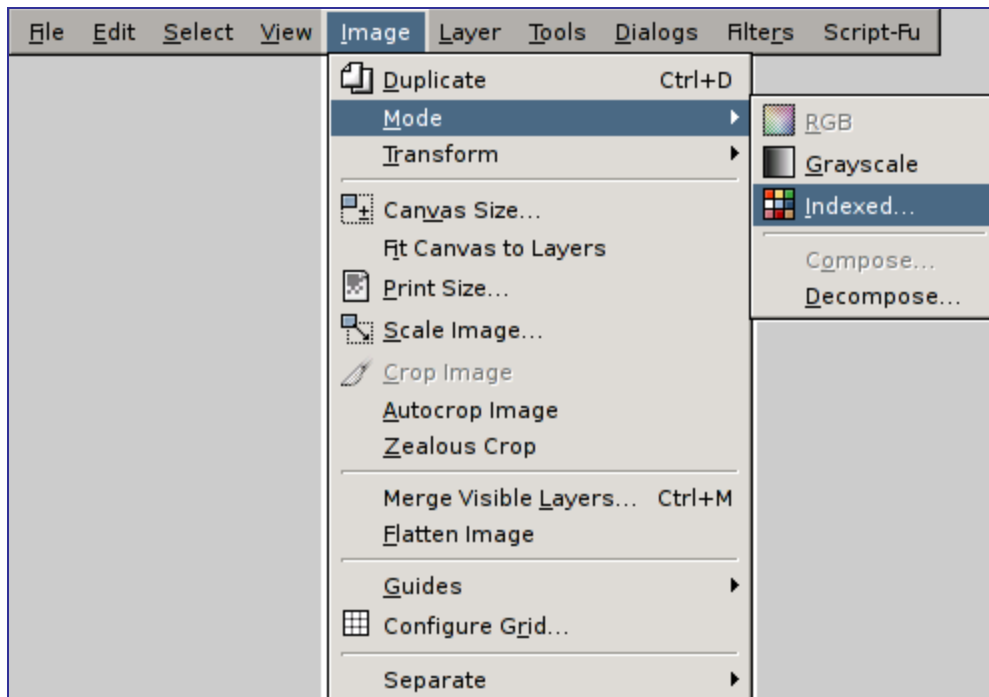
The Mode submenu contains commands which let you change the color model of the image. There are three modes.

Activating the Submenu

- You can access this submenu from the image menubar through Image Mode .

The Contents of the Mode Submenu

- RGB
- Grayscale
- Indexed
- Compose
- Decompose

RGB mode

The RGB command converts your image to RGB mode. See the RGB description in the Glossary for more information. Normally, you work in this mode, which is well-adapted to the screen. It is possible to convert an RGB image to Grayscale or Indexed mode, but be careful: once you have saved the image, you can no longer retrieve the RGB colors, so you should work on a copy of your image.

Activating the command

- You can access this command from the image menu bar through Image Mode RGB .

Grayscale mode

You can use the Grayscale command to convert your image to grayscale with 256 levels of gray, from 0 (black) to 255 (white). See the glossary for more information about grayscale mode.

Activating the Command

- You can access this command from the image menubar through Image Mode Grayscale .

Indexed mode

The Indexed command converts your image to indexed mode. See indexed colors in the Glossary for more information about Indexed Color Mode.

Activating the Dialog

- You can access this command from the image menu bar through Image Mode Indexed .

The Convert Image to Indexed Colors dialog

The Indexed command opens the Convert Image to Indexed Colors dialog.
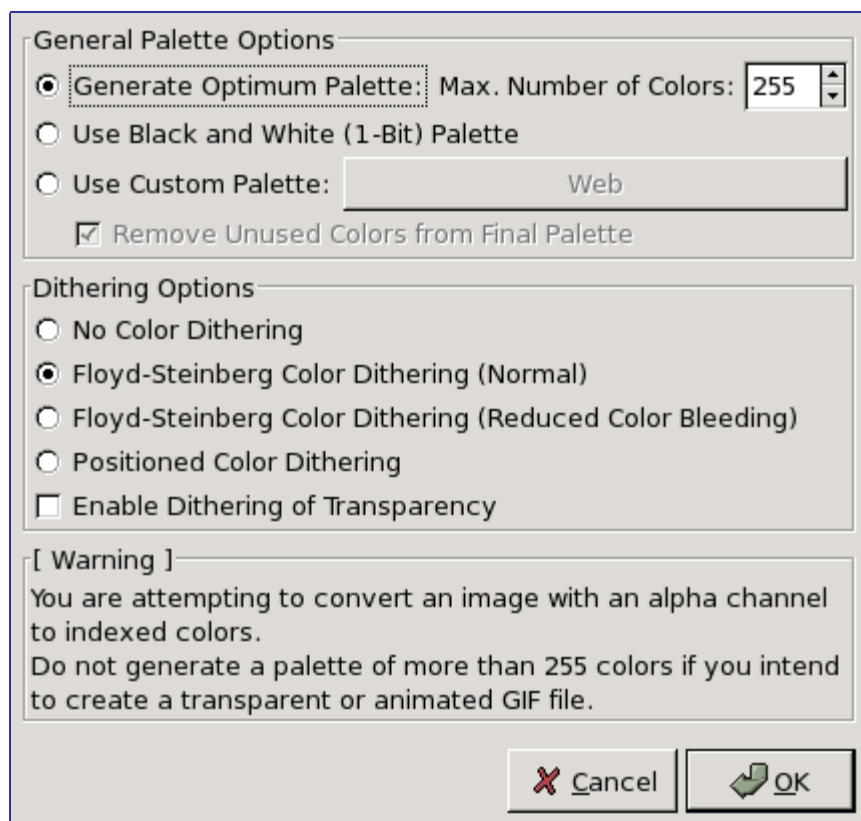
You can edit the color palette of an indexed image by using the Colormap Dialog.

Decompose

With the Decompose command, you can decompose an image into its color components. You can find more information about using this command in the Decompose filter section.

Activating the Command

- You can access this command from the image menubar through Image Mode Decompose .

Compose

With the Compose command, you can re-compose an image that has been decomposed

into its color components. You can find more information about using this command in the Compose filter section.

Activating the Command

- You can access this command from the image menubar through Image Mode Compose .

Transform
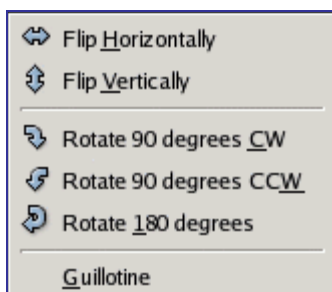
The items on the Transform submenu transform the image by flipping it, rotating it or cropping it.

Activating the Submenu

- You can access this submenu from the image menubar through Image Transform .

The Contents of the Transform Submenu

The Transform submenu has the following commands:

- Flip Horizontally; Flip Vertically
- Rotate 90° CW; Rotate 90° CCW; Rotate 180°
- Guillotine

Flip Horizontally; Flip Vertically

You can flip the image, or turn it over like a card, by using the Flip Horizontally or Flip Vertically commands. These commands work on the whole image. To flip a selection, use the Flip Tool. To flip a layer, use the functions of the Layer Transform menu or the Flip Tool.

Activating the Commands

- You can access the horizontal flip command from the image menubar through Image Transform Flip Horizontally .
- You can access the vertical flip command from the image menubar through Image Transform Flip Vertically .

Rotation

You can rotate the image 90° clockwise or counter-clockwise, or rotate it 180°, by using the rotation commands on the Transform submenu of the Image menu. These commands can be used to change between Portrait and Landscape orientation. They work on the whole image. If you want to rotate the image at a different angle, rotate a selection or rotate a layer, use the Rotate Tool. You can also rotate a layer by using the Layer Transform menu.

Activating the Commands

You can access these three commands from the image menubar through

- Image Transform Rotate 90 degrees CW ,
- Image Transform Rotate 90 degrees CCW and
- Image Transform Rotate 180° .

Guillotine

The Guillotine command slices up the current image, based on the image's guides. It cuts the image along each guide, similar to slicing documents in an office with a guillotine (paper cutter) and creates new images out of the pieces. For further information on guides, see the glossary entry for Guides.

Activating the Command

- You can access this command from the image menubar through Image Transform Guillotine .

Canvas Size

The "*canvas*" is the visible area of the image. By default the size of the canvas coincides with the size of the layers. The Canvas Size command lets you enlarge or reduce the canvas size without modifying the contents of the layers in the image. When you enlarge the canvas, you create free space around the contents of the image. When you reduce it, the visible area is cropped, however the layers still extend beyond the canvas border.

Activating the Command

- You can access this command from the image menubar through Image Canvas Size .

Description of the Canvas size dialog

The Offset values are used to place the image on the canvas. The preview window displays the image in a frame with a thin border. When the canvas is smaller than the image, the preview window shows it in a frame with a thin black border.

When you click on the Resize button, the canvas is resized, but the pixel information and the drawing scale of the image are unchanged.

If the layers of the image did not extend beyond the borders of the canvas before you changed its size, there are no layers on the part of the canvas that was added by resizing it. Therefore, this part of the canvas is transparent and displayed with a checkered pattern, and it is not immediately available for painting. You can either flatten the image, in which case you will get an image with a single layer that fits the canvas exactly, or you can use the Layer to Image Size command to resize only the active layer, without changing any other layers. You can also create a new layer and fill it with the background you want. By doing this, you create a digital "*passe-partout*" (a kind of glass mount with a removable back for slipping in a photograph).

Print Size

You can use the Print Size dialog to change the *dimensions of a printed image* and its *resolution*. This command does not change the number of pixels in the image and it does not resample the image. (If you want to change the size of an image by resampling it, use the Scale Image command.)

Options in the Print Size Dialog
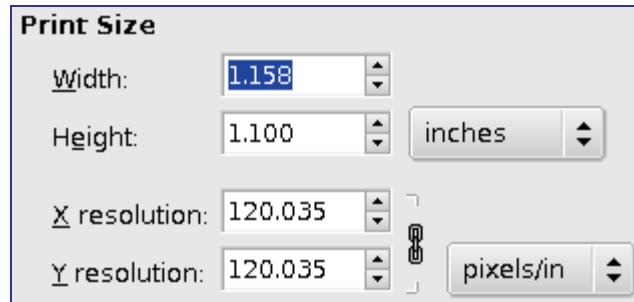
The output resolution determines the number of pixels used per unit length for the printed image. Do not confuse the output resolution with the printer resolution, which is expressed in dpi (dots per inch); several dots are used to print a pixel.

When the dialog is displayed, the resolution shown in the boxes is the resolution of the original image. If you increase the output resolution, the printed page will be smaller, since more pixels are used per unit of length. Conversely, and for the same reason, resizing the image modifies the resolution.

Increasing the resolution results in increasing the sharpness of the printed page. This is quite different from simply reducing the image size by scaling it, since no pixels (and no image information) are removed.

Fit Canvas to Layers

The Fit Canvas to Layers command adapts the canvas size (that is, the drawing area) to the size of the largest layer in the image, in both width and height.

Activating the command

- You can access this command from the image menubar through Image Fit Canvas to Layers .

Scale Image

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.

It operates on the entire image. If your image has layers of different sizes, making the image smaller could shrink some of them down to nothing, since a layer cannot be less than one pixel wide or high. If this happens, you will be warned before the operation is performed.

If you only want to scale a particular layer, use the Scale Layer command.

If scaling would produce an image larger than the "*Maximum new image size*" set in the Environment page of the Preferences dialog (which has a default of 64Mb), you are warned and asked to confirm the operation before it is performed. You may not experience any problems if you confirm the operation, but you should be aware that very large images consume a lot of resources and extremely large images may take more resources than you have, causing GIMP to crash or not perform well.

Activating the Command

- You can access this command from the image menubar through Image Scale image .

The Scale Image Dialog
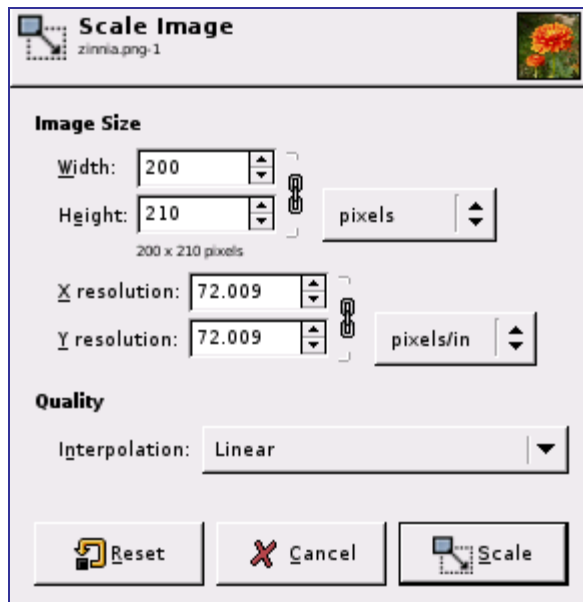
See also the Scale tool, which lets you scale a layer, a selection or a path.

Crop Image

The Crop Image command crops the image to the boundary of the selection by removing any strips at the edges whose contents are all completely unselected. Areas which are partially selected (for example, by feathering) are not cropped. If there is no selection for the image, the menu entry is insensitive and grayed out.

This command crops all of the image layers. To crop just the active layer, use the Crop Layer command.

Activating the command

- You can access this command on the image menu bar through Image Crop Image .

Autocrop Image

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 color, and then crops this area from the image, as if you had used the Crop tool.

Note carefully that this command only uses the *active layer* of the image to find borders. If other layers have color variations extending into the border zone of the active layer, they are cropped away.

Activating the Command

- You can access this command from the image menubar through Image Autocrop Image .

Zealous Crop

The Zealous Crop command crops an image using a single solid color as a guide. It crops the edges, as with the Autocrop command, but it also crops the areas in the middle of the image which have the same color (at least, in principle).

Please note that Autocrop crops all of the layers, although it only analyzes the active layer. This may lead to a loss of information from the other layers.

Example
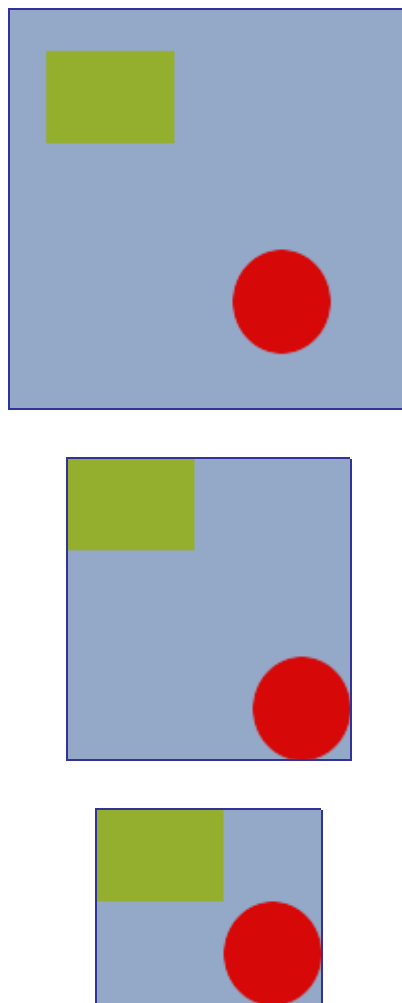
Activating the Command

- You can access this command from the image menubar through Image Zealous Crop
  .

Merge Visible Layers

The Merge Visible Layers command merges the layers which are visible into a single layer. Visible layers are those which are indicated on the Layers dialog with an "*eye*" icon.

Activating the Command

- You can access this command from the image menubar through Image Merge Visible Layers ,
- or by using the keyboard shortcut Ctrl M .

Description of the Merge Visible Layers Dialog
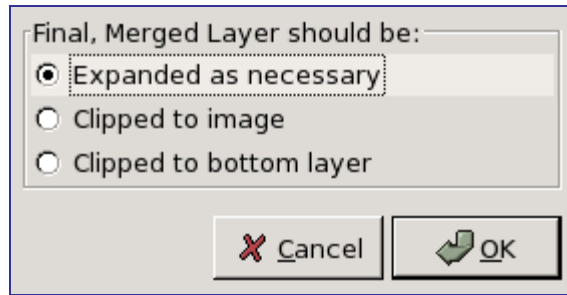
Flatten Image
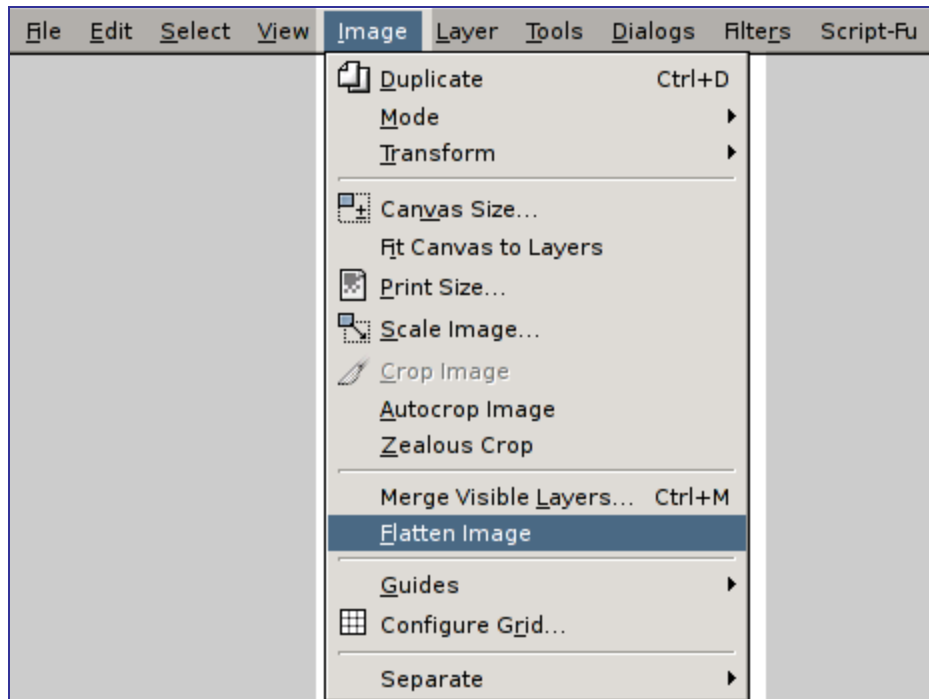
The Flatten Image command merges all of the layers of the image into a single layer with no alpha channel. After the image is flattened, it has the same appearance it had before. The difference is that all of the image contents are in a single layer without transparency. If there are any areas which are transparent through all of the layers of the original image, the background color is visible.

This operation makes significant changes to the structure of the image. It is normally only necessary when you would like to save an image in a format which does not support levels or transparency (an alpha channel).

Activating the Command

- You can access this command from the image menubar through Image Flatten Image .

Guides
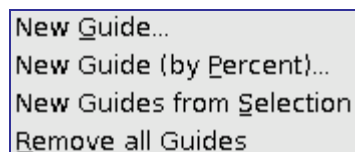
The Guides submenu contains various commands for the creation and removal of guides.

Activating the Submenü

- You can access this submenu from the image menubar through Image Guides .

The Contents of the Guides Submenu

The Guides submenu contains the following commands:

- New Guide
- New Guide (by Percent)
- New Guides from Selection
- Remove all Guides

Remove all guides

The Remove all Guides command removes all guides from the image.

Activating the Command

- You can access this command from the image menubar through Image Guides Remove all guides .

New Guide (by Percent)

The New Guide (by Percent) command adds a guide to the image. The position of the guide is specified as a percentage of the Height and Width.

You can add guides to the image more quickly by simply clicking and dragging guides from the image rulers and positioning them where you would like. Guides you draw with click-and-drag are not as precisely positioned as those you draw with this command, however.

Activating the Command

- You can access this command from the image menubar through Image Guides New Guide (by Percent) .

New Guide (by Percent) Options
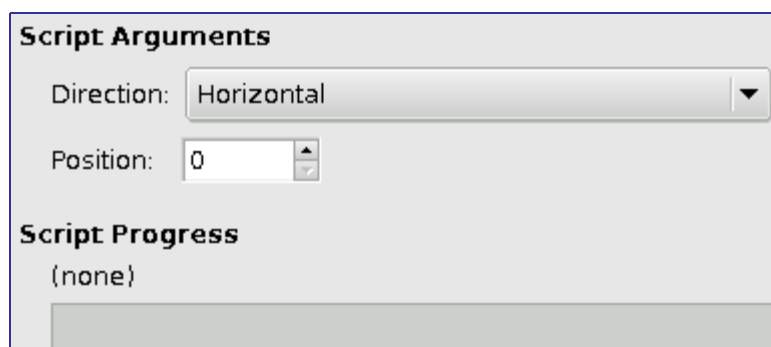
New Guide

The New Guide command adds a guide to the image. For more information about guides, see the glossary entry on Guides.

You can add guides to the image more quickly, but less accurately, by simply clicking and

dragging guides from the image rulers and positioning them where you would like.

Activating the Command

- You can access this command from the image menubar through Image Guides New Guide

New Guide Options
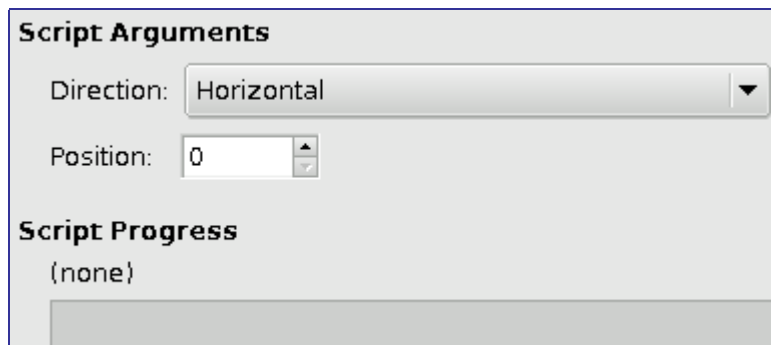
New Guides from Selection

The New Guides from Selection command adds four guide lines, one for each of the upper, lower, left and right edges of the current selection. If there is no selection in the current image, no guides are drawn.

Activating the Command

- You can access this command from the image menubar through Image Guides New Guides from Selection .

Configure Grid

The Configure Grid command lets you set the properties of the grid which you can display over your image while you are working on it. The GIMP provides only Cartesian grids. You can choose the color of the grid lines, and the spacing and offsets from the origin of the image, independently for the horizontal and vertical grid lines. You can choose one of five different grid styles.

Activating the Command

- You can access this command from the image menubar through Image Configure Grid .

Description of the Configure Grid dialog

In the Configure Image Grid dialog, you can set the properties of the grid which is shown when you turn on the image grid.

Layers

Introduction to the Layer Menu
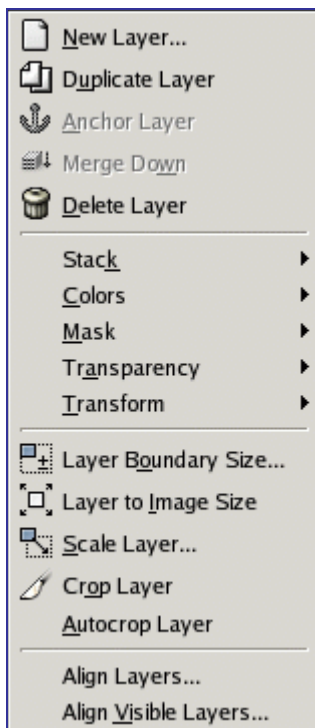
The items on the Layer menu allow you to work on layers. In addition to accessing the Layer menu from the Image menubar and by right-clicking on the image window, you can get to it by right-clicking on the thumbnail of a layer in the Layers dialog. You can also perform several of the operations on this menu by clicking on buttons in the Layers dialog, for example, resizing a layer, managing layer transparency and merging layers.

This menu can contain other entries besides the ones described in this section. They are not part of GIMP itself, but are extensions (plug-ins). Please refer to the documentation about the plug-ins for more information.

New Layer

The New Layer command adds a new, empty layer to the layer stack of the image, just above the active layer. The command displays a dialog in which you can specify the size of the new layer.

Activating the Command

- You can access this command from the image menubar through Layer New Layer .

Description of the New Layer Dialog
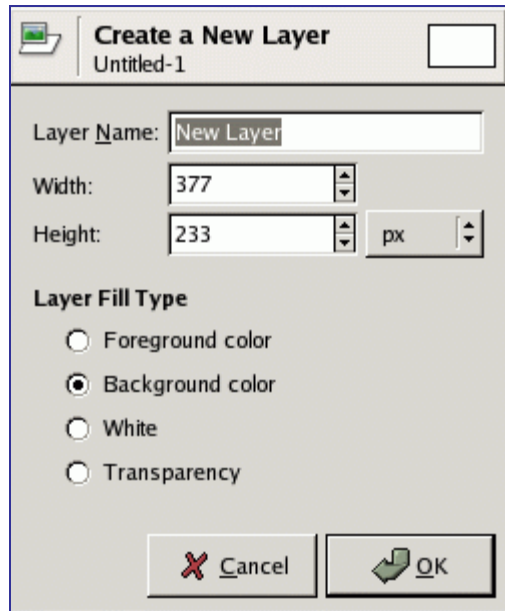
Duplicate layer

The Duplicate Layer command adds a new layer to the image which is a nearly identical copy of the active layer. The name of the new layer is the same as the name of the original layer, but with " *copy*" appended to it.

If you duplicate a background layer which does not have an alpha channel, the new layer is provided with one. In addition, if there are any "*parasites*" attached to the active layer, they are not duplicated. (If your understanding of the word "*parasites*" is limited to small, unpleasant creatures, please ignore the last sentence.)

Activating the Command

- You can access this command from the image menubar through Layer Duplicate Layer

Anchor layer

When you move or paste a selection, a temporary layer, called a "*floating layer*" or "*floating selection*", is added to the layer stack. As long as the floating layer persists, you can work only on it. To work on the rest of the image, you must "*anchor*" the floating layer to the former active layer with the Anchor layer command. If the image does not contain a floating selection, this menu entry is insensitive and grayed out.

If there is an active selection tool, the mouse pointer is displayed with an anchor icon when it is outside of the selection. A left click then anchors the floating selection.

You may also click on the New layer command on the Layers dialog, which anchors the floating selection to a new layer. See .

Activating the Command

- You can access this command from the image menubar through Layer Anchor layer ,
- or by using the keyboard shortcut Ctrl H .

Merge Down

The Merge Down command merges the active layer with the layer just below it in the stack, taking into account the various properties of the active layer, such as its opacity and combination mode.

Activating the Command

- You can access this command from the image menubar through Layer Merge Down .

Delete Layer

The Delete Layer command deletes the active layer from the image.

Activating the Command

- You can access this command from the image menu-bar through Layer Delete Layer .

The Stack Submenu
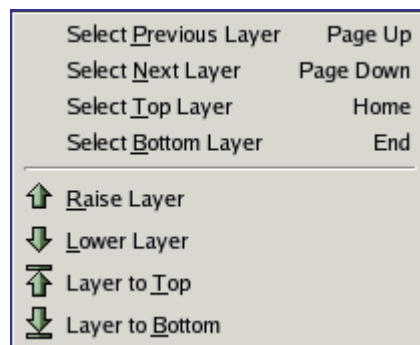
The layer stack is simply the list of layers in the Layers dialog. The Stack submenu contains operations which either select a new layer as the active layer, or change the position of the active layer in the layer stack.

Activating the Submenu

- You can access this submenu from the image menubar through Layer Stack .

The Contents of the Stack Submenu

The Stack submenu contains the following commands:

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Select Previous Layer

The Select Previous Layer command selects the layer just above the active layer in the layer stack. The command highlights the layer in the Layers Dialog and makes it the new active layer. If the active layer is already at the top of the stack, this menu entry is insensitive and grayed out.

Note that on a standard Windows-style English keyboard, the default shortcut Page_Up does not refer to the key on the numeric keypad, but to the other Page_Up key in the group of six keys to the left of the numeric keypad.

The keyboard shortcuts for Select Previous Layer and Select Next Layer may be very useful if you frequently pick colors from one layer to use for painting on another layer, especially when you use them with the color-picker tool, which you get by holding down the Ctrl key with most of the painting tools.

Activating the Command

- You can access this command from the image menubar through Layer Stack Select Previous Layer ,

- or by using the keyboard shortcut Page_Up,

- or the "*Up-arrow*" key,

- or simply by clicking on the layer name in the Layers Dialog.

Select Next Layer

The Select Next Layer command selects the layer just underneath the active layer in the layer stack. The command highlights the layer in the Layers Dialog and makes it the new active layer. If the active layer is already at the bottom of the stack, this menu entry is insensitive and grayed out.

Note that on a standard Windows-style English keyboard, the default shortcut Page_Down does not refer to the key on the numeric keypad, but to the other Page_Down key in the group of six keys to the left of the numeric keypad.

Activating the Command

- You can access this command from the image menubar through Layer Stack Select Next Layer ,

- or by using the keyboard shortcut Page_Down,

- or the "*Down-arrow*" key,

- or simply by clicking on the layer name in Layers Dialog.

Select Top Layer

The Select Top Layer command makes the top layer in the stack the active layer for the image and highlights it in the Layers dialog. If the active layer is already the top layer in the stack, this menu entry is insensitive and grayed out.

Note that on a standard Windows-style English keyboard, the default keyboard shortcut Home does not refer to the key on the numeric keypad, but to the other Home key in the group of six keys to the left of the numeric keypad.

Activating the Command

- You can access this command from the image menubar through Layer Stack Select Top Layer ,

- or by using the keyboard shortcut Home,

- or simply by clicking on the layer name in the Layers Dialog.

Select Bottom Layer

With the Select Bottom Layer command, you can make the bottom layer in the stack become the active layer for the image. It is then highlighted in the Layers dialog. If the bottom layer of the stack is already the active layer, this menu entry is insensitive and grayed out.

Note that on a standard Windows-style English keyboard, the default keyboard shortcut refers to the End key in the group of six keys to the left of the numeric keypad, not to the one in the numeric keypad.

Activating the Command

- You can access this command from the image menubar through Layer Stack Select Bottom Layer ,

- by using the keyboard shortcut End,

- or simply by clicking on the name of the layer in the Layers dialog.

Raise Layer

The Raise Layer command raises the active layer one position in the layer stack. If the active layer is already at the top or if there is only one layer, this menu entry is insensitive and grayed out. If the active layer is at the bottom of the stack and it does not have an alpha channel, it cannot be raised until you add an alpha channel to it.

Activating the Command

- You can access this command from the image menubar through Layer Stack Raise Layer ,

- or by clicking on the up-arrow icon at the bottom of the Layers dialog.

Lower Layer

The Lower layer command lowers the active layer one position in the layer stack. If the active layer is already at the bottom of the stack or if there is only one layer, this menu entry is insensitive and grayed out.

Activating the Command

- You can access this command from the image menubar through Layer Stack Lower Layer ,

- or by clicking on the down-arrow icon at the bottom of the Layers dialog.

Layer to Top

The Layer to Top command raises the active layer to the top of the layer stack. If the active layer is already at the top or if there is only one layer, this menu entry is insensitive and grayed out. If the active layer is at the bottom of the stack and it does not have an alpha channel, you cannot raise it until you add an alpha channel to it.

Activating the Command

- You can access this command from the image menubar through Layer Stack Layer to Top ,

- or by pressing the Shift key and clicking on the up-arrow icon at the bottom of the Layers dialog.

Layer to Bottom

The Layer to bottom command lowers the active layer to the bottom of the layer stack. If the active layer is already at the bottom of the stack or if there is only one layer, this menu entry is insensitive and grayed out.

Activating the Command

- You can access this command from the image menubar through Layer Stack Layer to Bottom ,

- or by pressing the Shift key and clicking on the down-arrow icon at the bottom of the Layers dialog.

The Colors Submenu
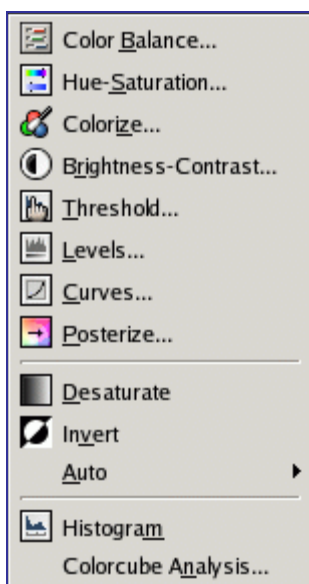
The Colors submenu contains operations which alter colors within the active layer. The operations at the top of the list access the Color tools for the image. These are described in the Toolbox chapter.

This command operates only on the layer which is *active at the time the command is called*. Even after you make another layer the active layer, the operation continues to affect the layer on which you performed the command.

Activating the submenu

- You can access this submenu from the image menubar through Layer Colors .

Contents of the Colors Submenu

In addition to the menu items relating to the color tools which are at the top of the list, the Colors submenu contains the following menu items:

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Desaturate

By using the Desaturate command, you can convert all of the colors on the active layer to corresponding shades of gray. This differs from converting the image to grayscale in two respects. First, it only operates on the active layer and second, the colors on the layer are still RGB values with three components. This means that you can paint on the layer, or individual parts of it, using color at a later time.

This command only works on layers of RGB images. If the image is in Grayscale or Indexed mode, the menu entry is insensitive and grayed out.

Activating the Command

- You can access this command from the image menubar through Layer Colors Desaturate .

Invert

The Invert command inverts all the pixel colors and brightness values in the current layer, as if the image were converted into a negative. Dark areas become bright and bright areas become dark. Hues are replaced by their complementary colors. For more information about colors, see the Glossary entry about Color Model.

This command only works on layers of RGB and Grayscale images. If the current image is Indexed, the menu entry is insensitive and grayed out.

Don't mix up this command with the Invert Selection command.

Activating the Command

- You can access this command from the image menubar through Layer Colors Invert .

Example
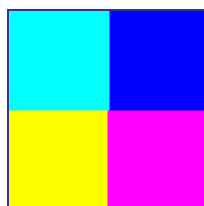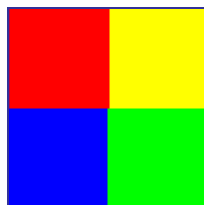
The Auto Submenu
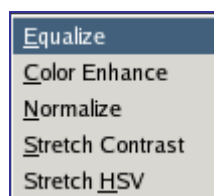
The Auto submenu contains operations which automatically adjust the distribution of colors in the active layer, without requiring any input from the user. Several of these

operations are actually implemented as plugins.

Activating the submenu

- You can access this submenu from the image window through Layer Colors Auto .

Contents of the Auto Submenu

The Auto submenu contains the following entries:

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Equalize

The Equalize command stretches every R, G and B component between 0 and 255. The results of this command can vary quite a bit. Sometimes Equalize works very well to enhance the contrast in an image, bringing out details which were hard to see before. Other times, the results look very bad. It is a very powerful operation and it is worth trying it to see if it will improve your image.

Activating the Command

- You can access this command from the image menubar through Layer Colors Auto Equalize ,
- or by using the keyboard shortcut Shift Page Down .

Example
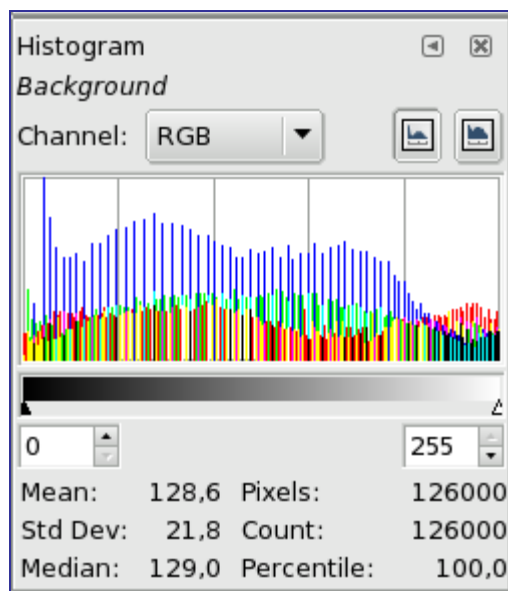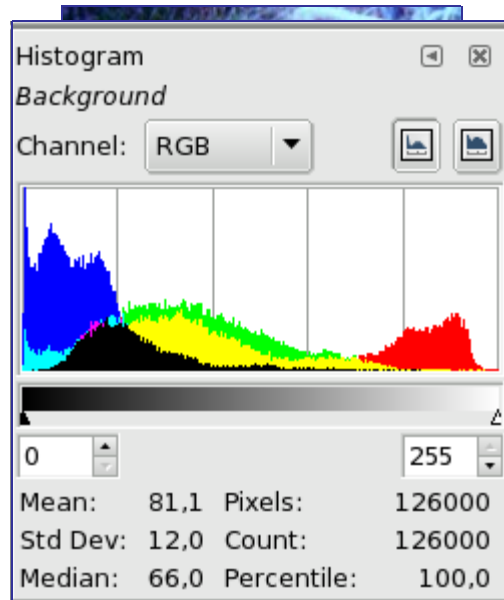
Stretch Contrast

This command is somewhat similar to Normalize plug-in in its effects, except that it works on each color channel of the layer individually, rather than just the brightness values. This usually leads to color shifts within the image, so it may not produce the result you are looking for. Stretch Contrast operates on layers from RGB, Grayscale, and Indexed images.

Activate Dialog

- This command can be accessed from an image menubar as Layer Color Auto Stretch Contrast .

Color Enhance

"Color Enhance" increases the saturation range of colors in the layer without altering brightness or hue. It does this by converting the colors in HSV space, measuring the range of saturation values across the image, then stretching this range to be as large as possible, and finally converting the colors back to RGB. It works on layers from RGB and

Indexed images. If the image is Grayscale, the menu entry will be insensitive.

Activate Dialog

- This command can be accessed from an image menubar as Layer Color Auto Color Enhance .

Stretch HSV

This command does the same thing as Stretch Contrast, except that it works in HSV color space rather than RGB color space. Thus, it independently stretches the hue channel, the saturation channel, and the value channel. Occasionally the results are good, often they are a bit odd. Stretch HSV operates on layers from RGB and Indexed images. If the image is Grayscale, the menu entry will be insensitive.

Activate Dialog

- This command can be accessed from an image menubar as Layer Colors Auto Stretch HSV .

Normalize

This command scales brightness values across the active layer so that the darkest point becomes black, and the brightest point becomes as bright as possible without altering its hue. This is often a "magic fix" for images that are dim or washed out. Normalize works on layers from RGB, Grayscale, and Indexed images.

Activate Dialog

- This command can be accessed from an image menubar as Layer Color Auto Normalize .

The Mask Submenu
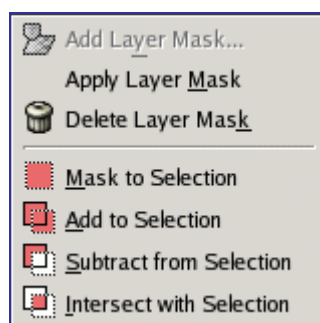
The Mask submenu of the Layer menu contains commands which work with masks: creating a mask, applying a mask, deleting a mask or converting a mask into a selection. See the Layer Masks section for more information on layer masks and how to use them.

Activating the Submenu

- You can access this submenu from the image menubar through Layer Mask .

The Contents of the Mask Submenu

The Mask submenu contains the following commands:

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Add Layer Mask

The Add Layer Mask command adds a layer mask to the active layer. It displays a dialog in which you can set the initial properties of the mask. If the layer already has a layer mask, or if it cannot have one because it does not have an alpha channel, the menu entry is insensitive and grayed out.

A layer mask lets you define which parts of the layer are opaque, semi-transparent or transparent. See the Layer Mask section for more information.

Activating the Command

- You can access this command from the image menubar through Layer Mask Add Layer Mask
- or from the pop-up menu you get by right-clicking on the active layer in the Layers Dialog.

Description of the Add Layer Mask Dialog
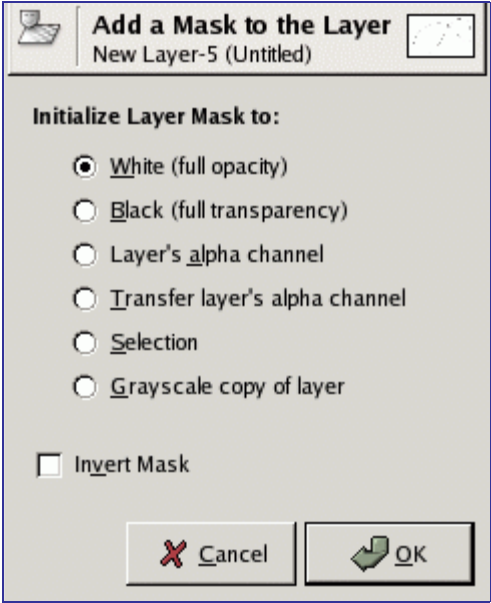
When you click on the OK button, a thumbnail of the layer mask appears to the right of the thumbnail of the layer in the Layers Dialog.

Apply Layer Mask

The Apply Layer Mask command merges the layer mask with the active layer. The transparency information in the layer mask is transferred to the alpha channel and the layer mask is removed. If the active layer does not have a layer mask, the menu entry is insensitive and grayed out. See the Layer Masks section for more information.

Activating the Command

- You can access this command from the image menubar through Layer Mask Apply Layer Mask ,

- or from the pop-up menu you get by right-clicking on the active layer in the Layers Dialog.

Delete Layer Mask

The Delete Layer Mask command deletes the active layer's layer mask, without modifying the active layer itself. If the active layer does not have a layer mask, the menu entry is insensitive and grayed out.

Activating the Command

- You can access this command from the image menubar through Layer Mask Delete Layer Mask ,

- or from the pop-up menu you get by right-clicking on the active layer in the Layers Dialog.

Edit Layer Mask

When you click on the Edit Layer Mask item on the Layer Mask submenu, a check is displayed next to it, the layer mask becomes the active component of the current layer and the layer mask is displayed in the Layers Dialog with a white border. When you uncheck it, the layer itself becomes the active component and it is displayed with a white border. You can also activate the component you want more simply by clicking on it in the Layers Dialog.

Activating the Command

- You can access this command from the image menubar through Layer Mask Edit Layer Mask .

- You can undo this action by unchecking the menu entry in the LayerMask menu or by clicking on the layer component in the Layers Dialog.

Disable Layer Mask

As soon as you create a layer mask, it acts on the image. The Disable Layer Mask command allows you to suspend this action. When you click on the menu entry, a check is displayed next to it and the border of the layer mask's thumbnail in the Layers Dialog turns red.

Activating the Command

- You can access this command from the image menubar through Layer Mask Disable Layer Mask ,

- or by holding down the Alt key (Ctrl Alt on some systems) and single-clicking on the

layer mask's thumbnail in the Layers Dialog.

- You can undo this action by unchecking the menu entry in the LayerMask menu or by Alt-clicking (or Ctrl Alt -clicking) again on the layer mask's thumbnail.

Show Layer Mask

The Show Layer Mask command lets you see the layer mask better by turning the image invisible. When you click on the menu entry, a check is displayed next to it and the layer mask's thumbnail in the Layers Dialog is shown with a green border. The layer itself is not modified; you can turn it visible again later.

Activating the Command

- You can access this command from the image menubar through Layer Mask Show Layer Mask ,

- or by holding down the Alt key (Ctrl Alt on some systems) and single-clicking on the layer mask's thumbnail in the Layers Dialog.

- You can undo this action by unchecking the menu entry in the LayerMask submenu or by Alt-clicking (or Ctrl Alt -clicking) again on the layer mask's thumbnail.

Mask to Selection

The Mask to Selection command converts the layer mask of the active layer into a selection, which replaces the selection that is already active in the image. White areas of the layer mask are selected, black areas are not selected, and gray areas are converted into feathered selections. The layer mask itself is not modified by this command.

Activating the Command

- You can access this command from the image menubar through Layer Mask Mask to Selection ,

- or from the pop-up menu you get by right-clicking on the active layer in the Layers Dialog.

Add Layer Mask to Selection

The Add to Selection command converts the layer mask of the active layer into a selection, which is added to the selection that is already active in the image. White areas of the layer mask are selected, black areas are not selected, and gray areas are converted into feathered selections. The layer mask itself is not modified by this command.

Activating the Command

- You can access this command from the image menubar through Layer Mask Add to Selection ,

- or from the pop-up menu you get by right-clicking on the active layer in the Layers Dialog.

Subtract Layer Mask from Selection

The Subtract from Selection command converts the layer mask of the active layer into a selection, which is subtracted from the selection that is already active in the image. White areas of the layer mask are selected, black areas are not selected, and gray areas are converted into feathered selections. The layer mask itself is not modified by this command.

Activating the Command

- You can access this command from the image menubar through Layer Mask Subtract from Selection ,

- or from the pop-up menu you get by right-clicking on the active layer in the Layers Dialog.

Intersect Layer Mask with Selection

The Intersect with Selection command converts the layer mask of the active layer into a selection. The intersection of this selection and the selection that is already active form the new selection for the image. White areas of the layer mask are selected, black areas are not selected, and gray areas are converted into feathered selections. The layer mask itself is not modified by this command.

Activating the Command

- You can access this command from the image menubar through Layer Mask Intersect with Selection ,

- or from the pop-up menu you get by right-clicking on the active layer in the Layers Dialog.

The Transparency Submenu of the Layer menu
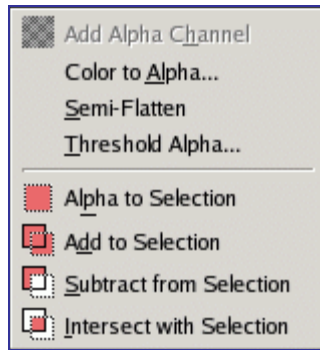
The Transparency submenu contains commands which use or affect the alpha channel of the active layer.

Activating the Submenu

- You can access this submenu from the image menubar through Layer Transparency .

The Contents of the Transparency Submenu

The Transparency submenu contains the following commands:

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Add Alpha Channel

The Add Alpha Channel command adds an alpha channel to the active layer. Without an alpha channel, a layer cannot have transparency or a layer mask. If the active layer already has an alpha channel (and it must, unless it is the bottom layer of the image), the menu entry is insensitive and grayed out.

Activating the Command

- You can access this command from the image menubar through Layer Transparency Add alpha Channel .

Color to Alpha

You can make colors of the active layer transparent by using the Color to Alpha command. You can find a description of this command in the section about the filter.

This command operates only on the layer which is *active at the time the command is called*. Even after you choose another layer to be the active layer, the operation continues to affect the layer on which you performed the command.

Activating the Command

- You can access this command from the image menubar through Layer Transparency Color to Alpha .

Semi-flatten

The Semi-Flatten command is described in the Semi-flatten filter chapter. The command is useful when you need an anti-aliased image with indexed colors and transparency.

Activating the Command

- You can access this command from the image menubar through Layer Transparency Semi-flatten .

Threshold Alpha

This command converts partial transparency into all-or-none transparency, by applying a user-specified cutoff threshold to the layer's alpha channel. It only works on alpha-channel-possessing layers from RGB images: if the image is Grayscale or Indexed, or the layer lacks an alpha channel, the menu entry will be insensitive. If Keep transparency has been toggled on in the Layers dialog, the command will show an error message and refuse to operate.

Activate Dialog

- This operation can be accessed from an image menubar as Layer Transparency Threshold Alpha .

Dialog window description
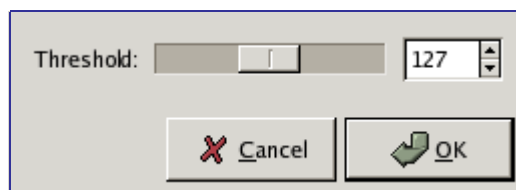
Alpha to Selection

The Alpha to Selection command creates a selection in the image from the active layer's alpha channel, which encodes transparency. Opaque areas are fully selected, transparent areas are unselected, and translucent areas are partially selected. This selection *replaces* the existing selection. The alpha channel itself is not changed.

The other commands in this group of operations are similar, except that instead of completely replacing the existing selection with the selection produced from the alpha channel, they either add the two selections, subtract the alpha selection from the existing selection, or create a selection that is the intersection of the two.

Activating the Command

- You can access this command from the image menubar through Layer Transparency Alpha to Selection
- or from the pop-up menu which appears when you right-click on the active layer in the Layer Dialog.

Example
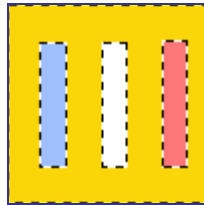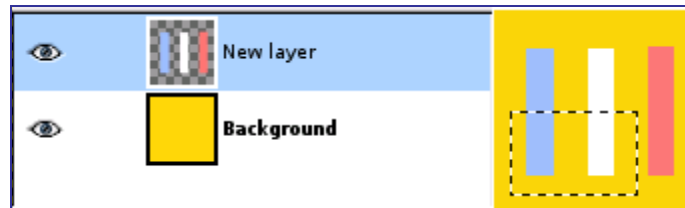
Add to Selection

The Add to Selection command creates a selection in the image from the pixels of the active layer according to their transparency. Opaque areas are fully selected, transparent areas are unselected, and translucent areas are partially selected. This selection is *added* to an existing selection. The alpha channel itself is not changed.

The other commands in this group of operations are similar, except that instead of adding to the existing selection with the selection produced from the active layer, they either completely replace the selection with a selection produced from the alpha selection, subtract the alpha selection from the existing selection, or create a selection that is the intersection of the two.

Activating the Command

- You can access this command from the image menubar through Layer Transparency Add to Selection .

Example
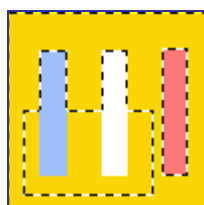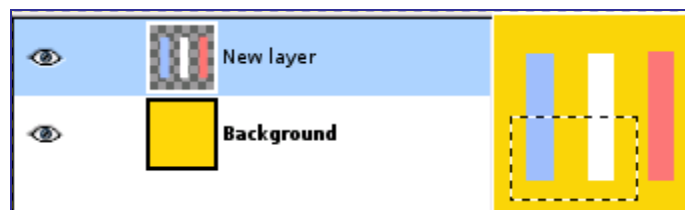
Subtract from Selection

The Subtract from Selection command creates a selection in the image from the pixels of the active layer according to their transparency. Opaque areas are fully selected, transparent areas are unselected, and translucent areas are partially selected. This selection is *subtracted* from an existing selection. The alpha channel itself is not changed.

Activating the Command

- You can access this command from the image menubar through Layer Transparency Subtract from Selection

- or from the pop-up menu which appears when you right-click on the active layer in the Layer Dialog.

Example
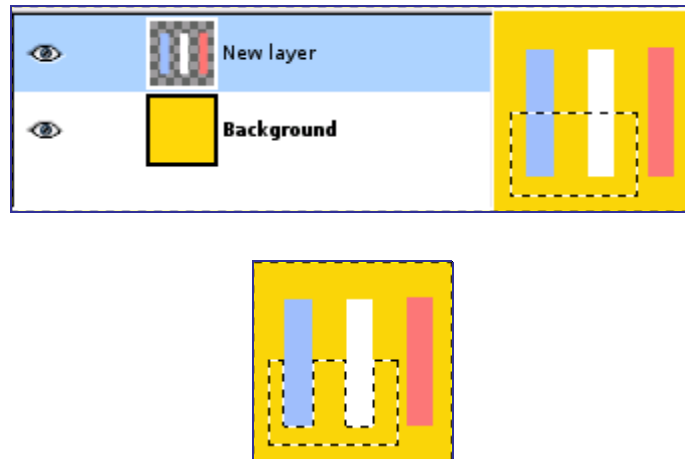
Intersect with Selection

The Intersect with Selection command creates a selection in the image from the pixels of the active layer according to their transparency. Opaque areas are fully selected, transparent areas are unselected, and translucent areas are partially selected. This selection is *intersected* with an existing selection: only common parts of both selections are kept. The alpha channel itself is not changed.

Activating the Command

- You can access this command from the image menubar through Layer Transparency Intersect with Selection

- or from the pop-up menu which appears when you right-click on the active layer in the Layers Dialog.

Example
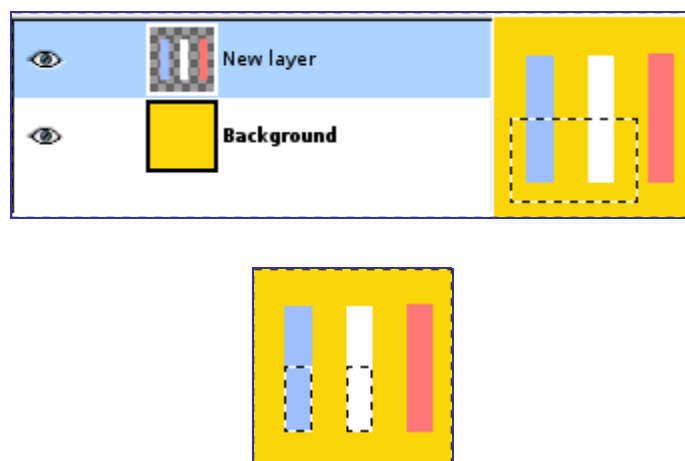
The Transform Submenu
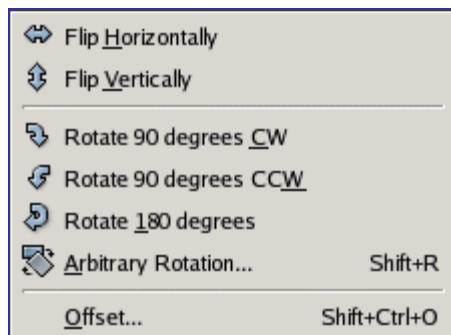
The Transform submenu of the Layer menu contains commands which flip or rotate the active layer of the image.

Activating the Submenu

- You can access this submenu from the image menubar through Layer Transform .

The Contents of the Transform Submenu

The Transform submenu contains the following commands:

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Flip Horizontally

The Flip Horizontally command reverses the active layer horizontally, that is, from left to right. It leaves the dimensions of the layer and the pixel information unchanged.

Activating the Command

- You can access this command from the image menubar through Layer Transform Flip Horizontally .

Example
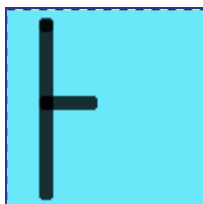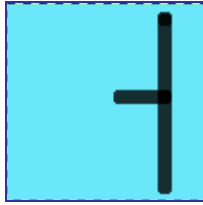
Flip Vertically

The Flip Vertically command reverses the active layer vertically, that is, from top to bottom. It leaves the dimensions of the layer and the pixel information unchanged.

Activating the Command

- You can access this command from the image menubar through Layer Transform Flip Vertically .

Rotate 90 degrees CW

The Rotate 90 degrees CW command rotates the active layer by 90° around the center of the layer, with no loss of pixel data. The shape of the layer is not altered, but the rotation may cause the layer to extend beyond the bounds of the image. This is allowed in GIMP and it does not mean that the layer is cropped. However, you will not be able to see the parts which extend beyond the boundary of the image unless you resize the image canvas or move the layer.

Activating the Command

- You can access this command from the image menubar through Layer Transform Rotate 90 degrees CW .

Rotate 90 degrees CCW

The Rotate 90 degrees CCW command rotates the active layer by 90° counter-clockwise around the center of the layer, with no loss of pixel data. The shape of the layer is not altered, but the rotation may cause the layer to extend beyond the bounds of the image. This is allowed in GIMP and it does not mean that the layer is cropped. However, you will not be able to see the parts which extend beyond the boundary of the image unless you resize the image canvas or move the layer.

Activating the Command

- You can access this command from the image menubar through Layer Transform Rotate 90 degrees CCW .

Rotate 180 degrees

The Rotate 180 degrees command rotates the active layer by 180° around the center of the layer, with no loss of pixel data. The shape of the layer is not altered, but the rotation may cause the layer to extend beyond the bounds of the image. This is allowed in GIMP and it does not mean that the layer is cropped. However, you will not be able to see the parts which extend beyond the boundary of the image unless you resize the image canvas or move the layer.

Activating the Command

- You can access this command from the image menubar through Layer Transform Rotate 180 degrees .

Arbitrary Rotation

The Arbitrary Rotation command rotates a layer by a specified angle. It is an alternate way of accessing the Rotate tool. See the section about that tool for more information.

Activating the Command

- You can access this command from the image menubar through Layer Transform Arbitrary Rotation ,

- or by using the keyboard shortcut Shift R .

Offset

The Offset command shifts the *contents* of the active layer. Anything shifted outside the layer boundary is cropped. This command displays a dialog which allows you to specify how much to shift the layer and how to fill the space that is left empty by shifting it.

Activating the Command

- You can access this command from the image menubar through Layer Transform Offset ,

- or by using the keyboard shortcut Shift Ctrl O .

Description of the Offset dialog
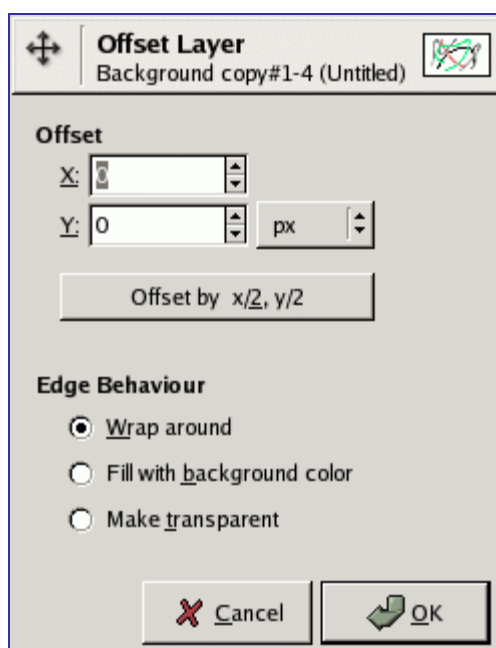
Layer Boundary Size

In GIMP, a layer is not always the same size as the image it belongs to. It might be smaller or it might be larger, in which case some parts of it are hidden. The Layer Boundary Size command displays a dialog in which you can set the dimensions for the active layer. This command changes the dimensions of the layer, but it does not scale its contents.

Activating the Command

- You can access this command from the image menubar through Layer Layer Boundary Size .

Description of the Layer Boundary Size dialog
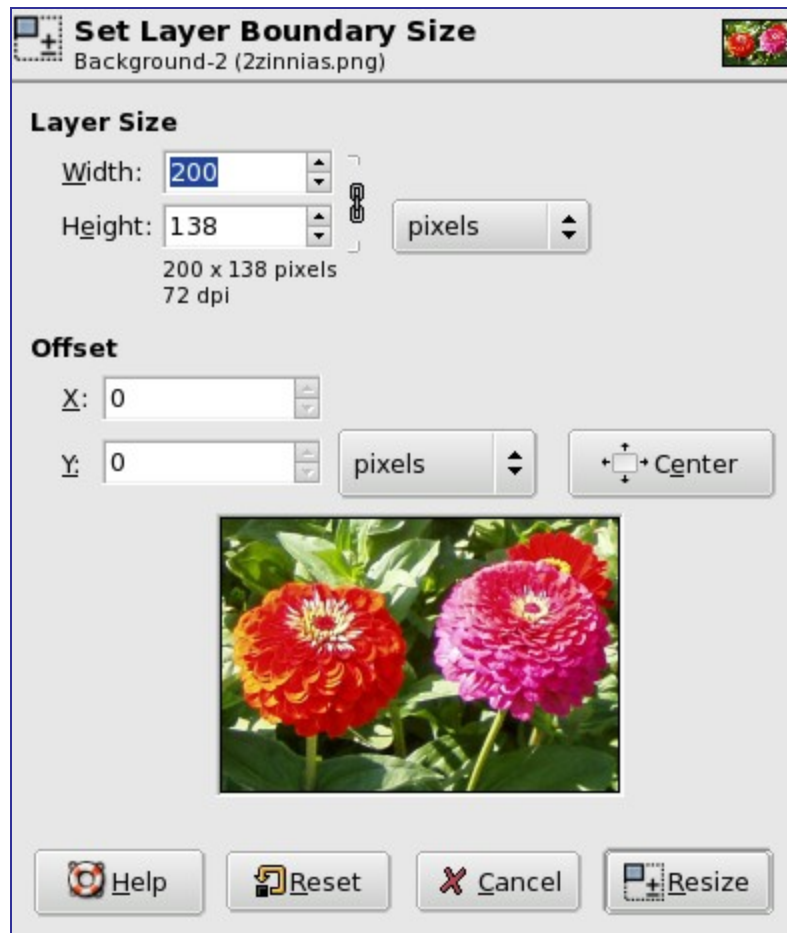
Layer to Image Size

The Layer to Image Size command resizes the layer boundaries to match the image boundaries, without moving the contents of the layer with respect to the image.

Activating the Command

- You can access this command from the image menubar through Layer Stack Layer to Image Size .

Scale Layer

The Scale Layer command resizes the layer and its contents. The image loses some of its quality by being scaled. The command displays a dialog where you can set parameters concerning the size of the layer and the image quality.

Activating the Command

- You can access this command from the image menubar through Layer Scale Layer .

Description of the Scale Layer Dialog
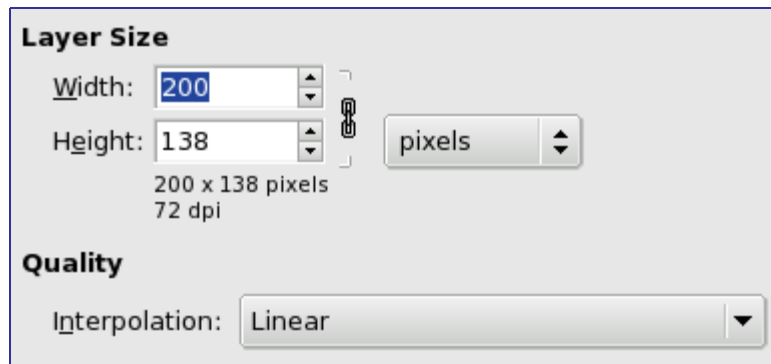
Crop Layer

The Crop Layer command crops only the active layer to the boundary of the selection by removing any strips at the edge whose contents are all completely unselected. Areas which are partially selected (for example, by feathering) are not cropped. If there is no selection for the image, the menu entry is insensitive and grayed out.

Activating the Command

- You can access this command from the image menubar through Layer Crop layer .

Example
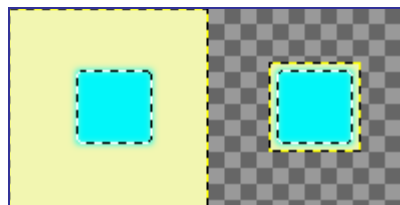
Autocrop Layer

The Autocrop Layer command automatically crops the current layer by removing a border. It looks for the the largest possible area around the outside edge which all has the same color and then crops this area from the layer. You can use it to isolate an object from a single-color background.

Activating the Command

- You can access this command from the image menubar through Layer Autocrop Layer .

Align Visible Layers

With the Align Visible Layers command, you can very precisely position the visible layers (those marked with the "*eye*" icon). This degree of precision is especially useful when you are working on animations, which typically have many small layers. Clicking on Align Visible Layers displays a dialog which allows you to choose how the layers should be aligned.

In GIMP 1.2, the default base for the alignment was the top visible layer in the stack. In GIMP 2, the default alignment base is the edge of the canvas. You can still align the image on the bottom layer of the stack, even if it is invisible, by checking Use the (invisible) bottom layer as the base in the dialog.
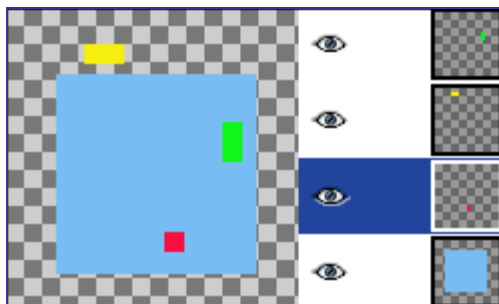
Activating the Command

- You can access this command from the image menubar through Layer Align Visible layers . There is no default keyboard shortcut.

Description of the Layer Align dialog
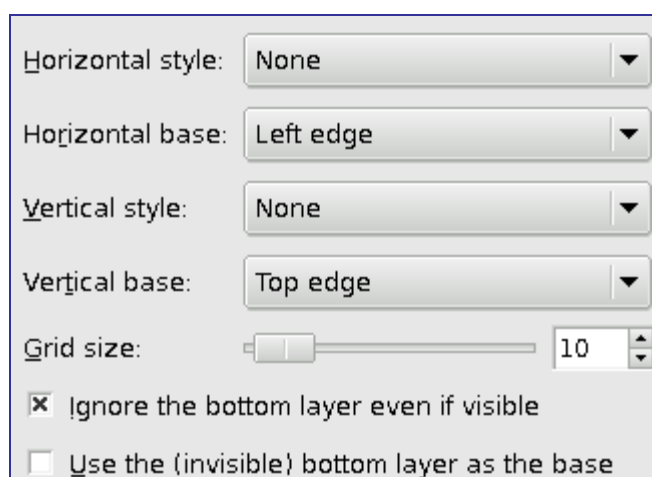
Tools

Introduction to the Tools Menu
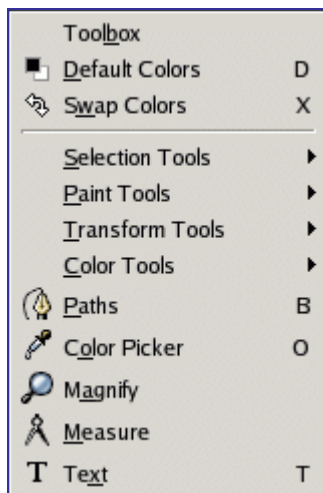
The menu entries on the Tools menu access the GIMP tools. All of the tools available in GIMP are extensively described in the Toolbox section.

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The Filters Menu of the Image Window

Introduction to the Filters menu
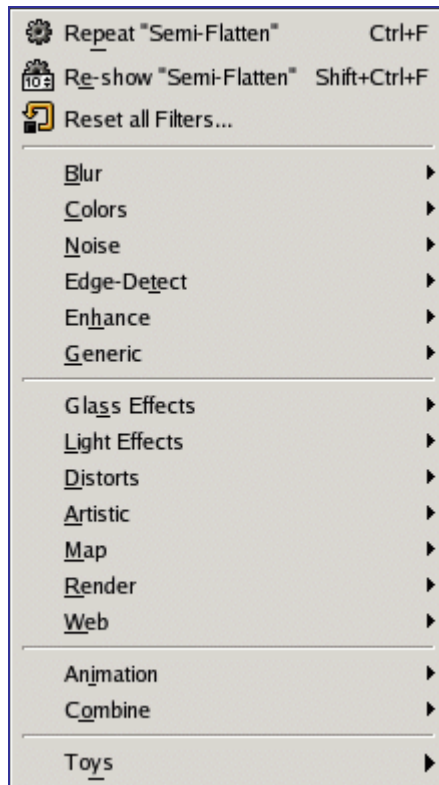
In GIMP terminology, a *filter* is a plug-in that modifies the appearance of an image, in most cases just the active layer of the image. Not all of the entries in this menu meet that definition, however; the word "*filter*" is often mis-used to mean any plug-in, regardless of what it does. Indeed, some of the entries in this menu do not modify images at all.

With the exception of the top three items of the Filters menu, all of the entries are provided by plug-ins. Each plug-in decides for itself where it would like its menu entry to be placed. Therefore, the appearance of this menu can be completely different for each user. In practice, though, the appearance does not vary very much, because most plug-ins come with GIMP when it is installed, and of course they are always in the same places in the menu.

Plug-ins are not restricted to just the Filters menu: a plug-in can place entries in any menu. Indeed, a number of GIMP's basic functions (for example, Semi-flatten in the Layer menu) are implemented by plug-ins. But the Filters menu is the default place for a plug-in to place its menu entries.

For general information on plug-ins and how to use them, see the section on Plug-ins. You can find information on the filters that are provided with GIMP in the Filters chapter. For filters you install yourself, please refer to the information which came with them.

Repeat Last

The Repeat Last command performs the action of the most recently executed plug-in again, using the same settings as the last time it was run. It does not show a dialog or request confirmation.

Please note that this command repeats the most recently executed *plug-in*, regardless of whether it is in the Filters menu or not.

Activating the Command

- You can access this command from the image menubar through Filters Repeat filter ,

- or by using the keyboard shortcut Ctrl F .

Re-show Last

The Re-show Last command interactively runs the most recently executed plug-in. Unlike the "*Repeat Last*" command, which does not display a dialog, the "*Re-show Last*" command displays a dialog window, if the plug-in has one. It is displayed with the settings you used the last time you ran the plug-in (assuming that the plug-in follows the GIMP programming conventions).

Please note that this command repeats the most recently executed *plug-in*, regardless of whether it is in the Filters menu or not.

When you are using a plug-in, especially one that does not have a preview window, you may very well have to adjust the parameters several times before you are satisfied with the results. To do this most efficiently, you should memorize the shortcuts for Undo and Re-show Last: Ctrl Z followed by Ctrl Shift F .

Activating the Command

- You can access this command from the image menubar through Filters Re-show filter ,

- or by using the keyboard shortcut Ctrl Shift F .

Reset All Filters

Normally, each time you run an interactive plug-in, its dialog is displayed with all of the settings initialized to the ones you used the last time you ran it. This may be a problem if you made a mistake setting the values and you can't remember what they were originally. One way to recover is to exit GIMP and start again, but the Reset all Filters command is a slightly less drastic solution: it resets the values for *all* plug-ins to their defaults. Because it is a dramatic step, it asks you to confirm that you really want to do it. Be careful: you cannot undo this command.

Activating the Command

- You can access this command from the image menubar through Filters Reset all Filters .

Chapter

Filters

Filter introduction

A filter is a special kind of tool designed to take an input layer or image, apply a mathematical algorithm to it, and return the input layer or image in a modified format. The GIMP uses filters to achieve a variety of effects and those effects are discussed here.

- Blur
- Colors
- Noise
- Edge-Detect
- Enhance
- Generic
- Glass Effects
- Light Effects
- Distorts
- Artistic
- Map
- Render
- Web
- Animation
- Combine

Blur filters

Blur filters introduction

This is a set of filters that blur images, or parts of them, in various ways. If there is a selection, only the selected parts of an image will be blurred. There may, however, be some leakage of colors from the unblurred area into the blurred area. To help you pick the one you want, we will illustrate what each does when applied to the image shown at right. These are, of course, only examples: most of the filters have parameter settings that allow you to vary the magnitude or type of blurring.

The most broadly useful of these is the Gaussian blur. (Don't let the word "Gaussian" throw you: this filter makes an image blurry in the most basic way.) It has an efficient implementation that allows it to create a very blurry blur in a relatively short time.

If you only want to blur the image a little bit--to soften it, as it were--you might use the simple "Blur" filter. In Gimp 2.2 this runs automatically, without creating a dialog. The effect is subtle enough that you might not even notice it, but you can get a stronger effect by repeating it. In Gimp 2.0 the filter shows a dialog that allows you to set a "repeat count". If you want a strong blurring effect, this filter is too slow to be a good choice: use a Gaussian blur instead.

The Selective Blur filter allows you to set a threshold so that only pixels that are similar to each other are blurred together. It is often useful as a tool for reducing graininess in photos without blurring sharp edges. (In the example, note that the graininess of the background has been reduced.) The implementation is much slower than a Gaussian blur,

though, so you should not use it unless you really need the selectivity.

The Pixelize filter produces the well-known "Abraham Lincoln" effect by turning the image into a set of large square pixels. (The Oilify filter, in the Artistic Filters group, has a similar effect, but with irregular blobs instead of perfectly square pixels.)

You can find a nice explanation of the Abraham Lincoln effect at .

The Motion Blur filter blurs in a specific direction at each point, which allows you to create a sense of motion: either linear, radial, or rotational.

Finally, the Tileable Blur filter is really the same thing as a Gaussian blur, except that it wraps around the edges of an image to help you reduce edge effects when you create a pattern by tiling multiple copies of the image side by side.

Tileable Blur is actually implemented by a Script-Fu script that invokes the Gaussian blur plug-in.

Blur

Overview

The simple Blur filter produces an effect similar to that of an out of focus camera shot. To produce this blur effect, the filter takes the average of the present pixel value and the value of adjacent pixels and sets the present pixel to that average value.

Filter advantage is its calculation speed. It suits big images.

Filter disadvantage is that its action is hardly perceptible on big images, but very strong on small images.

Activate the filter

This filter can be called from the image menu: Filters Blur Blur

Gaussian Blur

Overview

You can find this filter in the image menu under Filters Blur Gaussian Blur

The IIR Gaussian Blur plug-in acts on each pixel of the active layer or selection, setting its Value to the average of all pixel Values present in a radius defined in the dialog. A higher Value will produce a higher amount of blur. The blur can be set to act in one direction more than the other by clicking the Chain Button so that it is broken, and altering the radius. GIMP supports two implementations of Gaussian Blur: IIR G.B. and RLE G.B. They both produce the same results, but each one can be faster in some cases.

Options

Selective Gaussian Blur

Overview

You can find this filter in the image menu under Filters Blur Selective Gaussian Blur

Contrary to the other blur plug-ins, the Selective Gaussian Blur plug-in doesn't act on all pixels: blur is applied only if the difference between its value and the value of the surrounding pixels is less than a defined Delta value. So, contrasts are preserved because difference is high on contrast limits. It is used to blur a background so that the foreground subject will stand out better. This add a sense of depth to the image with only a single operation.

Options
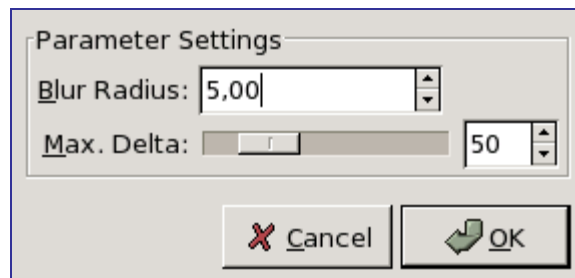
Motion Blur

Overview
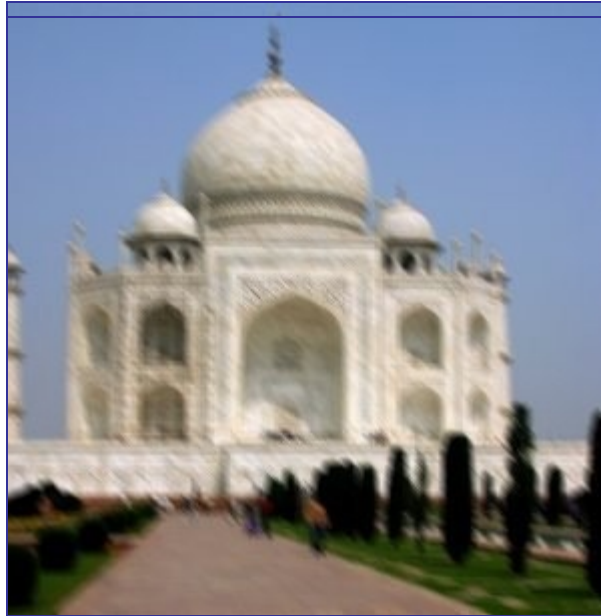
You can find this filter in the image menu under Filters Blur Motion Blur

The Motion Blur filter creates a movement blur. The filter is capable of Linear, Radial, and Zoom movements. Each of these movements can be further adjusted, with Length, or Angle settings available.

Options

Pixelise

Overview

You can find this filter in the image menu under Filters Blur Pixelise

The Pixelize filter renders the image using large color blocks. It is very similar to the effect seen on television when obscuring a criminal during trial. It is used for the "Abraham Lincoln effect": see .

Options
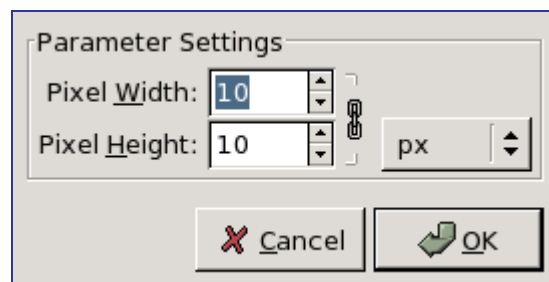
Tileable Blur

Overview

You can find this filter in the image menu under Filters Blur Tileable Blur

This tool is used to soften tile seams in images used in tiled backgrounds. It does this by blending and blurring the boundary between images that will be next to each other after tiling.

If you want to treat only images borders, you can't apply filter to the whole image. The solution to get the wanted effect is as follows:

Duplicate layer(Layer Duplicate Layer) and select it to work on it.

Apply "*Tileable Blur*" filter with a 20 pixels radius to this layer.

Select all (CtrlA) and reduce selection (Selection Shrink) to create a border with the wanted width.

Delete selection with CtrlK.

Merge layers with Layer Merge down

Options
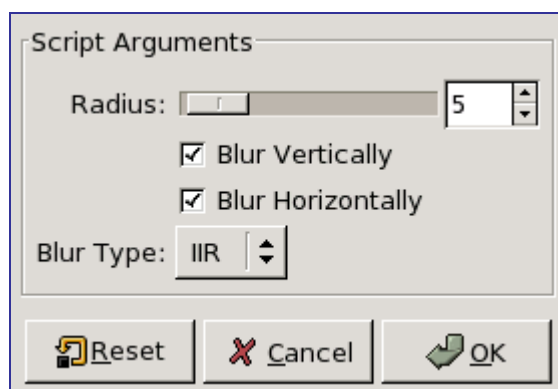
Color filters

Introduction to Color Filters

The Color filters group contains several filters to modify colors in an image, a layer or a selection. You can find filters to compose, decompose, uncolor colors, and many other effects.

Adjust FG-BG

Overview

This filter is found in Filters Colors Map Adjust FG-BG .

Adjust FG-BG belongs to color map filters which make connection between a color source and an image. Here, image pixels having ForeGround color will turn to black while pixels having BackGround color will turn to white. Other colors will turn to their complementary color. There will be no change if FG is black and BG is white.
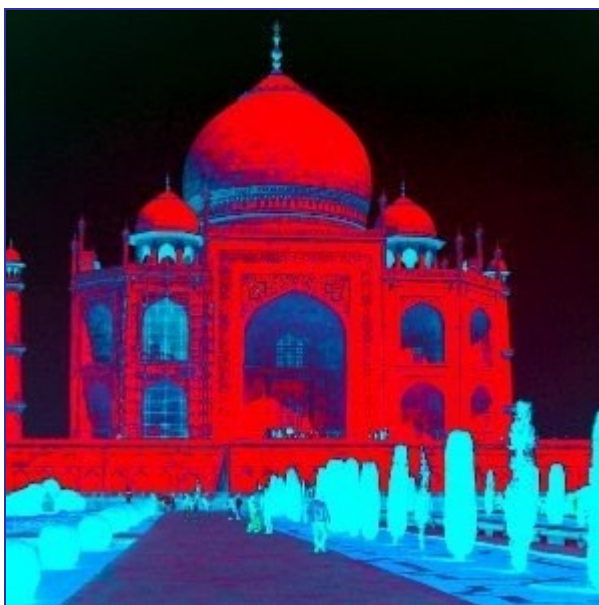
Options

This filter has no option.

Alien Map 2

Overview
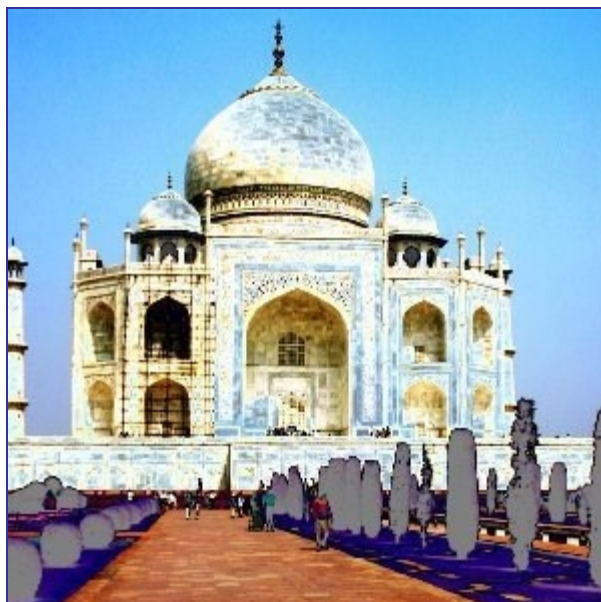
This filter is found in Filters Colors Map Alien map 2 .

This filter renders very modified colors by applying trigonometric functions. Alien Map 2 can work on RGB and HSV.

Options
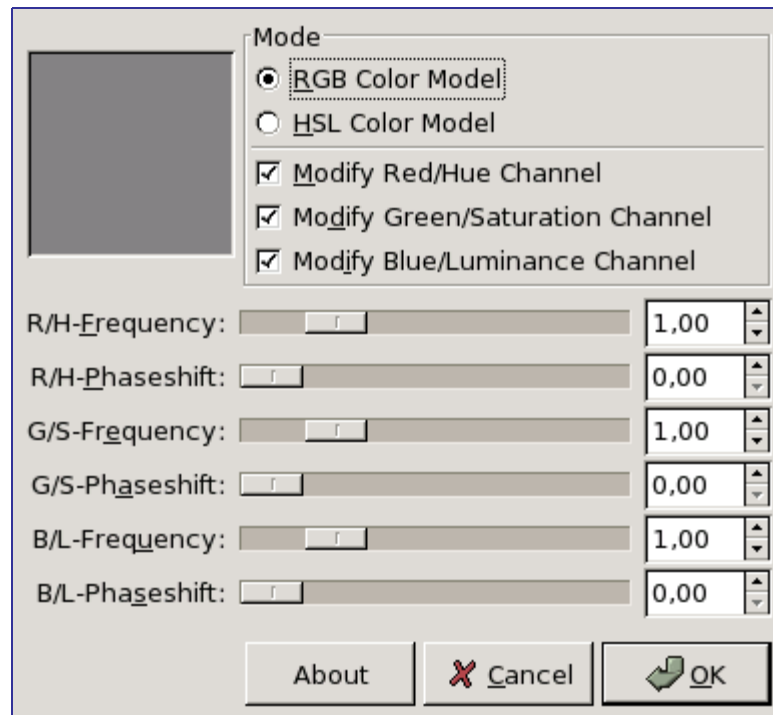
Two Colors Exchange

Overview

This filter is found in Filters Colors Map Color Exchange .

This filter replaces a color with another one.

Options
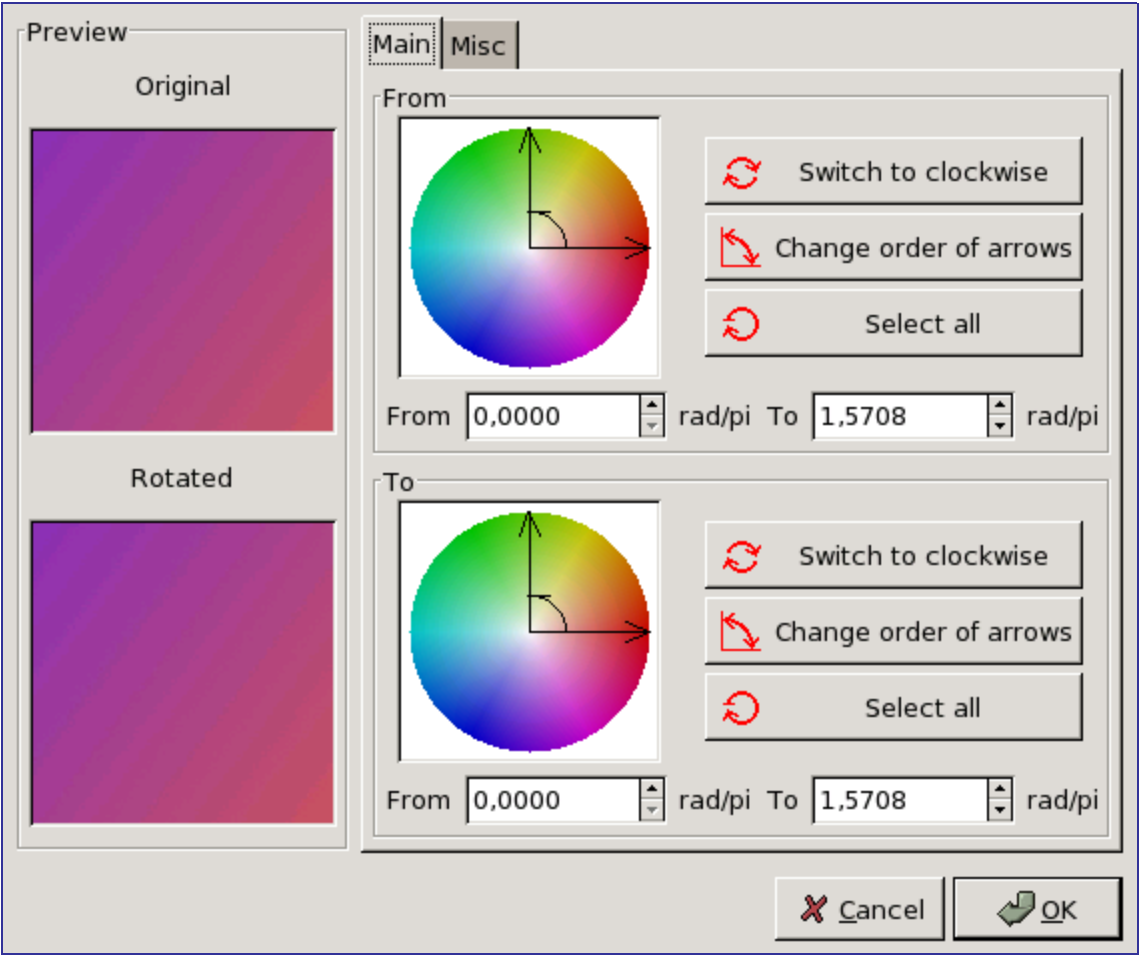
Colormap Rotation

Overview

This filter is found in Filters Colors Map Color Map Rotation .

Colormap Rotation lets you exchange one color range to another range.

Main Options

You have there two color circles, one for the "From" color range and the other for the "To" color range:

Grey Options
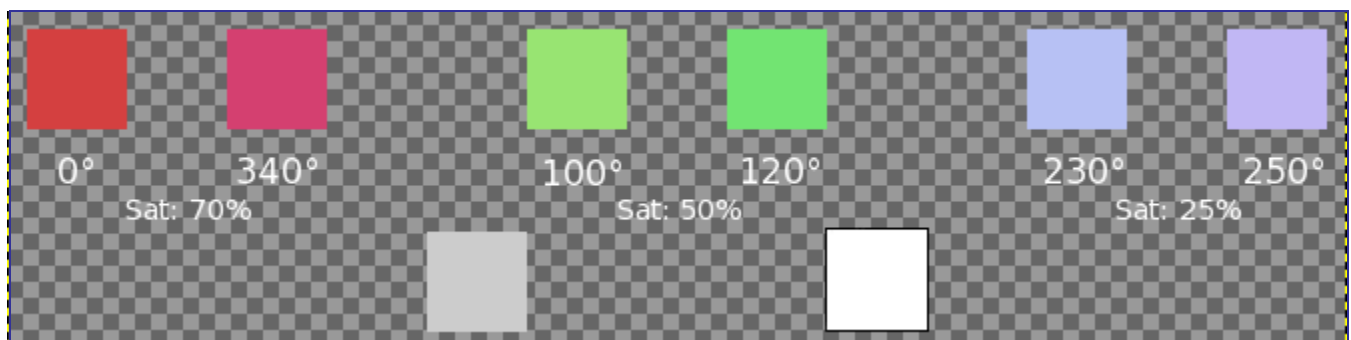
In this tab, you can specify how to treat gray. By default, grey is not considered as a color and is not taken in account by the rotation. Here, you can convert slightly saturated colors into grey and you can also convert grey into color.

Previews

Units

You can select here the angle unit used to locate colors in the Hue/Saturation circle. This choice is valid only for the current filter session: don't click on Valid just after selecting unit, return to the wanted tab!

Map Color Range
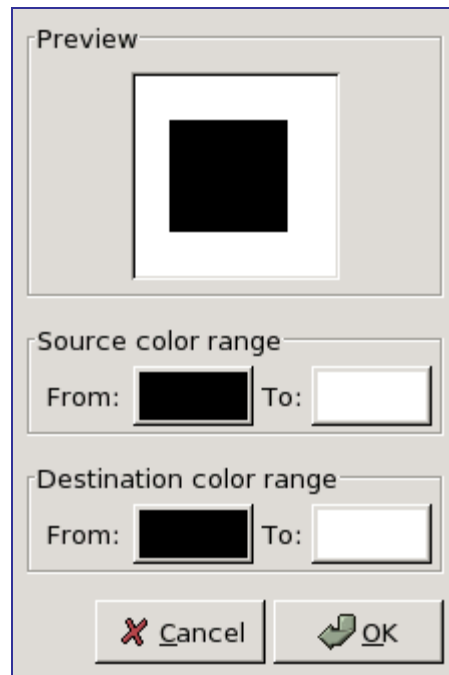
Overview

This filter is found in Filters Colors Map Color Range Mapping .

Unlike Exchange filter, Map Color Range maps a defined color range against another defined color range.

Options

Sample Colorize

Overview

This filter is found in Filters Colors Map Sample Colorize .

This filter allows you to colorize old black-and-white images by mapping a color source image or a gradient against it.

Your gray-tone image must be changed to RGB before using this filter (Image/Image>Mode>RGB).

Options

The filter window is divided into two parts: Destination on the left, Sampling on the right.

Gradient Map

Overview

This filter uses the current gradient, as shown in the Brush/Pattern/Gradient area of the Toolbox, to recolor the active layer or selection of the image to which the filter is applied. To use it, first choose a gradient from the Gradients Dialog. Then select the part of the image you want to alter, and activate the filter by choosing Filters Colors Map Gradient Map from the image menu. The filter runs automatically, without showing any dialog or requiring any further input. It uses image color intensities (0 - 255), mapping the darkest pixels to the left end color from the gradient, and the lightest pixels to the right end color from the gradient. Intermediate values are set to the corresponding intermediate colors.

Border Average
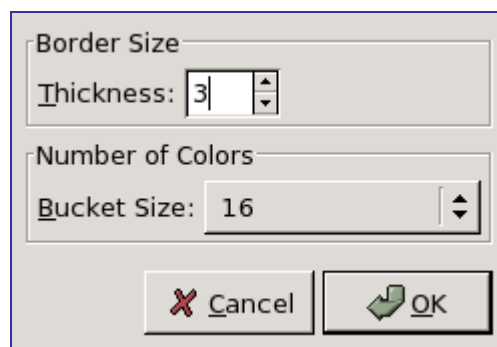
Overview

This filter is found in Filters Colors Border Average .

This tool calculates the average color in a border around active layer or selection. Calculated color becomes the foreground color in Toolbox. This filter is interesting when you have to find a Web page color background that differs as less as possible from your image border. The action of this filter is not registered in Undo History and can't be deleted with Ctrl+Z.

Options

Channel Mixer

Overview
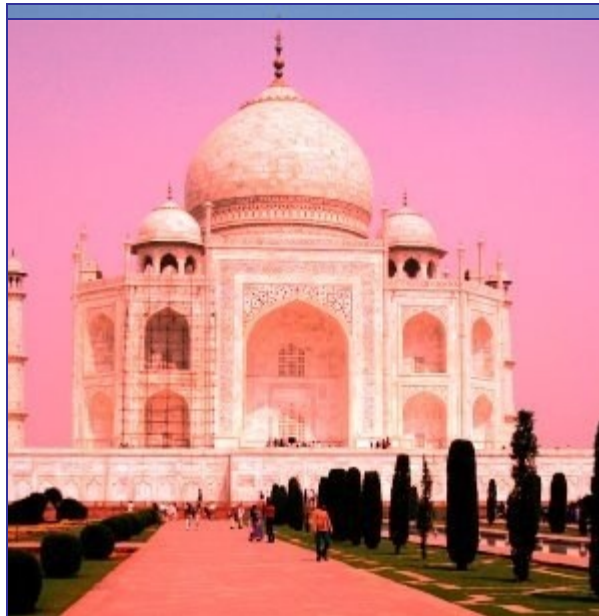
This filter is found in Filters Colors Channel Mixer .

This filter combines values of the RGB channels. It works with images with or without an alpha channel. It has monochrome mode and a preview.

Options
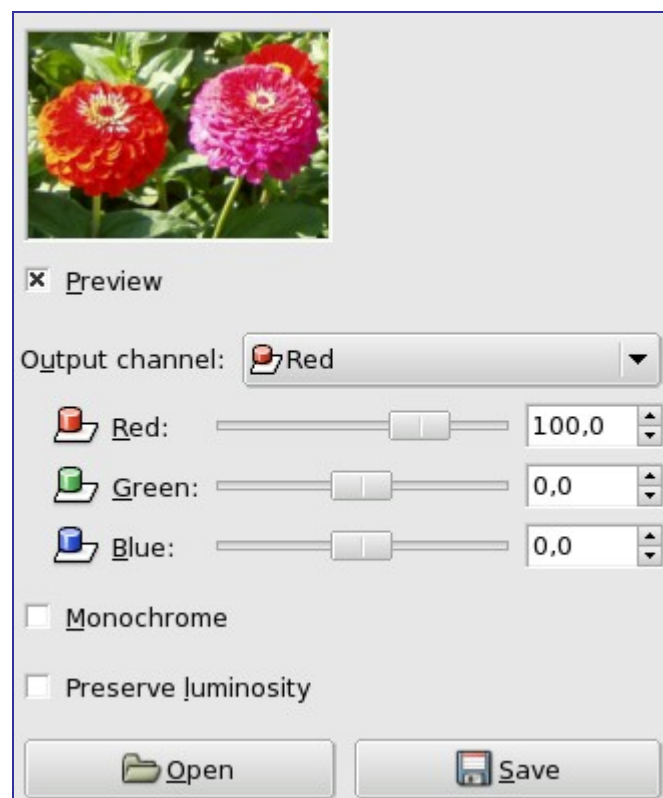
Buttons

Colorcube Analysis

Overview
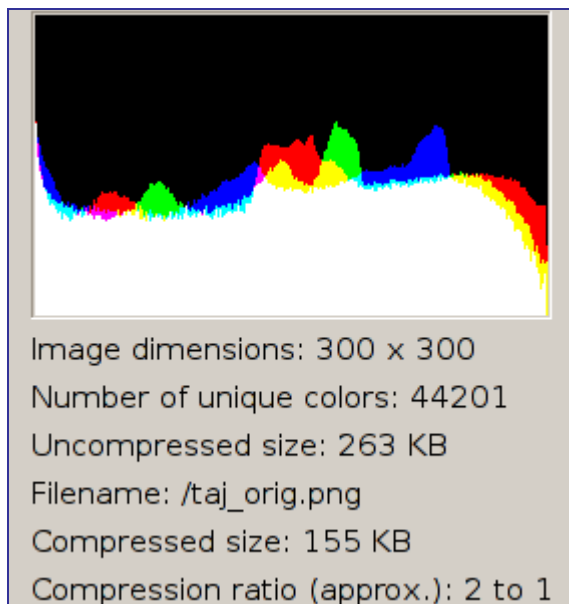
This filter is found in Filters Colors Colorcube Analysis .

It gives data about image: dimensions, file size, color number, compression ratio...

Options

This filter has no option.

Colorify

Overview
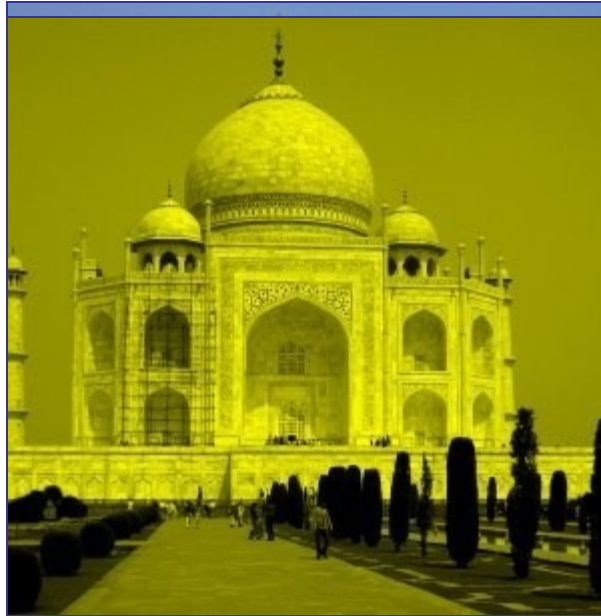
This filter is found in Filters Colors Colorify .

It renders a greyscaled image like it is seen through colored glass.

Options
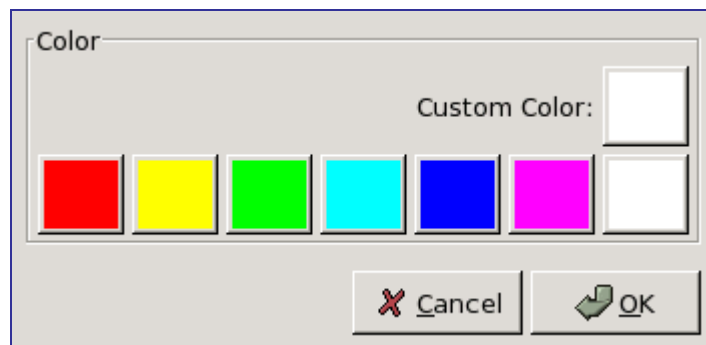
Color to Alpha
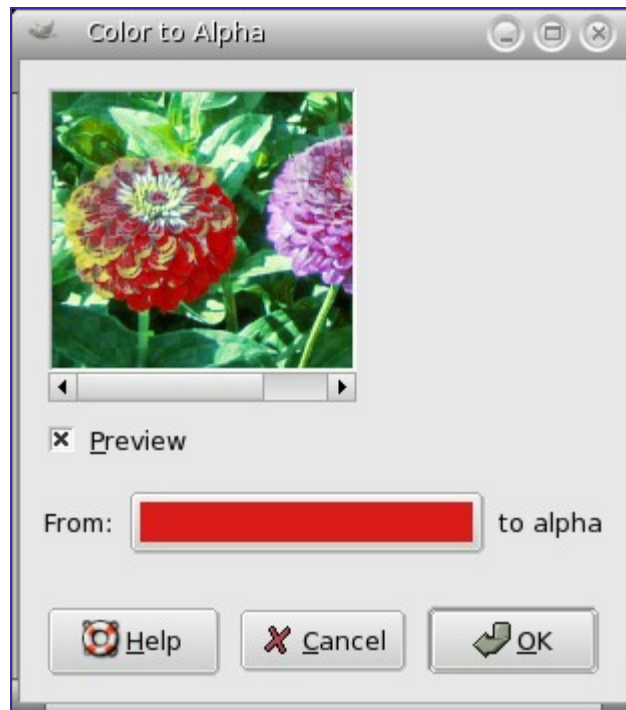
Overview

This filter is found in Filters Colors Color to Alpha .

The Color to Alpha filter makes transparent all pixels with a selected color. An Alpha channel is created. It will attempt to preserve anti-aliasing information by using a partially intelligent routine that replaces weak color information with weak alpha information. In this way, areas that contain an element of the selected color will maintain a blended appearance with their surrounding pixels.

Options

Compose

Overview
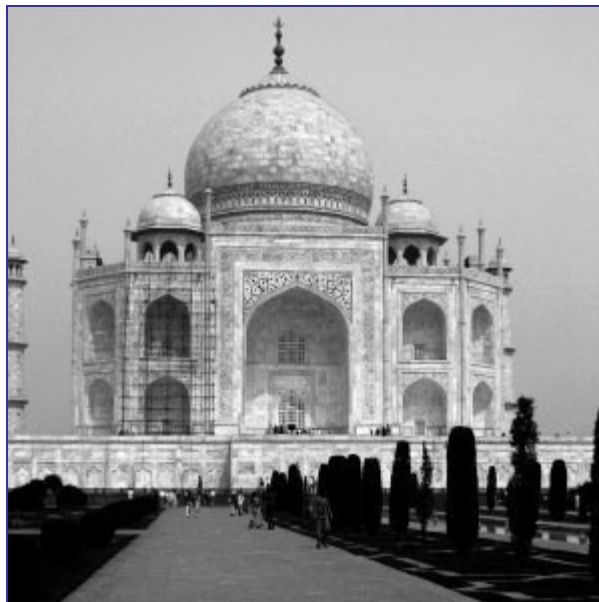
This filter is found in Filters Colors Compose This filter is active in Filters/Colors after using Decompose.

This filter reconstructs an image from its RGB, HSV... components.

Options

Decompose

Overview

This filter is found in Filters Colors Decompose

This filter separates an image into its different components (RGB, HSV...).

Options

Filter Pack

Overview

This tool offers you a collection of unified filters to treat the image. Of course, same functions can be performed by particular filters, but you have here an interesting, intuitive, overview.

Starting filter

This filter is found in the image menu, via Filters Colors Filter Pack .

Options

Hot
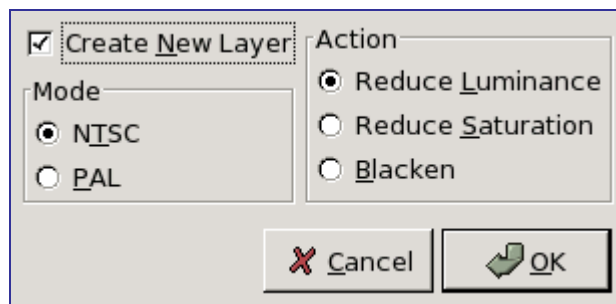
Overview

This filter is found in the image menu via Filters Colors Hot

It identifies and modifies pixels which might cause problem when displayed onto PAL or NTSC TV screen.

Options

Max RGB
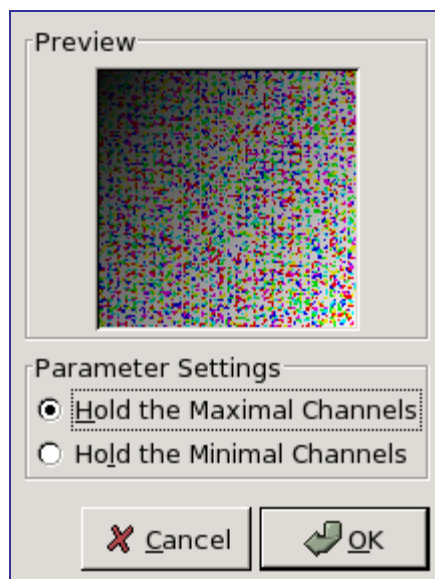
Overview
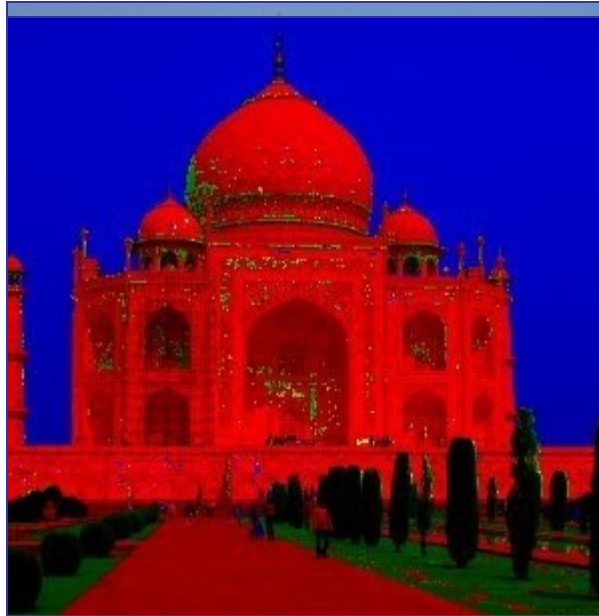
This filter is found in the image menu via Filters Colors Max RGB .

For every pixel of the image, this filter holds the channel with the maximal / minimal intensity.

Options

Retinex

Overview

This filter is found in the image window menu under Filters Colors Retinex .

"Retinex" improves visual rendering of an image when lighting conditions are not good. While our eye can see colors correctly when light is low, cameras and video cams can't manage this well. The MSRCR (MultiScale Retinex with Color Restoration) algorithm, which is at the root of the "Retinex" filter, is inspired by the eye biological mecanisms to adapt itself to these conditions. "Retinex" stands for Retina + cortex.

Besides digital photography, Retinex algorithm is used to make the information in astronomical photos visible and detect, in medicine, poorly visible structures in X-rays or scanners.

Options
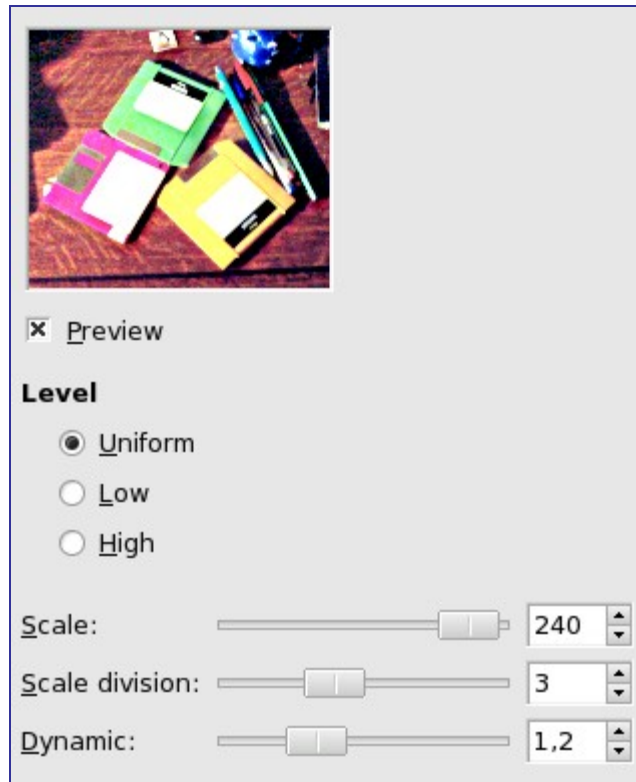
These options call for notions that only mathematicians can understand. In actual practice, user has to grope about for the best setting.

Semi-Flatten

Overview

This filter is found in the image menu through Filters Colors Semi-Flatten It is available if your image holds an Alpha channel (<Image>Layers/Transparency/Add an alpha channel). Otherwise, it is greyed out.

The Semi-flatten filter helps those in need of a solution to anti-aliasing indexed images with transparency. The GIF indexed format supports complete transparency (0 or 255 alpha value), but not semi-transparency (1 - 254): semi-transparent pixels will be transformed to no transparency or complete transparency, ruining anti-aliasing you applied to the logo you want to put onto your Web page.

Before applying the filter, it's essential that you should know the background color of your Web page. Use the color-picker to determine the exact color which pops up as the Foreground color of the Toolbox. Invert FG/BG colors so that BG color is the same as Web background color.

Semi-flatten process will combine FG color to layer (logo) color, proportionally to corresponding alpha values, and will rebuild correct anti-aliasing. Completely transparent pixels will not take the color. Very transparent pixels will take a few color and weakly transparent will take much color.

Smooth Palette
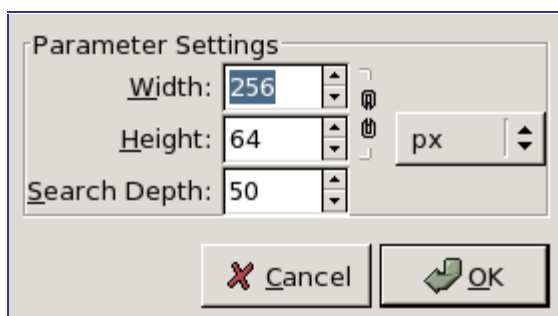
Overview

This filter is found in the image menu via Filters Colors Smooth Palette .

It creates a striped palette from colors in active layer or selection. The main purpose of this filter is to create color-maps to be used with the Flame filter.

Options

Value invert

Overview

This filter is found in Filters Colors Value Invert

This filter inverts Value (luminosity) of the active layer or selection. Hue and Saturation will not be affected, although the color will sometimes be slightly different because of round-off error. If you want to invert Hue and Saturation also, use Layers Colors Invert .

Note that hue and saturation can be distorted quite a bit by this filter for colors with a high luminosity (for instance, HSV 102°,100%, 98%, a bright green, gives HSV 96°, 100%, 2%) . Thus, you should not expect to be able to apply this filter twice in a row and get back the image you started with.

Options

This filter has no options.

Noise filters

Noise filters introduction

Noise filters *add* noise to the image. To remove small defects from an image, see Despeckle filter.

Hurl
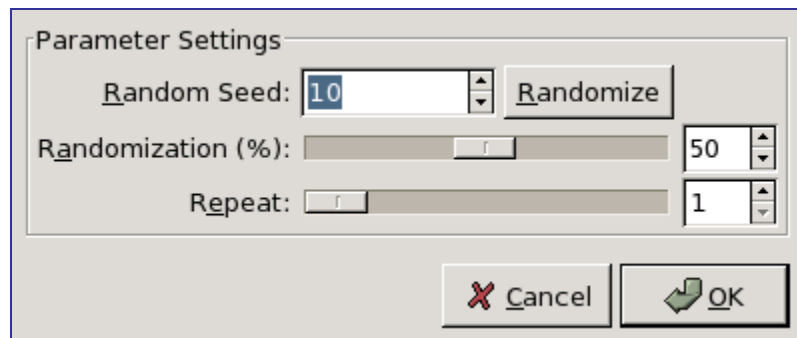
Overview

This filter is found in Filters Noise Hurl .

The Hurl filter changes each affected pixel to a random color, so it produces real *random noise*. All color channels, including an alpha channel (if it is present) are randomized. All possible values are assigned with the same probability. The original values are not taken into account. All or only some pixels in an active layer or selection are affected, the percentage of affected pixels is determined by the Randomization (%) option.

Options

Scatter RGB
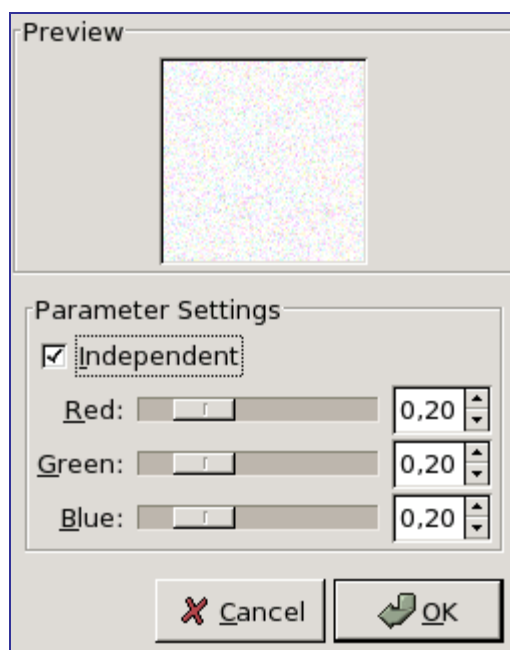
Overview

This filter is found in the image window menu under Filters Noise Scatter RGB .

The Scatter RGB filter adds a normally distributed noise to a layer or a selection. It uses the RGB color model to produce the noise (noise is added to red, green and blue values of each pixel). A normal distribution means, that only slight noise is added to the most pixels in the affected area, while less pixels are affected by more extreme values. (If you apply this filter to an image filled with a solid grey color and then look at its histogram, you will see a classic bell-shaped Gaussian curve.)

The result is very naturally looking noise.

Options

Pick
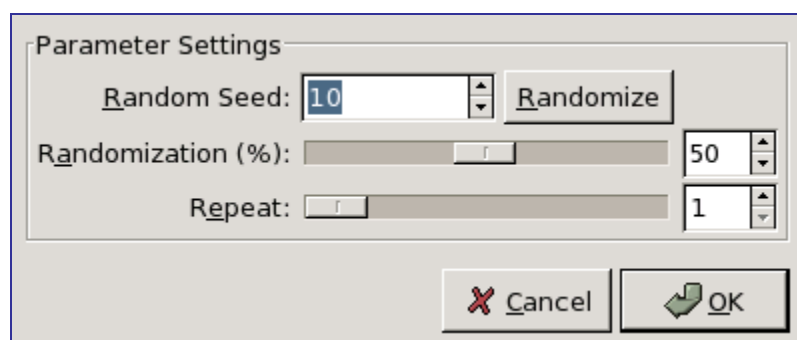
Overview

This filter is found in Filters Noise Pick .

The Pick filter replaces each affected pixel by a pixel value randomly chosen from its eight neighbours and itself (from a 3×3 square the pixel is center of). All or only some pixels in an active layer or selection are affected, the percentage of affected pixels is determined by the Randomization (%) option.

Options

Scatter HSV
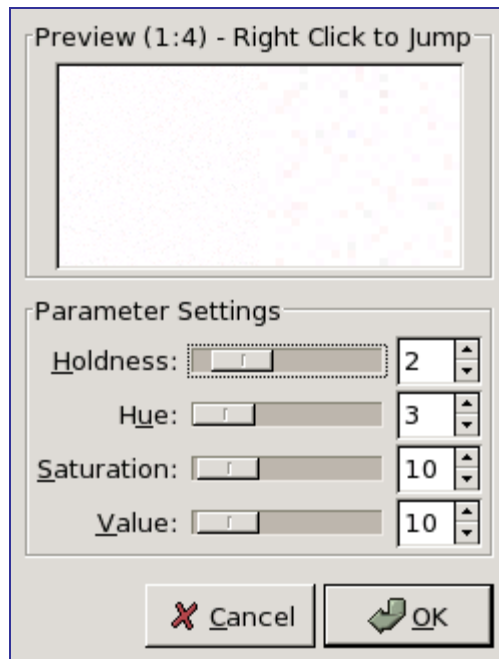
Overview

This filter is found in Image>Filters/Noise/Scatter HSV

The Scatter HSV filter creates noise in the active layer or selection by using the Hue, Saturation, Value (luminosity) color model.

Options

Slur
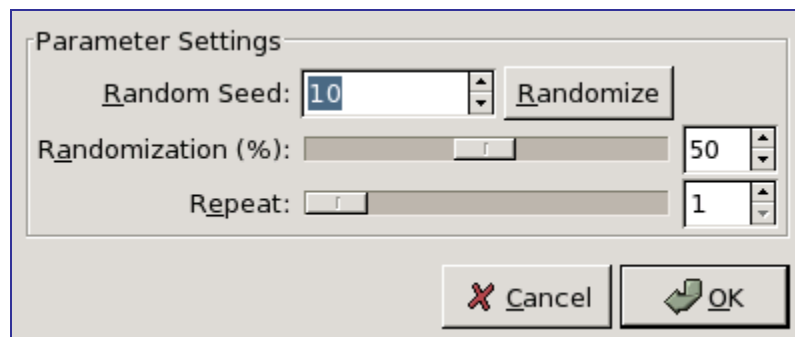
Overview

This filter is found in Filters Noise Slur .

Slurring produces an effect resembling melting the image downwards; if a pixel is to be slurred, there is an 80% chance that it is replaced by the value of a pixel directly above it; otherwise, one of the two pixels to the left or right of the one above is used. All or only some pixels in an active layer or selection are affected, the percentage of affected pixels is determined by the Randomization (%) option.

Options

Spread
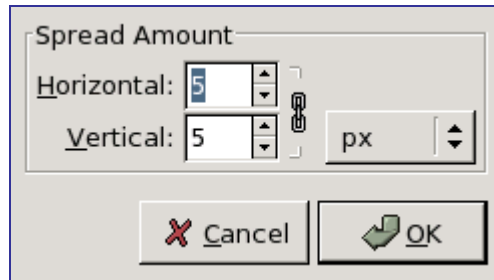
Overview

This filter is found in Filters Noise Spread .

The Spread filter swaps each pixel in the active layer or selection with another randomly chosen pixel by a user specified amount. It works on color transitions, not on plain color areas. No new color is introduced.

Options

Edge-detect filters

Edge-detect introduction

Edge detect filters search for borders between different colors and so can detect contours of objects.

They are used to make selections and for many artistic purposes.
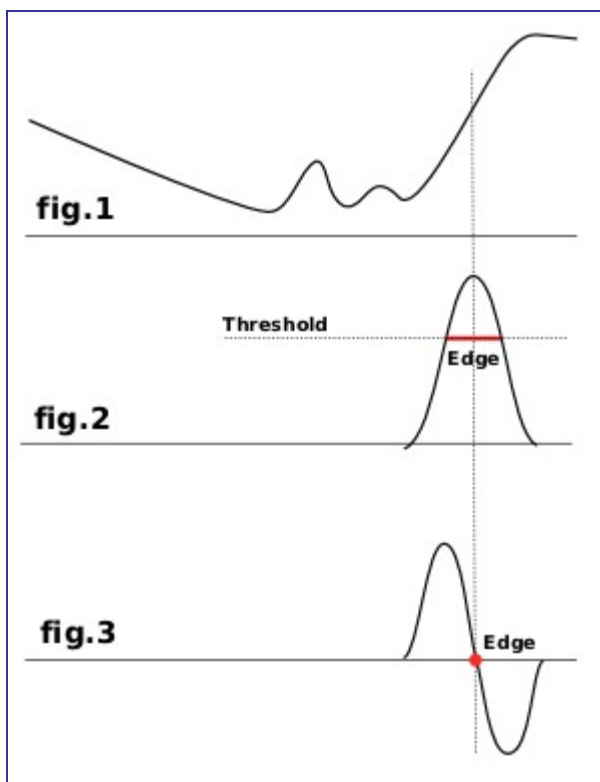
Most of them are based on gradient calculation methods and give thick border lines. Look at fig.1 which represents color intensity variations. On the left is a slow color gradient which is not a border. On the right is a quick variation which is an edge. Now, let us calculate the gradient, the variation speed, of this edge, i.e the first derivative (fig.2). We have to decide that a border is detected when gradient is more than a threshold value (the exact border is at top of the curve, but this top varies according to borders). In most cases, threshold is under top and border is thick.

The Laplacian edge detection uses the second derivative (fig.3). The top of the curve is now at zero and clearly identified. That's why Laplace filter renders a thin border, only a pixel wide. But this derivative gives several zeros corresponding to small ripples, resulting in false edges.

Some blurring before applying edge filters is often necessary: it flattens small ripples in signal and so prevents false edges.

Difference of Gaussians
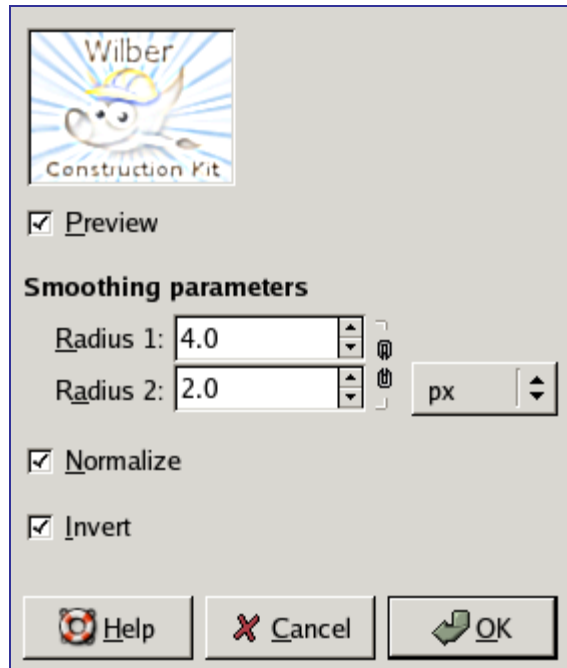
Overview

This filter is located at Filters Edge detect Difference of Gaussians

This filter is new in GIMP 2.2. It does edge detection using the so-called "Difference of Gaussians" algorithm, which works by performing two different Gaussian blurs on the image, with a different blurring radius for each, and subtracting them to yield the result. This algorithm is very widely used in artificial vision (maybe in biological vision as well!), and is pretty fast because there are very efficient methods for doing Gaussian blurs. The most important parameters are the blurring radii for the two Gaussian blurs. It is probably easiest to set them using the preview, but it may help to know that increasing the smaller radius tends to give thicker-appearing edges, and decreasing the larger radius tends to increase the "threshold" for recognizing something as an edge. In most cases you will get nicer results if Radius 2 is smaller than Radius 1, but nothing prevents you from reversing them, and in situations where you have a light figure on the dark background, reversing them may actually improve the result.

Options

Edge

Generated by docbook2odf
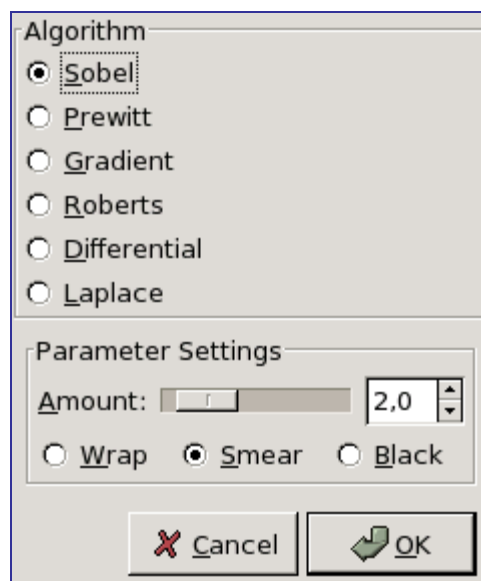
Overview

This filter is found in Image>/Filters/Edge-Detect/Edge

Options

Laplace

Overview

This filter is found in Filtres Edge detect Laplace .

This filter detects edges in the image using Laplacian method, which produces thin, pixel wide borders.

Sobel

```
Parameter Settings
☑ Sobel Horizontally
☑ Sobel Vertically
☑ Keep Sign of Result (one Direction only)

        ✗ Cancel        ◀ OK
```
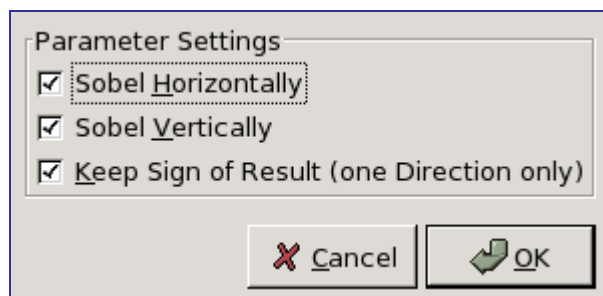
Overview

This filter is found in Filters Edge detect Sobel .

Sobel's filter detects horizontal and vertical edges separately on a grey-level image. Color images are turned into grey-levels.

Options

Enhance filters

Enhance filters introduction

Enhance filters are used to compensate for image imperfections. Such imperfections include dust particles, noise, interlaced frames (coming usually from a TV frame-grabber) and insufficient sharpness.

Deinterlace
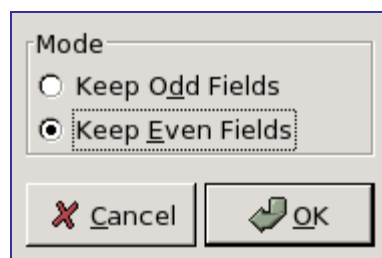
Overview

This filter is found in Image>Filters/Enhance/Deinterlace

Images captured by videocards, especially when fast movement is recorded, may look blurred and stripped, with splitted objects. This is due to how cameras work. They don't record 25 images per second, but 50, with half vertical resolution. There are two interlaced images in one frame. First line of first image is followed by first line of second image followed by second line of first image... etc. So, if there have been an important move between the two images, objects will appear splitted, shifted, stripped.

The Deinterlace filter keeps only one of both images and replaces missing lines by a gradient between previous and following lines. The resulting image, or selection, will be somewhat blurred, but can be improved by enhance filters

A test image can be found at www.alparysoft.com

Options

Despeckle
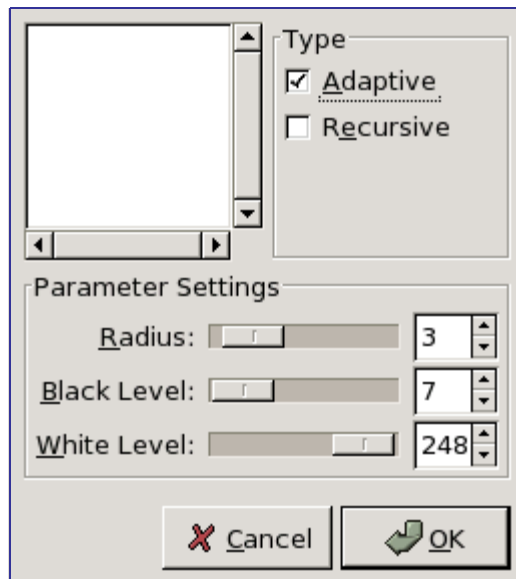
Overview

This filter is found in Image>Filters/Enhance/Despeckle

It is used to remove small defects due to dust, or scratches, on a scanned image, and also moiré effect on image scanned from a magazine. You ought to select isolated defects before applying filter.

Options

Destripe
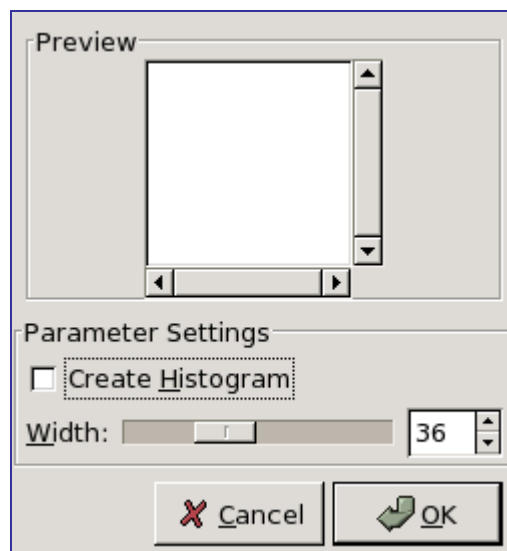
Overview

This filter is found in Image>Filters/Enhance/Destripe…

It is used to remove vertical stripes caused by poor quality scanners. It works by adding a pattern that will interfere with the image, removing stripes if setting is good. This "negative" pattern is calculated from vertical elements of the image, so don't be surprised if you see stripes on the preview of an image that has none. And if pattern "strength" is too high, you image will be striped.

If, after a first pass, a stripe persists, rectangular-select it and apply filter again (all other

selection type may worsen the result).

Options

NL Filter
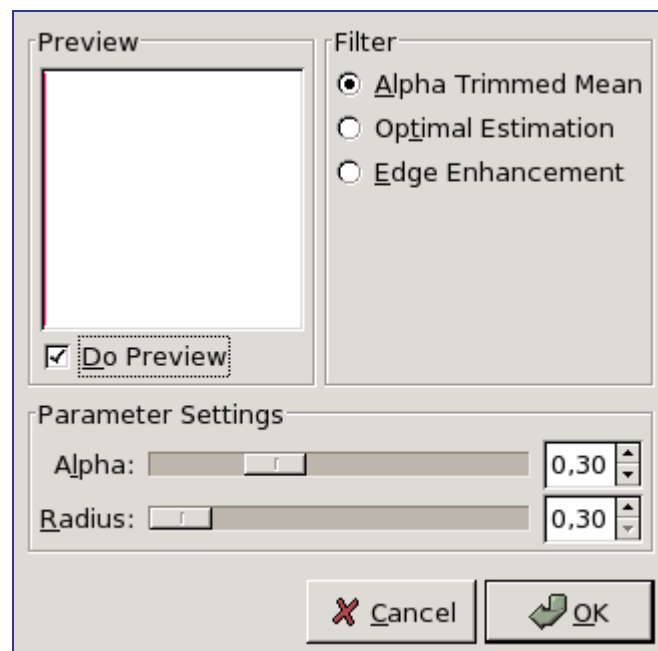
Overview

This filter is found in Filters Enhance NL Filter . NL means "Non Linear". Derived from the Unix pnmnlfilt program, it joins smoothing, despeckle and sharpen enhancement functions. It works on the whole image, not on the selection.

This is something of a swiss army knife filter. It has 3 distinct operating modes. In all of the modes each pixel in the image is examined and processed according to it and its surrounding pixels values. Rather than using the 9 pixels in a 3x3 block, 7 hexagonal area samples are taken, the size of the hexagons being controlled by the radius parameter. A radius value of 0.3333 means that the 7 hexagons exactly fit into the center pixel (ie. there will be no filtering effect). A radius value of 1.0 means that the 7 hexagons exactly fit a 3x3 pixel array.

Options

Operating Modes

This filter can perform several distinct functions, depending on the value of the parameter alpha.

Sharpen
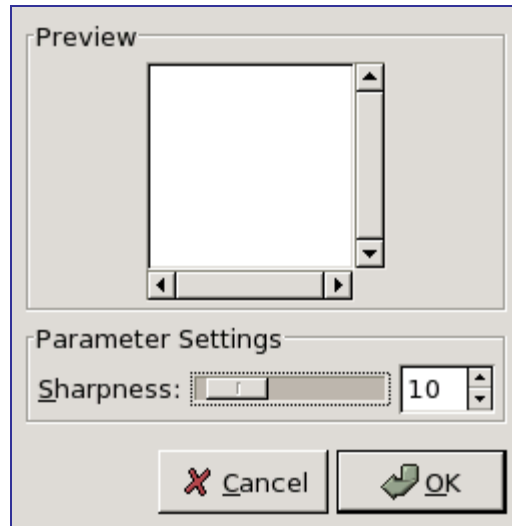
Overview

This filter is found in Image>Filters/Enhance/Sharpen

Most of digitized images need correction of sharpness. This is due to digitizing process that must chop a color continuum up in points with slightly different colors: elements thiner than sampling frequency will be averaged into an uniform color. So sharp borders are rendered a little blurred. The same phenomenon appears when printing color dots on paper.

The Sharpen filter accentuates edges but also any noise or blemish and it may create noise in graduated color areas like the sky or a water surface. It competes with the Unsharp Mask filter, which is more sophisticated and renders more natural results.

Options

Unsharp Mask
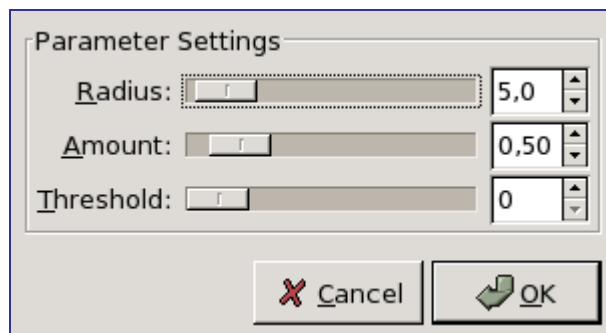
Overview

This filter is found in Image>Filters/Enhance/Unsharp Mask

Out-of-focus photographs and most digitized images often need a sharpness correction. This is due to the digitizing process that must chop a color continuum up in points with slightly different colors: elements thinner than sampling frequency will be averaged into an uniform color. So sharp borders are rendered a little blurred. The same phenomenon appears when printing color dots on paper.

The Unsharp Mask filter (what an odd name!) sharpens edges of the elements without increasing noise or blemish. It is the king of the sharpen filters.

Some scanners apply a sharpen filter while scanning. It's worth disabling it so that you keep control on your image.

Options

More information

To prevent color distortion while sharpening, Decompose your image to HSV and work only on Value. Then Compose the image to HSV. Go to Image/Mode and click on Decompose. Make sure the "Decompose to Layers" box is checked. Choose HSV and click OK. You will get a new grey-level image with three layers, one for Hue, one for Saturation, and one for Value. (Close the original image so you won't get confused). Select the Value layer and apply your sharpening to it. When you are done, with that same layer selected, reverse the process. Go to Image/Mode and click on Compose. Again choose HSV and click OK. You will get back your original image except that it will have been sharpened in the Value component

Generic filters

Generic filters introduction

Generic filters are filters you can build your own filters with. That looks complicated? See Convolution Matrix filter and you will understand better.

Convolution matrix
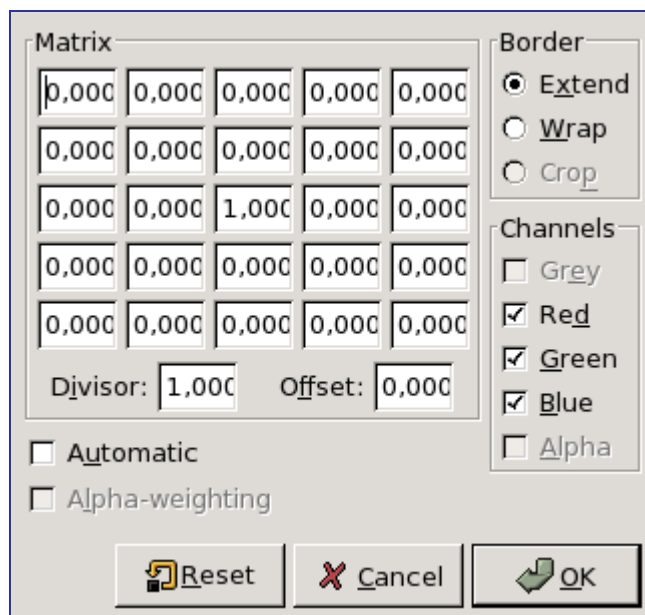
Overview

You can find this filter via the image menu under Filters Generic Convolution Matrix

Here is a mathematician's domain. Most of filters are using convolution matrix. With the Convolution Matrix filter, if the fancy takes you, you can build a custom filter.

What is a convolution matrix? It's possible to get a rough idea of it without using mathematical tools that only a few ones know. Convolution is the treatment of a matrix by another one which is called "kernel".

The Convolution Matrix filter uses a first matrix which is the Image to be treated. The image is a bi-dimensional collection of pixels in rectangular coordinates. The used kernel depends on the effect you want.

GIMP uses 5x5 or 3x3 matrices. We will consider only 3x3 matrices, they are the most used and they are enough for all effects you want. If all border values of a kernel are set to zero, then system will consider it as a 3x3 matrix.

The filter studies successively every pixel of the image. For each of them, which we will call the "initial pixel", it multiplies the value of this pixel and values of the 8 surrounding pixels by the kernel corresponding value. Then it adds the results, and the initial pixel is set to this final result value.

A simple example:
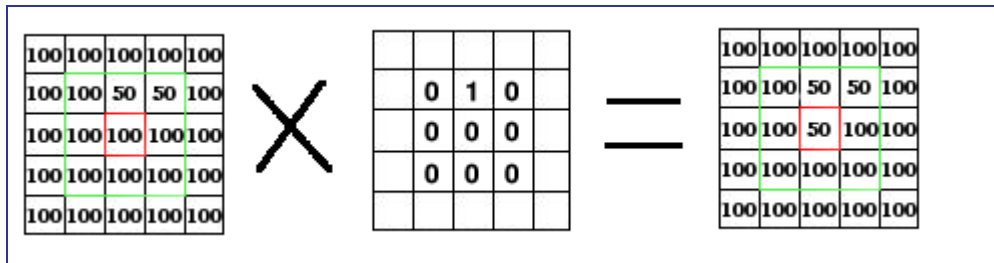
On the left is the image matrix: each pixel is marked with its value. The initial pixel has a red border. The kernel action area has a green border. In the middle is the kernel and, on the right is the convolution result.

Here is what happened: the filter read successively, from left to right and from top to bottom, all the pixels of the kernel action area. It multiplied the value of each of them by the kernel corresponding value and added results:
(100*0)+(50*1)+(50*0)*(100*0)+(100*0) +(100*0)+(100*0)+(100*0)+(100*0)+(100*0) = 50. The initial pixel took the value 50. Previously, when the initial pixel had value=50, it took the value 100 of the above pixel (the filter doesn't work on the image but on a copy) and so disappeared into the "100" background pixels. As a graphical result, the initial pixel moved a pixel downwards.

Options

Examples

Design of kernels is based on high levels mathematics. You can find ready-made kernels on the Web. Here are a few examples:

	0	0	0
	-1	1	0
	0	0	0
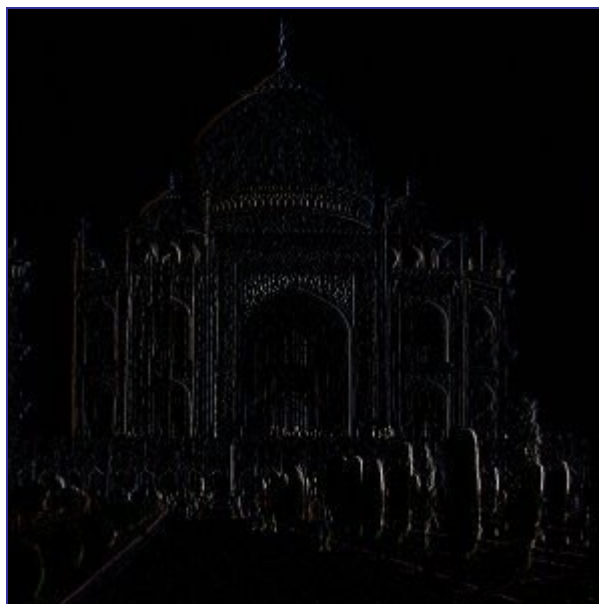
	0	1	0
	1	-4	1
	0	1	0
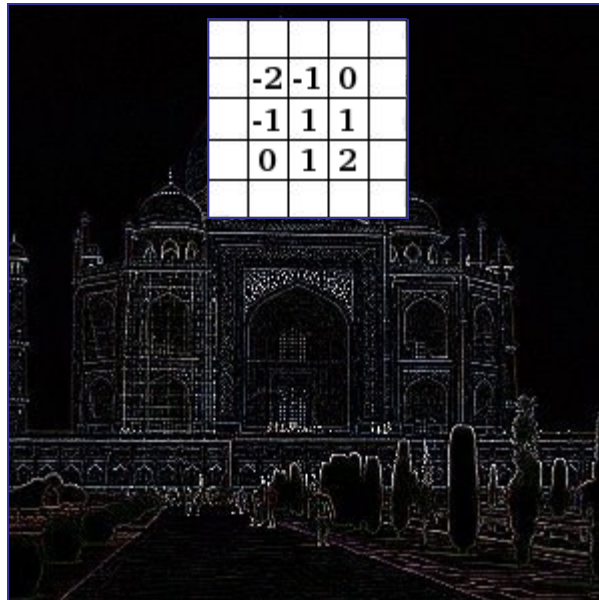
Dilate

Overview

This filter is found in Filters Generic Dilate

This filter widens and enhances dark areas of the active layer or selection.

For every image pixel, it brings the pixel Value (luminosity) into line with the lowest Value (the darkest) of the 8 neighbouring pixels (3x3 matrix). So, a dark pixel is added around dark areas. An isolated pixel on a brighter background will be changed to a big "pixel", composed of 9 pixels, and that will create some noise in the image.
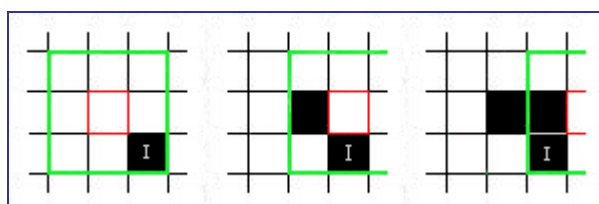
In this image, the studied pixel has a red border and the studied matrix has a green border. I hope you have understood how to go on with the process and get a 3x3 pixel block: when the "I" pixel is inside the green border, the studied pixel turns to black.

A larger dark area will dilate by one pixel in all directions:
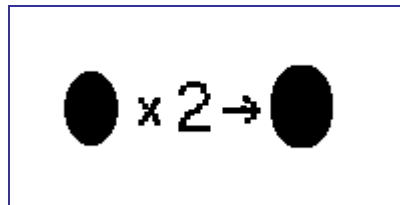
The filter was applied 3 times.

On more complex images, dark areas are widenned and enhanced the same, and somewhat pixellated. Here, the filter was applied 3 times:
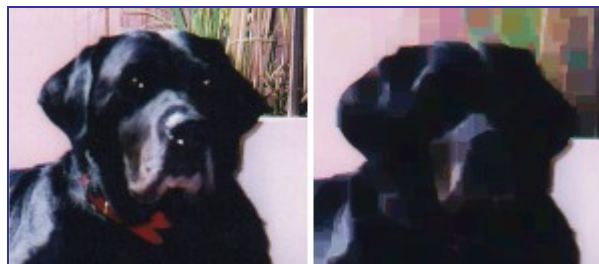
Of course, if background is darker than foreground, it will cover the whole image.

Options

This filter has no options.

Examples
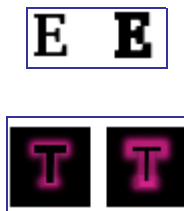
Erode

Overview
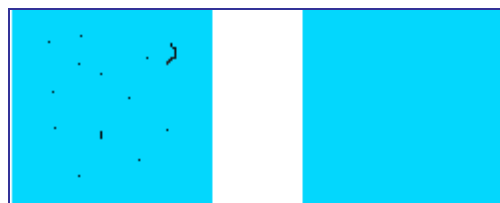
This filter is found in Filters Generic Erode

This filter widens and enhances bright areas of the active layer or selection.

For every image pixel, it brings the pixel Value (luminosity) into line with the upper Value

(the brightest) of the 8 neighbouring pixels (3x3 matrix). So, a bright pixel is added around bright areas. An isolated pixel on a darker background will be changed to a big "pixel", composed of 9 pixels, and that will create some noise in the image. A larger bright area will dilate by one pixel in all directions.

On more complex images, bright areas are widened and enhanced the same, and somewhat pixellated.

Options

This filter has no option.

Glass Effects filters

Glass Effects filters introduction

Glass Effects filters result in an image as if it were seen through a lens or glass tiles.

Apply Lens
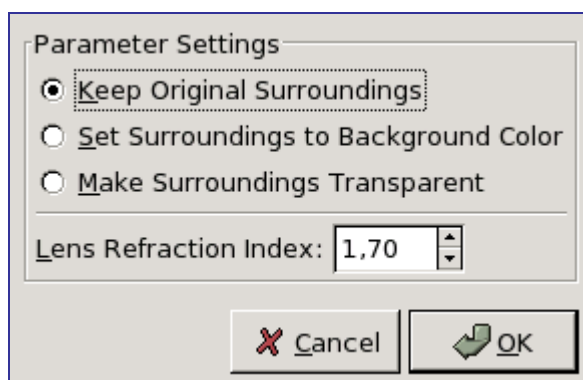
Overview

You can find this filter via the image menu under Filters Glass effects Apply Lens

After applying this filter, a part of the image is rendered as through a spherical lens.

Options
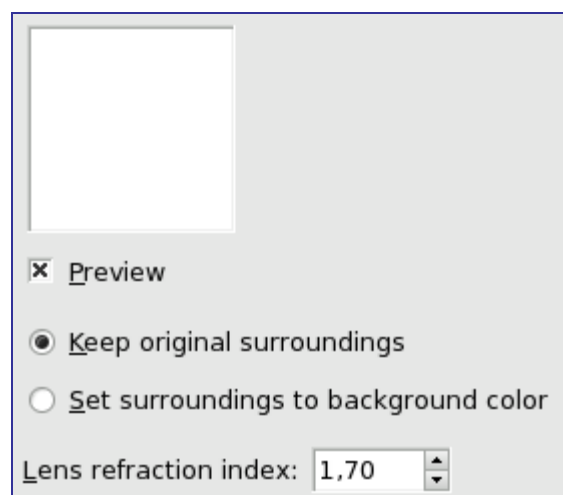
Glass Tile
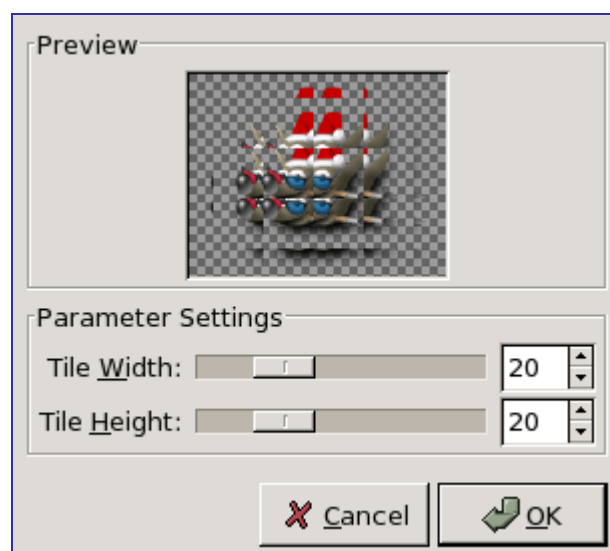
Overview

You can find this filter via the image menu under Filters Glass effects Glass Tile

After applying this filter, the active layer or selection is rendered as through a glass brick wall.

Options
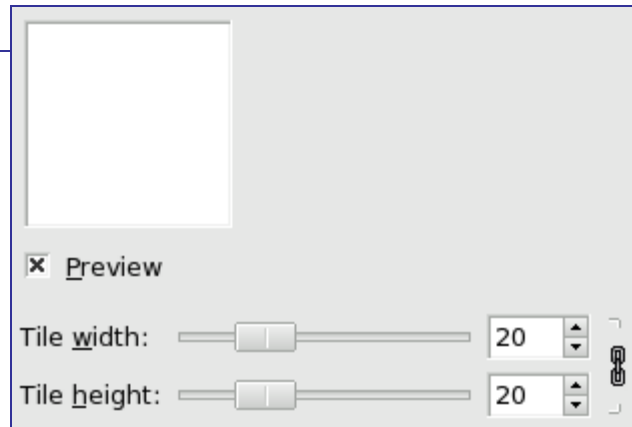
Light Effects filters

Light Effects filters introduction

Light Effects filters render several illumination effects of the image.

FlareFX

Overview

This filter is found in Filters Light Effectsender FlareFX

This filter gives the impression that sun hit the objective when taking a shot. You can locate the reflection with a reticule you can move, but you have not the possibilities that Gflare filter offers.

Options

Gflare

Generated by docbook2odf
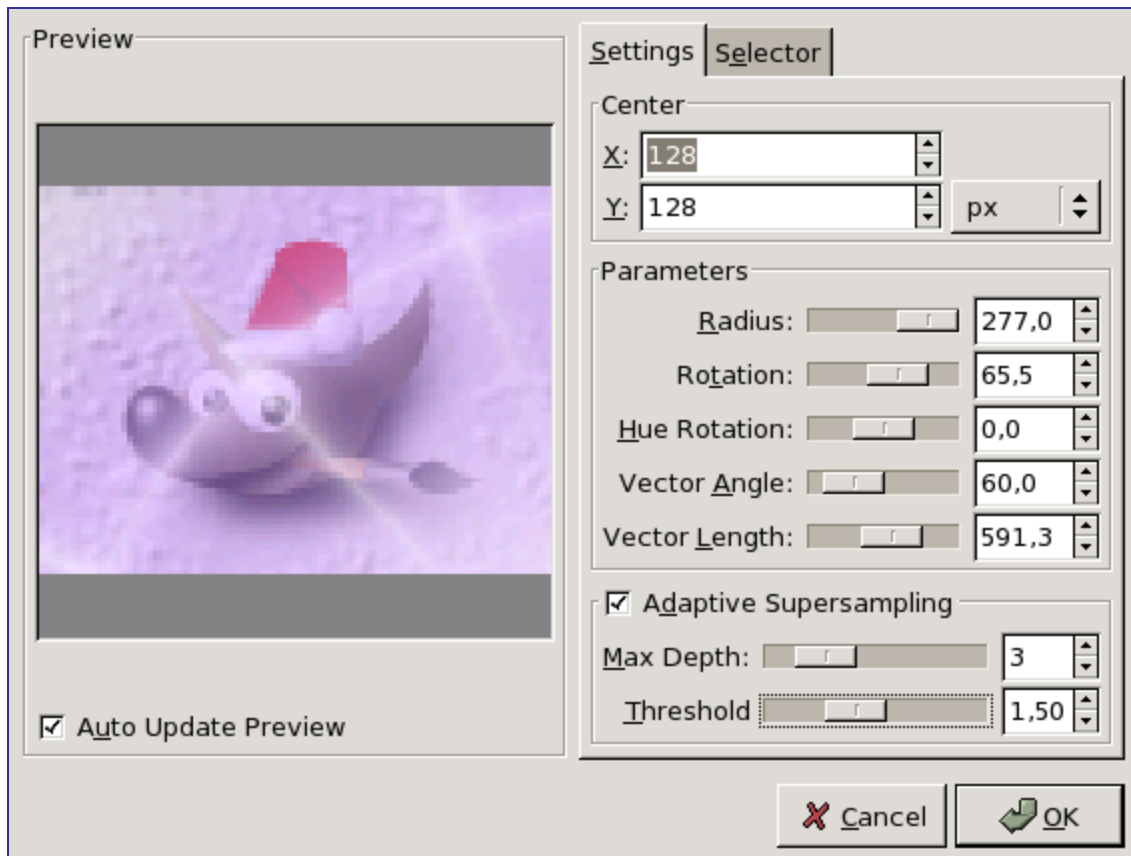
Overview

This filter is found in Filters Light Effectsender Gflare

Gflare effect reminds the effect you get when you take a photograph of a blinding light source, with a halo and radiations around the source. The Gflare image has three components: *Glow* which is the big central fireball, *Rays* and *Second Flares*

Options

The Settings tab allows you to set manually the parameters while the Selector tab let you choose presets in a list.

Settings

Selector

The Selector tab allows you to select a Gflare pattern, to change it and save it.

Gflare Editor
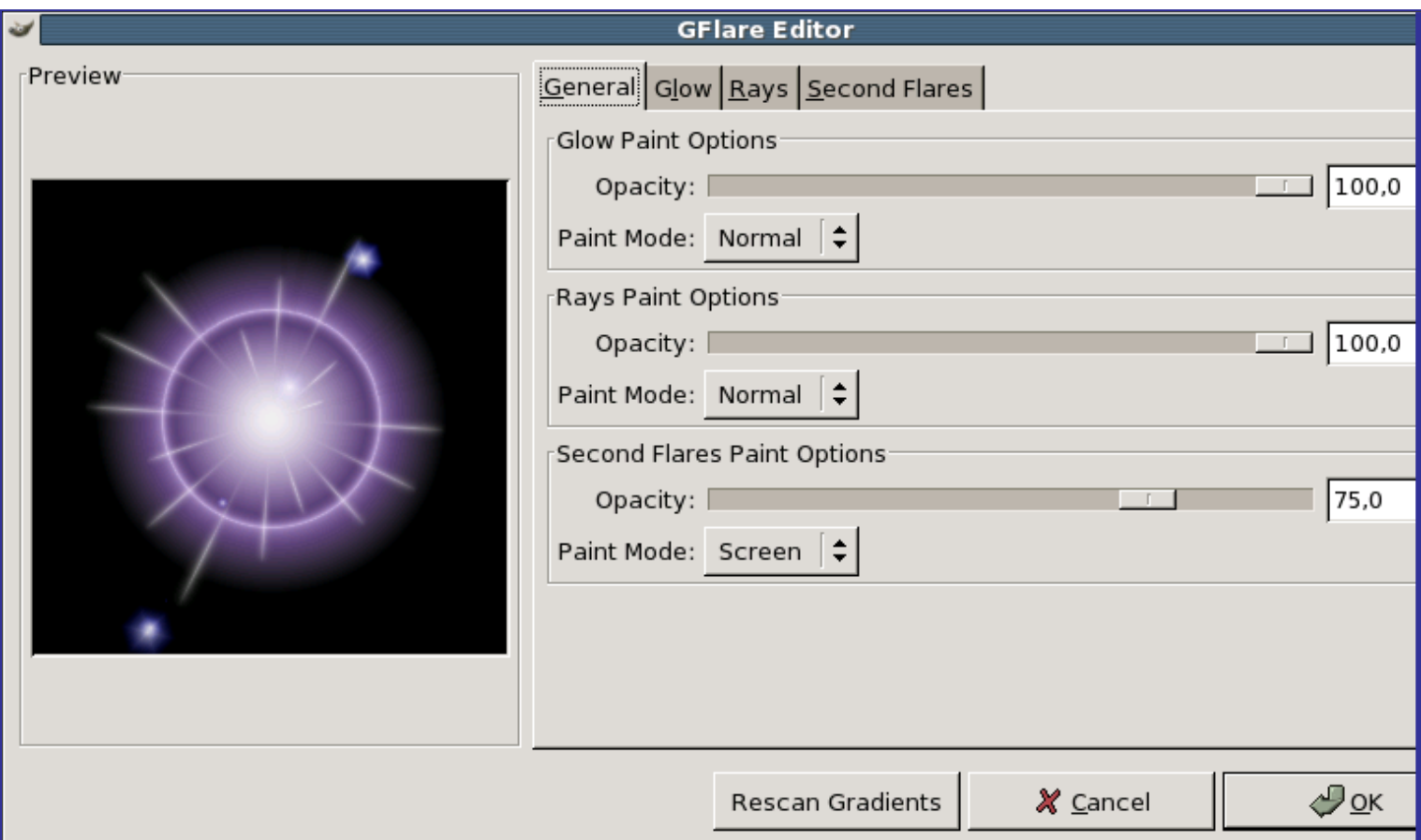
Lighting Effects
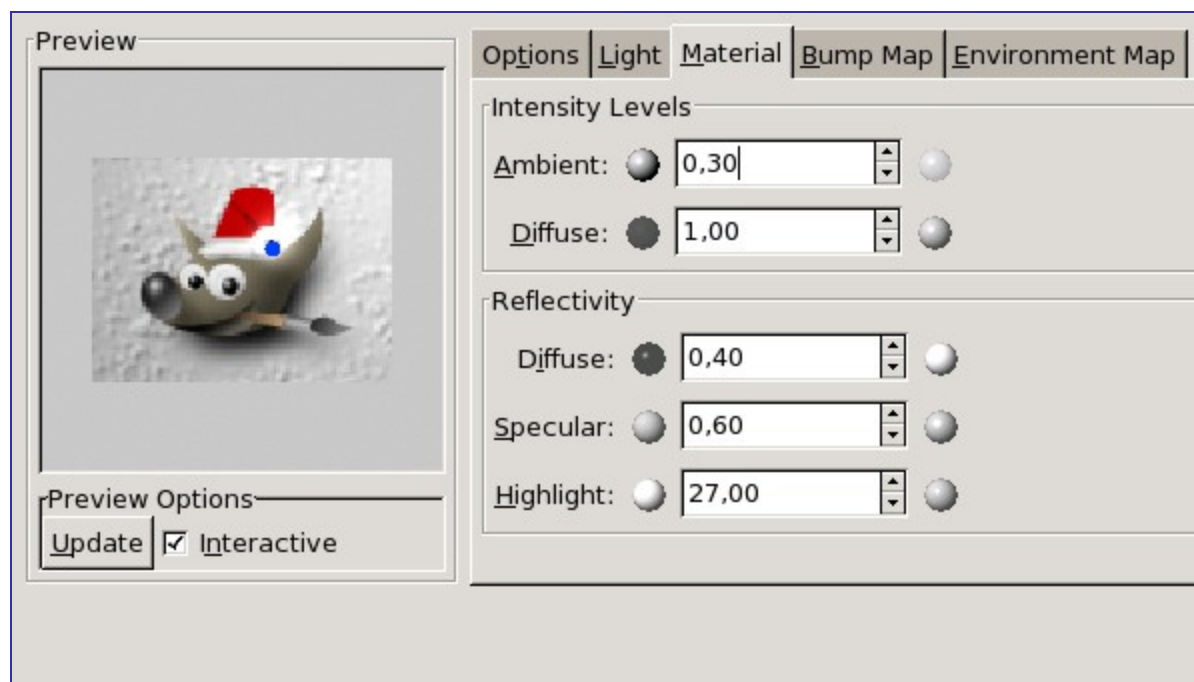
Overview

This filter is found in Filters Light Effectsender Lighting Effects

This filter simulates the effect you get when you light up a wall with a spot. It doesn't produce any drop shadows and, of course, doesn't reveal any new details in dark zones.

Options

Sparkle

Overview

You can find this filter in the image menu under Filters Light Effects Sparkle

This filter adds sparkles to your image. It uses the lightest points according to a threshold you have determined. It is difficult to foresee where sparkles will appear. But you can put white points on your image where you want sparkles to be.

Parameter Settings

Sliders and input boxes allow you to set values.

SuperNova
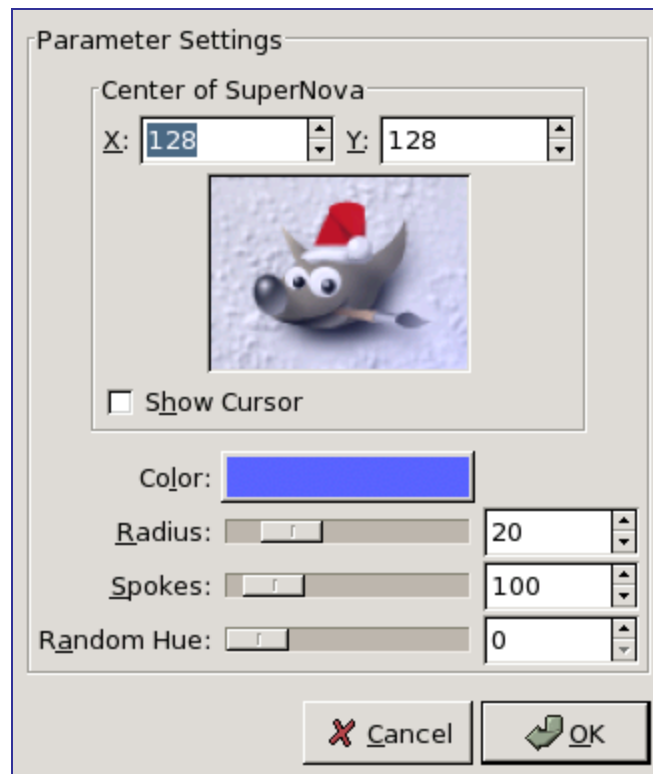
Overview

This filter is found in Filters Light Effectsender Super Nova

This filter creates a big star reminding a super-nova. It works with RGB and GRAY images. Light effect decreases according to 1/r where r is the distance from star center.

Dieses Filter erzeugt einen grossen Stern im Bild, der an eine Supernova erinnert. Sie können das Filter sowohl auf Farb- als auch auf Graustufenbilder anwenden.

Parameter Settings
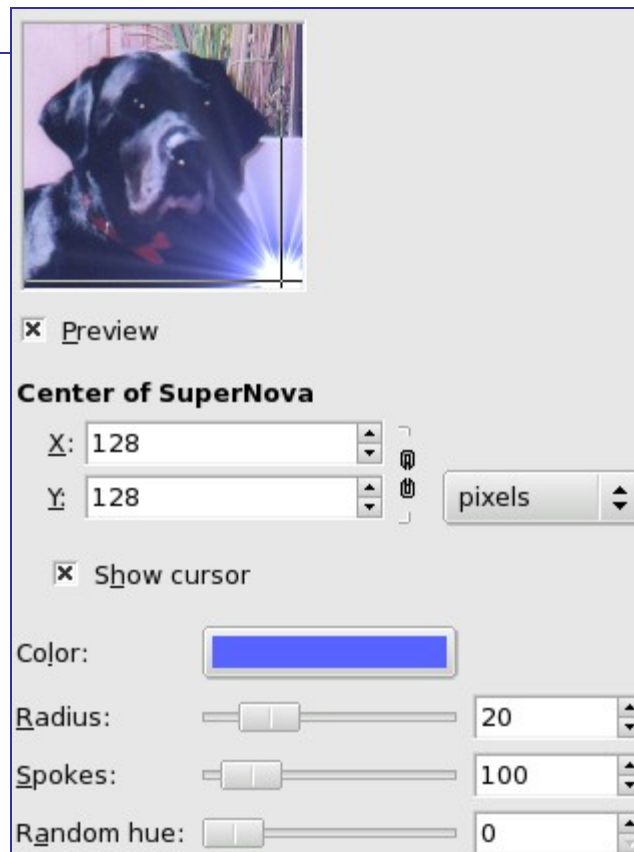
Distort filters

Distort filters introduction

The distort filters transform your image in many different ways.

Blinds
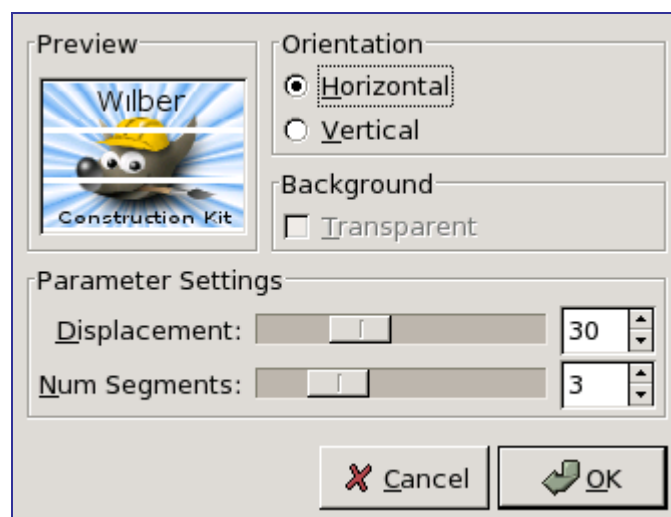
Overview

This filter is found in Image>Filters/Distorts/Blinds

It generates a blind effect with horizontal or vertical battens. You can lift or close these battens, but not lift the whole blind up.

Options

Example
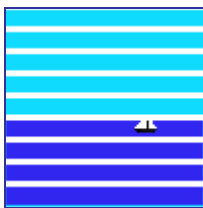
Curve Bend
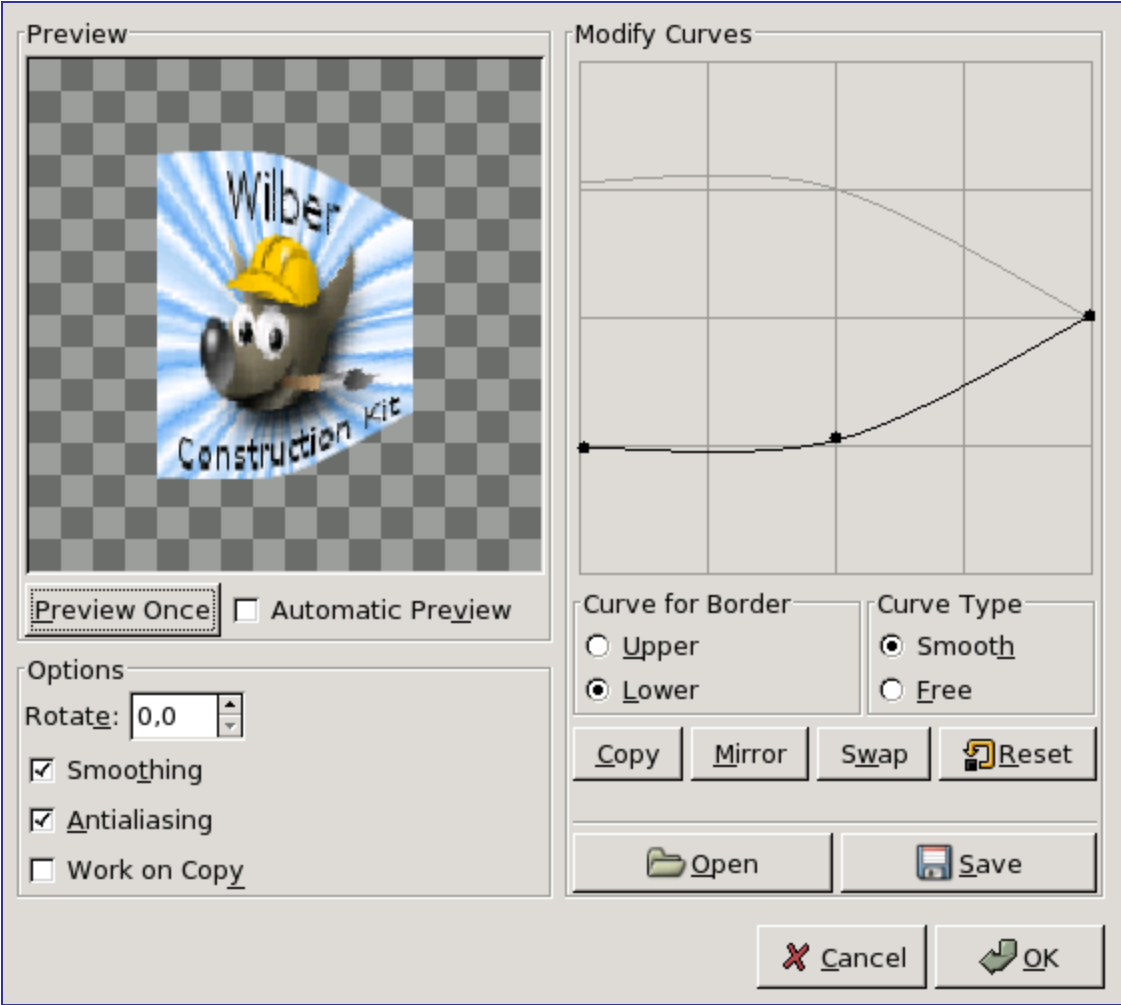
Overview

This filter is found in Filters Distorts Curve Bend .

This filter allows you to create a curve that will be used to distort the active layer or selection. The distortion is applied gradually from an image or selection border to the other

Options

Example
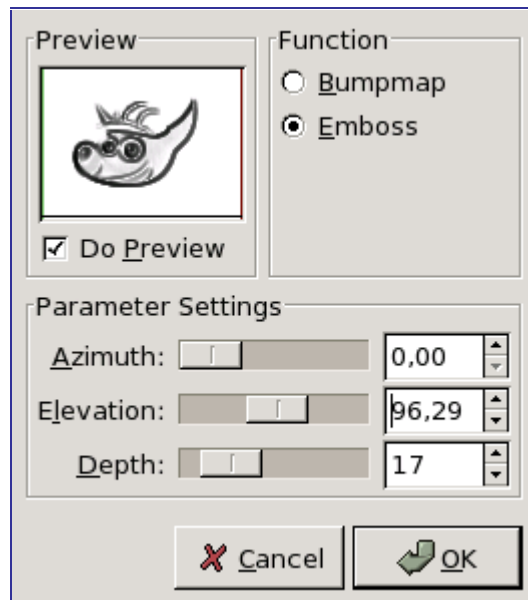
Emboss

Overview

This filter is found in Image>Filters/Distorts/Emboss.

You can use it only with RGB images. If your image is grayscale, it will be grayed out in the menu.

It stamps and carves the active layer or selection, giving it relief with bumps and hollows. Bright areas are raised and dark ones are carved. You can vary the lighting.

Options

IWarp
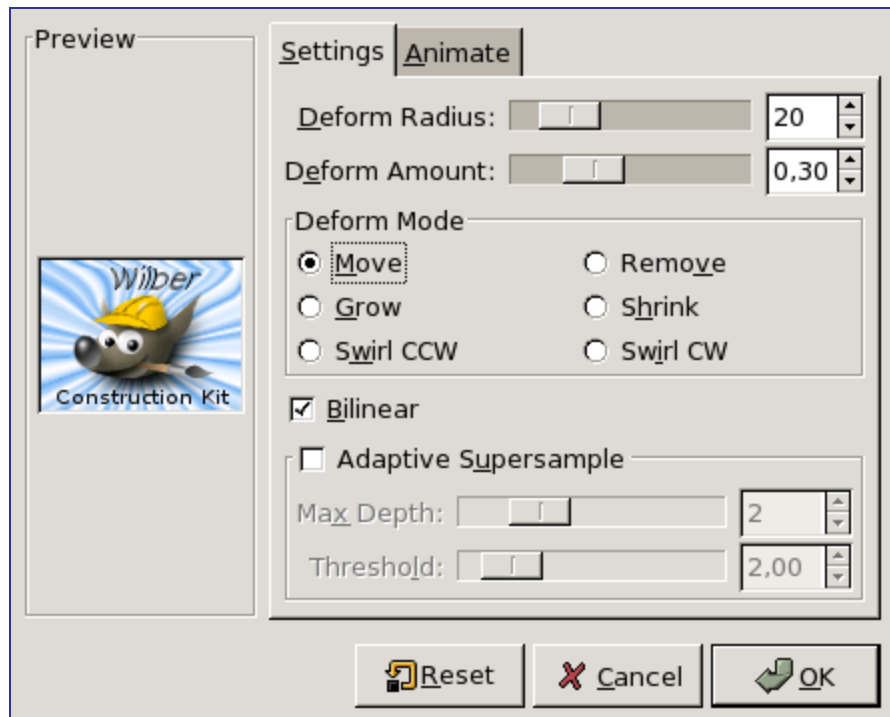
Overview

This filter is found in Image>Filters/Distorts/IWarp

This filter allows you to deform interactively some parts of the image and, thanks to its Animate option, to create the elements of a fade in/fade out animation between the original image and the deformed one, that you can play and use in a Web page.

To use it, first select a deform type then click on the Preview and drag the mouse pointer.

Settings

Example

Mosaic

Options
☑ Antialiasing
☑ Color Averaging
☑ Allow Tile splitting
☐ Pitted Surfaces
☐ FG/BG Lighting

Tiling Primitives
○ Squares
◉ Hexagons
○ Octagons & Squares

Parameter Settings
Tile Size: 15,0
Tile Height: 4,0
Tile Spacing: 1,0
Tile Neatness: 0,65
Light Direction: 135,0
Color Variation: 0,20

✗ Cancel   OK
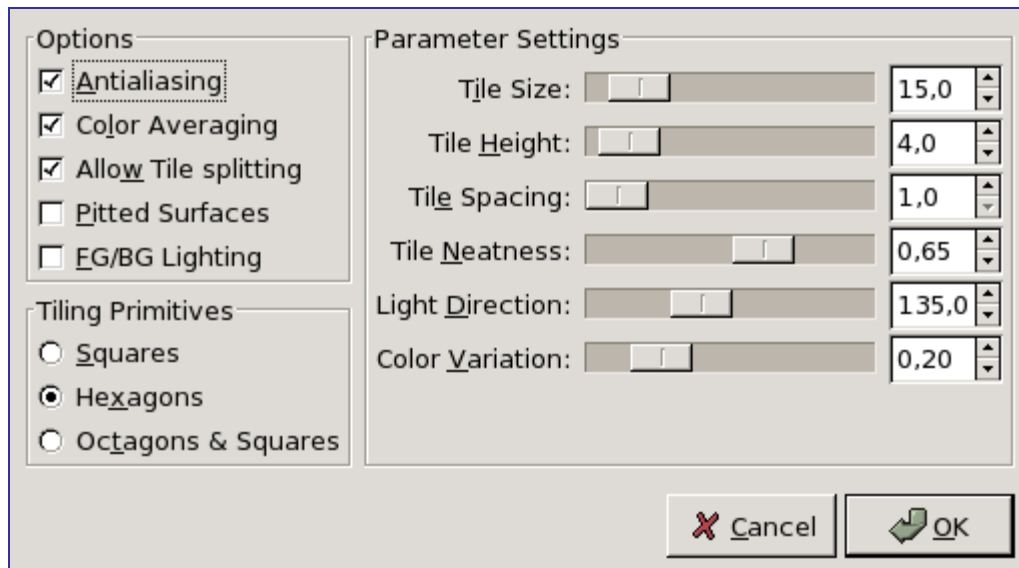
Overview

This filter is found in Image>Filters/Distorts/Mosaic...

It cuts the active layer or selection into many squares or polygons which are slightly raised and separated by joins, giving so an aspect of mosaic.

Options

Page Curl

Curl Location
○ Upper Left   ○ Upper Right
○ Lower Left   ◉ Lower Right

Curl Orientation
○ Horizontal   ◉ Vertical

☑ Shade under Curl

☐ Use Current Gradient
   instead of FG/BG-Color

Curl Opacity
                    100

✗ Cancel   OK
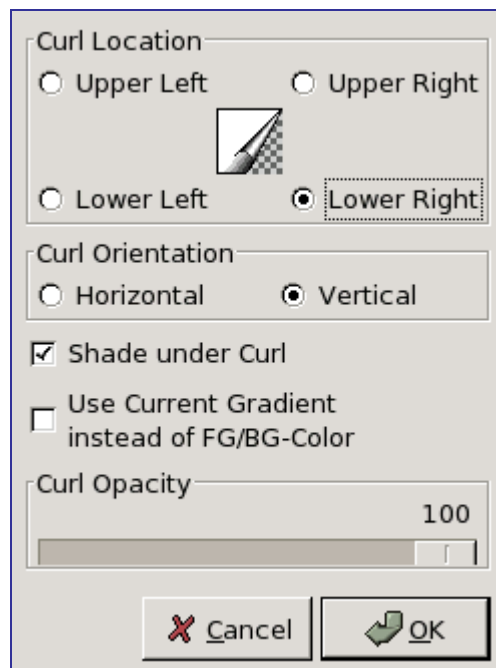
Overview

This filter is found in Image>Filters/Distorts/Pagecurl

It curls a corner of the current layer or selection into a kind of cornet showing the underlying layer in the cleared area. A new "Curl Layer" and a new Alpha channel are created. The part of the initial layer corresponding to this cleared area is also transparent.

Options

Example

Polar Coords
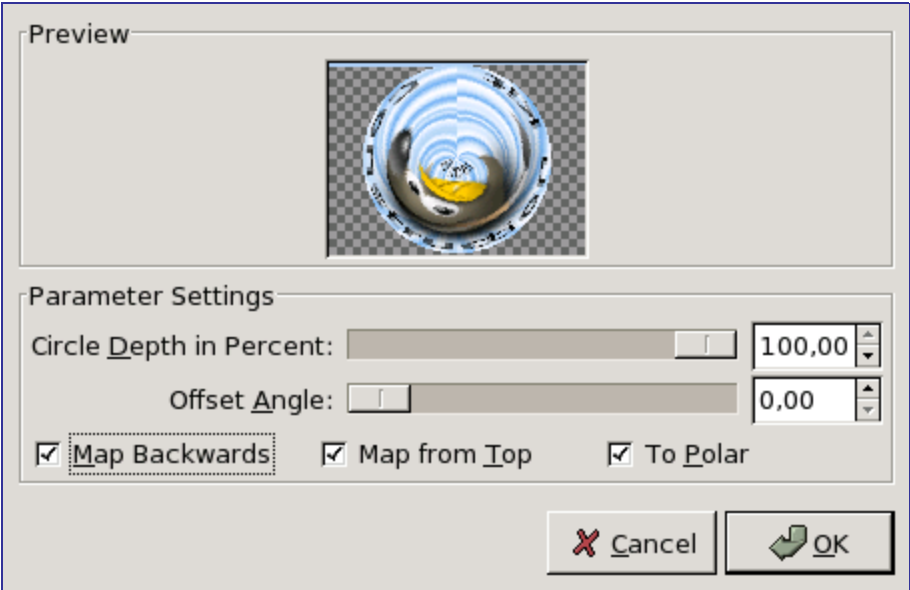
Overview

This filter is found in Filters Distorts Polar Coords .

It gives a circular or a rectangular representation of your image with all the possible intermediates between both.

Options

Examples
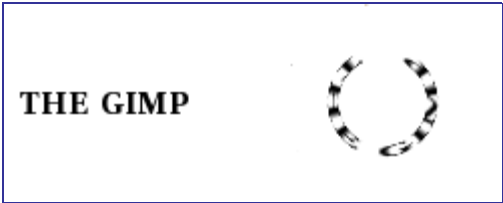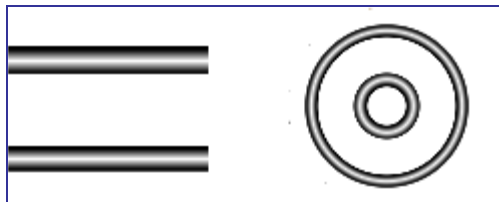
Ripple
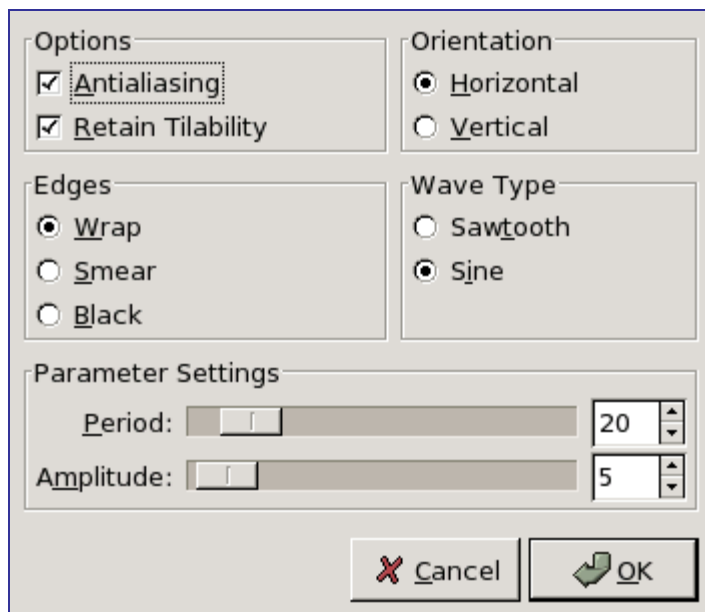
Overview

This filter is found in Image>Filters/Distorts/Rippel...

It displaces the pixels of the active layer or selection to waves or ripples reminding a reflection on disturbed water.

Options

Shift
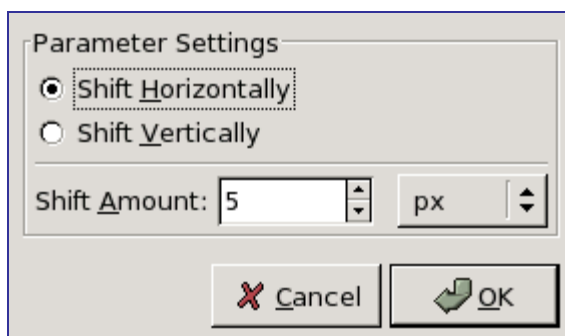
Overview

This filter is found in Filters Distorts Sift .

It shifts all pixel rows, horizontally or vertically, in the current layer or selection, on a random distance and within determined limits.

Options

Newsprint
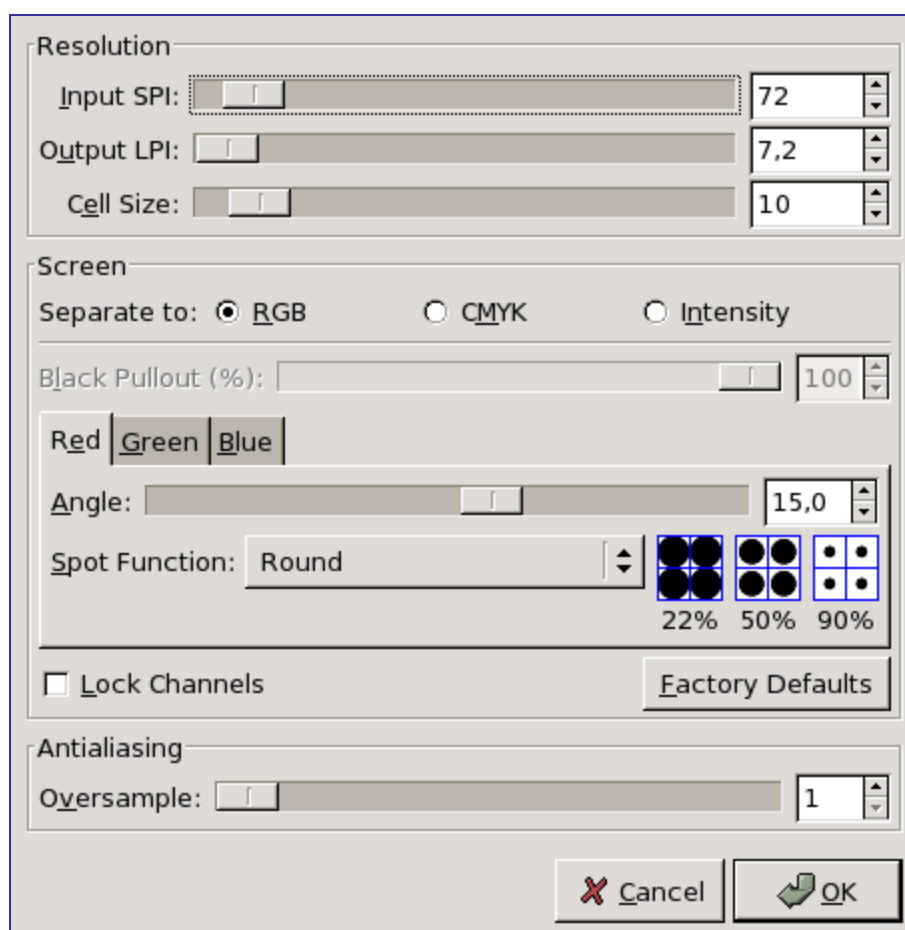
Overview

This filter is found in Image>Filters/Distorts/Newsprint

This filter halftones the image using a clustered-dot dither. Halftoning is the process of rendering an image with multiple levels of grey or colour (i.e. a continuous tone image) on a device with fewer tones; often a bi-level device such as a printer or typesetter.

The basic premise is to trade off resolution for greater apparent tone depth (this is known as spatial dithering).

There are many approaches to this, the simplest of which is to throw away the low-order bits of tone information; this is what the posterize filter does. Unfortunately, the results don't look too good. However, no spatial resolution is lost.

This filter uses a clustered-dot ordered dither, which reduces the resolution of the image by converting cells into spots which grow or shrink according to the intensity that cell needs to represent.

Imagine a grid super-imposed on the original image. The image is divided into cells by the grid - each cell will ultimately hold a single spot made up of multiple output pixels in order to approximate the darkness of the original image in that cell.

Obviously, a large cell size results in a heavy loss in resolution! The spots in the cells typically start off as circles, and grow to be diamond shaped. This change in shape is controlled by a spot function. By using different spot functions, the evolution in the shape of the spots as the cell goes from fully black to fully white may be controlled.

Options

More explanations, illustrative diagrams, a gallery and a tutorial are to be found on the plug-in author site: http://www.cl.cam.ac.uk/~and1000/newsprint/ You are strongly encouraged to visit it, since halftoning is a large and complex area.

Here is an example, from the author's gallery:

Video

Overview

This filter is found in Image>Filters/Distorts/Video.

Apply low dotpitch RGB simulation to the specified drawable.

Options

Value Propagate
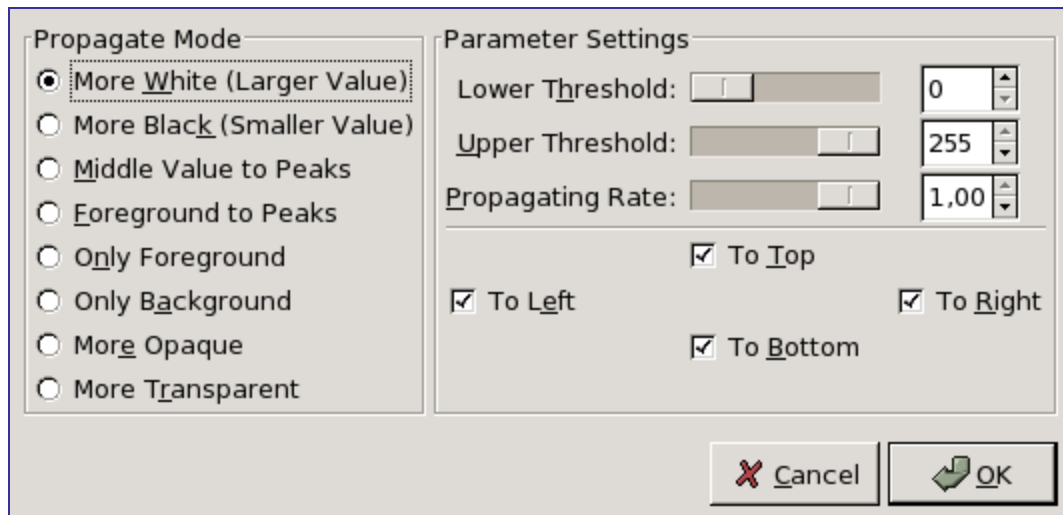
Overview

This filter is found in Image>Filters/Distorts/Value Propagate

It works on color borders. It spreads pixels that have a Value between selected thresholds, in selected directions.

Options

Waves
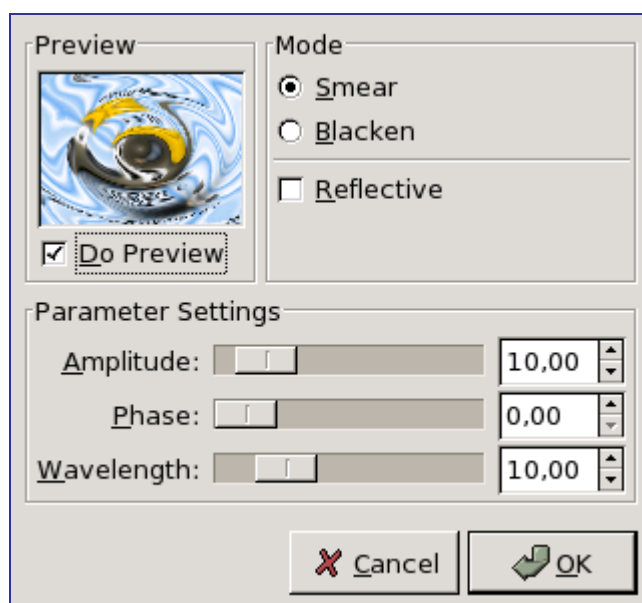
Overview

This filter is found in Image>Filters/Distorts/Waves.

With this filter you get the same effect as a stone thrown in a quiet pond, giving concentric waves.

Options

Whirl and Pinch
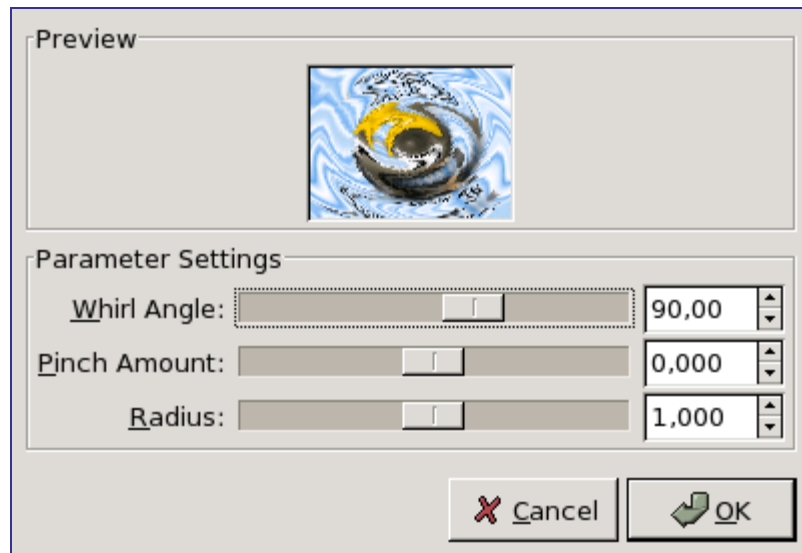
Overview

This filter is found in Filters Distorts Whirl and Pinch

"Whirl and Pinch" distorts your image in a concentric way.

"Whirl" distorts the image much like the little whirlpool that appears when you empty your bath.

"Pinch" can be compared to applying your image to a soft rubber surface and squeezing the edges or corners. If the Pinch amount slider is set to a negative value, it will look as if someone tried to push a round object up toward you from behind the rubber skin. If the Pinch amount is set to a positive value, it looks like someone is dragging or sucking on the surface from behind, and away from you.

The "pinch" effect can sometimes be used to compensate for image distortion produced by telephoto or fisheye lenses ("barrel distortion").
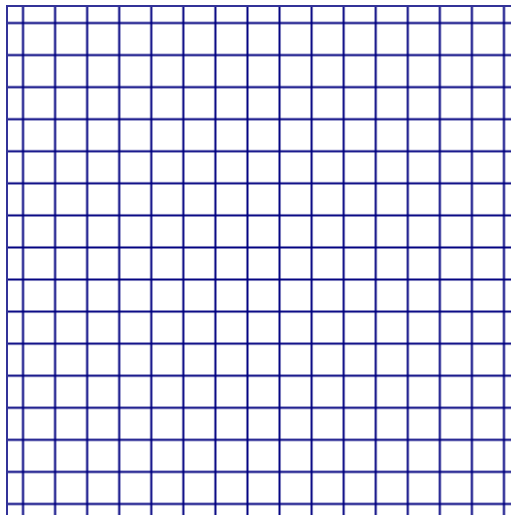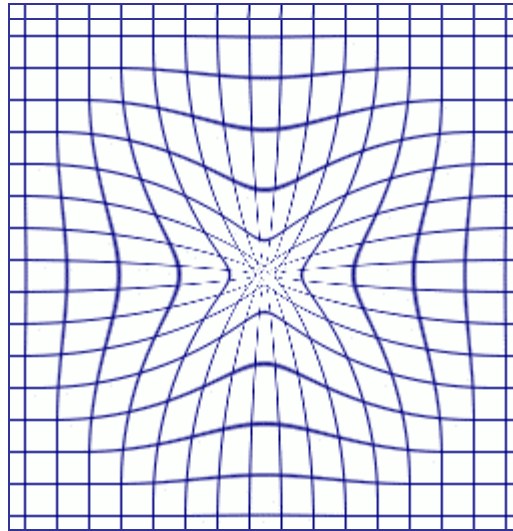
Parameter Settings

Wind
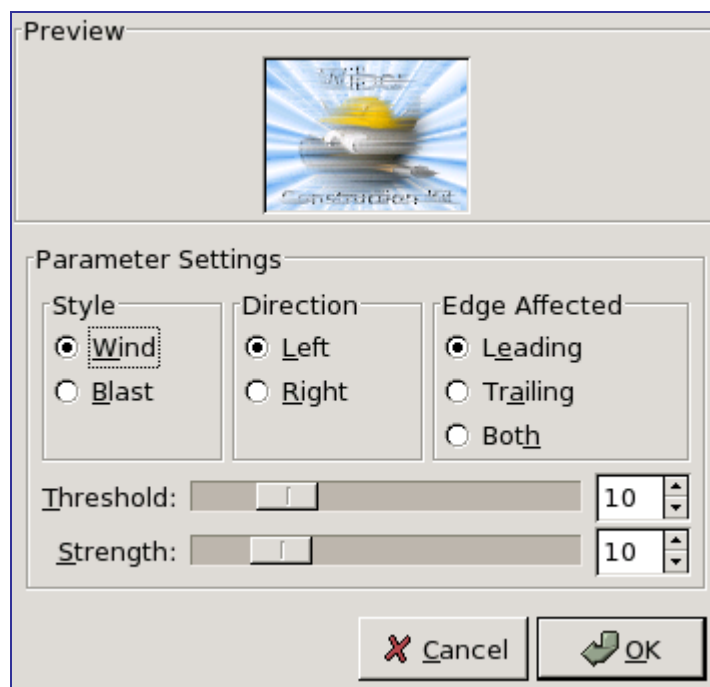
Overview

This filter is found in Image>Filters/Distorts/Wind.

The Wind filter can be used to create motion blur, but it can also be used as a general distort filter. What is characteristic about this filter is that it will render thin black or white lines. Wind will detect the edges in the image, and stretch out thin white or black lines from that edge. This is why you can create the illusion of motion, because the edges are what will be blurred in a photograph of a moving object.

Parameter Settings

The interface is quite simple. You can set the Strength of the wind and a Threshold value. Threshold will restrict the effect to fewer areas of the image. Strength controls the

amount of wind, so a high value will render a storm. You can also increase the effect by setting the Style to Blast, which will produce thicker lines than Wind.

You can only set the wind in two directions, either Left or Right. However, you can control which edge the wind will come from using the values Leading, Trailing or Both. Because Trailing will produce a black wind, it creates a less convincing motion blur than Leading, which will produce white wind.

The following illustrations are based on this image:

Artistic filters

Artistic filters introduction

Artistic filters create artistic effects like cubism, oil painting, canvas...

Apply Canvas

Overview
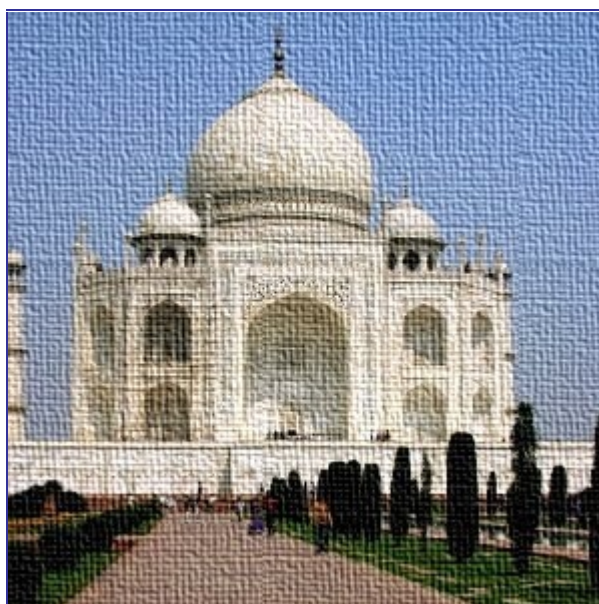
This filter is found in Image>Filters/Artistic/Apply Canvas...

This filter applies a canvas-like effect to the current layer or selection. It textures the image as if it were an artist's canvas.

Options
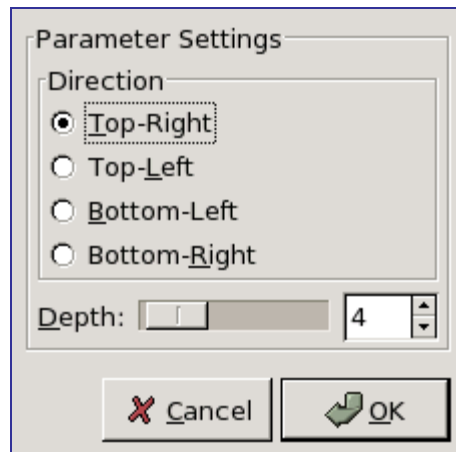
Cartoon

Overview

This filter is found in Filters Artistic Cartoon

The Cartoon filter modifies the active layer or selection so that it looks like a cartoon drawing. Its result is similar to a black felt pen drawing subsequently shaded with color. This is achieved by darkening areas that are already distinctly darker than their neighborhood.

Options
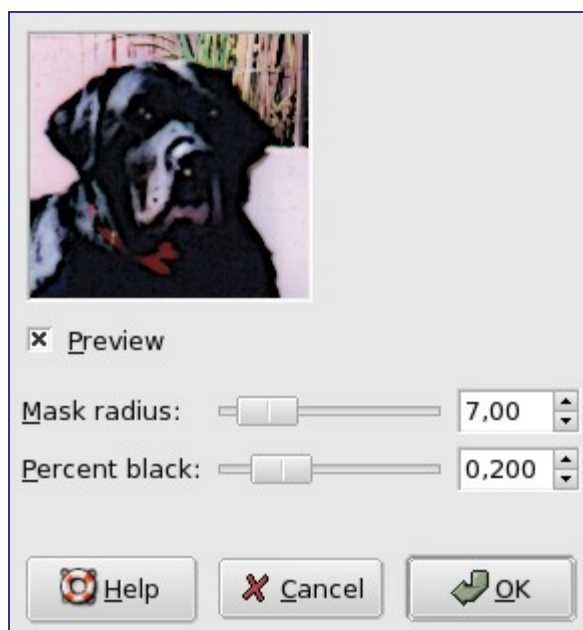
Cubism
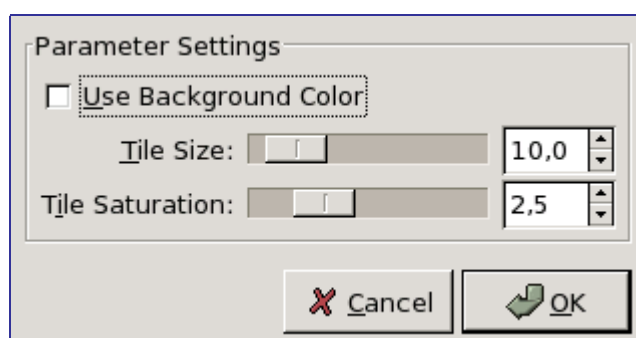
Overview

This filter is found in Filters Artitic Cubism

The Cubism plug-in modifies the image so that it appears to be constructed of small squares of semitransparent tissue paper.

If setting possibilities of this filter are not enough for you, see GIMPressionist filter which offers more options.

Options
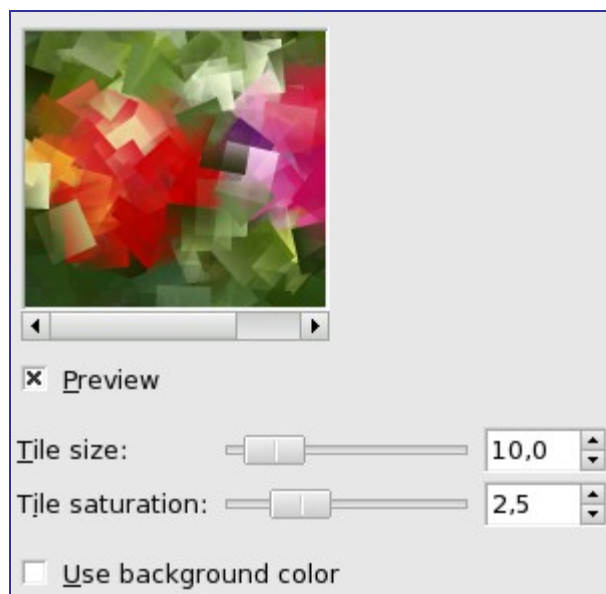
If you are using this to generate background images for web pages and the like, work with a small range of colors painted randomly on a small square. Then apply the Cubism filter with the desired settings. As a last step, try Filters/Map/Make Seamless to adjust the image so it will tile seamlessly in your background.

GIMPressionist

Overview
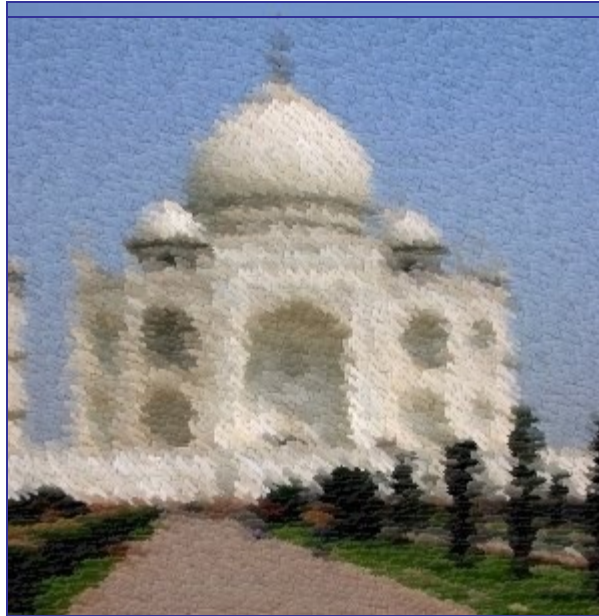
You can find this filter via the image menu under Filters Artistic GIMPressionist

It's the king of Artistic filters. It can do what Cubism and Apply Canvas do and much more. It gives your image the look of a painting. All is going as if your image was painted again on a paper and with a brush you'd have choosen. It works on the active layer or selection.

Parameter Settings

GIMPressionist- Orientation Map Editor

Overview

The Orientation-map editor is an annexe of the GIMPressionist filter. You can get to it by clicking on the Edit button in the "Orientation" tab. With this editor, you can set the direction that brush strokes given by filter will have.

Parameter Settings

Generated by docbook2odf
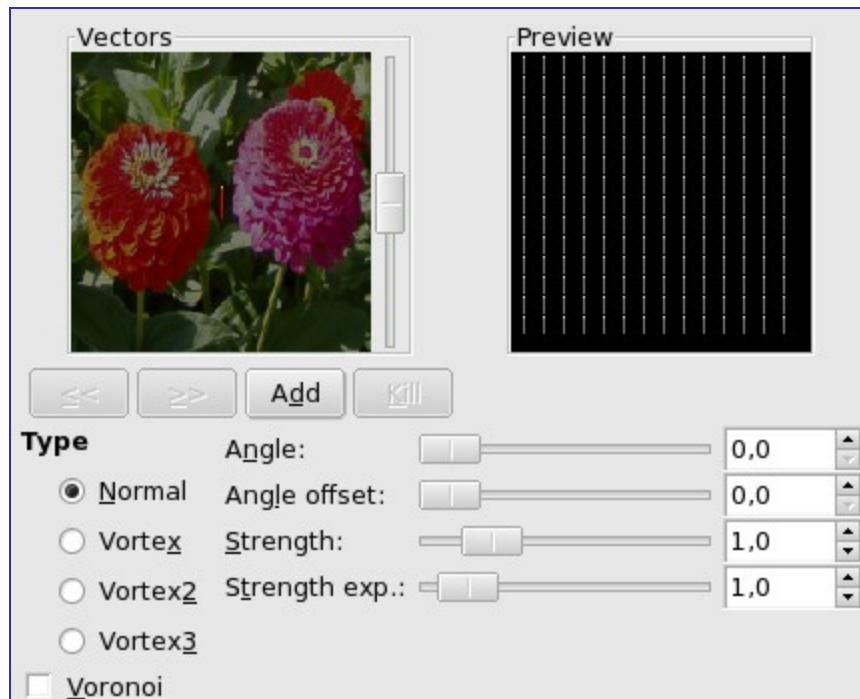
You can place one or several vectors. You can set their direction and their strength. They will act ont the corresponding area of the image.

GIMPressionist- Size Map Editor

Overview

The Size-map editor is an annexe of the GIMPressionist filter. You can get to it by clicking on the Edit button in the "Size" tab. With this editor, you can set the size that brush strokes given by filter will have.

Parameter Settings
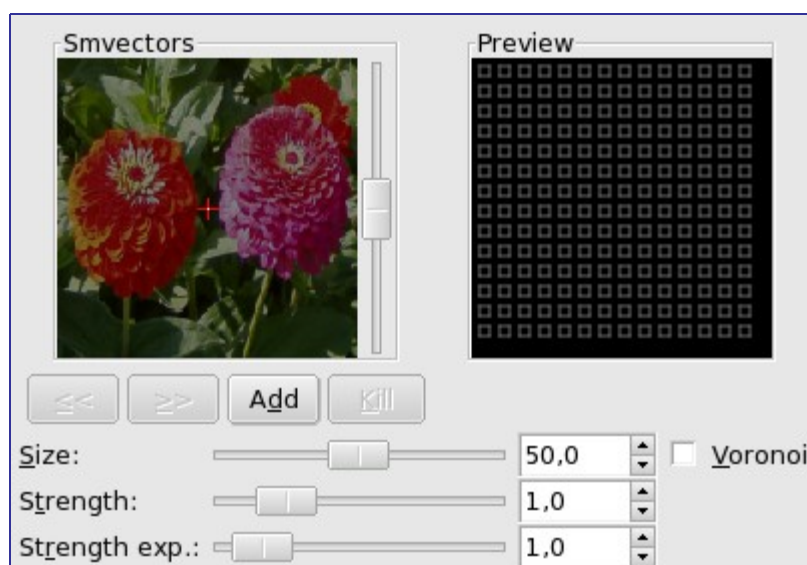
You can place one or several vectors. You can set their strength. They will act on the corresponding area of the image.

Oilify
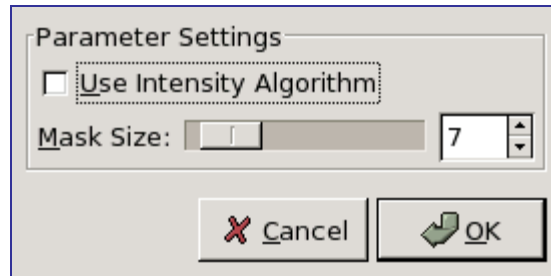
Overview

This filter is found in Filters Artistic Oilify...

This filter makes the image look like an oil painting. The Mask Size controls the outcome: a high value gives the image less detail, as if you had used a larger brush.

The Gimpressionist filter can produce similar effects, but allows a much wider variety of options.

Options
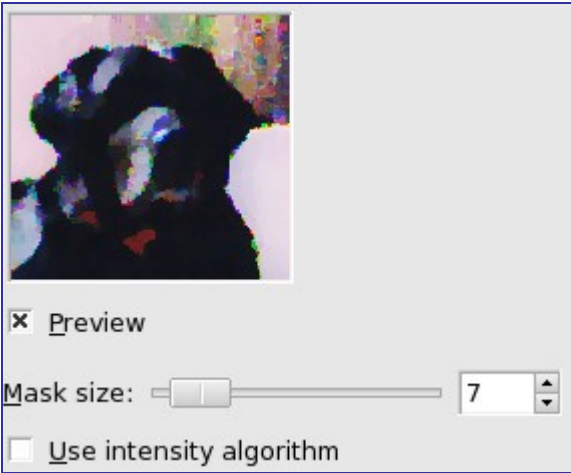
Photocopy

Overview

The Photocopy filter modifies the active layer or selection so that it looks like a black and white photocopy, as if toner transfered was based on the relative darkness of a particular region. This is achieved by darkening areas of the image which are measured to be darker than a neighborhood average, and setting other pixels to white.

Starting filter

You can find this filter from the image menu through Filters Artistic Photocopy .

Options
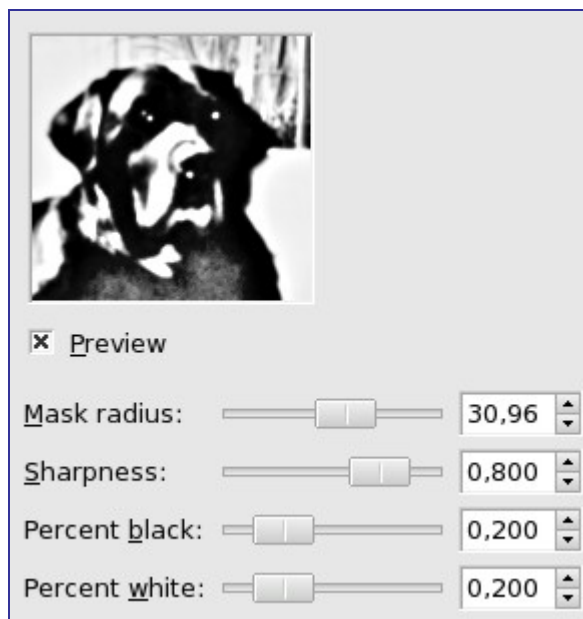
Soft Glow

Mode of action
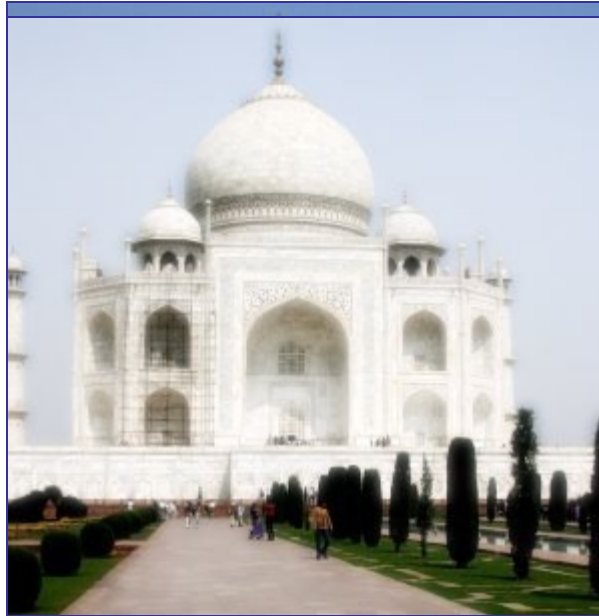
This filter lights the image with a soft glow. Soft Glow produces this effect by making brigh areas of the image brighter.

Starting filter

You can find this filer in the Image menu: Filters Atistic Soft Glow .

Options
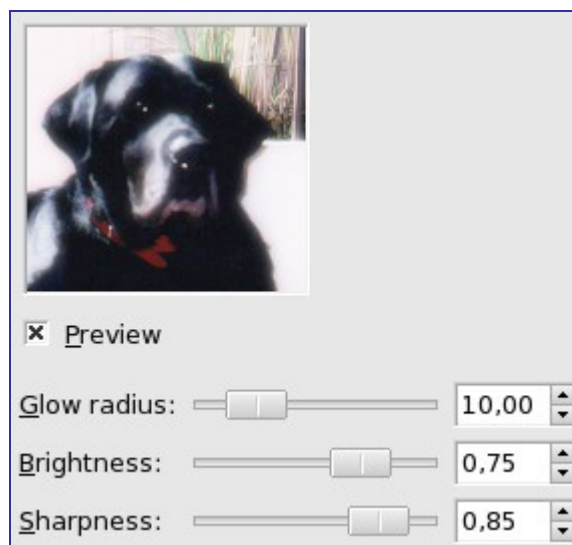
Map filters

Map filters introduction

Map filters use an object named *map* to modify an image: you map the image to the object. So, you can create 3D effects by mapping your image to another previously embossed image ("Bumpmap" Filter) or to a sphere ("Map Object" filter). You can also map a part of the image elsewhere into the same image ("Illusion" and "Make Seamless" filters), bend a text along a curve ("Displace" filter)...

Bump Map

Overview

This filter is found in the image window menu under Filters Map Bump Map .

This filter creates a 3D effect by embossing an image (the card) and then mapping it to another image. Bump heigth depends on pixel luminosity and you can set light direction. See Emboss for more informations about embossing. You can bump map any type of image, unlike the Emboss filter.

Options
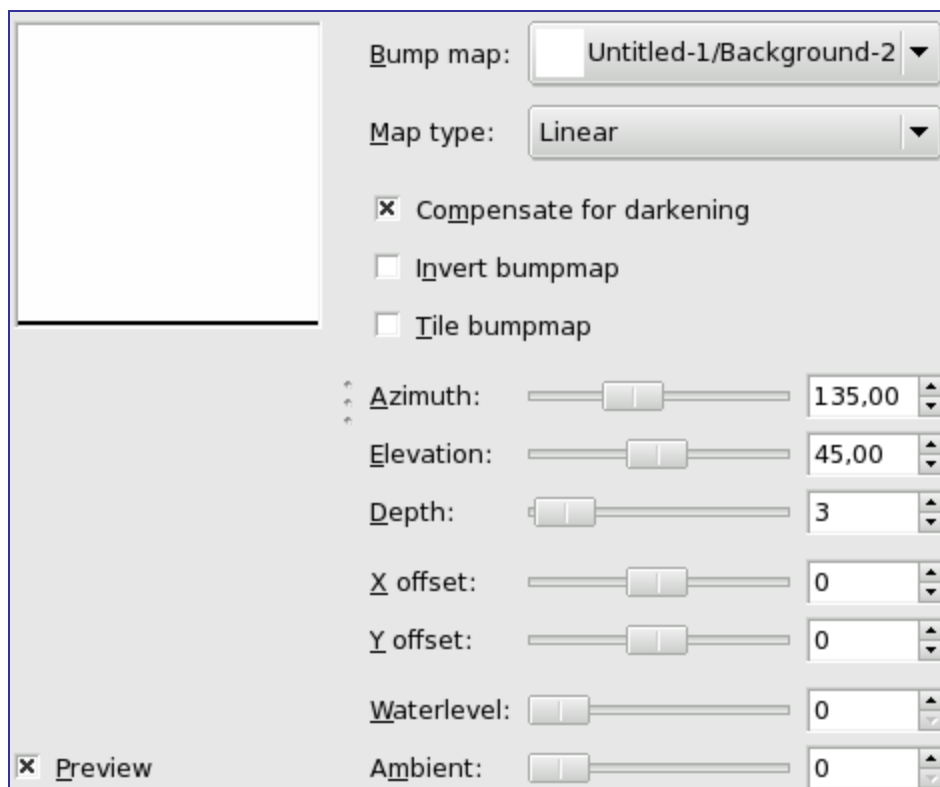
Displace
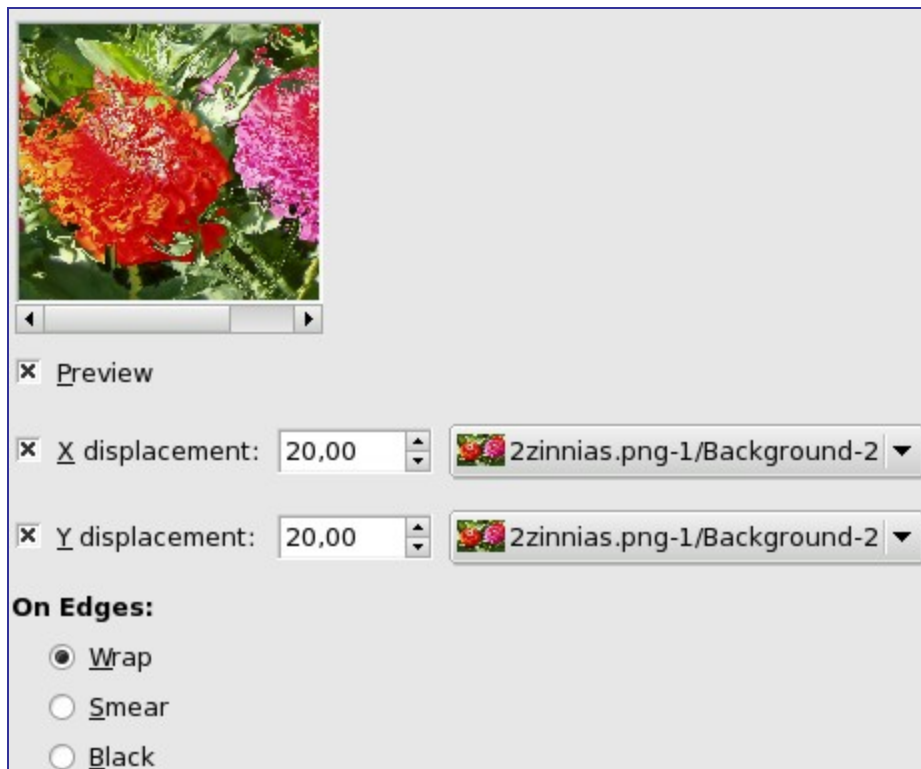
Overview

You can find this filter from the image menu Filters M Displace

This filter uses a 'displace-map' to displace corresponding pixels of the image. This filter displaces the content of the specified drawable (active layer or selection) by the amounts specified in X and Y Displacement multiplied by the intensity of the corresponding pixel in the 'displace map' drawables. **Both X and Y displace maps must be gray-scale images and have the same size as the drawable** . This filter allows interesting distortion effects.

Options

Using gradient to bend a text

Follow following steps:

Start with opening your image.

Duplicate this image. Activate this duplicate and make it gray-scaled (<IMAGE>/Image/Mode/GrayScale). Fill it with the wanted gradient. This image will be your *Displacement map*, with the dimensions of original image.
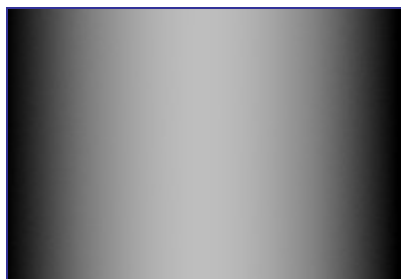

Activate original image. Create a *Text Layer* with your text. Set layer to image size: right-click on the layer in layer dialog and, in the pop-menu, click on "*Layer to image size*". Note that letters in text layer lie on transparent background; now this filter doesn't displace transparent pixels. Only letters will be displaced.

Activate text layer. Open Displace filter window. Set parameters particularly displacement coefficient according to the result in Preview. OK.

This method also applies to standard layers:
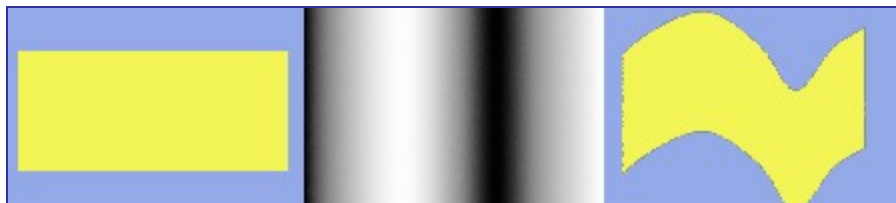
To get the wanted gradient, first draw a black to white gradient. Then use the Curves tool to modify the gradient curve.
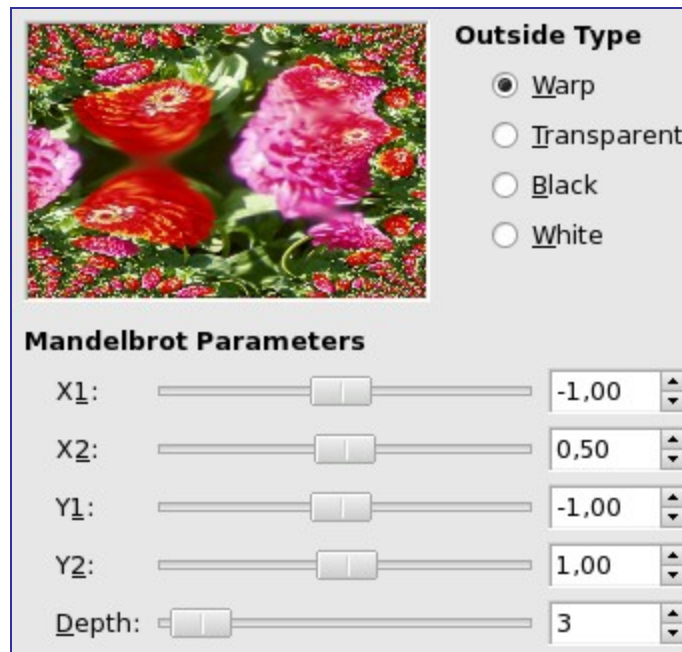
Fractal Trace

Overview

This filter transforms the image with the Mandelbrot fractal: it maps the image to the fractal.

You get to this filter via the Image menu through Filters Map Fractal trace

Options

Illusion

Overview

This filter is found in the image window menu under Filters Map Illusion .

With this filter, your image (active layer or selection) looks like a kaleidoscope. This filter duplicates your image in many copies, more or less dimmed and split, and puts them around center of image.

Options
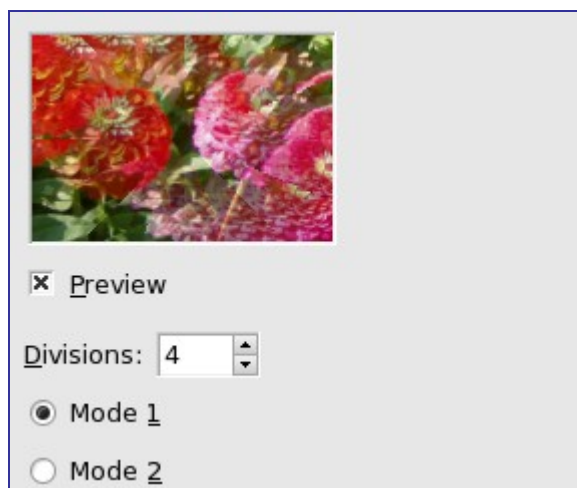
Make Seamless

Overview

You can find this filter in image menu under Filters Map Make Seamless

This filter modifies the image for tiling by creating seamless edges. Such an image can be used as a pattern for a web-page. This filter has no option, and result may need correction.
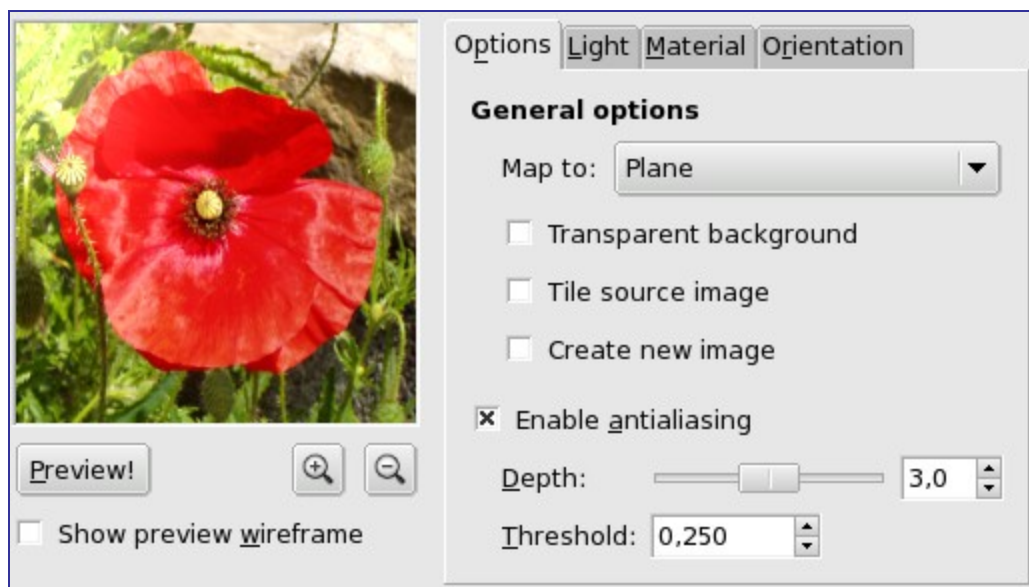
Map Object

Overview

This filter maps a picture to an object (plane, sphere, box or cylinder).

This filter is found in the image window menu under Filters Map Map Oject .

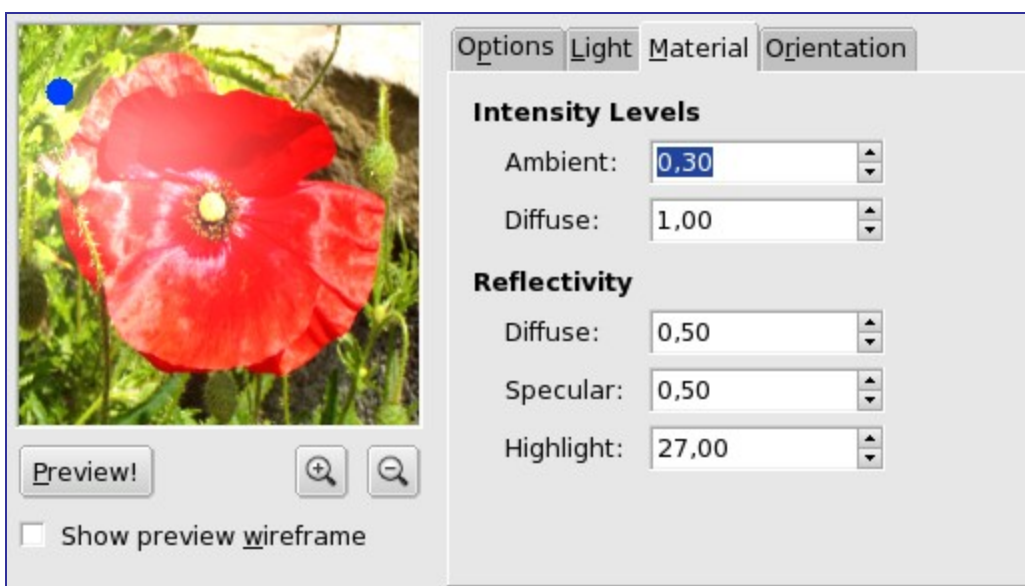## Preview domain

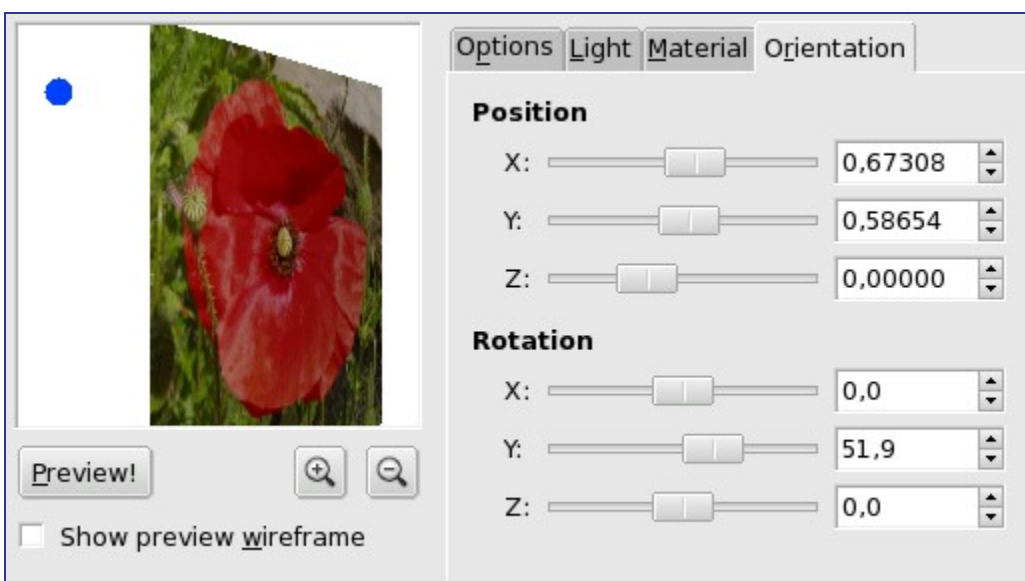This preview has several possibilities:

General Options tab

Light tab
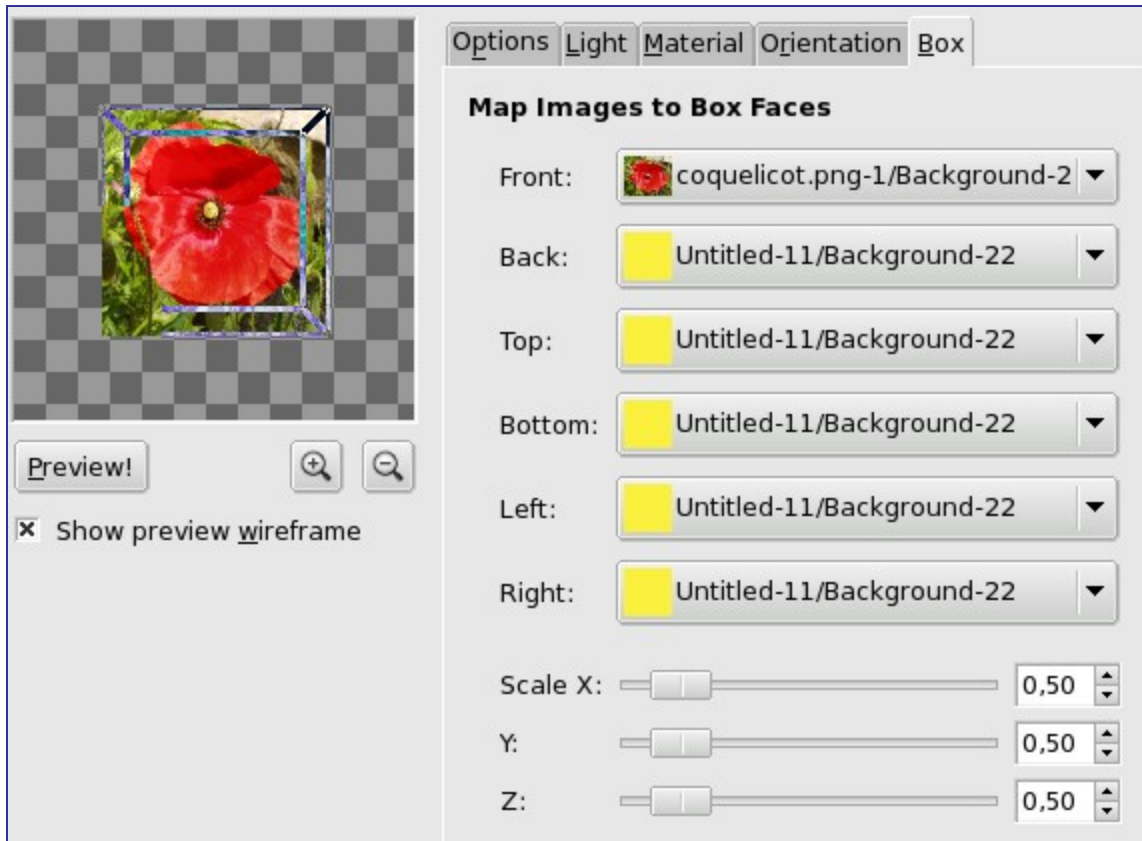
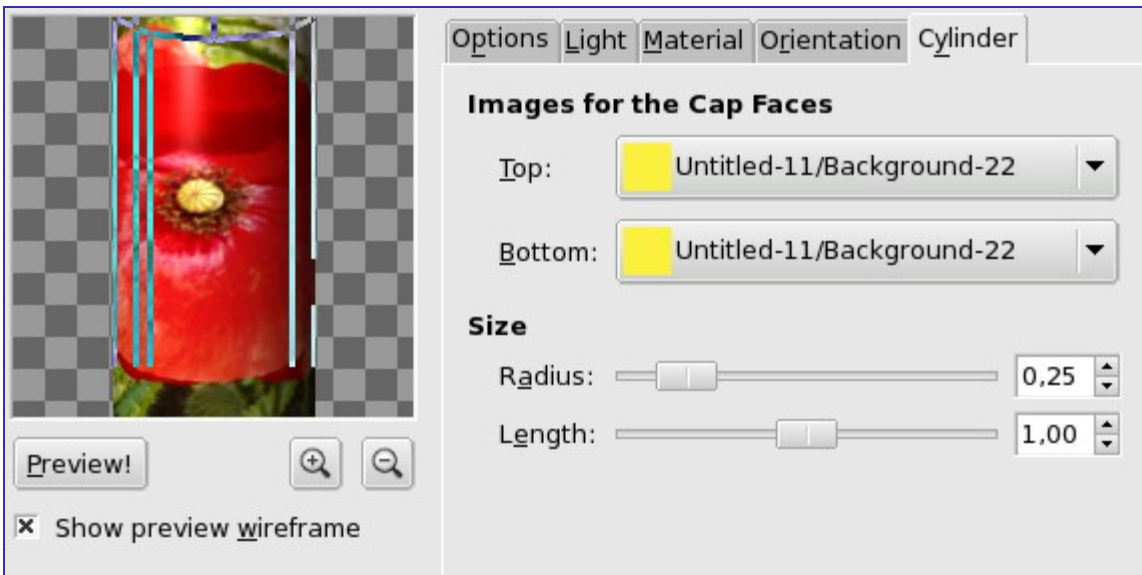## Material tab

Orientation tab

Box tab

This tab appears only when you select the Box object.

Cylinder tab

This tab appears only when you select the Cylinder object.

Paper Tile

Overview

This filter is found in the image window menu under Filters Map Paper Tile .

This filter cuts the image (active layer or selection) into several pieces, with square form, and then slides them so that they, more or less, overlap or move apart. They can go out image borders a little.

Options

Small Tiles

Overview

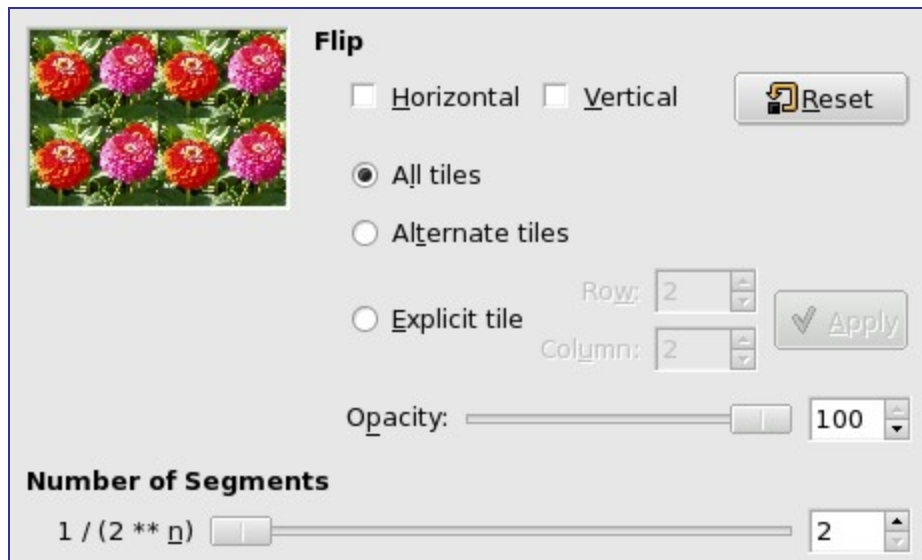This filter is found in the image window menu under Filters Map Small Tiles .

This filter reduces the image (active layer or selection) and displays it in many copies inside the original image.
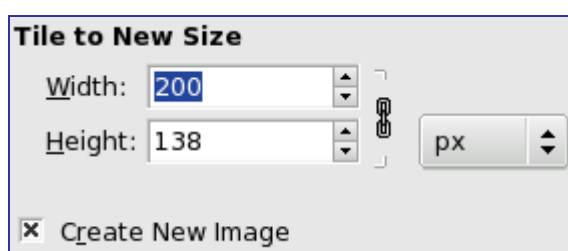
Options

Tile

Overview

This filter is found in the image window menu under Filters Map Tile .

This filter makes several copies of the original image, in a same or reduced size, into a bigger (new) image.

Warp

Overview

This filter is found in the image window menu under Filters Map Warp . This filter has no Preview.

This filter displaces pixels of active layer or selection according to grey levels of a *Displacement map*. Pixels are displaced according to the gradient slope in the displacement map. Pixels corresponding to solid areas are not displaced; the higher the slope, the higher the displacement.
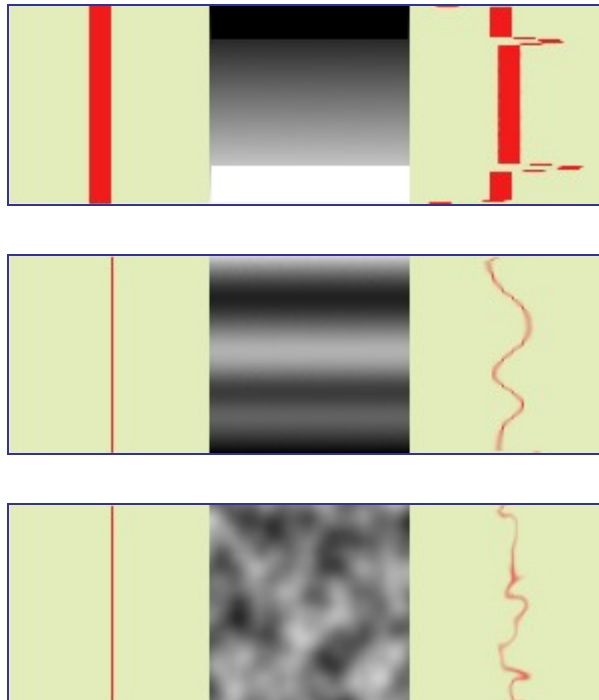
This filter offers the possibility of masking a part of the image to protect it against filter action.

Options

Basic Options

Step size: `10,00` Displacement map: `warpa2.png-7/Background-14`

Iterations: `5`

On edges: ⦿ Wrap ○ Smear ○ Black ○ FG color

Advanced Options

Dither size: `0,00` Magnitude map: `warpb2.png-8/Background-16`

Rotation angle: `90,0`

Substeps: `1` ☐ Use magnitude map

More Advanced Options

Gradient scale: `0,000` `warpa2.png-7/Background-14`

Vector mag: `0,000` `warpa2.png-7/Background-14`

Angle: `0,0`

Van Gogh (LIC)

Overview
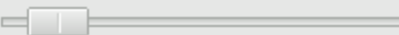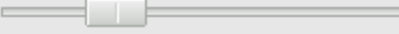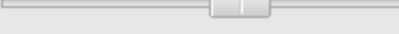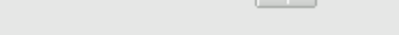
This filter is found in the image window menu under Filters Map Van Gogh (LIC) .

"LIC" stands for Line Integral Convolution, a mathematical method. Plug-in author uses mathematical terms to name his options... This filter is used to apply a directional blur to an image, or to create textures. It could be called "Astigmatism" as it blurs certain directions in the image.

It uses a blur map. Unlike other maps, this filter doesn't use grey levels of this blur map. *Filter takes in account only gradient direction(s)*. Image pixels corresponding to solid areas of the map are ignored.

Options

Effect Channel	Effect Operator	Convolve
○ Hue	○ Derivative	○ With white noise
○ Saturation	◉ Gradient	◉ With source image
◉ Brightness		

Effect Image: [▪] Untitled-2/Background-4 ▾

Filter length:	▭	5,0
Noise magnitude:	▭	2,0
Integration steps:	▭	25,0
Minimum value:	▭	-25,0
Maximum value:	▭	25,0

- To create a blur, check With Source Image . Only Filter Length slider and perhaps Intregation Steps slider, are useful.

- To create a texture, check With White Noise . All sliders can be useful.

Rendering filters

Render filters introduction

Most Gimp filters act on a layer by transforming its contents, but the filters in the "Render" group are a bit different. They create patterns from scratch, in most cases obliterating anything that was previously in the layer. Some create random or noisy patterns, others regular of fractal patterns, and one (Gfig) is a general-purpose (but rather limited) vector graphics tool.

Plasma
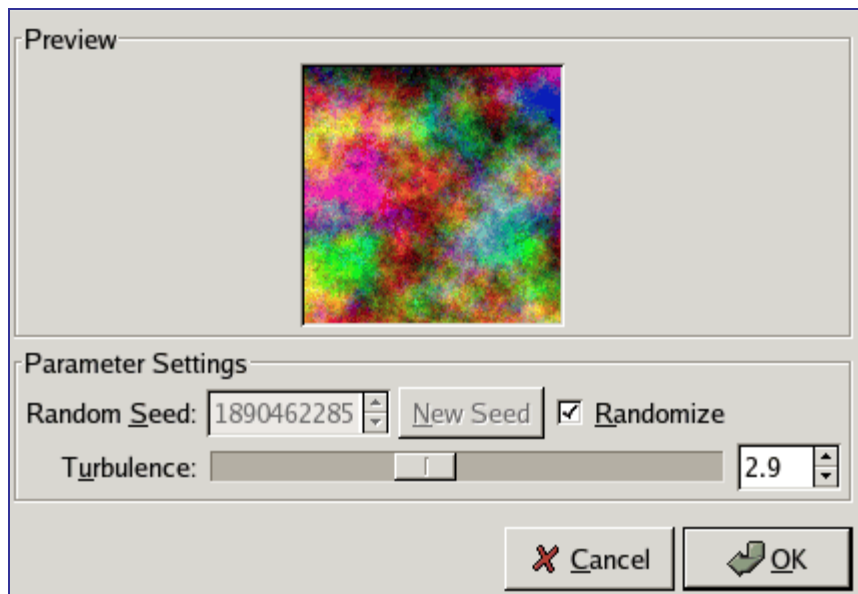
Overview
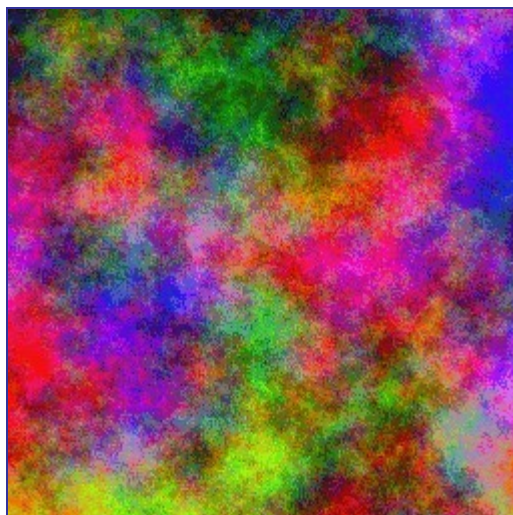
You can find this filter in image menu following Filters Render Clouds Plasma

Plasma generates colorful clouds, which can be used for textures. You control the turbulence in the plasma cloud with the Turbulence slide.

All of the colors produced by Plasma are completely saturated. Sometimes the strong

colors may be distracting, and a more interesting surface will appear when you desaturate the image using Layer/Colors/Desaturate.

An enhanced version of the Plasma plug-in, called *Plasma2*, with many more options and parameters, is available from the Gimp Plugin Registry.

Options

Solid Noise
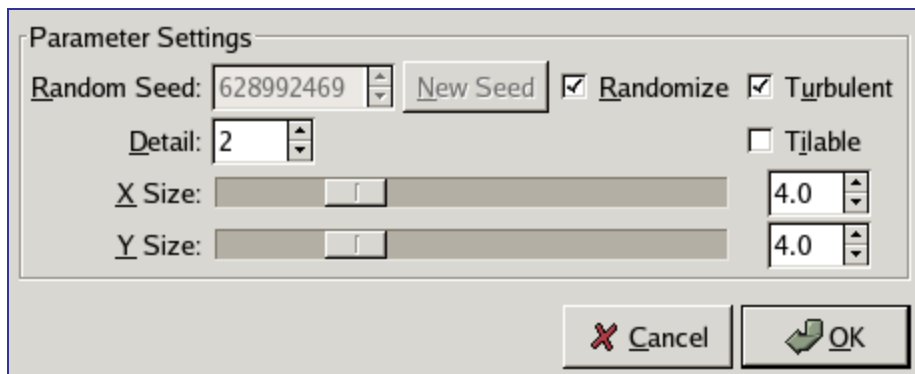
Overview
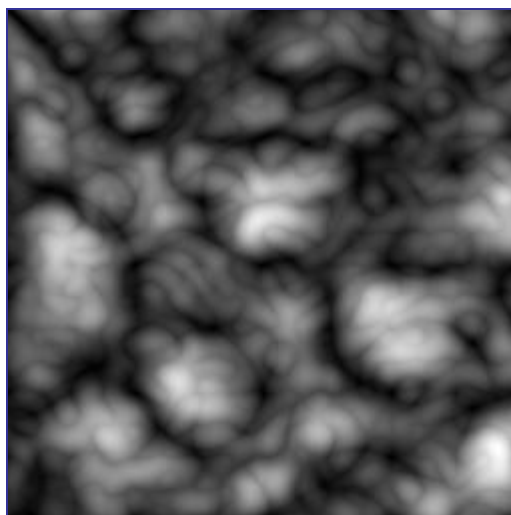
You can find this filter from the image menu through Filters Render Clouds Solid noise

Solid Noise is a great texture maker. Note that this noise is always gray, even if you applied it to a very colorful image (it doesn't matter what the original image looks like -- this filter completely overwrites any existing background in the layer it is applied to). This is also a good tool for creating displacement maps for the plug-in or for the plug-in. With the "turbulence" setting active, the results look quite a bit like real clouds. An example is shown below.

Options

Flame
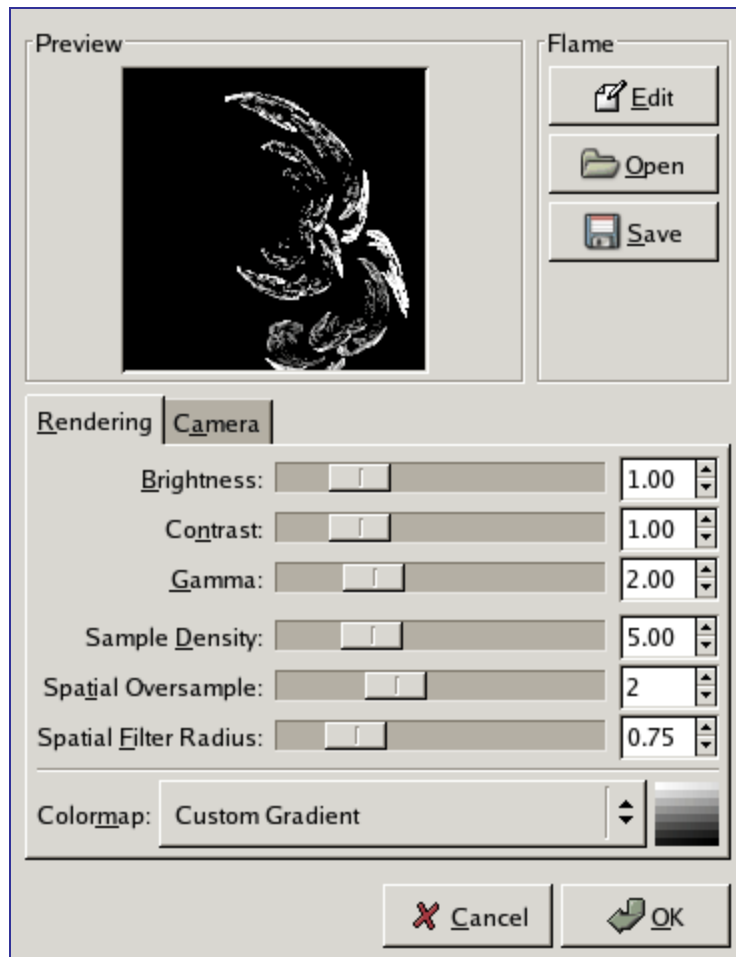
Overview

This filter is found in Filters Render Nature Flame

With the Flame filter, you can create stunning, randomly generated fractal patterns. You can't control the fractals as you can with the Ifs Compose filter, but you can steer the random generator in a certain direction, and choose from variations of a theme you like.

In the main window, you can set Rendering and Camera parameters. The first three parameters in the Render display are Brightness, Contrast and Gamma. The result of these options is visible in the Preview window, but it's generally better to stick to the default values, and correct the rendered image later with Image/Colors.

The other three parameters affect the rendering process and don't show in the preview window. Sample Density, which controls the resolution of the rendered pattern, is the most important of these. The Camera parameters allow you to zoom and offset the flame pattern, until you're happy with what you see in the preview window. Flame also offers the possibility to store and load your favorite patterns.

Options

IFS Compose
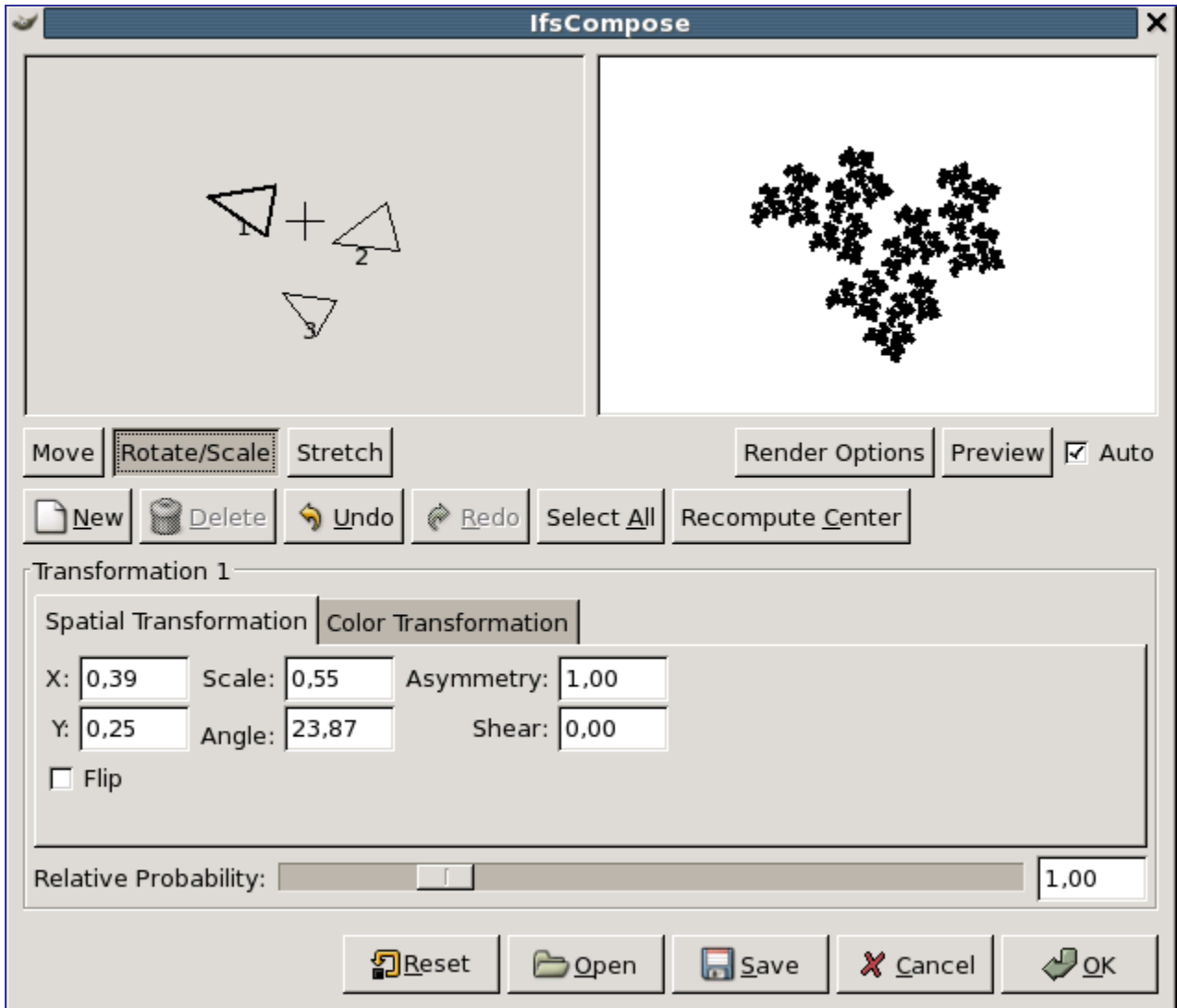
Overview

This filter is found in Filters Render Nature IFS fractal

This fractal-based plug-in is truly wonderful! With this versatile instrument, you can create amazingly naturalistic organic shapes, like leaves, flowers, branches, or even whole trees. ("IFS" stands for "Iterated Function System".)

The key to using this plug-in lies in making very small and precise movements in fractal space. The outcome is always hard to predict, and you have to be extremely gentle when you change the pattern. If you make a component triangle too big, or if you move it too far (even ever so slightly), the preview screen will black out, or more commonly, you'll get stuck with a big shapeless particle cloud.

A word of advice: When you have found a pattern you want to work with, make only small changes, and stick to variations of that pattern. It's all too easy to lose a good thing. Contrary to what you might believe, it's really much easier to create a leaf or a tree with IFS Compose than to make a defined geometrical pattern (where you actually know what you're doing, and end up with the pattern you had in mind).

For a brief introduction to IFS's see Foley and van Dam, et al,. Computer Graphics, Principles and Practice, 2nd Ed., (Addison Wesley, 1990).

Options

A Brief Tutorial

This is a rather complex plug-in, so to help you understand it, we'll guide you through an example where you'll create a leaf or branch.

Many forms of life, and especially plants, are built like mathematical fractals, i.e., a shape that reproduces or repeats itself indefinitely into the smallest detail. You can easily reproduce the shape of a leaf or a branch by using four (or more) fractals. Three fractals make up the tip and sides of the leaf, and the fourth represents the stem.

1. Before invoking the filter: Select File New Image Add a transparent layer with Layers Layers and Channels New Layer Set the foreground color in the toolbox to black, and set the background to white.

2. Open IFS Compose. Start by rotating the right and bottom triangles, so that they point upward. You'll now be able to see the outline of what's going to be the tip and sides of the leaf. (If you have problems, it may help to know that the three vertices of a triangle are not equivalent.)
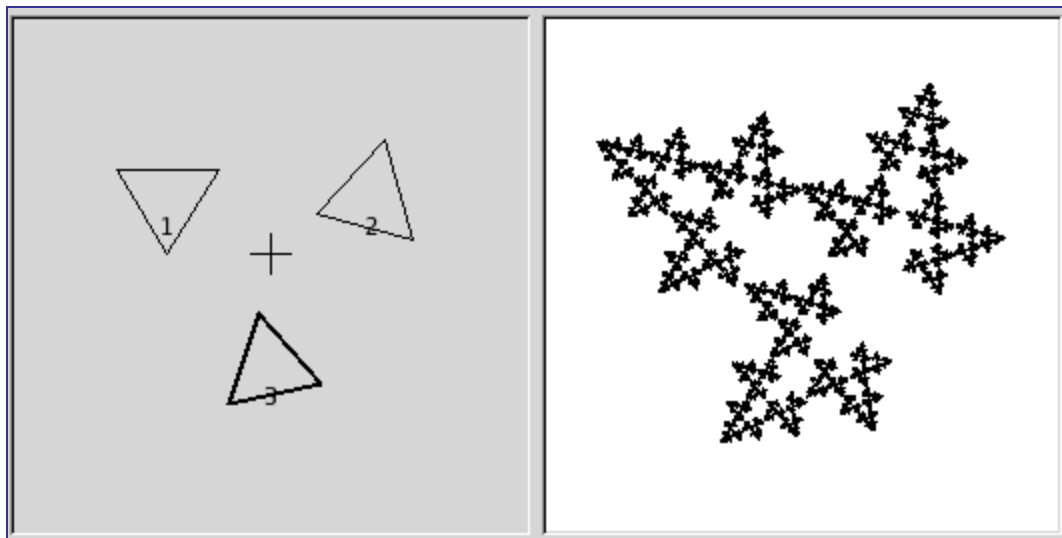
3. To make the leaf symmetrical, adjust the bottom triangle to point slightly to the left, and the right triangle to point slightly to the right.

4. Press New to add a component to the composition. This is going to be the stem of the leaf, so we need to make it long and thin. Press Stretch, and drag to stretch the new triangle. Don't be alarmed if this messes up the image, just use Scale to adjust the size of the overlong triangle. You'll probably also have to move and rotate the new fractal to make it look convincing.
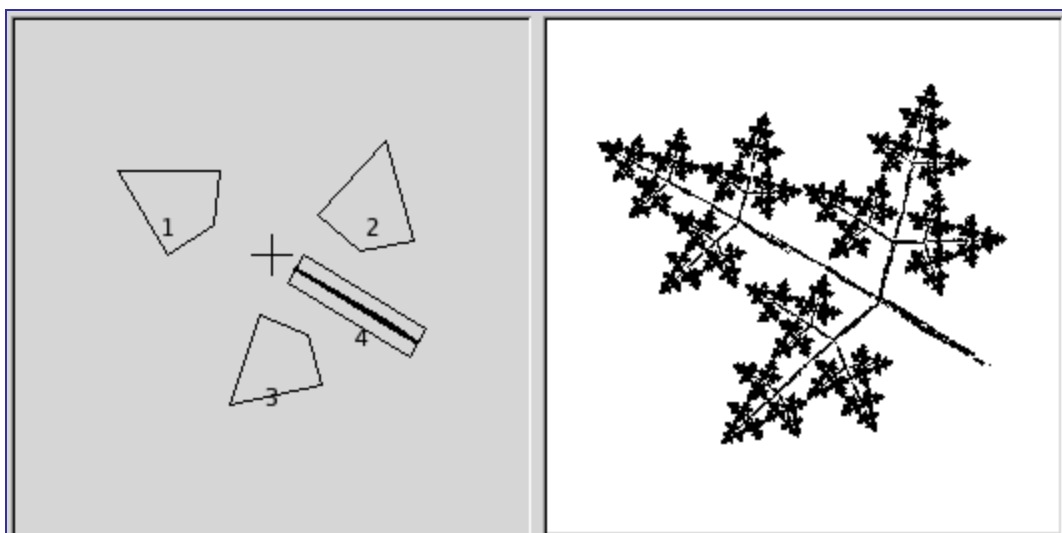
5. You still have to make it look more leaf-like. Increase the size of the top triangle,

until you think it's thick and leafy enough. Adjust all fractals until you're happy with the shape. Right-click to get the popup menu, and choose Select all. Now all components are selected, and you can scale and rotate the entire leaf.
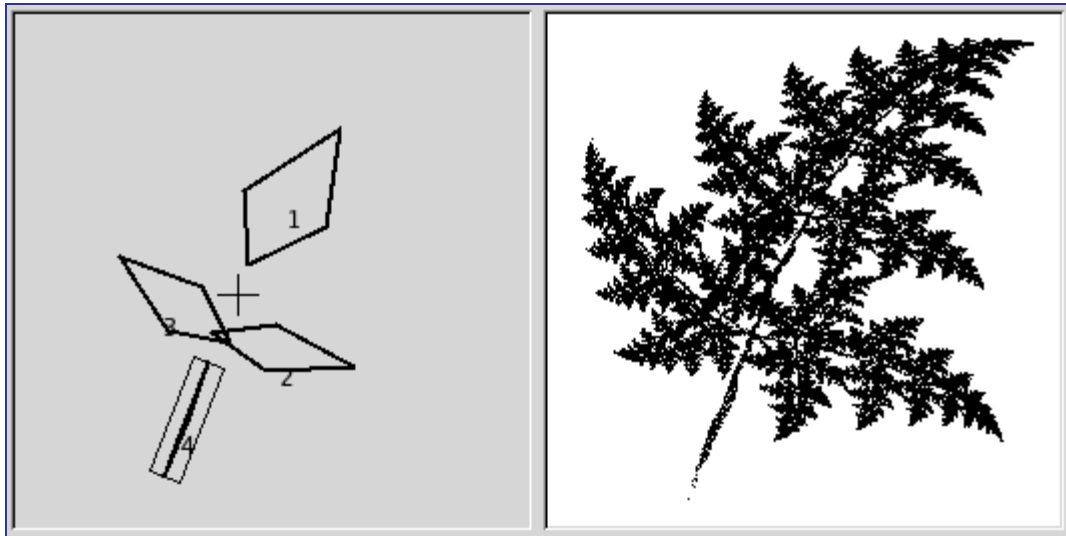
6. The final step is to adjust color. Click on the Color Transformation tab, and choose a different color for each fractal. To do this, check Simple and press the right color square. A color circle appears, where you can click or select to choose a color.

7. Press OK to apply the image, and voilà, you've just made a perfect fractal leaf! Now that you've got the hang of it, you'll just have to experiment and make your own designs. All plant-imitating fractals (be they oak trees, ferns or straws) are more or less made in this fashion, which is leaves around a stem (or several stems). You just have to twist another way, stretch and turn a little or add a few more fractals to get a totally different plant.

Diffraction Patterns
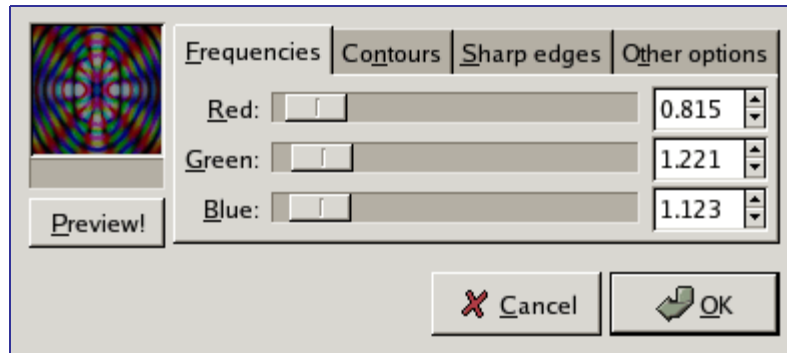
Overview

This filter is found in Filters Render Patterns Diffraction Patterns .

This filter lets you make diffraction or wave interference textures. You can change the Frequency, Contours and Sharp Edges for each of the RGB channels. You can also set Brightness, Scattering and Polarization of the texture. There is no automatic preview, so you must press the preview button to update. On a slow system, this may take a bit of time.

This is a very useful filter if you want to create intricate patterns. It's perfect for making psychedelic, batik-like textures, or for imitating patterns in stained glass (as in a church window).

It seems clear that the plugin works by simulating the physics of light striking a grating. Unfortunately, the original authors never got around to writing down the theory behind it, or explaining what the parameters mean. The best approach, then, is just to twiddle things and see what happens. Fortunately, almost anything you do seems to produce interesting results.

CML Explorer

Overview
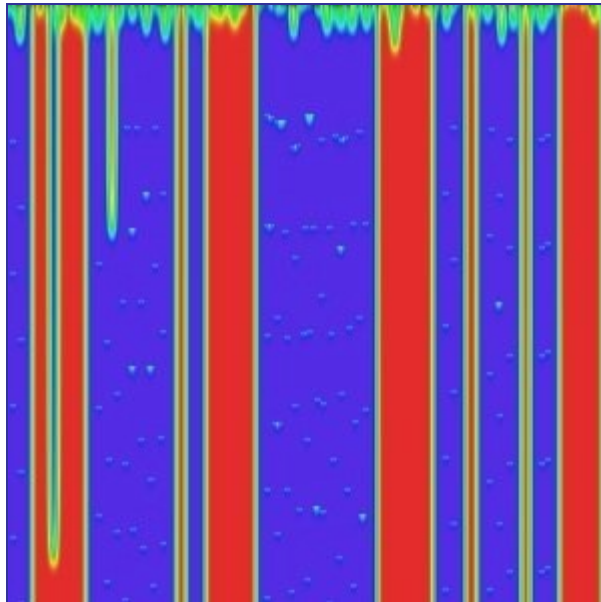
This filter is the king of texture creating filters. It is extremely efficient but very complex. It uses a mathematical method named Cellular Automata.

Starting filter

You can find this filter from the image menu through Filters Render Pattern CML Explorer

Options

Grid
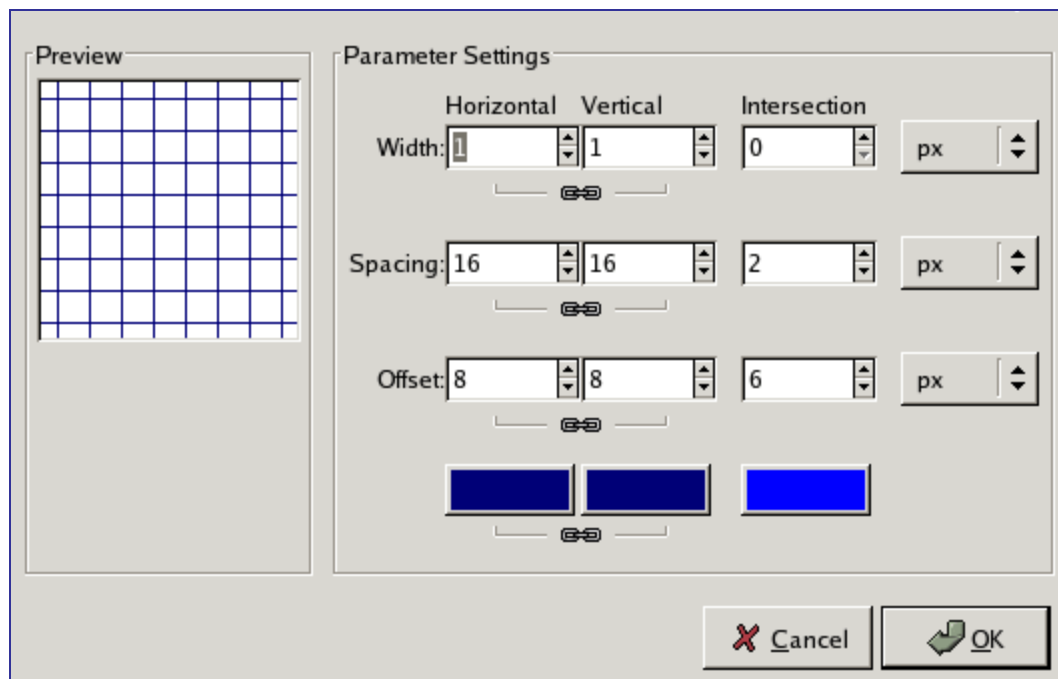
Overview

This filter is found in Filters Render Pattern Grid .

It renders a Cartesian grid in the active layer, on top of the existing contents. The width, spacing, offsets, and colors of the grid lines can all be set by the user. By default, the lines are with the Gimp's foreground color. (Note: this plugin was used to create

demonstration images for many of the other plugins.)

If you set the grid line widths to 0, then only the intersections will be drawn, as plus-marks.

Options

There are separate options for controlling the horizontal grid lines, vertical grid lines, and intersections. By default, the horizontal and vertical settings are locked together, so that all changes are applied symmetrically. If you want to change just one of them, click on the "chain" symbol below it to unlock them. The results of changing the "intersection" parameters are rather complex.

Besides, for some options, you can select the unit of measurement thanks to a drop-down list.

Maze
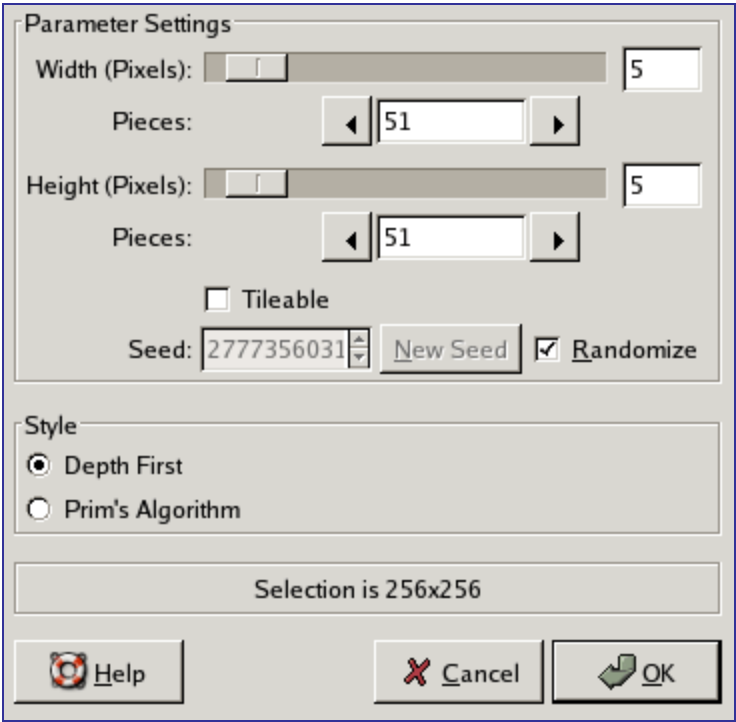
Overview
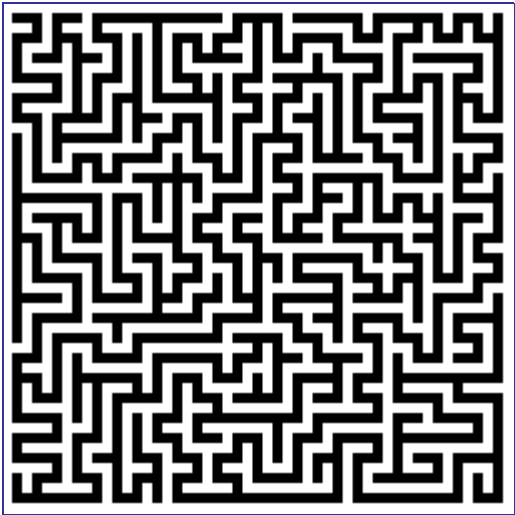
You can find this filter in image menu following Filters Render Pattern Maze

This filter generates a random black and white maze pattern. The result completely overwrites the previous contents of the active layer. A typical example is shown below. Can you find the route from the center to the edge?

Options

Jigsaw
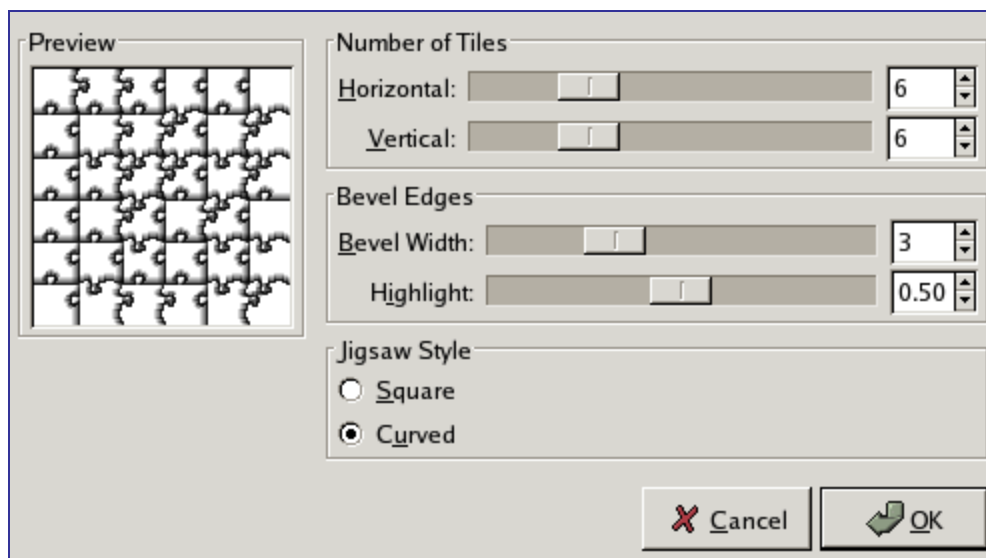
Overview

You can find this filter in Filters Render Pattern Jigsaw
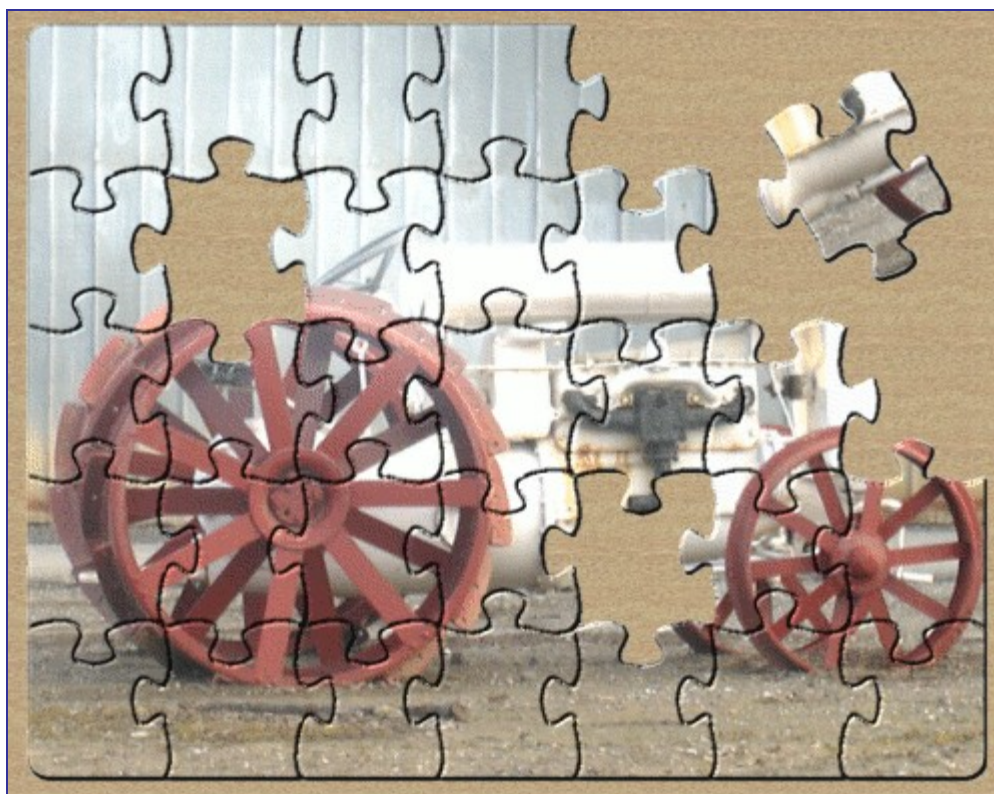
This filter will turn your image into a jigsaw puzzle. The edges are not anti-aliased, so a little bit of smoothing often makes them look better (i. e., Gaussian blur with radius 1.0).

If you want to be able to easily select individual puzzle-piece areas, as for the example above, render the jigsaw pattern on a separate layer filled with solid white, and set the layer mode to Multiply. You can then select puzzle pieces using the magic wand (fuzzy select) tool on the new jigsaw layer.

Options

Qbist
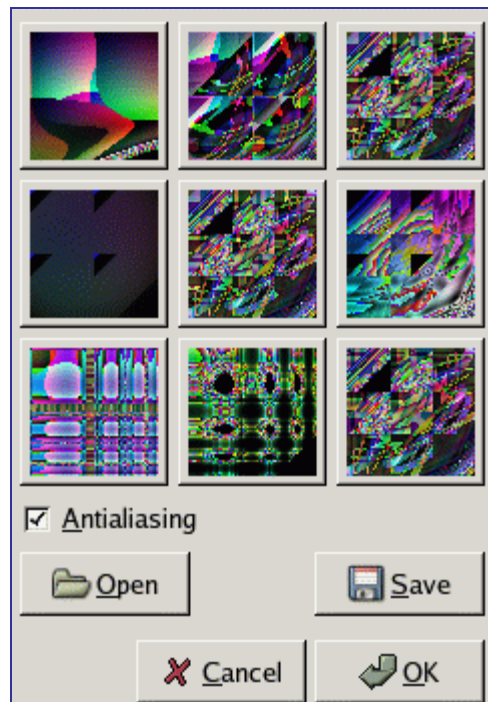
Overview

You can find this filter from the image menu through Filters Render Pattern Qbist

The Qbist filter generates random textures. A starting texture is displayed in the middle square, and different variations surround it. If you like one of the alternative textures, click on it. The chosen texture now turns up in the middle, and variations on that specific theme are displayed around it. When you have found the texture you want, click on it and then click OK. The texture will now appear on the currently active layer, completely replacing its previous contents.
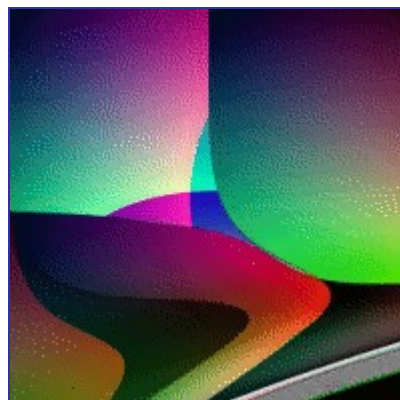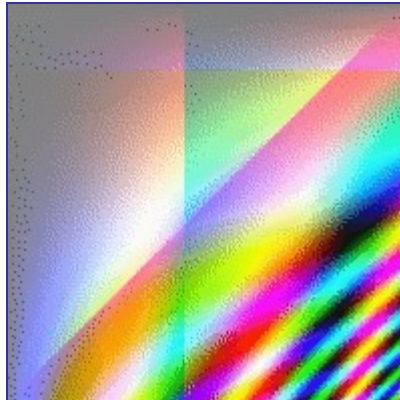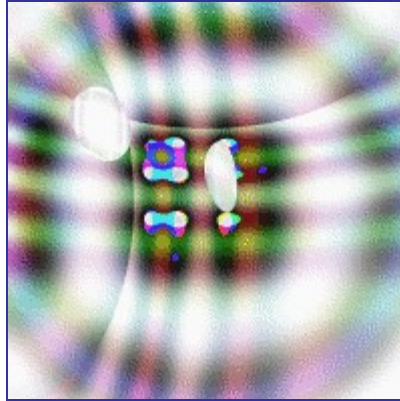
Options

Checkerboard

Overview
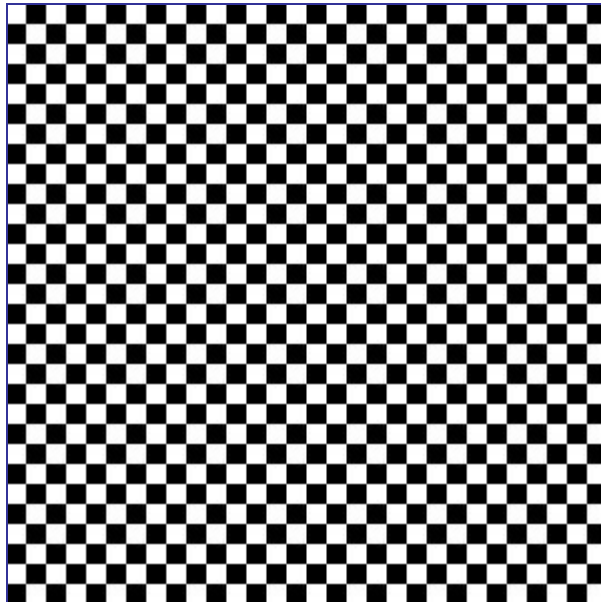
This filter creates a checkerboard pattern replacing the current layer content. Colors used for pattern are current Fore- and Back ground colors of toolbox.

Starting filter

You can find this filter in image menu following Filters Render Pattern Checkerboard

Options

Sinus

Overview
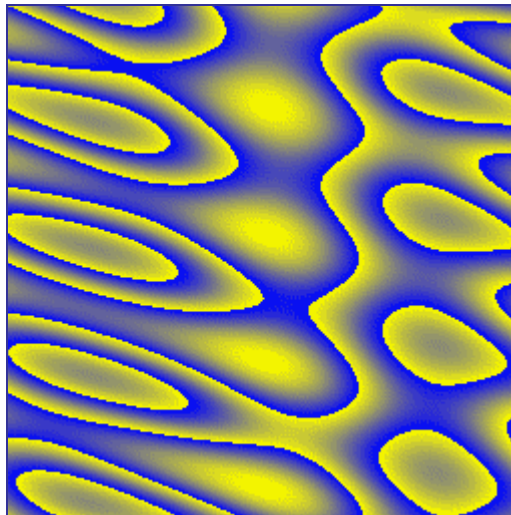
You can find this filter from the image menu through Filters Render Pattern Sinus

The Sinus filter lets you make sinusoidally based textures, which look rather like watered silk or maybe plywood. This plug-in works by using two different colors that you can define in the Colors tab. These two colors then create wave patterns based on a sine function.

You can set the X and Y scales, which determine how stretched or packed the texture will be. You can also set the Complexity of the function: a high value creates more interference or repetition in the pattern. An example is shown below.

Options

Fractal Explorer

Overview
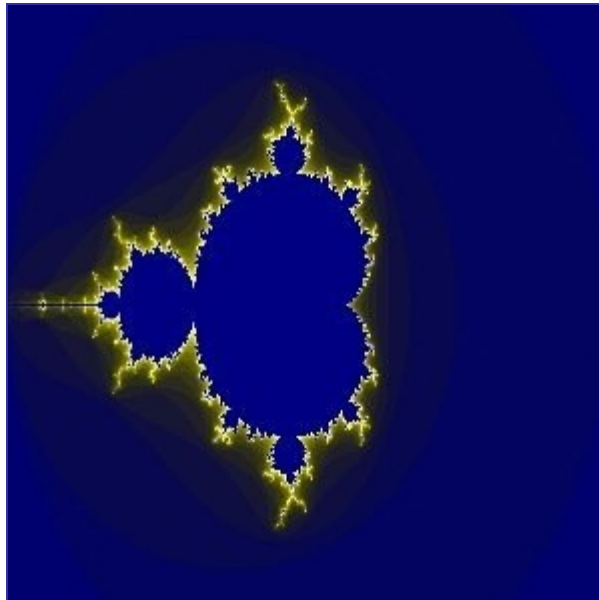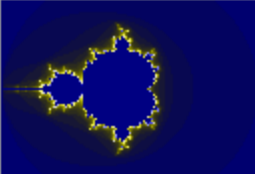
Starting filter

This filter is found in Filters Render Nature Fractal Explorer

Options

Gfig

Overview

This filter is a tool: You can create geometrical figures to add them to the image. It is very complex. I hope this paper will help you.

When using this filter, elements inserted in the image will be placed in a new layer. So the image will not be modified, all modifications occuring in this layer.

Starting filter

You get to this filter via the Image menu through Filters Render Gfig

Options
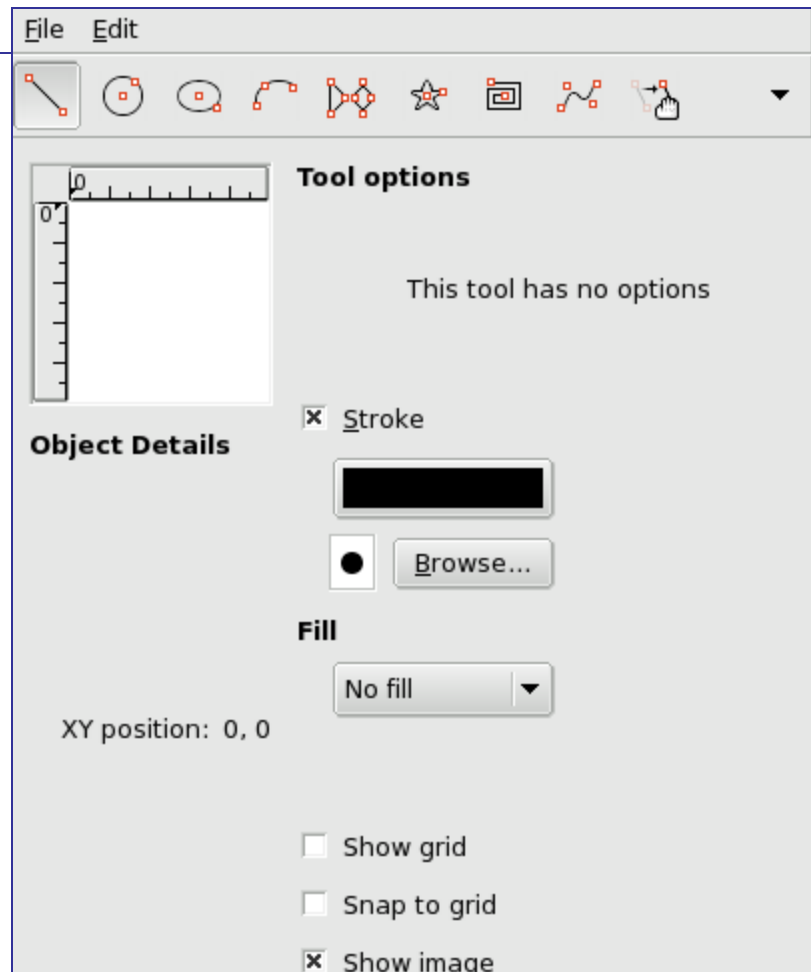
Combine filters

Combine filters introduction

The combine filters associate two or more images into a single image.

Depth Merge

Generated by docbook2odf
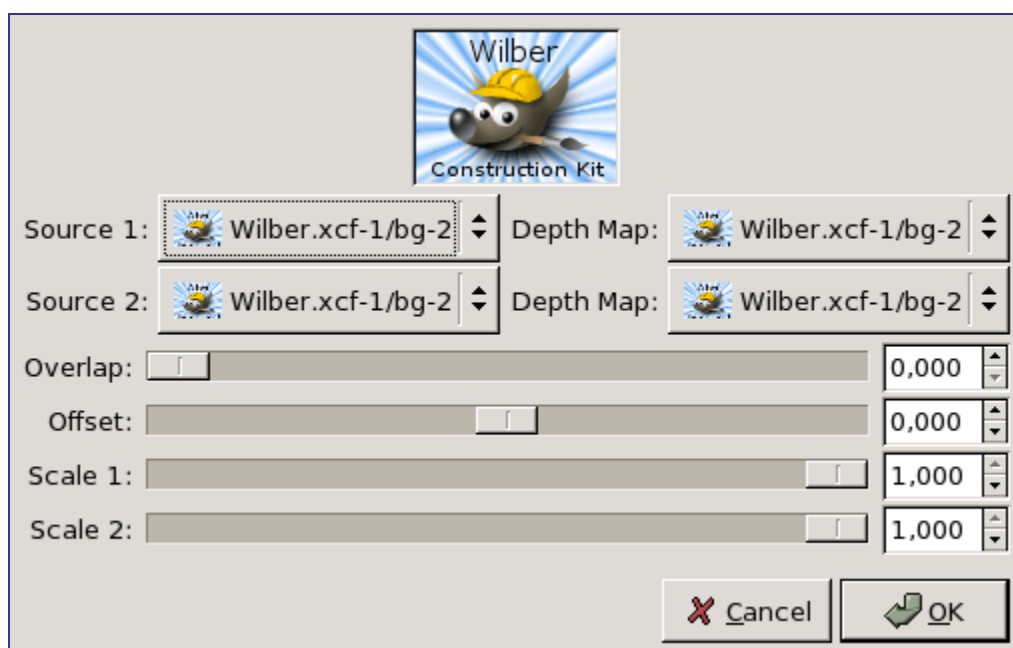
Depth Merge is a Combine Filter that is useful to combine two different pictures.

Overview

It combines the two pictures selected as "sources" by blending them. Darkest values are predominant in the resulting image. This could be done using blending modes but in this case there aren't any options.

To work with this filter, at least two images are needed that have to be same sized.

Accessing this Filter

This filter is in Filters/Combine/Depth Merge

Options

Film
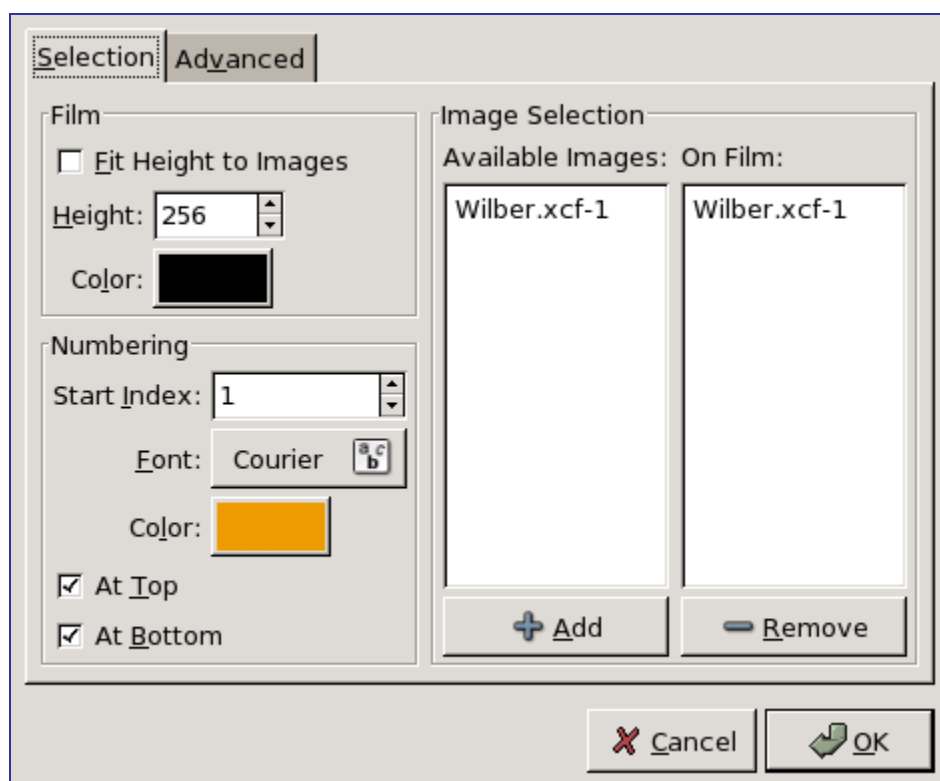
Overview

Film filter allows the user to merge several pictures into a photographic film drawing.

This filter does not invert colors, so it does not imitate negative film of the sort used to produce prints. Instead you should think of the result as an imitation of slide film or cinema film.

Accessing this Filter

This filter is in Image/Filters/Combine/Film

Options

Double click on the tool buttons opens the Tool Options dialog.

Click on the colors to change the colors.

These open a new dialog window if it wasn't open yet, otherwise the corresponding dialog gets focus.

This accepts the new value you typed in a text field and returns focus to canvas.

Menus can also be activated by Alt with the letter underscored in the menu name.

This fits the windows to the image size.

Scrolling by keys is accelerated, i.e. it speeds up when you press Shift+arrows, or jumps to the borders with Ctrl+arrows.

Drag off the horizontal or vertical ruler to create a new guideline. Drag a guideline onto the ruler to delete it.

This places a copy of the selection to the GIMP clipboard.

Refers to transparency. An Alpha Channel allows transparency control. Certain image formats may only contain a single Alpha Channel allowing a transparency of on or off. Other formats allow a variable level of transparency. The smaller the alpha value of a pixel, the more visible the color of the pixel on the level below it. A pixel with an alpha value of 0 is completely transparent.

Antialiasing is the process of reversing an alias, that is, lessening the "jaggies. Antialiasing produces smoother curves by adjusting the boundary between the background and the pixel region that is being antialiased. Generally, pixel intensities or opacities are changed so a smoother merge with the background is achieved. With selections, the selection edge is affected so that the selection edge opacity is lowered.
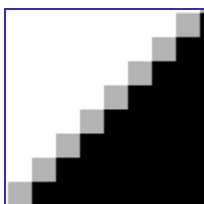
An uncompressed bitmap format used by Microsoft Windows for displaying graphics. Color depth is typically 1, 4 or 8 bits, although the format does support more.

"From The Free On-line Dictionary of Computing (13 Mar 01) : bitmap A data file or structure which corresponds bit for bit with an image displayed on a screen, probably in the same format as it would be stored in the display's video memory or maybe as a device independent bitmap. A bitmap is characterised by the width and height of the image in pixels and the number of bits per pixel which determines the number of shades of grey or colours it can represent. A bitmap representing a coloured image (a "pixmap") will usually have pixels with between one and eight bits for each of the red, green, and blue components, though other colour encodings are also used. The green component sometimes has more bits that the other two to cater for the human eye's greater discrimination in this component. "

Each image is divided up into separate channels and then recombined before being sent to the output device. An output device is most usually a screen. The channels that are used when rendering images to a screen are Red, Green, and Blue. Other output devices may use different channels.

Channels can be useful when working on images that need adjustment to one particular color. If, for example, the removal of "red-eye" is the goal, work on the Red channel is most obviously a ready solution. Channels can be seen as masks that allow or restrict the output of the color that the channel represents. By running filters against this channel information, many varied and subtle effects can be put in to play by the experienced GIMP user.

Clipboard is the term used to describe a temporary area of memory that is used to transfer data between applications or documents. The GIMP uses slightly different clipboard approaches when used under different operating systems. Under Linux/XFree, the XFree clipboard is used for text and The GIMP internal image clipboard is used for images that are being transferred between image documents. When The GIMP is used with other operating systems, differences may be apparent. Any differences should be

outlined in the operating system specific documentation for the individual GIMP package.

The most fundamental operations provided by a clipboard interface allow for Cut, Copy, and Paste. Cut is used to denote the removal of an item that is sent to the clipboard. Copy leaves the item in the document and copies it to the clipboard. Paste copies to the document whatever happens to be in the clipboard. The GIMP will make an intelligent decision about what to paste depending upon the target. If the target is a canvas, then paste operation will use the image clipboard. If the target is a text entry box, then the paste operation will use the text clipboard.

Dithering refers to the math and voodoo involved in rendering an image that has few colors seem like it has many. Dithering is accomplished in different ways depending on the output device and the program. One particularly effective method is clustering pixels of color together in an attempt to simulate another color. This is achieved by the human eye and the tendency for it to mix colors while viewing complex color patterns. A common dithering effect is seen on television screens or in newspaper print.From a distance the images seem to be constructed of many varied colors or shades, but upon closer inspection this is certainly not the case. A color television uses only three colors clustered together in various states of on or off. A black and white newspaper uses only black ink, yet pictures in newspapersappear to be constructed of grey tones. Furthermore, there are techniques used to achieve greater success in dithering.

The GIMP can use the Floyd-Steinberg dithering technique, for example. This dithering method is simply put, a mathematical way of clustering the pixels to accomplish better results thanother dithering methods. Of course, there are always exceptions and there are many different dithering models that are in usetoday.

A way that an image is written. You should select a file format which is suitable for your situation. JPEG and PostScript are examples of file formats.

Feathering is a process by which the edges of a region are softly blended with the background.

Floating selections are similar in function to layers except that floating selections must be anchored before work can resume on any other layers in the image. While a selection is floating, any number of functions can be used to alter the image data contained within the float.

There are two methods available for anchoring a float. The first, and most useful, is to change the float into a new layer. This is achieved by creating a new layer while the float is active. The second method involves anchoring the float to an already existing layer. This is done by clicking anywhere on the image except on the float. Doing so will merge the float with the background layer.

Any pasted selection will be first rendered as a floating selection.

This method of dithering looks at the current pixel color and retrieving the closest values from the palette. These colors are then distributed to the pixel areas below and to the right of the original pixel.

Trademarked by CompuServe, with LZW compression patented by Unisys. GIF images are in 8 bit indexed color and support binary transparency (but not semi-transparency). They can also be loaded in interlaced form by some programs. The GIF format also supports animations and comments. Use GIF for transparent Web graphics and GIF animations. For most purposes, though, PNG can be used in place of GIF and is a better choice.

GNU's Not Unix, is a project of a free (Unix like) operative system. The project was started back in 1983 thanks to the effort of the Free Software Fundation, an organization devoted to the creation and support of free software. GIMP is an official GNU application. You can find a better definition on the wikipedia site.

To place a guide, left-click-and-hold on a ruler and drag the mouse pointer in to the image. A guide appears and follows the pointer. You can so place two guides, a horizontal

one and a vertical one. They appear as blue dashed lines. They do not print.

Guides are a convenient way to position a selection or a layer. As soon as a guide is created, the Move tool is selected and the mouse pointer turns to a move icon.

Guide behaviour depends on the Affect mode selected in the Move tool. When the *Transform Layer* mode is selected, the mouse pointer turns to a small hand when it reaches a guide that becomes red and active. You can then move it by a click and drag. When the *Transform Selection* mode is selected you can place a guide, but you can no longer move it after quitting it.

To make positioning easier you can 'magnetize' guides with the option Snap to Guides

You can abort displaying guides without removing them by the option Show Guides

A way of representing color in the form #rrggbb where "rr" represents red, "gg" green, and "bb" blue. Commonly used in web design.

Hue Saturation Value, a way of representing color. The Hue is the color like red or blue, the Saturation is how strong the color is and the Value is the brightness. This is sometimes called HSB or Hue Saturation Brightness.

Image Hoses are special brushes that contain many different frames. An example of this might be a footstep brush that contains two images. One of a left footprint and one of a right footprint. During the application of this hypothetical hose brush, one would see the left footprint followed by that of the right in a continuous fashion. This method of animation for brushes is very powerful.

This paint mode renders each brush stroke directly onto the active layer. If incremental mode is not set, there is a canvas buffer that is composited with the active layer.
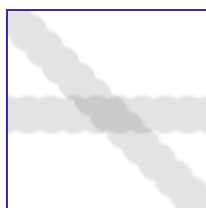
The two images above were created using a brush with spacing set to sixty. The image on the left shows non-incremental painting and the image on the right shows the difference that incremental painting can produce. Incremental paint mode results in each brush application, through the duration of a stroke, being rendered in addition to any previous brush renderings.

When you enlarge an image pixels become apart if image resolution is not enough. These missing pixels are replaced by pixels that are calculated from surrounding pixels, by interpolation. Interpolation methods in The GIMP are labelled with a speed marker. Faster methods lead to lower quality transformations whereas slower methods lead to higher quality transformations.

This format supports compression and works at all color depths. The image compression is adjustable, but beware: Too high a compression could severely reduce image quality, since JPEG compression is lossy. Use JPEG to create TrueColor Web graphics, or if you don't want your image to take up a lot of space. JPEG is a good format for photographs.

JPEG files usually have an extension .jpg, .JPG, or .jpeg. It is a very widely used format, because it compresses images very efficiently, while minimizing the loss of image quality. No other format comes close to achieving the same level of compression. It does not, however, support transparency, or multiple layers. For this reason, saving images as JPEG often requires them to be exported.
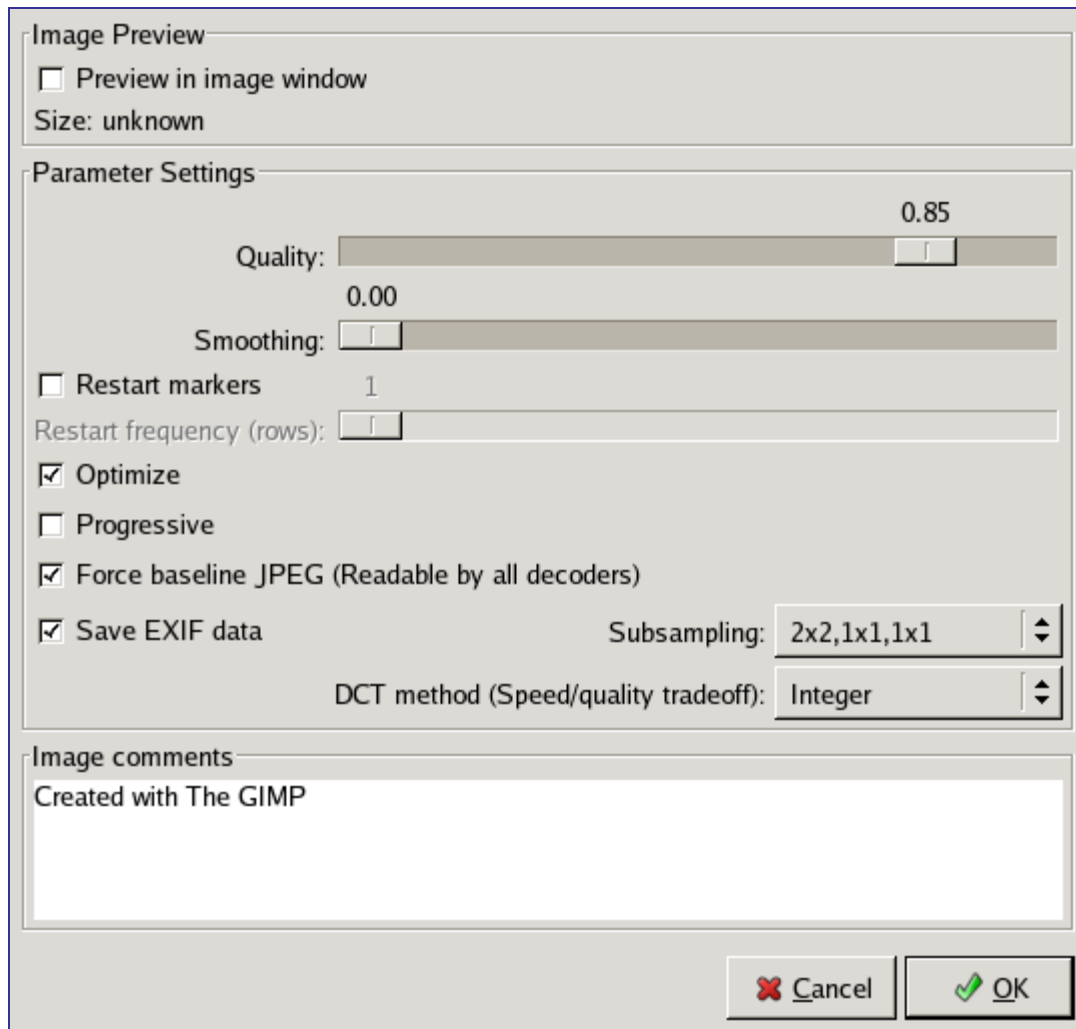
When you save a file in JPEG format, you get a dialog that allows you to set the Quality level, which ranges from 1 to 100. Values above 95 are generally not useful, though. The default quality of 85 usually produces excellent results, but in many cases it is possible to set the quality substantially lower without noticably degrading the image. You can test the effect of different quality settings by checking "Show Preview in image window" in the JPEG dialog. Checking this causes each change in quality (or any other JPEG parameter) to be visualized in the image display. (This does not alter the image, though: it reverts back to its original state when the JPEG dialog is closed.)

The JPEG algorithm is quite complex, and involves a bewildering number of options, whose meaning is beyond the scope of this documentation. Unless you are a JPEG expert, the Quality parameter is probably the only one you will benefit from adjusting.

JPEG files from many digital cameras contain extra information called EXIF data, specifying camera settings and other information concerning the circumstances under which the image was created. Gimp's ability to handle EXIF data depends on whether the library "libexif" is available on your system; it is not automatically packaged with Gimp. If Gimp has been built with libexif support, then EXIF data is preserved if you open an JPEG file, work with the resulting image, and then save as JPEG. The EXIF data is not altered in any way when you do this (which means that certain fields within it are no longer valid). If Gimp is not built with EXIF support, this does not prevent files with EXIF data from being opened, but it means that the EXIF data will not be present when the resulting image is later saved.

You can think of layers as a stack of slides or clothes on your body. Each part of clothes you're wearing is a layer in the layers dialog. Layers are stacked on top of each other. The

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bottom layer is the background of the image and the components in the foreground of the image come above it.

Representation of an image with layers:
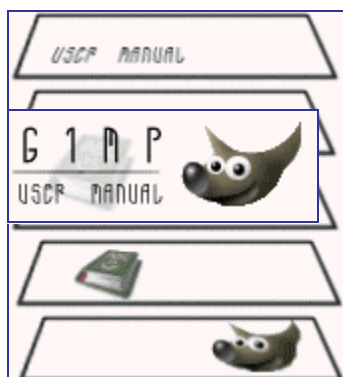
The final image:

This term describes the dotted line which surrounds a selection. The line is animated, so it looks as if little ants are running around behind each other.

You can disable the marching ants by unchecking the View Show Selection option or by using the CtrlT key combination.

GIMP offers 21 layer modes. The layer mode is used on the layers that are under the selected layer. If there is only one layer, the layer mode has no effect. It is therefore highly likely that at least two layers are required. The example images show the effects of each of the modes. The left image is the normal state and the right image shows the results of the layer mode.

Masks are special elements associated with a layer or a selection. They modify the transparency of the layer or selection.

They belong to two types:

- *Layer Mask*: Every layer can have its own mask. The layer mask represents the Alpha channel of the layer and allows you to manage the transparency of the layer. By painting on the layer mask, you can make some parts of the layer opaque or transparent: painting with black makes the layer transparent and painting with white makes the layer opaque. You can use all of the tools to paint on the mask. You can use the Layer mask for transition effects, volume effects, merging elements from another image, etc. See Layer Mask for more details.

- *Channel Mask*, also called *Selection Mask*: this mask represents the Alpha channel of the image. By painting on it with white, you remove the mask and increase the selection; with black, you reduce the selection. This procedure lets you create a selection very precisely. Moreover, Channel Masks let you save your selections; you can retrieve them later by using the "*Channel to selection*" command from the Channel menu. Channel masks are so important in Gimp that a special type has been implemented: the Quick mask. See Selection mask for more details.

  Markeringsmaske, av og til også kalla *Kanalmaske*: Denne maska representerer alfakanalen til biletet. Ved å mala med kvitt fjernar du maska og aukar markeringa. Maler du med svart, blir markeringa redusert. På denne måten kan du avgrensa markeringa heilt nøyaktig. Ved hjelp av kanalmaskene kan du også lagra markeringane og henta dei tilbake etter ønskje med kommandoen "*Kanal til maske*" i kanalmenyen. Kanalmaskene er mykje brukte i GIMP. Difor finn du også ei spesialmaske som bli kalla Snarmaske. Sjå meir om dette i Markeringsmasker.

A *path* is a one-dimensional tracing, either polygonal, or curved, or a mixture of segments of both types. In GIMP, the main uses of paths are either to form the boundaries of selections, or to be *stroked* to create visible curves on an image. See the Paths section for basic information on paths, and the Path Tool section for information on how paths can be created and edited.

In the Procedure Database (PDB), all of the functions which GIMP and its extensions make available are registered. Developers can look up useful information in the database about the functions provided.

PDF (Portable Document Format) was developed by Adobe to address some of the deficiencies of Postscript: most importantly, PDF files tend to be much smaller than equivalent Postscript files. As with Postscript, Gimp's support of the PDF format is via

Ghostscript.

Created by Adobe, PostScript is a page description language mainly used by printers and other output devices. It's also an excellent way to distribute documents. Gimp does not support Postscript directly: it depends on a powerful free software program called Ghostscript.

The great power of Postscript is its ability to represent vector graphics–lines, curves, text, paths, etc–in a resolution-independent way. Postscript is not very efficient, though, when it comes to representing pixel-based raster graphics. For this reason, postscript is not a good format to use for saving images that are later going to be edited using Gimp or another graphics program.

Linux distributions almost always come with Ghostscript already installed (not necessarily the most recent version). For other operating systems, you may have to install it yourself. Here are instructions for installing it on Windows:

- Go to the Ghostscript project page on Sourceforge .
- Look for package gnu-gs or ghostscript (non-commercial use only) and go to the download section.
- Download a prepared Windows distribution like gs650w32.exe or gs700w32.exe.
- Start the executable and follow the instructions of the installation procedure.
- Copy the executable gswin32c.exe from the directory bin of the ghostscript installation to the Windows directory (or any other directory that is contained in the PATH). As an alternative, advanced users can set an environment variable GS_PROG to point to gswin32c.exe (e.g. c:\gs\gsX.YY\bin\gswin32c.exe)

Now you should be able to read PostScript files with GIMP. Please note that you must not move the directories of ghostscript once the installation has finished. Registry entries have been created that allow ghostscript to find libraries. (These instructions courtesy of http://www.kirchgessner.net.)

The format that is supposed to replace the GIF format and thus provide a solution to GIF's trademark and patent issues. Indexed color, grayscale, and truecolor images are supported, plus an optional alpha channel. PNG also uses compression, but unlike JPEG it doesn't lose image information.

PSD is Adobe Photoshop's native file format, and thus is comparable to XCFin complexity. Gimp's ability to handle PSD files is sophisticated but limited: some features of PSD files are not loaded, and only PSD versions XX or less are supported. Unfortunately, Adobe has now made the Photoshop Software Development Kit which includes their file format specifications proprietary, and only available to a limited set of developers blessed by Adobe. This does not include the Gimp development team; and the lack of information makes it very difficult to maintain up-to-date support for PSD files.
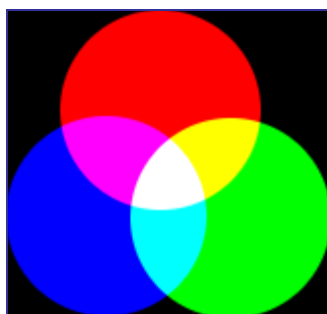
RGB in an acronym for Red-Green-Blue. These are the three additive primary colors. Blending together three *light sources* with these colors with different relative intensity, you can get any visible color combination, starting from black (all three sources with intensities equal to zero) to white (all three sources equal and at full light). For more information see Color model in this glossary.

Sample Merge is a technique useful when working with more than one layer where operations that affect one layer may take advantage of color or pixel information on all visible layers. Consider selection by color as an example of a time that this function may be useful.

With this technique, GIMP uses more pixels to calculate a transitional color, for instance, for interpolation. This technique results in a better image, but it requires more time for the calculations.

TGA (Targa Image File) format supports compression to 8, 16, 24 or 32 bits per pixel. It was originally developed by the Truevision company.

TIFF (Tagged Image File Format) was developed primarily for scanned raster graphics for color separation. Six different encoding routines are supported, each with one of three different image modes: black and white, grayscale and color. Uncompressed TIFF images may be 1, 4, 8 or 24 bits per pixel. TIFF images compressed using the LZW algorithm may be 6, 8 or 24 bits per pixel. Besides Postscript format, TIFF is one of the most important formats for preliminary stages of printing. It is a high quality file format, which is perfect for images you want to import to other programs like FrameMaker or CorelDRAW.

A URL (Uniform Resource Locator) is a subdivision of Uniform Resource Identifiers (URIs). URLs identify a resource over a primary access mechanism (commonly http or ftp) and the location of the resource in the computer network. The name of the URI scheme is therefore derived from the network protocol used for it as a rule. Examples of that are http or ftp.

Since URLs are the first and most common kinds of URIs, the terms are often used as synonyms.

A Uniform Resource Identifier (URI) is a string of characters that serves to identify an abstract or a physical resource. URIs are used for the identification of resources in the Internet (such as web pages, miscellaneous data, calling up web services, but also for receivers of e-mail, for example) and they are especially used in the Worldwide Web.

The XCF file type is special because it is GIMP's native file type: that is, it was designed specifically to store all of the data that goes to make up a GIMP image. Because of this, XCF files may be quite complicated, and there are few programs other than GIMP that can read them.

When an image is stored as an XCF file, the file encodes nearly everything there is to know about the image: the pixel data for each of the layers, the current selection, additional channels if there are any, paths if there are any, and guides. The most important thing that is *not* saved in an XCF file is the undo history.

The pixel data in an XCF file is represented in a raw, uncompressed form: each byte of image data equals one byte in the XCF file. Thus, XCF files for even modestly sized images can be quite large: for example, a 1000x1000 RGB image with 3 layers will produce an XCF file of over 10 megabytes. It is not at all difficult to get XCF files of over 100 megabytes. Fortunately, although XCF files do not intrinsically compress their data, GIMP allows you to compress the files themselves, using either the gzip or bzip2 compression methods, both of which are fast, efficient, and freely available. Compressing an XCF file will often shrink it by a factor of 10 or more. The pixel data in an XCF file is represented in a lossless compressed form: the image byte blocks are compressed using the lossless RLE algorithm. This means that no matter how many times you load and save an image using this format: not a single pixel or other image data will be lost or modified because of this format.

The GIMP developers have made a great effort to keep the XCF file format compatible across versions. If you create a file using GIMP 2.0, it ought to be possible to open the file in GIMP 1.2. However, some of the information in the file may not be usable: for example, GIMP 2.0 has a much more sophisticated way of handling text than GIMP 1.2, so a text layer from a GIMP 2.0 XCF file will appear as an ordinary image layer if the file is opened in GIMP 1.2.

The YCbCr color model was developed for the PAL television standard as a color model that is an easy deviation from the YUV color model. In the meantime, it has become the CCIR-601 standard for image and video recording. For example, it is used for JPEG pictures and MPEG videos, and therefore also on DVDs, video CDs and for most other widespread digital video standards. Note that a color model is still not a color space, since it doesn't determine which colors are actually meant by "red", "green" and "blue". For a color space, there still needs to be a reference to a specific absolute color value.

There are color models which do not express a color by the additive basic colors, red, green and blue (RGB), but by other properties, for example, the brightness-color model. Here, the criteria are the basic brightness of the colors (from black, through gray, to white), the colors with the largest portion (red, orange, yellow, green, blue, violet, or other pure colors that lie between them) and the saturation of the colors ("gaudy" to pale). This color model is based on the ability of the eye to recognize small differences in lunminosity better than small color differences, and to recognize those better than small differences in saturation. That makes gray text written on a black background easy to read, but blue text on a red background very hard to read, even with the same basic brightness. Such color models are called brightness-color models.

The YCbCr model is a slight adaptation of such a brightness-color model. An RBG color value is divided into a basic brightness, Y, and two components, Cb and Cr, where Cb is a measurement of the deviation from gray in the blue direction, or if it is less that 0.5, in the direction of yellow. Cr is the corresponding measurement for the difference in the direction of red or turquoise. This representation uses the peculiarity of the eye of being especially sensitive to green light. That is why most of the information about the proportion of green is in the basic brightness, Y, an only the deviations for the red and blue portions need to be represented. The Y values have twice the resolution of the other two values, Cb and Cr, in most practical applications, such as on DVDs.

The YUV color model uses two components to represent the color information, luma (the strength of the light per area) and the chrominance, or proportion of color (chroma), where the chrominance again consists of two components. The development of the YUV color model also goes back to the development of color television (PAL), where ways were sought for transmitting the color information, in addition to the black and white signal, in order to achieve backwards compatibility with old black and white televisions without having to maintain the available transmission bandwidth. From the YUV color model of the analog television techiques, the YCrCb color model was developed, which is used for most kinds of digital image and video compression. Erroneously, the YUV color model is also often spoken about in those areas, although the YCbCr model is actually used. This often causes confusion.

For the calculation of the luma signals (also *Leuchtdichte* signal), the underlying RGB data is first *verrechnet* with the gamma value of the output device, and an R'G'B' signal is obtained. The three individual components are added together with different weights, to form the brightness information, which also functions as the BAS signal for the old black and white televisions.

$Y=R+G+B$

The exact calculation is more complicated, however, since some aspects of the color perception of the human eye have to be taken into account. For example, green is perceived to be lighter than red, and this is perceived to be lighter than blue. Furthermore, gamma correction of the basic color is first performed in some systems.

The chrominance signals, and also the color difference signals, contain the color information. They are formed by the difference of blue minus luma or red minus luma.

$U=B-Y$

$V=R-Y$

From the three generated components, Y, U and V, the individual color proportions of the basic color can be calculated again later:

Y + U = Y + (B - Y) = Y - Y + B = B

Y + V = Y + (R - Y) = Y - Y + R = R

Y - B - R = (R + G + B) - B - R = G

Furthermore, because of the construction of the retina of the human eye, it turns out that the brightness information is perceived at a higher resolution that the color, so that many formats based on the YUV color model compress the chrominance to save on the bandwidth during transmission.

The very beginning

According to Peter Mattis and Spencer Kimball, the original creators of GIMP, in their announcement of GIMP 0.54:

The GIMP arose from the ashes of a hideously crafted cs164 (compilers) class project. The setting: early morning. We were both weary from lack of sleep and the terrible strain of programming a compiler in LISP. The limits of our patience had long been exceeded, and yet still the dam held.

And then it happened. Common LISP messily dumped core when it could not allocate the 17 MB it needed to generate a parser for a simple grammar using yacc. An unbelieving moment passed, there was one shared look of disgust, and then our project was vapor. We had to write something... ANYTHING... useful. Something in C. Something that did not rely on nested lists to represent a bitmap. Thus, the GIMP was born.

Like the phoenix, glorious, new life sprung out of the burnt remnants of LISP and yacc. Ideas went flying, decisions were made, the GIMP began to take form.

An image manipulation program was the consensus. A program that would at the very least lessen the necessity of using commercial software under `Windoze' or on the `Macintoy.' A program that would provide the features missing from the other X painting and imaging tools. A program that would help maintain the long tradition of excellent and free UNIX applications.

Six months later, we've reached an early beta stage. We want to release now to start working on compatibility issues and cross-platform stability. Also, we feel now that the program is actually usable and would like to see other interested programmers developing plug-ins and various file format support.

The early days of GIMP

The One to change the world

New in GIMP 2

Sad to say, no version of GIMP has yet been absolutely perfect. Even sadder, it is likely that no version ever will be. In spite of all efforts to make everything work, a program as complicated as GIMP is bound to screw things up occasionally, or even crash.

But the fact that bugs are unavoidable does not mean that they should be passively accepted. If you find a bug in GIMP, the developers would like to know about it so they can at least try to fix it.

Suppose, then, that you have found a bug, or at least think you have: you try to do something, and the results are not what you expect. What should you do? How should you report it?

The procedure for making an *enhancement request*–that is, for asking the developers to add a missing feature–is nearly the same as the procedure for reporting a bug. The only thing you do differently is to mark the report as an "enhancement" at the appropriate stage, as described below.

In common with many other free software projects, GIMP uses a bug-reporting mechanism called *Bugzilla*. This is a very powerful web-based system, capable of managing thousands of bug reports without losing track. In fact, GIMP shares its Bugzilla database with the entire Gnome project. At the time this is being written, Gnome Bugzilla contains 148632 bug reports–no, make that 148633.

Making sure it's a Bug

The first thing you should do, before reporting a bug, is to make an effort to verify that what you are seeing really *is* a bug. It is hard to give a method for doing this that applies to all situations, but reading the documentation will often be useful, and discussing the question on IRC or a mailing list may also be quite helpful. If you are seeing a *crash*, as opposed to mere misbehavior, the odds that it is a true bug are pretty high: well written software programs are not designed to crash under *any* circumstances. In any case, if you have made an conscientious effort to decide whether it is really a bug, and at the end still aren't sure, then please go ahead and report it: the worst that can happen is that you will waste a bit of time for the development team.

Actually there are a few things that are known to cause GIMP to crash but have turned out to be too inconvenient to be worth fixing. One of them is asking GIMP to do something that requires vast amounts of memory, such as creating an image one million pixels on a side.

You should also make sure that you are using an up-to-date version of GIMP: reporting bugs that have already been fixed is just a waste of everybody's time. (GIMP 1 is no longer maintained, so if you use it and find bugs, either upgrade to GIMP 2 or live with them.) Particularly if you are using the development version of GIMP, make sure that you can see the bug in the latest release before filing a report.

If after due consideration you still think you have a legitimate bug report or enhancement request, the next step is to go to GIMP's bugzilla query page (http://bugzilla.gnome.org/query.cgi), and try to see whether somebody else has already reported the same thing. The query page allows you to search the bug database in a variety of ways. Unfortunately this page is a bit more complicated to use than it really ought to be, but here is basically what you should do:

When you have set these things up, click on the "Search" button at either the top or bottom; they both do the same thing. The result is either a list of bug reports–hopefully not too long–or a message saying "Zarro boogs found". If you don't find a related bug report by doing this, it may be worth trying another search with different terms. If in spite of your best efforts, you file a bug report and it ends up being resolved as "Duplicate", don't be too upset: it has happened repeatedly to the author of this documentation, who works with GIMP Bugzilla nearly every day.

Reporting the Bug

Okay, so you have done everything you could to make sure, and you still think it's probably a bug. You should then go ahead and file a bug report. To do this, begin by going to http://bugzilla.gnome.org/enter_bug.cgi, and go down the page until you can select the component "GIMP".

The first time you file a bug report, you will be asked to create a Bugzilla account. The process is easy and painless, and you probably won't even get any spam as a result.

This takes you to the bug report form, which you should fill out as follows. Note that most of the information you enter can be changed later by the developers if you get it wrong, so try to get it right but don't be obsessive about it.

You can ignore the rest. When you have filled out all of these things, press the "Commit" button and your bug report will be submitted. It will be assigned a number, which you may want to make note of; you will, however, be emailed any time somebody makes a comment on your bug report or otherwise alters it, so you will receive reminders in any case. You can see the current state of your bug report at any time by going to http://bugzilla.gnome.org and, at the bottom of the page, in the "Actions:" area, entering the bug number and pressing the "Find" button.

Sometimes it is very helpful to augment a bug report with a screenshot or some other type of data. If you need to do this, go to the web page for your bug report, click on the link "Create a New Attachment", and follow the directions. But please don't do this unless you think the attachment is really going to be useful–and if you need to attach a screenshot, don't make it any larger than necessary. Bug reports are likely to remain on the system for years, so there is no sense in wasting memory.

What Happens to a Bug Report after you Submit it

At any time after it is submitted, a bug report has a "Status" that describes how it is currently being handled. Here are the possible values of *Status* and what they mean:

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