ARCSOFT PHOTOSTUDIO FOR WINDOWS

What PhotoStudio Can Do For You

Whether you are interested in multimedia, graphic design, desktop publishing, or video editing, PhotoStudio can be the canvas of your imagination.

PhotoStudio 2.0 is a powerful and easy-to-use 32-bit digital photo image editing program running on computers with Microsoft Windows 95, NT and 3.1x. It gives you the ability to acquire, manage and output full-color images for publications, presentations, or animations. And whether you are a novice or a professional graphic artist, you can use PhotoStudio for a broad range of image manipulations and refinements. The only limit is your creativity.

ARCSOFT PhotoStudio

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ArcSoft PhotoStudio™ For Windows

Minimum System Requirements

Windows Platforms

386-based PC or better

Windows 3.1, Windows 95 or Windows NT

4MB of RAM

4MB free hard disk space

VGA display adapter and compatible color monitor

Mouse or other pointing device

Sound card

To achieve better performance, ArcSoft recommends the following system configuration:

486- or Pentium-based PC

8 (or more) MB of RAM

16- or 24-bit super VGA display adapter

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Chapter 1: Introduction

What PhotoStudio Can Do For You

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The following is an overview of some of the features provided in PhotoStudio.

With PhotoStudio you can:

Work with many different types of images from many different sources

- Fully integrated with Ricoh digital cameras for easily and quickly downloading and uploading photos.
- Acquire images from any digital cameras, scanners or other image input devices that support the TWAIN industry standard.
- Import black-and-white line art (1-bit), color (4-, 8-, or 24-bit), or grayscale images (8-bit) into PhotoStudio or export PhotoStudio images to other applications. PhotoStudio supports many most used image file formats, such as BMP, GIF, PCD, PCX, TGA, TIFF, and JPEG. PhotoStudio also supports third party Adobe Photoshop Plug-Ins for import and export.
- Exchange images with other Windows applications (like Microsoft Word, CorelDraw, PageMaker, and PC PaintBrush) through the Windows clipboard.
- Perform data format conversions between 1-bit Black-and-White, 4- and 8-bit Indexed Color, 24-bit RGB True Color, and 8-bit Grayscale images.

Customize your working environment and image view

- Organize your images in convenient working groups using the Album Manager.
- Display your images on-screen in timed presentation sequences.
- Show, hide, and position rulers and palettes.
- View many images simultaneously.
- View images at different magnification ratios.

Create, retouch or paint images with a wide variety of customizable tools

- Draw and paint on the image using tools like the Pen, Paintbrush, and Airbrush Tools.
- Add labels, captions, or titles with the Text Tool.
- Seamlessly duplicate part of an image in a different area of the image (or even in another image) using the Clone Tool.
- Selectively alter your image using the Smudge, Smooth/Sharpen, Brighten/Darken, and Revert Tools.

Select or mask parts of your image for editing

- Use four different selecting tools to select any part of your image.
- Edit the existing mask, and move it to anywhere you wish.
- Import a mask into an image, or export and save it for future use.

Edit and compose images with full control of options

- Copy and paste selected areas within an image or between different images.
- Fill selected areas with colors, gradients, or predefined patterns.
- Resize, rotate, flip, shift, and skew an image or selected area.

Perform sophisticated image enhancements and color corrections

- Fine-tune the brightness and contrast or adjust the shadows, midtones, or highlights of an image.
- Alter the Color/Gray mapping curves to transform image colors.
- Modify hue and saturation to correct color shifts created by image input devices.
- Improve image quality with a variety of smooth and sharpen filters.
- Simulate photographic processes with filters like Solarization, etc.

Apply many special effect filters

- Create special effects with the trace contour, oil painting, sketch, film grain, splash, melting, ripple, wrinkle, 3D grid, mosaic, motion blur, emboss, fish-eye, cone, sphere, cylinder, whirlpool, spiral, or ribbon filter.
- Design your own special filters or create infinite 2-D and 3-D special effects by using the powerful User's Filter or Magic Mirror.
- Support third party Adobe Photoshop Plug-In filters for special effects.

Output and send your image quickly and easily

- Print your image in any size and anywhere on a selected paper.
- Send an image e-mail message right from PhotoStudio with just one click.

Get complete and comprehensive on-line help

- Call up simple, relevant help information with one keystroke when you have questions.

ABOUT THIS MANUAL

This manual has three main sections. The purpose of the first section is to acquaint users with PhotoStudio's environment, and explain basic concepts in image editing with PhotoStudio. The second section serves as a handy reference guide to PhotoStudio's tools and functions. The third section—the glossary chapter—provides you with brief descriptions of terms used in PhotoStudio.

The reference guide section of this book will tell everything you need to know about functions of tools and how to use them. (A complete reference for the command menu are provided in the on-line help. To know about a command, put the pointer on the command line and press F1 key.)

Users with little or no experience using painting or digital image processing programs may want to first refer to the Getting Started section of this manual. More experienced users can simply begin using PhotoStudio, using the manual for reference.

Other References:

This manual assumes that the user has a basic understanding of Windows. If you are not entirely familiar with the Windows environment or with basic Windows procedures (like using menus, clicking and dragging, and minimizing applications), you should refer to your Windows documentation.

Please remember that PhotoStudio has an extensive on-line help file that is available any time you are using PhotoStudio.

Chapter Two

Getting Started

There are two ways to run PhotoStudio:

1. From the Program Manager:

   Double-click on the PhotoStudio icon in the PhotoStudio group window. A PhotoStudio logo image will appear in the center of your screen.

   Click your mouse anywhere inside the image area to dismiss the logo image.

2. From within PhotoBase:

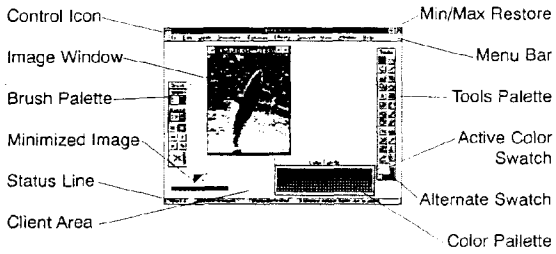
   Double-click on any thumbnail image in an album and PhotoStudio will automatically launch.

The PhotoStudio Application Window

When you are working with PhotoStudio, your screen will look something like the illustration below. The default PhotoStudio screen is a maximized window, consisting of a Client Area, a Menu Bar, a Title Bar, a Status Line and a Tools Palette. The Client Area displays the image(s) you are working on. The Menu Bar contains a list of menu titles (i.e. File, Edit, etc) and is located below the Title Bar. You may modify or enhance your images by using funcions in Tools Palette, or selecting options from the "pull-down menus" using the mouse or the keyboard.

The PhotoStudio screen also contains certain Windows features such as the Control Icon, buttons to minimize, maximize, or restore image windows. For more information on these features, consult your Windows User's Manual.

In the following, we will give a brief description for some elements in the PhotoStudio screen. You will find a detailed discussion for the Status Line and the Tools Palette in the other sections in this chapter.



The Floating Palettes

In addition to the floating Tools Palette, a floating Brush Palette and a floating Color Palette may appear on the PhotoStudio screen. "Floating" palettes can be moved to any location on the screen.

The Tools Palette contains tools for image editing; the Brush Palette is used to define the size, shape, and drawing speed (spacing) of the editing tools; and the Color Palette is used for quick color selecting. You can show or hide these palettes by using the appropriate commands from the View menu.

Image Windows

When you open an image file or scan in an image, it appears in the Client Area inside its own window – an image window. Each image window has its own Title Bar which displays the filename of an image. You can expand a window by grabbing its frame with the pointer and dragging it outward. If you want the window to fill the entire Client Area, click the Control Icon in the upper left-hand corner and choose "Maximize". You can also minimize a window by selecting "Minimize". Image windows can also be moved to a new location on the screen. To close a window, select "Close" from its Control Icon menu.

You can open more than one window at once so that you can transfer data from one image to another very easily. However, only one image window can be active

at one time. The active one is always in front of the others and its title bar is highlighted. To activate an image window, simply click the mouse on its Title Bar.

The Status Line

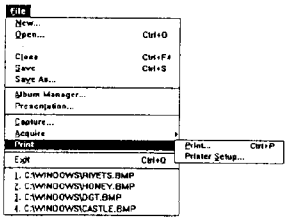
The Status Line at the bottom of the screen is divided into four sections for displaying a variety of information. From this line, you can get the view ratio, processing percentage, pixel color value, data type, and size information of the active image. You can also get pointer coordinates, system information and hints on how to use tools. Please refer the section "Using the Status Line for information" in this chapter for more detail.

Pull-Down Menus

A Pull-Down Menu consists of a listing of options or "selections". You may select from these options using the mouse or the keyboard. Depending on the current state of the image, certain selections within a menu may not be accessed. These selections are differentiated from the selections that are available by a dimmer font.

Submenus

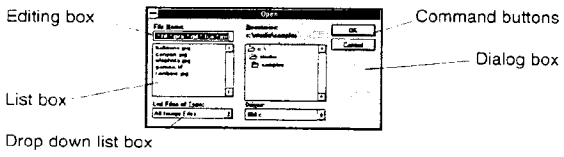
An arrow which appears with a menu item indicates that it has a "submenu". To access a submenu, simply select the menu item, continue holding down the mouse button, and move the mouse pointer over to the submenu to select the submenu item you want.



Dialog Boxes and Features

A dialog box appears after you choose menu commands that contain an ellipsis (a series of three periods, like the one in "Open..." in the File menu). Commands which are not followed by an ellipsis perform an action immediately (e.g., "Cut" in the Edit menu).

The following is a description of certain dialog box features which you will use the most.



List Boxes

Many dialog boxes contain "List Boxes" which allow you to select the filename, drive or directory you wish to access.

Drop-Down List Boxes

Drop-down list boxes consist of a box which displays the current selection inside a rectangular box. If you want to make a different selection, simply click the downward-facing arrow to reveal a list of available options. Drag the cursor to the selection of your choice and release the mouse button.

Editing Boxes

Editing boxes are rectangular boxes which are either empty or contain a default option. If an editing box is blank, you need to enter text or value information by inserting the cursor and typing.

Buttons

There are several types of button used in windows. The radio and check buttons allow you to select one of various options. The push buttons allow you to close a dialog box, save changes, cancel changes or execute other commands.

Scroll Bars

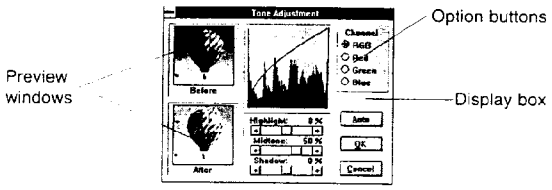
Many dialog boxes have scroll bars which allow you to access additional options. You may scroll up, down, left, and right by clicking the respective arrows. As you click the arrow, a flashing box moves in the direction you are scrolling to show you its relative position.

Display Boxes

There are some dialog boxes that have a display box which is a graphic representation of the information in the dialog box. You may alter the curve inside the display box by clicking and dragging, and changes will accordingly occur on the preview image indexed by "After".

Preview Windows

There are some dialog boxes that contain preview windows with thumbnail images for previewing the result of the operation. As soon as you alter any parameter in the dialog box, you can see the change in the window indexed by "After". As a reference, a sample image representing the active image without any change is shown in the "Before" window. Click the "OK" button until you are satisfied with the change in the "After" window.



The PhotoStudio Menus

This section summarizes functions in each PhotoStudio menu. For more details about the commands in a menu, refer the on-line help.

File

The File menu contains a number of commands which allow you to manage and manipulate image document files. There are the standard New, Open, Close, Save, Save As, and Print commands found in many other

Rectangle Select Tool–Selects rectangular-shaped area.

Ellipse Select Tool–Selects elliptical- or oval-shaped area.

Freehand Select Tool–Selects an irregularly-shaped or polygonal area.

Magic Wand Tool–Selects a contiguous area based on color similarity.

Mask Move Tool–Moves the current mask to a different part of image without moving inside portion.

Area Move Tool–Moves both the mask and the pixels that lie within its boundaries.

Zoom Tool–Magnifies your view of an image.

Grabber Tool–Adjusts the position of an image which is larger than the image window.

Text Tool–Enters a line of text on an image document.

Stamp Tool–Stamps a predefined shape on an image with every click and drag of your mouse.

Gradient Fill Tool–Fills a selected area or entire image with colors which are gradually mixed together from the alternative to the active color.

Bucket Fill Tool–Fills the active color on a contiguous area based on the color similarity.

Airbrush Tool–Spray the active color onto an image like an airbrush.

Paintbrush Tool–Paint the active color on an image like a paint-brush.

Smudge Tool–Smears the "paint" in an image, blending neighboring colors together.

Pen Tool–Applies paint to create a hard-edged effect, like a marker or felt-tip pen.

Brighten/Darken Tool–Lightens or darkens an area by increasing or decreasing the pixels.

Smooth/Sharpen Tool–Smooths an image by decreasing contrast or clarifies an image by maximizing the contrast between pixels.

Clone Tool–Copies part of an image to another area within the same image or between images or paints with a pattern contained in the clipboard.

Revert Tool–Blends the changes had made to the currently masked area together with the original underlying image.

Transform Tool–Resizes, rotates, skews, or distorts the current selection.

Crop Tool–Creates a new image window for the selected area.

Eyedropper Tool–Shows the image color values under the pointer, and changes the active color to a color that is selected on the image.

Trash Can Tool–Removes the selected image and the mask.

Color Swatches–Displays the current active and alternative colors.

Using the Status Line for Information

The status line often provides information to you that can make your current task easier. There are four areas in the status line, and each one will show different information depending on what you're doing.

The following table shows you the different states of the status line:

Current Activity	Left Status Line Area	Left Center Area	Right Center Area	Right Area
no image	blank	blank	blank	free memory available
image opening	blank	blank	% of file read completed	"Press Esc to abort"
processing	viewing ratio	image size and type	% processing completed	"Press Esc to abort"
click on tool of button	viewing ratio	image size and type	tool name	description tool purpose
tool in use	viewing ratio and type	image size location	current mouse	description of use of current tool
eyedropper	viewing ratio	image size and type	mouse coordinates	use and color values of current location

Note that the image size is a figure that is dependent on the image dimensions, data type and resolution, regardless of actual image file format. This should not be confused with the image's file size; file sizes can vary widely based on the efficiency and compression (if any) of the file format.

The viewing ratio shows you how much your current view of the image has been magnified or reduced. See the Zoom Tool reference information for help on viewing ratios.

Using the Keyboard

Rather than moving the pointer to a menu every time you wish to use a command, try these keystrokes. Using them will shorten the time it takes to initiate a command.

Menu Command Keys:

You can use the keyboard for fast access to some of the most frequently used PhotoStudio menu commands. For more information on these commands, see the appropriate reference section.

Key(s)	Command	F2	Resample
Ctrl+O	Open	F3	Brightness and
Ctrl+F4	Close		Contrast
Ctrl+S	Save	F4	Hue and
Ctrl+P	Print		Saturation
Ctrl+Q	Exit	F5	Tone Adjustment
Ctrl+Z	Undo/Redo	Ctrl+R	Show/Hide Rulers
Ctrl+X	Cut	Ctrl+W	Full Screen
Ctrl+C	Copy	Ctrl+T	Show/Hide Tools
Ctrl+V	Paste	Ctrl+L	Show/Hide Color
Del	Clear		Palette
Ctrl+F	Fill	Ctrl+B	Show/Hide Brush
Ctrl+A	All		Palette
Ctrl+I	Invert	F1	Index/PhotoStudio
Ctrl+N	None		Help

ESCAPE KEY:

The escape key is important in some situations.

Situation	Function
Processing	Cancels time consuming operations
Presenting	Interrupts Presentation and restores desktop
Full Screen	Terminates Full Screen mode and returns to desktop
Dialog box	Exits dialog box like clicking the Cancel button

HELP KEY:

Typing the F1 key will give you different types of help depending on what you are doing in PhotoStudio.

Situation	Help Screen
Dialog box is open	Help window for that dialog box will appear
Menu command lit	Help window for that command
Help window appears	Help for the current Help window will appear
Any other time	PhotoStudio help index will appear

SCROLLING KEYS:

If the scroll bar is visible, you can use the scrolling keys to scroll an image window.

Key(s)	Function
Up Arrow	Image will scroll upwards
Down Arrow	Image will scroll downwards
Left Arrow	Image will scroll left
Right Arrow	Image will scroll right
Page Up	Image will scroll up one page
Page Down	Image will scroll down one page
Ctrl+Page Up	Image will scroll left one page
Ctrl+Page Down	Image will scroll right one page

OTHER SHORTCUTS:

Action(s)	Situation	Function
Shift + Left Button Down	Selecting tool in use	Add the new selection to the existing mask when you drag the mouse
	Presentation active	Reduces the current slide view
	Full screen active	Reduces the current image view
	Zoom tool selected	Reduces the current image view
	Clone tool selected	Selects Clone source, showing sign (+)
	Text tool selected	Selects the active color
	Stamp tool selected	Selects the active color
	Gradient Fill selected	Selects the active color
	Bucket Fill selected	Selects the active color
	Airbrush tool selected	Selects the active color
	Paintbrush tool selected	Selects the active color
	Pen tool selected	Selects the active color
Ctrl + Left Button Down	Pointer in the area	Ready to move the selected area like the Area Move tool
Ctrl + Arrow	Active image on focus	Moves the selected area up, down, left, or right according to the arrow Ctrl
+ "+" Sign	Active image on focus	Zooms in the active image one step
Ctrl + "-" Sign	Active image on focus	Zooms out the active image one step

Using the Context-Sensitive On-line Help System

PhotoStudio makes the most of the Windows help system that you have probably seen in other Windows programs. In addition, it provides you with context-sensitive help that can be invoked at any time by pressing the F1 function key (located at the upper left of most keyboards).

To use the help system in the standard Windows manner, simply choose your topic from the Help menu at the right side of the menu bar. A help window containing PhotoStudio's help information on that general topic will appear, and you can proceed from this help page to the specific topic you want by clicking on the subtopics that interest you. Clicking on the Search button will call up a list of general PhotoStudio terms and topics. You can also get help on the help system itself. For more information on using the Windows help system, see your Windows manual.

To use the context-sensitive help, get to the dialog box or menu item you are curious about and then press the F1 key. For example, if you want to see the help on the Resample menu command, pull down the Transform menu, highlight the Resample command without releasing the mouse button, and press F1 (while still holding the mouse button down). The help window will appear, with the information on the Resample command already displayed! This helps you to get directly to the topic you want without having to search through the help topics and subtopics.

For dialog boxes, simply press F1 when the dialog box you are interested in is on the screen. You can also get help on tools by double-clicking on the tool button to call up the tool's settings dialog box and then pressing F1. (If the tool does not have a settings dialog box, however, double-clicking will have no effect. You won't be able to use the context-sensitive help feature for that tool.)

Pressing F1 when you are already in help will call up the "How to Use Help" topic.

Correcting Mistakes

There are many ways to correct mistakes while editing your image. If you take precautions, you'll be able to achieve the effect you want without ever taking a risk of losing all your previous work. Here are the recommended ways to correct mistakes:

1) Always keep a backup copy of important images, and update your backup when you have made significant progress on the original. This is good practice in general, of course, and it is also recommended that you make frequent backups of your entire hard disk to avoid losing your work.

To make a backup, simply copy the image file to another name. For example, to back up PEACOCK.TIF, copy the image to PEACOCK.BAK (for backup). In DOS, you would do this by typing "COPY PEACOCK.TIF PEACOCK.BAK".

2) Use the Undo command. This is the first menu item under the Edit menu, and it's your first line of defense against mistakes. Undo reverses the last action you made, so if you catch yourself quickly after a mistake, it can be a lifesaver.

However, Undo cannot correct something you did several actions ago. If you sharpen a part of your image and then add some new color, Undo will not be able to unsharpen for you. If you Undo, it will take away the new color. If you Undo again, it will add the new color back again, because it is undoing your undo.

Also, there are some actions that Undo cannot reverse. For example, if you save a document, Undo cannot undo that save, because your computer has already changed the information in the image file and those changes have been written on your hard disk. When you cannot undo, the Undo menu item is grayed out in the Edit menu.

3) Use the Restore command. This File menu command restores the current image from your disk. It's the same as closing the image without saving your changes and opening the original image.

Of course, there are times when this is not appropriate either. If you've just saved your file accidentally after having made some mistakes, restoring will not get you back to where you were before the mistakes occurred. And if you saved your file ten minutes ago, made some very desirable changes, and then made some grievous mistakes, restoring will eliminate both the mistakes and the desirable changes.

4) Cancel undesirable processes before they finish. You can press the Esc key to cancel some processes. If this is an option, you'll see "Press Esc to abort" in the status line at the bottom right. Of course, you can undo if the process finishes, but pressing Esc will save you some time.

5) Mask your image before trying anything risky. If you mask your image (or part of your image) before experimenting, you can use the Revert Tool and Trash Can Tool to salvage the image if things go wrong. Note that the Trash Can Tool and Revert Tool will only affect changes made after the mask was drawn. If you make a mistake and then mask it, they will not affect the mistake.

6) Try the Trash Can Tool. If you mask your work area before making changes, you can discard your mistakes (and the mask) merely by clicking on the Trash Can Tool.

The Trash Can Tool can be used effectively in a "two steps forward, one step back" method. Mask your image and experiment. If you like it, remove the mask using the None command from the Mask menu (don't use the Trash Can Tool or else you'll lose your changes). Removing the mask makes those changes immune to the Trash Can Tool, because the tool only affects changes made to the current mask. Then mask again and experiment; if the experiment fails, use the Trash Can Tool.

This method has several advantages over Undo and Restore. With masking, you can make several changes before you choose to accept or reject them. With the Undo command, you have to make your decision immediately. Also, the masking method is quick. If you use the Restore command to fix mistakes all the time, you'll spend a lot of time waiting for your image to be saved and loaded over and over again. (However, it's a good idea to save your image periodically.)

7) Blend the new and the old with the Revert Tool. If you want a compromise between the current selection and the image as it was before you made the selection, try using the Revert Tool. It works like a paintbrush that paints the local area with a mix of your current selection and the underlying image. You can change the percentages of the images so you get more of one and less of the other.

This is especially useful when you made some desirable changes in one area of your selection and some mistakes in another. If this is the case with you, simply set the Revert Tool to its maximum revert effect and drag the mouse over the mistakes.

For more information, see the Revert Tool reference section.

Some Tips

This section will give you some hints on saving time and working efficiently with PhotoStudio.

Minimize the area that PhotoStudio must redraw
Every time you make an edit, PhotoStudio has to redraw the image. By selecting a small part of the image, you can decrease the size of the section that is redrawn, because PhotoStudio only reformulates the selected area. You can also try reducing the size of the image window so only the area you are editing appears in it.

If you are only working on a small part of the picture, make sure that area is masked. Not only will you speed up PhotoStudio, you will also protect the parts of the picture that you do not want to change.

Even if you are working with the entire image, try editing a small part of the image first. Once you are sure of the edits you want to make, you can go back and modify the entire image. This is an especially helpful technique when you are applying complex effects or filters which take a long time for PhotoStudio to perform.

Keep your computer's memory uncluttered. To free up memory, close the images you are not working with.
Close any windows that you do not need. Having a window open will take up memory space. This will decrease the amount of available memory that PhotoStudio has to perform tasks on your active window.

Clear the Clipboard image or replace it with a smaller one if you will not use it any more. Images kept on the Clipboard will also take up space and slow down PhotoStudio.

If you are only working with one channel, separate your image into Grayscale images. Modify the Grayscale image that represents this channel, and then combine all three Grayscale images to reform the

original. This will decrease the time it takes PhotoStudio to calculate edits.

Use two windows instead of one.
After you open an image document, open a second identical window for the document, using the Duplicate command, and place the matching documents side by side. This will allow you to check whether your edits have produced the intended effect. Also, when you zoom in on your picture to make pixel by pixel edits, you will not need to zoom out again to see the big picture.

If the painting tools do not work, you may be drawing outside of the select area.
Even if you can not see a marquee, there may be a select area that is too small to see, or it may be in part of your image that is not currently on screen.

To eliminate the possibility that there may be a select area, pick None from the Mask menu, or type Ctrl + N. After you do this the paint tools should begin to work correctly.

Working in a selected area will give you the most mistake correction options and minimize painting mistakes.
If you are not working inside a select area, you will not be able to use the Revert or Trash Can Tools. These tools are valuable options when you make a mistake or change your mind.

Drawing a marquee around an area where you plan to use a painting or drawing tool will protect the rest of the document. This is important because painting and drawing errors can be hard to correct.

Exiting PhotoStudio

You can either double-click the control menu icon of the PhotoStudio window or choose the "Exit" command from the File menu to exit from PhotoStudio.

If the application window contains any image windows with unsaved changes, a dialog box will appear to verify if you want to save that image before exiting PhotoStudio. Clicking "Yes" will save the image; clicking "No" will close the image without saving it; clicking "Cancel" will cancel the Exit command.

Chapter 3

Working With PhotoStudio and Ricoh Cameras

This chapter describes some basic concepts and concerns when working with PhotoStudio, and Ricoh digital cameras.

Working with Colors

Defining colors in PhotoStudio

It is important to understand the concept of color when working with PhotoStudio. This, after all, is an image color processor. It allows you to change, shift, or enhance colors in your image document and select items in your document based on their color similarity.

To describe color, we have to consider how the eye perceives color, and how colors are created. When you perceive color, it is really your brain reacting to the wavelengths of light that reach your eye.

If all wavelengths of light reach your eye, you perceive the white color. If there is no light, you perceive black. If some but not all wavelengths of light reach your eye, you will perceive a particular color. So then by mixing light in different ways we can create virtually every color.

This is how your computer monitor works. By mixing three basic colors (red, green, and blue) in varying amounts, it can create over millions of different colors.

This is the origin of the RGB model for describing color. This model uses three color channels: red (R), green (G), and blue (B). Every pixel in the image is a mixture of these three channels.

Each one of these color channels can have a value anywhere from 0 to 255. The value for a color channel describes the intensity of that color. A value of 0 means that channel has no intensity and will have no effect on a pixel's color, and a value of 255 means that it is at full intensity. So, a pixel with the channel values R = 0, G = 255, and B = 0, will appear as light green; a pixel with the channel values R = 150, G = 0, and B = 150 will be purple, since purple is the result of mixing of red and blue.

There is another popular model for describing colors: the HSV model. Instead of three color channels, the HSV model describes colors with channels for hue (H), saturation (S), and brightness (V).

Hue describes colors based on a special color wheel containing all of the colors of the spectrum, and can have values from 0 to 360. Values for Hue determine the location (in degrees) where a color is at on the color wheel. All millions of the possible colors can be somewhere on the wheel.

Saturation describes the intensity of the color and can be any number from 0 (very gray) to 255 (very colorful).

Brightness describes the lightness/darkness of the color and has values from 0 (black) to 255 (white).

Many people find the HSV model to be more intuitive and therefore easier to work with. Professionals in the

graphics and photography industries often prefer to work with HSV because these industries often use this color models. You should try both and see which works best for you.

Active and alternative color swatches
At the bottom of the Tools Palette, you will see two color squares, one lying on top of the other. The color swatch on top is the active color swatch. The tools and commands that utilize color (e.g., Bucket Fill, Paintbrush, Cut) will always use this color as their source. The color on the bottom is the alternative or alternate color. These two colors are both used by the Gradient Fill Tool.

Sometimes you will want to quickly toggle between two colors without having to continually pick colors from the Color Palette or elsewhere. It is very easy to switch the active and alternate colors—just click on the alternate color.

Changing the color of the active swatch
In PhotoStudio, there are three ways to select a new color. First, you can simply pick a color from the Color Palette by clicking on any colored square. If the Color Palette is not visible, use the Show Color Palette command from the View menu and it will appear on the desktop.

Another way to change the color is to use the Eyedropper tool; click on any color in the image with this tool and the active color swatch will become the same color.

Finally, you can use the Color Selection dialog box to pick a new active color. This method gives you the widest range of possible colors. To make this dialog box appear, double-click on the active color swatch.

To change the alternative color double-click the alternate swatch.

(See "Color Swatches" in Chapter 4 for detail on using the Color Selection dialog box).

Making color-based selections
You can use the Magic Wand Tool to create selection areas based on color Similarity or Threshold.

When you set the values for Similarity, you are telling the Magic Wand how close to the color of the selected pixel the other pixels in the selection area should be. The smaller the similarity value, the smaller the area of selection will likely be.

For example, if you click the Magic Wand on a pixel which has the RGB channel values 50 for red, 60 for green, and 70 for blue, and you set the similarity to 5 for each of the channels, the magic wand will select only those pixels which have red values that are between 45 and 55, green between 55 and 65, and blue between 65 and 75. Increasing the similarity values will make the above intervals larger.

The Threshold option is simpler than this. It picks all of the nearby colors that are in the same threshold category as the selected color. So if your threshold value is 150 and the color value is 130, the wand will pick all adjacent colors with values less than 150.

(See "Magic Wand Tool" in Chapter 4 for more information).

Image Data Types and Conversions

This section describes the image data types and their conversions that used in PhotoStudio. The data type of an image is important because it determines how many colors (or gray levels) the image may contain and how the image can be manipulated in PhotoStudio.

About Image Data Types
PhotoStudio can read and create five different image data types: 24-bit RGB True Color, 4-bit Indexed 16-Color, 8-bit Indexed 256-Color, 8-bit Grayscale, and 1-bit Black-and-White. PhotoStudio is able to easily convert most data types into others.

There are a couple of general differences between the data types worth mentioning up front.

The number of bits per pixel differs for the data types. This number determines the number of colors or shades that can be represented in the image. The more bits per pixel, the more memory is necessary for the image, the more information the image file will contain, and the more realistic it will seem.

Many PhotoStudio commands and tools do not work on certain image types. For example, many of the Enhance and Effects commands will not work with 1-bit Black-and-White and Indexed-Color images.

In general, when you want to edit images you should make sure they are either RGB True Color or Grayscale images, because most PhotoStudio functions are available when editing these two data types. You can always change them to another form after you finish editing.

1-Bit Black-and-White Images
Pixels in 1-bit Black-and-White images are either black (0) or white (1). This type of image uses only one channel and takes the least memory.

Several editing commands do not work with this type of image. In fact, none of the effects commands and only one of the enhance commands can be used with the Black-and-White image type. Some tools and other commands are off-limits as well.

If you wish to edit a Black-and-White image, try converting it to an 8-bit Grayscale image first. When you are done editing you can change it back to 1-bit Black-and-White.

If an image is going to be printed or used on a device that has only black-and-white capabilities, you may want to convert it to this data type to get an idea of how it will look. Of course, images saved in this data type use much less memory than the others.

Black-and-White images can also be used to create masks and stamps. For more information, see the reference sections on the Mask menu and the Stamp tool.

8-Bit Grayscale Images
Grayscale is a single-channel data type. Pixels can

have gray values from 0 to 255; the lower the value, the darker the pixel. Grayscale images have full editing capabilities.

Grayscale data type is the best form for editing images with no color.

Indexed 16- and 256-Color Images
Indexed 16-Color (4-bit) and 256-Color (8-bit) images are single-channel image documents. All of the colors in indexed color images are in the color table, a special palette that can have either 16 (4-bit) or 256 (8-bit) colors. When an indexed-color image is created in PhotoStudio, the program picks the most appropriate colors and makes a color table that will give the best representation of the original. Indexed images can be edited in a limited number of ways, but they also take up less disk space and less space in memory.

None of the filters or the effects commands work for indexed-color images. Also, some of the tools also will not work for this image data type.

Some computer systems can only display 16 or 256 colors. Converting an image to indexed-color is a good way to preview what an image will look like on devices that support a limited amount of colors. If an RGB True Color image will be displayed on such a system, it may be better to convert this image to an indexed-color image, because you can control the way that the system approximates the images' colors. Keep in mind, though, that even when the system can not show all of the available colors, PhotoStudio can still store them in the image file.

24-Bit RGB True Color Images
RGB True Color image data type contains the maximum amount of information possible for an image, and allows you to choose from over 16 million different colors. This data type uses three channels: red, green, and blue. Each channel can have values from 0 (no color) to 255 (full color). Any PhotoStudio command or tool will work with the RGB True Color images.

Image type conversion options
Often you will want to convert an image from one data type to another. When you do so, there are several options that you should understand.

Colors and color palette options
When you convert an RGB True Color image to Indexed-Color image, you will often need to pick a color or a color palette option. There are the major conversion options you may see in PhotoStudio conversion commands:

System and **Optimized** are frequently options for the color palette. The System option will use the Windows system palette found in the Windows' Control Panel. An Optimized color palette creates a color palette by sampling the image for the most used colors.

The **666** and **676 System** are two predefined color palettes for 256 color image. The 676-created palette will contain six reds, seven greens, six blues, and combinations of these colors, while 666 will use six of each color channel and their mixtures.

When you convert a Grayscale image into an Indexed 256-Color image, you will need to pick from two options: **Firelight** and **Pseudo Color**. Firelight will convert the Grayscale image into an image that looks as if it is lit by firelight. Its color table will contain shades of red, yellow, and orange. Similarly, Pseudo Color will create a color table from shades of blue, green, yellow, red, white, and black.

Note: Some image data types can not be converted into other data types. If a particular type of transformation is not available for an image, the menu item in the Convert menu will be dimmed.

Dithering options
Converting images to Indexed 16- and 256-Color or Black-and-White images will often create harsh color changes and eliminate many of the contours in your document. Dithering is a way of smoothing out these harsh color changes. Essentially, dithering simulates shades of color or grayness with combinations of pixels. For example, when converting from Grayscale to Black-and-White by using dithering, a square of four pixels that has an average grayness value of 128 would become a square with two black pixels and two white pixels.

There are two main dithering options: Pattern and Diffusion.

A Pattern dither replaces squares of pixels in the image with squares that have representative configurations of pixels in the allowable colors.

A Diffusion dither converts one pixel at a time but transfers the error, or difference, between the original value of the pixel and the new value to nearby pixels. In other words, it "diffuses" the error throughout the picture. This will make the picture look somewhat grainy.

Acquiring, Importing, and Exporting Images

There are several ways to bring images into PhotoStudio, and to export them out for use by other programs.

You can open existing image files of various types by using the Open command, or use the Clipboard and Capture commands to get images from the Windows Clipboard and/or other Windows applications. You can load images directly from a digital camera. And you can also use a scanner or other image input device to acquire images from a slide, photo print, artwork hard copy, or video. After being processed, images can then be saved in one of the formats provided in PhotoStudio and then transferred to other applications and system platforms.

Acquiring
Besides fully supporting the Ricoh DC-1, DC-2, and RDC-4300 digital cameras for acquiring images, PhotoStudio can directly interface with and control a digital camera, image scanner, or other input device that supports the TWAIN standard. By installing the

device driver provided by the manufacturer and selecting this device from the Select Source dialog box, you give PhotoStudio the capability to recognize and receive images from your TWAIN-compatible device.

Although the options for acquiring an image are varied for different digital cameras and scanners, selecting a proper resolution to acquire may be the most important choice. For scanning, for example, the higher the resolution selected, the better the printing image quality obtained. However, this is not always true. The printing quality is also determined by the capability of your printer. And be aware that a higher-resolution image requires more memory to work with and to store. If the image is just used for screen display, the resolution may not need to be greater than that of the monitor screen, which is typically from about 70 to 130 dots per inch (dpi).

To get images from a TWAIN device, select Acquire in the File menu. For more information, see the on-line help references for Acquire and Select Source commands.

Importing and exporting images—about file format

PhotoStudio allows you to open and save image documents in many file formats. A file format is the way that the information in an image is stored to a computer file. There are several standards that different computer devices and programs use to store image information. The file formats supported by PhotoStudio represent the most popular formats in use today and will allow you to transfer image information between PhotoStudio and virtually any other program that you will want to use.

Some file formats may compress files or give you the option of compressing your files. There are basically two different types of compression: lossy and lossless. Using a lossless compression algorithm such as LZW compression to save your image usually makes the saved file smaller without any information loss. Using a lossy compression may bring you a higher compression ratio, but it will lose some image information. JPEG compression is a good example of lossy compression.

The JPEG format is an excellent way to store final images if you want to save disk space while storing virtually all of the information that uncompressed images have. You can vary the compression ratio depending on how much image information you can sacrifice. The better quality compressed image you want, the less compression you can get.

If you plan to edit an image later, it is not suggested to store your image in a lossy compressed file format, because some small amount of information may be lost each time you save the image. Over the course of many recompressions this may add up to the loss of a lot of information. Also, compression and decompression takes time, and may be burdensome on a slow computer.

To open or save an image document, select Open or Save As command from the File menu, and a dialog box with options for file format will appear. The different file formats supported in PhotoStudio include BMP, GIF, PCD, PCX, TARGA, TIFF, and JPEG. And more file formats will be added in PhotoStudio.

BMP is the bitmapped file format that is widely used in Microsoft Windows and its applications. A bitmapped file uses a Windows Device Independent Bitmap (DIB) to store the data. These files specify pixel color in a form that is independent of the way that a device represents color. These files generally have the filename extension ".bmp".

TIFF is the Tagged Image File Format. This format works well for transferring images between different computers and is widely used in the printing industry. These files are stored as ".tif".

GIF is the Graphics Interchange Format developed by Compuserve. This is an excellent format to use for transferring files between different types of computers or over phone lines, because it can minimize transfer time. This format can support up to 8-bit resolution. 24-Bit RGB True Color images cannot be stored in this format. These files are labeled ".gif".

PCD is the Photo-CD format developed by Kodak. Images in this format are usually compressed in a compact disc and have several different resolutions available. This format is mainly designed for desktop publishing image transform and can be read (but not saved) in PhotoStudio. Photo-CD files are labeled ".pcd".

PCX is a standard format used by many IBM PC programs. It was specifically designed by ZSoft for its PC Paintbrush program. Files in this format are labeled ".pcx".

TARGA is a format developed by TrueVision, a maker of video boards. This format is used by several painting and image enhancement programs. Its files are stored as ".tga".

JPEG is an often-used compression format. This is an excellent format to use when you have finished editing a picture and wish to store it in a highly compressed form. Using JPEG compression may result in the loss of a small part of your image information. JPEG files generally have the extension ".jpg".

Selecting and Masking Images

About Masks, Marquees, and Selected Areas

The concept of selecting objects in an image is, along with the concept of defining colors, one of the most important ideas in image processing. After all, if you are not using the program to enhance the color and picture quality of your entire image, then you are probably using it to move or change particular areas.

Tasks like changing the color of the sky, creating dramatic silhouettes, or rearranging pieces of a portrait are all possible with PhotoStudio, but first, you must be able to select these objects. In this section, we only discuss some basic concepts of selecting.

New Terms

The concept of picking objects or areas centers around several basic terms.

The **selected area** is the part of the image that is surrounded by the **marquee.** The marquee is the dashed moving line that designates the selected area. The selected area is the only part of the image where your edits will have any effect. If there is no selected area, any edits will have effect on the entire image. The term **selection** is synonymous with selected area.

The **mask** is another name for the marquee. You can move the mask around in an image to define an infinite number of selection areas. These areas will have the same shape as the mask.

So we see that a mask is a shape, and a selection is a piece of an image.

What You Can Do

There are several powerful selecting tools and commands in PhotoStudio. We will not try to enumerate all of them here; that task is left for the reference part of Tool and Command. Here, we merely wish to hint at some of the fun and interesting things that you can do with the selecting tools and commands.

You can create selections of any shape by using the selecting tools.

You can make a selection based on the color of an area. For example, if you want to change the color of the sky from blue to red, the magic wand tool can select the sky with just one click.

You can copy a selection from your image onto the clipboard, and then paste it on other PhotoStudio images or on other applications.

Again, these are not all of the things you can do with the selecting and masking functions, but hopefully they will give you an inkling of what you can do with PhotoStudio. For more information on making selections, please refer to "Rectangle Select Tool", "Ellipse Select Tool", "Freehand Select Tool", and "Magic Wand Tool" in Chapter 4, and the on-line help for the Mask menu.

Working with Adobe Photoshop Plug-In Filters

PhotoStudio supports Photoshop Plug-In filters for image import, export and special effects. When started, PhotoStudio will first search all the *.8ba (for import), *.8be (for export), and *.8bf (for effects) files in its PLUGINS subdirectory, and then the directories that are shown in the entry of the PluginDir1, PluginDir2, and 3 etc. in the PSTUDIO.INI file that is located in the Windows directory. If any these type of files installed in the PLUGINS directory or identified in the path entry in the PSTUDIO.INI file, the Import, Export, and Plug-In Filters submenu will appear in the File and Effects menu respectively, and the filters are listed.

For example, if you have Kai's Power Tool special effects filters installed in both of the C:\KPT and C:\KPT1 directories and you want PhotoStudio support them, you shall add the following lines in the C:\WINDOWS\PSTUDIO.INI file:

PluginDir1=C:\KPT

PluginDir2=C:\KPT1

Including the PLUGINS subdirectory, PhotoStudio supports up to five directories that contain plug-in filters.

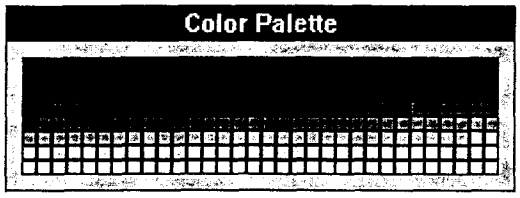
Chapter 4

Reference for Palettes and Tools

By using the commands in the View menu, you can have three floating palettes—the Tools Palette, the Color Palette, and the Brush Palette—simultaneously displayed on the screen.

The Color Palette contains a variety of predefined colors for quick color selecting. The Brush Palette is used to define the size, shape, and drawing speed of the editing tools. The Tools Palette contains twenty-four tools and two color swatches for image editing.

This chapter describes the three floating palettes and the tools in the Tools Palette.



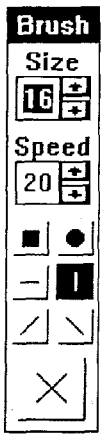
The Color Palette

The Color Palette shows a good sample of the colors you can choose for the active color in PhotoStudio. To call it up, choose the Show Color Palette command from the View menu.

As you move the mouse over the palette, the mouse pointer changes to the Eyedropper Tool's pointer, and the status bar will display the RGB (or HSV) color values of the color that's under the pointer. When you find a color you like, simply click on it to make it the active color.

Of course, the palette's colors change depending on the type of image you are working on. If it is a 24-bit RGB True Color image, the palette will show a sampling of the millions of colors you can use. If it is 8-bit Grayscale, it will show all 256 gray levels; if it is 16- or 256-Color Indexed, it will show all colors in the image's color lookup table; and if it is 1-bit Black-and-White, the palette will display both black and white.

You can move the palette by clicking on its blue title bar and dragging. To put the palette away, either double-click on its title bar or choose Hide Color Palette from the View menu. If the palette is displayed when you quit PhotoStudio, it will reappear when you start the program again.



The Brush Palette

The Brush Palette gives you control over the shape of the brush that is used by many of PhotoStudio's major painting and retouching tools. To activate it, choose the Show Brush Palette command from the View menu.

The Size setting changes the brush size, which is measured in pixels. The Speed setting alters the rate at which the tools add their effects when you are moving the mouse. For example, at higher Speed settings, the Paintbrush Tool will draw a solid line when the mouse is dragged quickly. At lower settings, the rate will be slower and you will be able to create gaps in the line by dragging quickly.

You can type in a value for Size and Speed, or use the up and down arrows. The top six buttons allow you to pick various brush shapes that have variable sizes. The large button at the bottom is the user editable brush. If you double click on this button, the User Defined Brush dialog box will appear to let you edit your own brush shape.

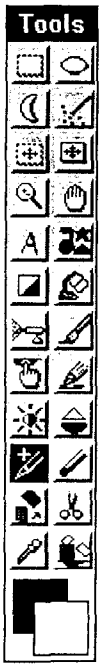
The User-Defined Brush dialog box shows you a grid which corresponds to the shape of the brush you are defining. Black squares on the grid are active, and will affect the image when the brush is used. White squares are not active. Click on a square to change its status; press and drag in the grid to change many squares.

You can change the size of your brush by changing the grid size. The largest size is 32 pixels by 32 pixels. (Although the size of the grid in the dialog box does not actually change, the density of the square changes. Since each square is equivalent to a pixel, more square means that the brush will affect a larger area.)

You can also save brush shapes and load them back later when you want to use them. Brush shapes are saved with a ".bsh" filename extension.

PhotoStudio remembers the brush shape and size settings when you quit and restores them, or when you run the program again.

You can move the palette by clicking on its blue title bar and dragging. To put the palette away, either double-click on its title bar or choose Hide Brush Palette from the View menu. If the palette is displayed when you quit PhotoStudio, it will reappear when you start the program again.



The Tools Palette and Tools

The Tools Palette contains tools for selecting, viewing, drawing, painting, retouching, and editing images. It also contains controls for choosing the active and alternative colors.

When you move the mouse over its icon in the Tools Palette, a brief description of the tool will appear in the main window's status line. To select a tool, click on its icon.

Most tools are affected by the setting on the Brush Palette and color in the active color swatch when you are painting/editing an image. Some tools have specific options associated with them. To access tool options, double-click on the icon of a tool.

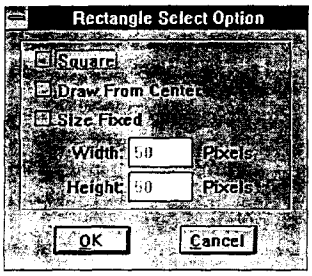
In the rest part of this chapter, we will describe all tools in the order from the top to the bottom of the Tools Palette

Rectangle Select Tool
This tool allows you to select rectangular portions of your image. To use it, simply press and drag in the image window. As long as you hold the mouse button down, you can change the size of the selection you are making. Release the mouse button when you have selected the portion you want. The pointer position and the size of the selected rectangle are displayed in the status line (located at bottom of the PhotoStudio window) during the selecting operation.

If you decide you want to remove the mask you have created, click (but do not drag) anywhere in the image, or choose None from the Mask menu.

You can also combine the existing mask with your new selection by holding down the Shift key and dragging.

Tip: To make accurate selections, make sure the mouse pointer is at one corner of the rectangular area you want to select before you start to click and drag. If the options are set to Draw From Center, you will want to make sure the pointer is at the center of the area you want to select. (See "Options" below.)



When you double-click on the Rectangle Select Tool button, a dialog box will appear for more options. Click OK to activate your setting. Options in the **Rectangle Select Tool dialog box:**

Square – When this box is checked, the tool will always select perfectly square areas of your image. If you try to select a rectangular area, the tool will limit the size of the selection to the largest possible square within that rectangular area.

Draw From Center – Allows you to draw rectangular selections out from the center of the area you want to select. When this option is on, simply click at the center of the area you want to select and then drag the mouse out toward any corner of the area.

Size Fixed – When this option is turned on, the tool will only select areas of the fixed size you specify in the width and height fields. If you turn the Square option on as well, PhotoStudio will require the width and height fields to be equal. Simply click on the location on the image, a desired selection will appear.

Ellipse Select Tool
This tool allows you to select elliptical or oval-shaped portions of your image. To use it, simply press and drag in the image window. As long as you hold the mouse button down, you can change the size and shape of the selection you are making. Release the mouse button when you have selected the portion you want. The pointer position and the size of the selected area are displayed in the status line (located at bottom of the PhotoStudio window) during the selecting operation.

If you decide you want to remove the existing selection, click (but do not drag) anywhere in the image.

You can also combine the existing mask with your new selection by holding down the Shift key and dragging.

Tip: For more accurate selections, imagine that you are using the rectangle select tool to make a rectangular selection that is just the right size to contain the oval area you want. Make sure the mouse pointer is at one corner of that imaginary rectangular area before you start to click and drag. Also, you may want to try the Draw From Center option. (See "Options" below.)

When you double-click on the Ellipse Select Tool button, a dialog box will appear for more options. Click OK to activate your setting.

Options in the Ellipse Select Tool dialog box:
Circle – When this box is checked, the tool will always select perfectly circular areas of your image. If you try to select an elliptical area, the tool will limit the size of the selection to the largest possible circle within that area.

Draw From Center – Allows you to draw elliptical selections out from the center of the area you want to select. When this option is on, simply click at the center of the area you want to select and then drag the mouse outwards.

Size Fixed – When this option is turned on, the tool will only select areas of the fixed size you specify in the width and height fields. If you turn the Circle option on as well, PhotoStudio will require the width and height fields to be equal.

Freehand/Polygon Select Tool
To create irregularly-shaped or polygonal selections, you should use this tool. You can also make selections that are partly polygonal and partly irregular.

Irregular selections are made by pressing and dragging in the image window. Simply move the mouse around the area you want to select. If you want a polygonal selection—like a star or an octagon—you only need to click the mouse on the points of the polygon, in a connect-the-dots fashion. PhotoStudio will connect the points where you click. (Note: The Stamp Tool has a template feature that makes some polygonal selections easier.)

By using a combination of these two techniques, you can create a selection that is partly polygonal and partly irregular.

You can also combine the existing mask with your new selection by holding down the Shift key and dragging.

When you are ready to finish your selection, double-click on the point where you want to end the selection. Most people find it easiest to simply make the selection and then double-click on the place where they started, thus making a complete shape. If you do not double-click where you started, PhotoStudio will complete the selection with straight lines.

This tool has no options, so double-clicking on the tool button has no effect.

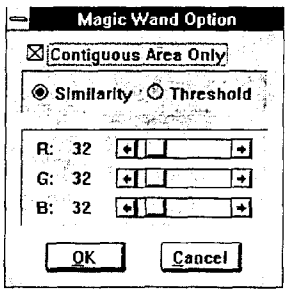
The Magic Wand Tool is very handy for situations where you want to select an area of your image based on color similarity. (In grayscale and black-and-white images, it selects regions of similar darkness.) For example, if your image is a landscape with a blue sky, you can use the magic wand tool to select the sky without selecting the white clouds at the same time. Then you can apply various effects to change the color of the sky.

To make this selection, you would just click on the sky with the magic wand tool. The tool selects everything of that color or a similar color. The tool also has an option that allows you only to select a contiguous area of your image based on color similarity. In other words, it will select all of the blue in the sky, but it won't select the blue ball that's in the middle of the meadow.

Of course, it's not always that easy, since there are parts of the sky that are lighter than others, and you may end up just selecting part of the sky. Also, if your image also includes a blue lake that touches the sky, you may end up selecting the sky and the lake.

However, you can change the tool's sensitivity by adjusting the options. Also, the tool can add to the current selection when the Shift key is held down.

When you double-click on the Magic Wand Tool button, a dialog box will appear for more options. Click OK to activate your setting.



Options in the Magic Wand Tool dialog box:
Contiguous Area Only – If this box is checked, the magic wand tool only selects the contiguous area containing the pixel you click on. Otherwise, the tool selects all pixels in the image that have the same or similar color to the pixel where you clicked on.

Similarity – This is the default setting for this tool. When this is the setting, the Magic Wand selects the color you click on and all colors that are (1) touching the clicked-on color and (2) are similar to the clicked-on color. The similarity sensitivity is specified by the RGB sliding settings; the higher the numbers, the greater the number of colors that will be selected.

Threshold – When set to Threshold, the Magic Wand Tool categorizes all the pixels in your image into two types: ones that have RGB values that are all greater than the threshold settings, and others that have values equal to or below them. (A pixel with red and green values greater than the respective threshold settings but a blue value below the threshold blue value would fall into the "less than" category.) Then when you click in your image, the tool selects the color you click on and all colors that are (1) touching the clicked-on color and (2) are in the same threshold category as the first color.

RGB Sliders – There are three sliders; one each for red, green, and blue. Each one has a range of 0 to 255, which corresponds to the color values given to each color in a PhotoStudio image.

Mask Move Tool
The Mask Move Tool gives you the power to move the current mask to a different part of your image. When you click in the current selection and drag, the tool picks up the mask—without changing its shape, but leaving the currently-masked pixels behind—and relocates it in your image window. In its new position, the mask acts just like any ordinary mask, and any pixels within its borders will be affected by commands or tools that you use.

This tool has no effect if you don't have anything selected in your image window. It has no options, so double-clicking on its tool button in the toolbox has no effect. Masks cannot be moved between images with this tool.

Area Move Tool
Unlike the mask move tool, the area move tool moves both the mask and the pixels that lie within its boundaries. To use it, click in the current mask and drag it to its new location.

The tool does not remove the original masked pixels; it only moves a copy of those pixels to the new location. It's like peeling off a copy of that part of your image and then placing the copy elsewhere on the image. The copy is a floating selection, so you can move the copy as many times as you like without changing the image underneath it.

This tool does nothing if there is no current selection. It has no option dialog box. In addition, you can also move the selected area without using Area Move Tool. Please see the "Using the Keyboard" section in Chapter 2.

Zoom Tool

Clicking the left button in the active image window with this tool magnifies your view of the image. This is like using a magnifying glass to get a better look at your work; it does not change the actual size of your image. (To change the image size, use the Resample command in the Transform menu.)

You can see the current magnification ratio in the status bar at the bottom of the screen; magnification of 1:1 is 100% (normal size), 2:1 is 200%, 3:1 is 300%, and so on.

To shrink the image, simply click with the right button in the active image window. 1:2 is 50%, 1:3 is 33%, 1:4 is 25%, and so on.

You can make your view as large as 16:1 or as small as 1:16.

Double-clicking on the zoom tool button sets the viewing ratio of the current image to 1:1.

Grabber Tool

To adjust the position of your image in the image window, click on your image with the Grabber Tool and drag in the direction you want your image to move. For example, if your image is very large and you can only see half of it at a time, you can use this tool to move it and look at the other half. It's more convenient than clicking on the image window scroll bars because you can use it to move at any angle with one quick mouse movement.

If you have trouble getting the hang of dragging your image in the right direction, try thinking of your image as a large canvas hanging outside your little bathroom window. (The canvas is your image, and the window is the image window.) Imagine that clicking on the image is the act of grabbing the canvas. Then you drag the canvas in the direction you want it to move.

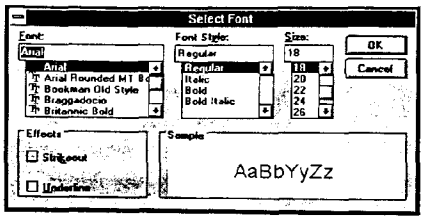
This does not affect your image in any way; it only adjusts your view of the image.

Double-clicking on the Grabber Tool button has no effect.

Text Tool

The Text Tool allows you to add a line of text on the active image. To use it, click the tool on the location where you want the text to start. Since text you create with this tool flows from left to right, you should click at the top left corner of the area where you want the text to appear.

When you click, the text dialog box appears for you to enter your text. Type the text you want in the main dialog box area. Note that pressing return will have the same effect as clicking on the OK button.



You can also click on the "Font" button to get the Select Font dialog box, which allows you to change the font and add various styles and effects. Changes you make in the Select Font dialog box will be applied to all of the text in the text dialog box.

Options in the Text Tool dialog box:

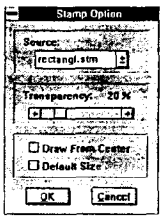
Double-clicking on the Text Tool button shows up the Select Font dialog box, and allows you to designate the default font settings for your text.

Stamp Tool

The Stamp Tool allows you to lay down a predefined shape on your image with every click and drag of your mouse. If you do not set it to something else, the Stamp Tool creates rectangles and fills them with the active color at 0% transparency (opaque). To use it, click and drag in your image to create the rectangle, just like you would do with the Rectangle Select Tool if you were making a rectangular selection. If you don't like the result, use the Trash Can Tool to discard the stamp.

You can define your own stamps, too. To do this, create a new 8-bit Grayscale image of the same proportions that you want the stamp to have. Draw your stamp in white on a black background. (If you want your stamp to have holes in it, draw them in black.) Then convert the image to 1-bit Black-and-White format and save it as a .BMP file in the "STAMPS" sub-directory of the PhotoStudio program directory. Quit PhotoStudio and change the files extension from .BMP to .STM (use the Rename command) so that PhotoStudio will know it is a stamp file. When you run PhotoStudio again, the new stamp name will appear in the list with the other predefined stamps in the Stamp Option dialog box. (Refer to the Options discussed below.)

The Stamp Tool has many options you can access by double-clicking on the tool button.



Options in the Stamp Tool dialog box:

Source – This list contains a library of predefined shapes like ellipse, line, frame, arrow, and star. If you pick one of these shapes, the tool will create that shape until you change your selection again, or until you quit PhotoStudio.

Transparency – Changes the transparency of the stamps made by the tool, from 0% (opaque) to 99% (so transparent you can barely tell that you made a stamp).

Draw From Center – Like the Rectangle Select Tool option, this option makes the Stamp Tool create stamps from the center outward. In other words, when you click and drag to create a stamp, the click defines the center of the stamp instead of the upper left corner.

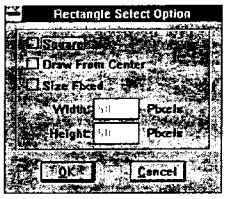
Default Size – If this option is turned on, simply clicking with the Stamp Tool will create a stamp of a predefined size. If the Draw From Center option is on,

the new stamp will be centered at the location where you clicked; if not, it will be located below and to the right of the place where you clicked. The default size varies depending on the current Source selection.

Gradient Fill Tool
This tool fills the current selection or the entire active image with a gradient from the alternative to the active color. A gradient is a transition from one color to another, like the transitions you see between orange and blue near the horizon during a sunset.

To use it, click at the point where you want the gradient to begin and drag to designate the length and direction of the transition. For example, if you want a gradual, sunset-like gradient, set your alternative color to a sky blue and your active color to a deep orange. Then click at the top of your image and drag straight down to the bottom. If you drag for a shorter distance, the transition will occur more quickly. Also, you can have part of the transition occur outside of the current mask or image by dragging past the boundary of the mask or image.

By default, gradients are opaque (0% transparency), but you can change this by double-clicking on the tool button and changing the options.



Options in the Gradient Fill Tool dialog box:
Color Model – Ordinarily, gradients are made in the RGB scale. HSV makes the gradient transition happen in the HSV color scale; the end result is a rainbow-like transition between the colors.

Transition – Allows you to opt for a harsher transition.

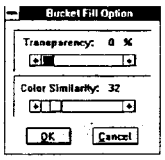
Transparency – Allows you to change the transparency of the gradient.

Color Sweep – Allows you to choose multiple gradients. If this is set to 3, for example, the transition you want will occur between the alternative and active col ors. However, right after changing to the active color, it will transition right back to the alternative color, and then back to the active color once again, for a total of three bands of changing colors.

Gradient Style – Ordinarily, this is set to linear, for a line-by-line gradient style. You can change the shape of the gradients to be circular, elliptical, square, or rectangular.

Bucket Fill Tool
The Bucket Fill Tool selects an area based on color similarity and adds the active color to it. It's like the Magic Wand Tool (see Magic Wand Tool), except that after it makes the selection, it fills the selected area with the active color. To use it, click on the area where you want to add the active color.

Of course, you can change its characteristics by double-clicking on the tool button and altering the options.

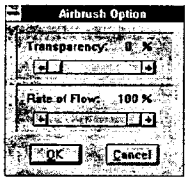


Options in the Bucket Fill Tool dialog box:
Transparency – Changes the transparency of the active color that is added by the tool.

Color Similarity – Like the Magic Wand Tool, the Bucket Fill Tool's similarity option allows you to make the tool affect more or affect less of the contiguous area where you have clicked. Setting this to a higher number means that the tool will affect more of your image. However, unlike the Magic Wand Tool's similarity option, you cannot separate the red, green, and blue spectrums. Your similarity setting is the same for all three.

Airbrush Tool
This tool simulates the effect of an artist's airbrush, slowly adding layers of the current active color on top of areas where you click and drag. For a stronger effect, drag back and forth over the area several times. If the shape of the airbrush effect is not to your liking, change it using the Show Brush Palette command from the View menu.

If you want the color to appear more slowly or more transparently, you can change the rate of application or transparency by double-clicking on the tool button and changing the options.



Options in the Airbrush Tool dialog box:
Transparency – Changes the transparency of the color that is added by the Airbrush (0% being opaque).

Rate of Flow – Ordinarily, this is set to 100%. If you want to moderate the speed at which the active color is added by the Airbrush, lower this setting.

Paintbrush Tool
This tool applies a thick, opaque layer of the active color to the area where you click and drag. (You can make the "paint" more transparent by changing the options.) Like a real paintbrush, the color applied by the tool fades somewhat when you drag more quickly. Unlike a real paintbrush, the tool never runs dry; moving the mouse slowly will always create the richest color allowed by the current settings.

Like the Airbrush Tool, the Paintbrush's settings can be customized by changing the options and/or altering the brush shape using the Show Brush Palette command from the View menu.

When you double-click on the Paintbrush Tool button, a dialog box will appear for more options. Click OK to activate your setting.

1) Rotate — rotates the selection around its center point. As you drag, the amount of rotation (in degrees) appears in the status bar for your reference.

2) Skew — distorts the selection horizontally or vertically, depending on the initial direction you drag the mouse. Visually, this effect makes your selection look like it is leaning to one side (or up or down on one end). Geometrically, this effect lets you give your selection the shape of a parallelogram, and stretches or shrinks parts of the image to match the new shape.

3) Perspective — distorts the selection in such a way that it gives one end (left, right, top, or bottom) the appearance of being either in the distance or in the foreground. Geometrically, this effect allows you to give your selection a trapezoidal shape, and stretches or shrinks parts of the image to match the new shape.

Repeatedly transforming your selection until you get the result you want is not recommended, because each transformation operation reduces the sharpness of the selection.

Crop Tool

When you click on this tool's button, it instantly copies the current selection from your image and makes a new document out of it. The original document is left untouched. For example, if you select the sun from your landscape image and then crop, a new, smaller image window will appear, and it will only contain the sun. The rest of the landscape will be left out of the new window.

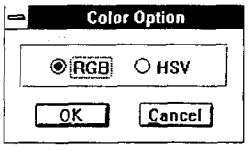
This tool has no options dialog box.

Eyedropper Tool

The Eyedropper Tool makes the active color the same as the color of the point you click on. It also displays in the Status Line the color values of the pixels that you move the pointer over. (As you can guess, this makes it much easier to create objects and shapes that match existing ones.)

Tip: The Eyedropper samples the point that's at the very tip of the eyedropper icon in the image window. It's easy to accidentally sample the wrong color, especially since some areas that look solid actually contain tiny spots of other colors. For example, an orange flower can contain tiny spots of red and yellow. Make sure that the active color visually matches the color you want after you've used this tool.

If you double-click on the tool button, a dialog box will appear for option's setting.



Options in the Eyedropper Tool dialog box:
RGB and HSV - Switches the color value display between RGB and HSV scales.

Trash Can Tool

Clicking on this tool's button instantly removes the current mask and all changes that have been made in it. If you are about to try some experimentation on your image, it's often handy to mask everything first so you can undo the changes made within the selection if necessary.

Of course, you cannot make a change, make a few other alterations, mask the first change, and then use this tool. It only affects changes that have been made while the current mask has been active.

This tool has no options dialog box.

Color Swatches

The color swatches at the bottom of the toolbox are convenient indicators of your current active and alternative color selections. The active color is the color that is applied to your image by the various brush tools, and it is used by other functions and tools as well. It is also the color that appears in the place of your selection after you perform a Cut command from the Edit menu. The alternative color helps to determine the effect you get with the Gradient Tool, and it is handy as an "on deck" color because you can make it into the active color merely by clicking on its swatch.

If you move the mouse pointer over the color swatches, the status bar will show you what they are and their respective color values.

To change the alternative color, click on it to make it the active color, change the active color, and then switch back to the original active color.

There are three ways to change the active color:

1) Use the Eyedropper Tool (Please refer to the Eyedropper Tool in Chapter 4). This is the best method for getting the active color to match a color in your image.

2) Use the Color Palette (Please see the Color Palette in Chapter 4). This is a quick way to pick from the range of colors available in PhotoStudio.

3) Double-click on the Active Color Swatch to bring up the Color Selection dialog box. This is the best method when you want to use the HSV color system to choose a color, or when you find the Color Palette's selections to be too imprecise.

The Color Selection Dialog Box:

This dialog box gives you many color selection options, including two different color systems: RGB and HSV.

When the dialog box first appears, it is in RGB color mode with the red spectrum selected. This is indicated by the button next to the R in the top right-hand corner. If you know the RGB color values of the color you want to select, simply enter them into the R, G, and B value boxes at the top right. Then click the OK button to make that your active color.

If you want to switch to the HSV color system, just click on the button next to the H, S, or V at the right. If you have specific HSV values, you can enter them in the value boxes at this time.