Beginning GIMP

From Novice to Professional

Akkana Peck

Apress®

Beginning GIMP: From Novice to Professional

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ISBN-13 (pbk): 978-1-59059-587-9

ISBN-10 (pbk): 1-59059-587-4

Printed and bound in China 9 8 7 6 5 4 3 2 1

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Distributed to the book trade worldwide by Springer-Verlag New York, Inc., 233 Spring Street, 6th Floor, New York, NY 10013. Phone 1-800-SPRINGER, fax 201-348-4505, e-mail orders-ny@springer-sbm.com, or visit http://www.springeronline.com.

For information on translations, please contact Apress directly at 2560 Ninth Street, Suite 219, Berkeley, CA 94710. Phone 510-549-5930, fax 510-549-5939, e-mail info@apress.com, or visit http://www.apress.com.

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To Dave.

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About the Author

AKKANA PECK is a freelance software developer who has been working with open source software for over 20 years, and using the GIMP for 8 of those years. She has worked for a diverse collection of research labs and companies, including Mozilla development at Netscape, as well as participating in projects at Silicon Graphics, Sun, HP, Apple, and others.

She has written imaging software ranging from GIMP plug-ins to photo viewing to cartography to scientific visualization, as well as articles and how-tos on Linux, astronomy, and other topics for various publications and websites.

About a decade ago, her longstanding hobby of photography spawned an interest in digital imaging and creating photos for the web. Frustration with the existing Windows tools, combined with a switch to Linux as her primary platform, led to fiddling with the basics of the GIMP. After a long period of resistance she was finally persuaded to go beyond basic photo cropping and resizing and try "that layer thing," and the rest is history.

Akkana is a longtime member of the GIMP community and an occasional contributor to the GIMP's source code. She enjoys hiking, mountain biking, and astronomy as well as filling up her hard drive with digital images that she can never seem to bring herself to delete, mostly of scenes from local trails and from travels in the desert southwest. She lives in San Jose, California, with her husband and a motley assortment of old computers.

About the Technical Reviewer

A native of Madrid, Spain, **Guillermo S. Romero**, while always technically oriented, became interested in art through building and painting scale kits as a child, and that has shaped his life ever since. He graduated from Universidad Politécnica de Madrid, with a degree in Telemática, a specialization of Ingenieria Técnica de Telecomunicaciones. While studying, he began to explore Linux, POV-Ray, GIMP, and Blender, mixing technology and art. This knowledge led to some freelance jobs in the form of articles for magazines and reviews for book publishers.

After a few pure telecommunication jobs, he decided that his career should mix technology and art. Currently working for a small publisher dedicated mostly to photography and scale kit magazines and books, he is discovering that drawing with a pen can be learned, step by step, with the right people around providing guidance. His other hobbies are reading, playing in a b&w photography laboratory, walking, and swimming.

Acknowledgments

First of all, thanks to my husband, David North. Not only did he help enormously with formatting, proofreading, finding sample photos, and endless testing of GIMP quirks on multiple platforms, but he also put up with the neuroses of a stressed out first-time author.

Equally important is Guillermo Romero, the book's technical reviewer, without whom this book would not have been possible. He patiently waded through first drafts, flagged my silly errors, asked probing questions, and took the time to teach me a lot about digital art. I'm not an artist yet, but I'm learning.

Thanks to all the GIMP developers for using their talents and spare time to create such a wonderful program, and for spending even more time explaining details of the program to folks who need help. Some of the most active (in order by CVS check-ins): Sven Neumann, Michael Natterer, Bill Skaggs, DindinX, Manish Singh, Karine Delvare, Simon Budig, Tor Lillqvist, Nathan Summers, Michael Schumacher, Kevin Cozens, Maurits Rijk, Seth Burgess, Raphaël Quinet, Helvetix Victorinox, Hans Breuer, Jay Cox, Øyvind Kolås, Jernej Simoncic, and Aaron Voisine. And thanks to Carol Spears, whose online tutorials and explanations cleared up all sorts of details that weren't explained anywhere else.

Thanks to Pat Peck (hi, Mom!) and the members of Linuxchix who were willing to be guinea pigs for the online GIMP course that indirectly led to this book. And to two other Linuxchix: Carla Schroder, author extraordinaire, who reassured me that I could actually take on this task and was a great source of writing tips and witty remarks; and Dana Sibera, for laughs and an appreciation of what a real artist can do with (or to) a photo.

Thanks to Lisa and Evan Avery, for letting me use the photo of their son Ethan; to Cathleen Wang Blythe and the world's cutest dog, "Polarbear"; and to Dave Nakamoto and Dragan Stanojević (Nevidljvi) for helping out with samples of image stacking (which unfortunately didn't make it into the final version due to space considerations).

Last but not least, many thanks to the folks at Apress for helping me through every step of the process, and for putting up with a new author's never-ending tweaks and revisions. In particular, thanks to open source editor Matt Wade, project manager Grace Wong, insightful copy editor Chandani Thapa, attentive production editor Kelly Winquist, and eagle-eyed proofreader Elizabeth Berry.

Introduction

So you want to learn image editing!

Maybe you've been shooting lots of pictures with your digital camera and want to learn how to make them look great, or prepare them for the web.

Maybe you're interested in creating drawings or cartoons. Or you're already editing images, but you want to get better . . . even learn some of the theory behind imaging.

In any case, you've been hearing about the GIMP—the GNU Image Manipulation Program—and you're ready to learn how to use it and get the most out of it.

This book is ideal for anyone attempting image editing for the first time, but it goes deep enough to satisfy the intermediate GIMPster who knows the basics but needs more. Plus, it contains enough hidden tricks and reference matter to gratify even power users. Anyone with an interest in digital art and a willingness to explore should find lots of useful tips and fun projects throughout the book.

Structure of the Book

The first few chapters assume no knowledge at all of the GIMP or of any other image editing program. Later chapters will assume you've picked up these basics, and will build on them.

Chapter 1 introduces the GIMP's various windows, menus, and interface conventions. GIMP has a somewhat different user interface from most other programs, so it helps to get an idea of how its windows and dialog boxes work together and how the menus are structured.

Beginning with Chapter 2, you'll dive into practical image editing tasks. Chapters 2 through 6 each cover a different category of image operations—layers, drawing, selection, touching up—and each one describes a series of different and related techniques.

Chapter 7 takes you on a whirlwind tour of the special effects available in the GIMP. Then you'll dive into more advanced topics in Chapters 8 through 10, which cover subjects such as color theory, layer mode effects, shading, perspective, image stacking, and panoramas.

Chapter 11 explores scripts and plug-ins: how they work, how to install existing ones, and how to take one and tweak it to do something slightly different. I hope that even people with no programming experience will at least take a look at the scripting sections; there's a lot you can do with GIMP scripts, even if you've never written a line of code before.

For the exercises throughout most of the book, you will want to have some digital photographs handy. If you don't already have a digital camera or a collection of scanned photographs, "Additional Resources" in Chapter 12 offers a list of places on the web to find all sorts of terrific photos you can use in your own projects. The rest of Chapter 12 covers a few topics that don't fit anywhere else in the book, plus web resources for finding more GIMP information.

If you don't already have the GIMP installed on your computer, begin by skipping ahead to Appendix A for an outline of how to install the GIMP on the most common platforms it supports—Windows, Mac OS X, and Linux. If you ever decide you want to build the GIMP from source, Appendix F has tips on how to do just that.

A Note on Versions

This book was written based on GIMP 2.3 development builds, slated to become the next stable release, 2.4. However, it's intended to be useful with GIMP versions 2.2 and 2.0 as well.

Some features have changed during the development of 2.3, and some of the menus were restructured to group items in a more logical way. When possible, I mention locations of menu items in the older GIMP 2.0/2.2 menu structure as well as their new location in GIMP 2.4.

A few features, such as the SIOX selection tool, are new for 2.4. Users of 2.2 can skip those sections, or try installing the latest GIMP in order to try them out. Rest assured that even if you don't have those features yet, you will eventually!

Downloads and Feedback

When learning image editing, it's always helpful to have lots of examples to work with. Some of the images that appear in the book are available in the GIMP's native XCF format on the Apress web site, along with any scripts used to create them. You'll also find source code there for the scripts and plug-ins presented in Chapter 11, along with any (gasp!) errata. Just point your browser to *www.apress.com* and search for this book.

Please email any feedback or suggestions to *akkana@gimpbook.com*.

I hope you enjoy your introduction to the GIMP!

CHAPTER 1

Get to Know the GIMP

Welcome to the GIMP, the premiere open source image-editing program!

This chapter will introduce you to the GIMP's most important windows, menus, and settings, and will offer some tips along the way. I'll cover the following topics:

- What is the GIMP?
- A tour of the important GIMP windows and menus
- Some GIMP settings you can customize, and why you might want to
- A first GIMP project

At the end of this chapter, you'll get a chance to try a simple project: combining two images into one.

What Is the GIMP?

The *GNU Image Manipulation Program*, more commonly known as the GIMP, is a program for creating and editing bitmapped images. That means it's well suited for editing digital photographs and typical web graphics. You can also use it to make some pretty amazing drawings.

The GIMP is a complex program suitable for professional artwork, but it's also just plain fun—a place to play with pretty pictures and let your imagination run wild. As you read this book, please keep that in mind. Make a point of "fooling around" and having fun with your image-editing projects.

The GIMP arose out of a 1995 computer science class project by Spencer Kimball and Peter Mattis. Within a year, it had grown into a popular open source project, with users and contributors from around the world.

Today, the GIMP is used by countless people worldwide. It runs on most Windows systems, Mac OS X, Linux, and most versions of UNIX. The program is free software in both senses of the word "free": you don't have to pay anything to use it, and the GIMP's inner workings, or "source code," are available for anyone to examine, contribute to, distribute, or learn from. The latest is always available from *http://www.gimp.org*.

The GIMP stands as a shining example of the power of free, open source software. It's written and maintained by volunteers who keep in touch by means of internet relay chat (IRC) and mailing lists, despite time zone and language differences. Users of the GIMP who want to

get more involved can participate in the GIMP's mailing lists, contribute bug fixes or new features, design new brushes or patterns, or write their own plug-ins and scripts to share with the world. Or they can just enter goofy photo contests to show what cool things can be done with the GIMP!

■ **Note** The GIMP is constantly evolving. The screenshots in this book are based on an early version of GIMP 2.4, though most of the information here applies to any version of the GIMP from 2.0 on.

A Tour of the Important GIMP Windows and Menus

The GIMP normally enables you to keep several windows open at once, rather than having all its functions available from one window. This gives you control over where the various windows are positioned and which ones remain visible.

The following sections describe some of the most important windows GIMP uses: the Toolbox window (and its sibling, the Tool Options dialog), the Layers dialog, and the image windows.

The Toolbox Window

The Toolbox is the GIMP's main window. No matter how many images you have open at once, you'll only have one Toolbox. In its most basic form, it looks like Figure 1-1.

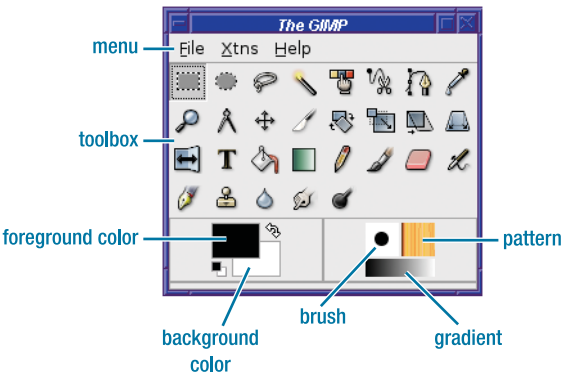

Figure 1-1. *The GIMP Toolbox*

The Toolbox window has four parts: a menu bar, the Toolbox buttons, the color swatches, and buttons for the current brush, pattern, and gradient.

You can resize the Toolbox to any size you like, and the tool buttons will adjust their positions. As new versions of the GIMP are released, the tool buttons sometimes change position, so it's best not to rely on a tool being in any particular place in the Toolbox.

The menu bar offers operations that don't apply to a currently open image. This includes *File* operations such as *New* and *Open*, a *Help* menu for online help, and a menu labeled *Xtns*.

Of particular interest is the *Xtns* menu. This menu gives you access to a menagerie of extensions that can create new images. Inside are submenus offering a collection of scripts that create many different styles of buttons (for use on web pages), text logos, shapes such as a sphere, interesting patterns and brushes, and themes you can use for web pages. Take a few moments to explore some of these functions. You can accomplish quite a bit right here, without knowing any more of the GIMP.

The *Xtns* menu also contains the GIMP's Plug-in Browser. Many of the GIMP's functions are implemented as plug-ins, and it can sometimes be difficult to find just what you're looking for in the menus. The Plug-in Browser lets you search for plug-ins by name, and then tells you where in the menus to look for them. See Chapter 11 for more details.

The Toolbox buttons, occupying the central part of the Toolbox window, represent tools for drawing, changing, and modifying images. The tools are specific to various functions such as drawing, handling text, or moving objects. You'll learn more about them in Chapters 2, 3, and 4. Each tool has a *tooltip* to help you remember its function, which you can see by moving your mouse over each button and pausing for a second or two.

The GIMP's tools are also accessible through the *Tools* menu in the image window, and most tools have an associated keyboard shortcut, which you can learn by looking for the tool in the *Tools* menu. In addition, there's a Tools dialog, accessed via *Dialogs* ➤ *Tools* from any image window, or *File* ➤ *Dialogs* ➤ *Tools* from the Toolbox.

Tip Not only can you access the GIMP's tools from the Tools dialog, but also you can add or delete tools from the buttons shown in the Toolbox by clicking on the "eyeball" icon next to each tool in the Tools dialog. You can also change the order of the Toolbox buttons by dragging and dropping the tools within the dialog.

The color swatches allow you to change the foreground and background colors used by the GIMP's drawing and text tools. Initially they're black and white, but clicking on one of the swatches brings up a color chooser that allows you to select any color. This will be explained further in Chapters 3 and 4.

The brush, pattern, and gradient are used for drawing; these will be discussed in more detail in Chapter 4.

The Layers Dialog

In addition to the Toolbox window, the GIMP brings up a dialog window labeled "Layers, Channels, Paths" (Figure 1-2). For simplicity, I'll refer to this as the Layers dialog.

Your first instinct upon seeing the Layers dialog may be to wonder what it is and close it. Don't! You'll be using layers quite soon (Chapter 3), and they're incredibly useful for all sorts of image operations. If you do close the Layers dialog and want to get it back, you can find it in the *File* ➤ *Dialogs* submenu in the Toolbox window, along with a collection of other dialogs the GIMP offers.

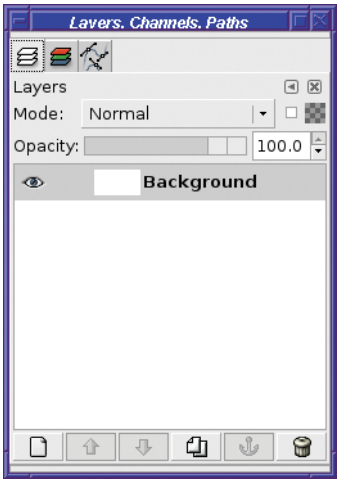

Figure 1-2. *The Layers dialog*

■ **Note** The GIMP has quite a few dialogs in addition to the Layers dialog, and these can be grouped together. You can see a list of them in the *File* ➤ *Dialogs* submenu of the Toolbox window. See the section "Grouping Dialogs by Docking" later in this chapter.

The Tool Options Dialog

Each tool in the Toolbox has options associated with it. These options are collected in a dialog called Tool Options.

The Tool Options dialog is normally docked just below the Toolbox (Figure 1-3), although you can split it off into a separate dialog if you prefer. (See later in this chapter for an explanation of docking under "Grouping Dialogs by Docking.") The dialog isn't titled "Tool Options"; instead, the title reflects the current tool, in this case, "Rect Select." When you choose a new tool in the Toolbox, the contents of the Tool Options dialog immediately change to reflect options that apply to the new tool. If you prefer to use Tool Options as a separate dialog, double-clicking any tool in the Toolbox will bring up its Tool Options dialog.

Some tools have quite a few options. If there are too many options to fit in the window size you've chosen, a scrollbar will appear. The most common options are usually listed first, so most of the time you won't need to scroll to see the options you need.

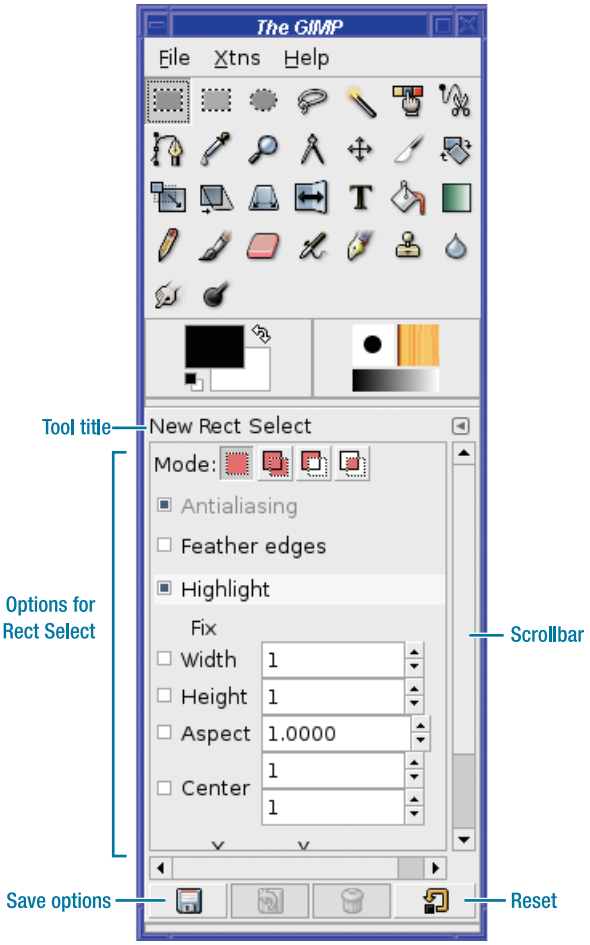

Figure 1-3. *Tool Options for Rect Select*

Image Windows

An image-editing program isn't any fun without images. In the GIMP, every image has its own window (Figure 1-4).

Let's start at the top. The image window's title bar gives information about the image: its file name and internal GIMP identification number, whether or not it's in full color (denoted RGB, for *red, green, and blue*), the number of layers, and the current size of the image. You can change the information in the GIMP's title bar; see the section "Image Windows: Title and Status" later in this chapter for more information.

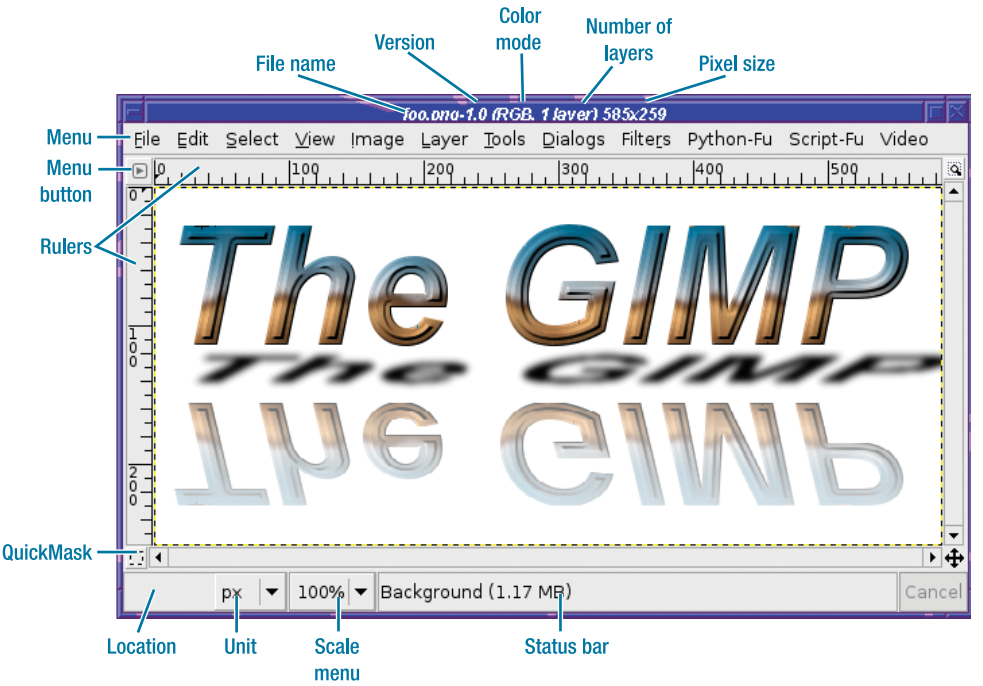

Figure 1-4. *An image window*

The window also has a menu bar, which offers a selection of operations for working on the image. You can hide the menu bar to offer more space for the image (via Preferences); in that case, use the menu button at the upper-left corner of the window to show the menu, or click the right mouse button on the image.

The rulers at the top and left side of the image window show the position of your mouse in the image. You can also use the rulers to set up *guides*, or grid lines on the image to help you draw exactly where you want (you'll meet guides in Chapter 4).

The *QuickMask* button helps with defining selections. See Chapter 5 for a detailed discussion of how to use the quick mask.

The location area in the lower-left corner gives a precise readout of the current mouse position if your mouse is in the window (otherwise it's blank). The menu button next to it lets you show the mouse position in any unit you find most comfortable, such as pixels, inches, or points.

The *scale menu* shows whether the image is currently being displayed at actual size (100%), shrunk to a smaller size, or magnified to a larger size. You can change the magnification with this menu, via the *View* ➤ *Zoom* menu, or by using the + and – keys. If you have a mouse with a scroll wheel, you can also zoom by using the Control key in combination with the mouse wheel.

The status bar shows more information about the image: specifically, which layer is selected and how much memory the image is using. The *Cancel* button next to the status bar becomes active when the GIMP is in the midst of a time-consuming operation.

The navigation control in the lower-right corner lets you *pan* around the image instead of using the scrollbars. For large images that don't fit on the screen, panning can be quicker. You can also pan by dragging in the image window while holding down the middle mouse button.

The zoom control toggles whether the image window changes its size when you zoom in or out; you can also change this behavior with a preference.

Context Menus and Tear-offs

Quite a few operations in the GIMP can be accessed via *context menus*, by using the right mouse button (or Command-click on the Mac if you still have a one-button mouse). For instance, layers in the Layers dialog have a context menu associated with them. Right-click on the line corresponding to a specific layer to see a menu of operations you can run on that layer.

Some menus, such as the menus in image windows, are also available as menu bars at the top of the window. But it's useful to know about the context menus as well, and they offer some features that the menu bars don't. The most useful of these features is *tear-offs* (Figure 1-5).

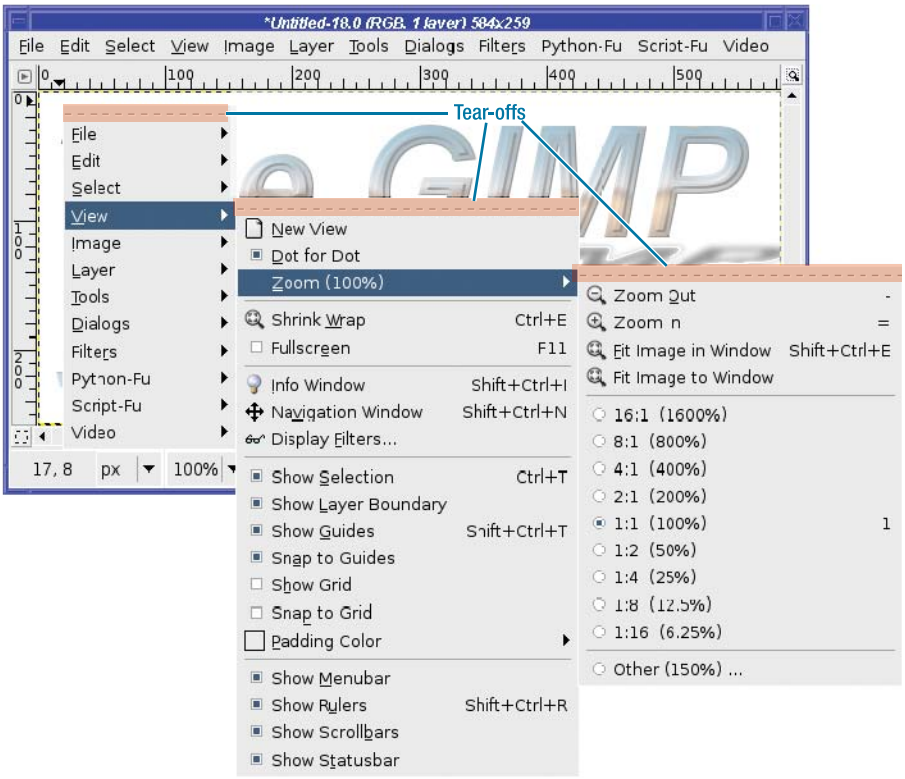

Figure 1-5. *Context menus*

Figure 1-5 shows a context menu expanded several levels deep. Notice the dotted lines at the top of each menu. These are tear-off lines—think of them as perforations for tearing off the menu underneath. Click on a tear-off, and the menu under it detaches and becomes a separate window. This is a useful way to access functions that you need to run often, without having to navigate the menu system each time. Figure 1-6 shows what a torn-off menu window looks like. You can move this window to a convenient place on the screen for one-click access to the functions inside. Clicking on the dotted tear-off at the top of the window will close the window.

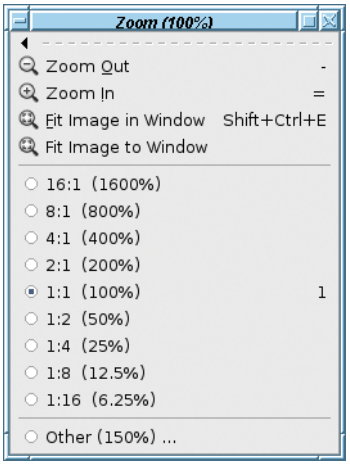

Figure 1-6. *A torn-off menu*

Image Window Menus

The image window's menus, when combined with the tools in the Toolbox, make up the heart of the GIMP. Everything you'll need to modify an image should be accessible here.

The *File* menu contains familiar file operations: *New, Open, Save, Save As...* Don't neglect the *Open Recent* submenu; you can use it to get back quickly to images you've edited in the past few days.

Edit includes *Cut*, *Copy*, and *Paste* operations, which you will use frequently to move information between images and layers. Other useful items in this menu are: *Clear* (which removes the contents of the current selection) and three variants of *Fill*. Most of the items in the Edit menu have keyboard equivalents. You may find you'll want to learn the shortcuts for these items since they're so frequently useful.

The *Select* menu controls actions that modify the current selection. You can select *All* or *None*, *Invert* the selection (select everything not currently selected, and vice versa), make the selection smaller (*Shrink*) or larger (*Grow*), or its edges fuzzier (*Feather*) or sharper (*Sharpen*).

The *View* menu controls how you see the image. Items in this menu don't change the image that will be saved to disk, merely the way you view it on screen as you edit it. The menu includes a Zoom control that lets you zoom in or out on the image (this does not make the

image any bigger or smaller when you save it, it merely changes your view of it), as well as toggles to select whether various attributes such as the selection, guides, rulers, layer boundaries, grids, and the menu bar are visible.

Tip An easy item to overlook in the *View* menu is the very first one: *New View*. This lets you have more than one view of the same image. For example, you might have one window showing the image zoomed in so you can change individual pixels, and another showing the image at normal size to see what the image will look like when you're finished. They're both still the same image as far as the GIMP is concerned: any changes you make in one view will be reflected in the other.

The *Image* menu contains functions that apply to the current image as a whole:

- *Image* ➤ *Duplicate* makes a new copy of the image, which will appear in a new window: this is not a separate view of the same image, as *New View* would be, but a new image, with a new name. Changes you make to this image will not be reflected in the original image.
- *Image* ➤ *Transform* provides a quick way to flip an image horizontally or vertically, or to rotate it 90 or 180 degrees. For more complex rotations, use the Rotation tool. You'll learn more about rotation in Chapter 2.
- The rest of the *Image* menu concerns the image's size in pixels or your selected units (*Canvas Size*...), the image's print resolution (*Print Size*...), rescaling of images larger or smaller (this actually changes the image, unlike *Zoom*), some cropping and layer utilities, and utilities to handle guides and the grid. All these functions will be covered thoroughly in subsequent chapters.

The *Layer* menu contains functions that operate only on the current layer. Some of these items look the same as items in the *Image* menu: for instance, *Transform*, *Scale*, and *Autocrop* appear in both menus. But they're different: items in the *Layer* menu only affect one layer and not the whole image. This distinction will become much clearer in Chapter 3, when you start to use layers.

The *Colors* menu contains functions related to the colors of the image, which you will learn about in Chapter 2. Earlier GIMP versions located this menu inside the *Layer* menu.

The *Tools* menu gives you another way to access the tools in the Toolbox window. Most of the time you'll probably keep the Toolbox open and access tools that way, so you won't need this menu.

The *Dialogs* menu gives you access to any dialog, whether or not it's currently visible; it's the same as the *Dialogs* menu in the Toolbox window.

Filters provides access to the plethora of image filters and plug-ins available in the GIMP. Most external plug-ins you install will also show up in these menus. (In earlier versions of the GIMP, some of these functions appeared in additional menus such as *Script-Fu* and *Python-Fu*.)

Tip In the GIMP 2.2 and earlier, it wasn't always easy to predict in which of these menus a particular function would show up. It depended on the language in which the function was written: C, Python, Perl, or Script-Fu. You'll learn about these differences in Chapter 11; for now, either explore on your own, or try using the Plug-in Browser in the Toolbox *Xtns* menu to locate the function you need.

Functions in all of these menus operate on the current image. Chapter 7 will explore them in much greater detail. It's well worth spending a few minutes (which may turn into hours) trying the various filters on an image to see what they do. You can take a photograph and turn it into an oil painting on canvas, a cylinder or cone, a rapidly moving blur, or a line-art sketch. You can add borders, drop shadows, or coffee stains. The possibilities are nearly endless.

Grouping Dialogs by Docking

As mentioned earlier, GIMP dialogs can be grouped together using a process called *docking*. For instance, the "Layers, Channels, and Paths" is really three dialogs, but GIMP normally groups them together as tabs in one dialog.

Docking lets you combine windows in a way that fits your own personal style: you can have lots of little windows, or you can dock windows together to make one large control window. (Image windows will still be separate.)

Each GIMP dialog window has a set of *docking bars*, thin horizontal strips you can use to add other dialogs to the window (Figure 1-7). There's usually a docking bar at the top of the window, another one at the bottom, and, if more than one function is docked into the window, an additional docking bar below each function.

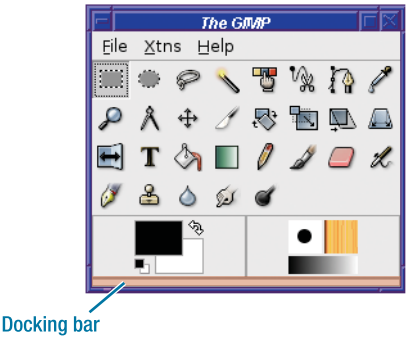

Figure 1-7. *Docking bar in the Toolbox window*

Separate dialogs (those not currently docked into another window) also have a drag-handle area (Figure 1-8), including the dock's title and an area to the right of it, which offers a place to drag.

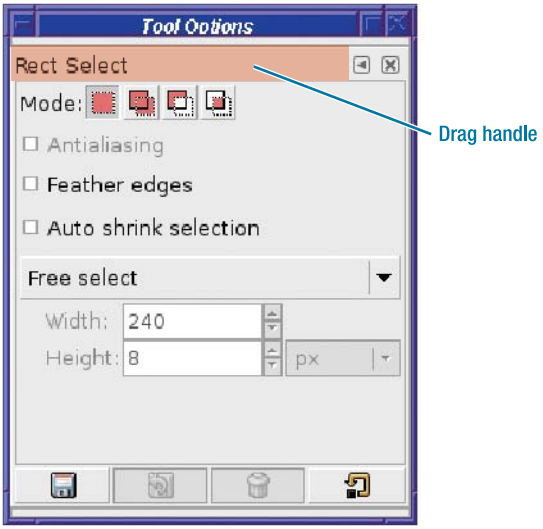

Figure 1-8. *Drag handle in the Tool Options dialog*

To dock a dialog, drag with the left mouse button from the drag handle into the docking bar where you want the dialog to end up. The docking bar will light up in a different color when you drag over it, letting you know that you can release the mouse button and dock your dialog there.

■ **Note** In some Windows versions, you may see a cursor shift rather than a color change. Other than that, it works the same way.

Figure 1-9 shows the Toolbox with the Tool Options dialog docked underneath it. This is a very common and popular combination, which will probably be the default when you first start the GIMP.

Notice that when a dialog is docked into another window, its drag handle is still there. You can use the handle to drag that dialog out of its current window into another window, or onto the desktop. The "X" at the far-right side of the title area acts as a close button; selecting it will close that dialog (in this case, Tool Options) entirely. To get it back, use the *File* ➤ *Dialogs* sub-menu from the Toolbox.

What about the arrow button to the left of the close button?

That's the *Tab* menu (Figure 1-10). It allows dialogs to be added as tabs, as in the "Layers, Channels, and Paths" dialog, or existing tabs to be detached or closed. Tabs can also be re-ordered simply by dragging them. In some dialogs, other options are added to the *Tab* menu.

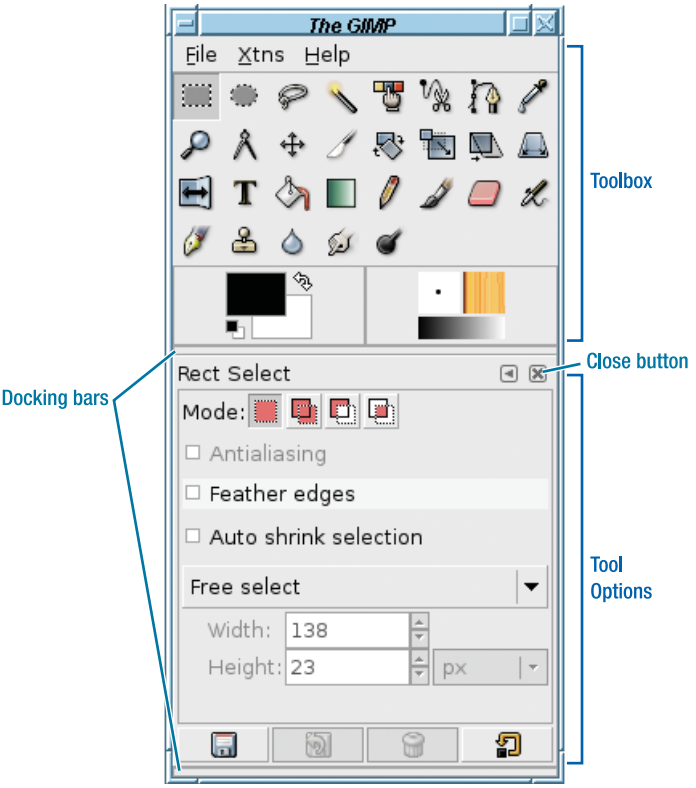

Figure 1-9. *Tool Options docked below the Toolbox*

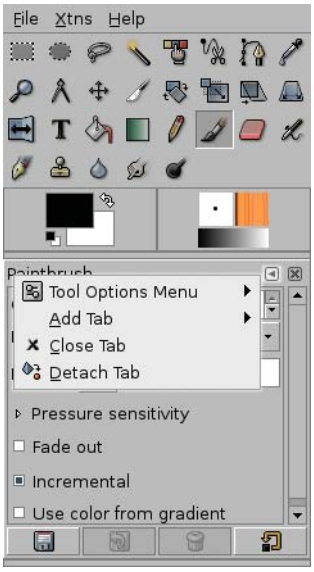

Figure 1-10. *The Tab menu*