Introduction

Photopaint is an image editing and creation program that allows you to perform a wide range of design tasks, from editing of family photographs for fun to creation of subtle effects in the design of advertisements to promote your business. To this end you will find all the necessary tools for manipulating and experimenting with images, allowing you to paint, tone, erase, edit and apply special filter effects.

The secret of successful image editing and creation lies in the use of two important Photopaint features: *selections* (see Selections) and *layers* (see Layers).

Most of the time when you begin to work with any image, you will find it useful to *select* some area that you want to concentrate on, while leaving the rest of the image untouched. (Selections can be seen as similar in concept to the highlighting of text in a word processor before changing a font.) In Photopaint you can select the whole image or drag the mouse over a rectangular or other shaped area. Once an initial selection is made, you can change the shape of that selection, proceed to select all other parts of the image of a similar color, and so on. Moreover, once you have made a selection you can then zoom in on the selected area, thereby making it easier to apply delicate and subtle effects. There are many powerful tools to help you select exactly what you want.

Although a printed image is a two-dimensional arrangement of colors, the creation of the image can utilize a feature called *layers*. *Layers* allow you to create a finished image by adding to and editing the image on different levels, which can be understood on the analogy of several panes of glass stacked together. They have a certain (controllable) transparency, and different images can be painted on each layer, the overall effect depending on what order you use to stack the layers. The order of the layers can be changed as you see fit. Mastering layers simplifies the task of combining component images.

So, the basic elements of Photopaint are:

Selections

Paint and draw tools

Filters

Layers

Starting Photopaint

Start Photopaint from the menus:

1. Select the **Start** button on the Windows task bar
2. Select **Programs** and then **Ability Office**
3. Select **Ability Photopaint**

The first thing you'll notice about the opening screen is the lack of standard toolbars. This is because you need as much of your screen as possible to view the image. Photopaint has floating toolboxes that automatically appear according to the task in hand. The only toolbar that is immediately visible is the **Tools** bar, which contains the various paint and selection tools. In addition, there are three other basic toolboxes: **Layers**, **Information** and **Recent Colors**. These can be turned on and off in the **View** menu.

Creating a new image

Create a new image by selecting **New** from the **File** menu.

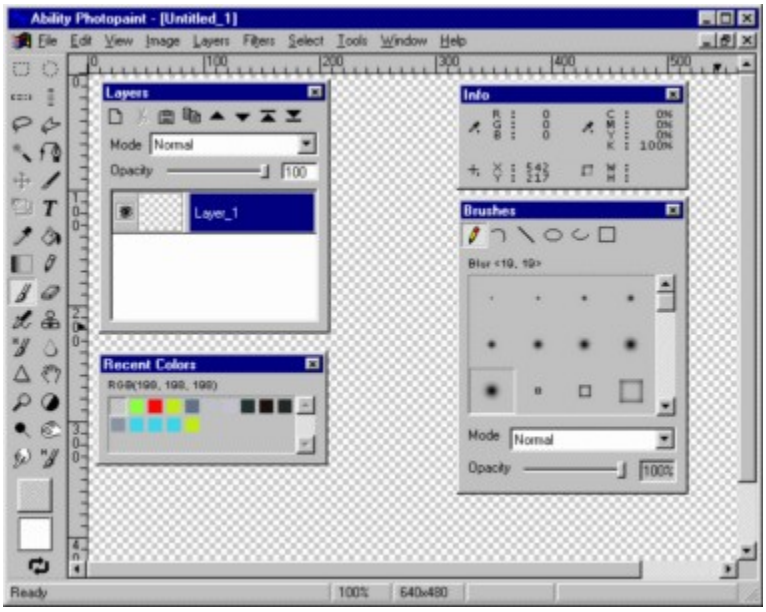
The “New” dialog is displayed.

Here you can set the width, height and resolution of the image window that is to be created and choose a scale of measurement (pixels, inches, cm, picas, or points).

Give the image a name in the **Title** box if you don’t want to use the default name.

The **Contents** box allows you to choose a color for the default background layer: **Fore color**, **Back color**, or **Transparent**. The default is **Transparent**, which normally shows as a checkerboard pattern. (You can change the shading and size of the checkerboard pattern in **File/Preferences/Grid**. A grid size of *none* in effect creates a blank sheet, either light, medium or dark according to the setting.)

For now, just press **OK**. A new image window will be created.



Note that the background is displayed as a checkered pattern (officially called Level 1 in a new image - see Layers). This denotes *transparency* , a concept which is of great importance in Photopaint. It may seem odd at first, but there is an important difference between “nothing” and, say, a white background: you can put images onto a transparent background and whatever is beneath the background will show through where there are no other images. If it were solid white, any background would be obscured. Of course if there is only one layer, there is nothing to see beneath a transparent background. The full effect of transparency is best seen with the use of layers (see Layers).

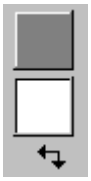
Along the bottom of the image window you can see the current magnification (actual size is 100%) and the number of pixels available for the width and height of the image.

On the left the **Tools** bar is visible.

You can at this point begin using the paint tools straightaway (see Paint Tools).

At the bottom of the Tools bar you'll see the **Foreground** and **Background Color** boxes. These will be important throughout Photopaint. (See Color selection)

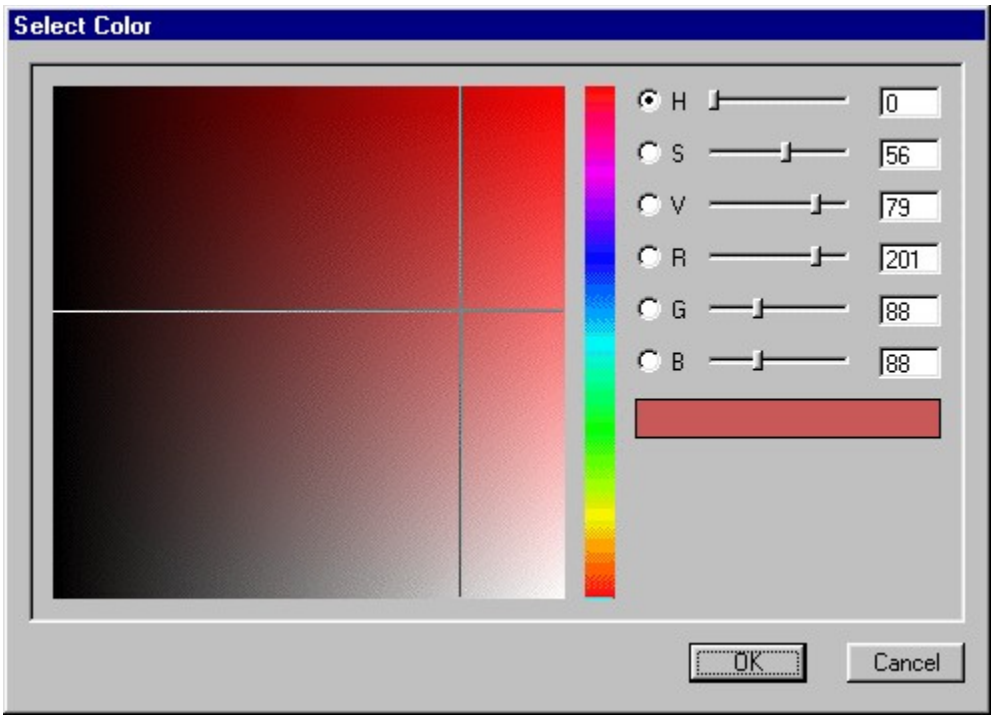
Color selection



The two boxes at the bottom of the **Tools** bar are the **Foreground** and **Background Color** boxes. They are interchangeable using the double-arrow button just below. The higher box is always the foreground color and the lower box the background color.

Whenever you use a paintbrush or pencil tool, it is the current foreground color that is applied. Whenever you erase pixels from the background or lowest layer in an image, it is the current background or foreground color, depending on which one you chose in the "New" dialog, that shows through in a printout, in Print Preview or when viewed through a higher transparent layer.

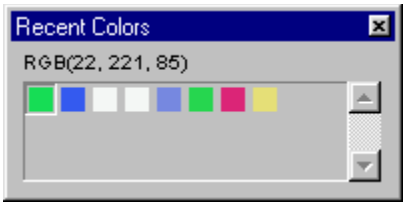
You can change the color in either of the boxes by clicking on the box to open up the "Select Color" dialog.



In here you can select a color by using the mouse to drag the crossed lines in the larger box or the single line in the tall thin box. The latter gives you an approximate color range, while the former enables greater fine tuning. Alternatively, you can set a color exactly by entering the right figures for **Hue**, **Saturation**, **Brightness**, **Red**, **Green** and **Blue** in the boxes to the right. You can also use the respective sliders to do this. The result will be displayed immediately in the **Preview** box. Whichever way you set the color all the relevant indicators will change together to reflect the current color: the color boxes, the Preview box, the sliders, and the measurement boxes. Once you are satisfied, click on OK.

The relevant color box on the **Tools** bar will be given the new color.

Note that as you change the colors in the **Foreground** and **Background Color** boxes, the old ones are stored in the "Recent Colors" dialog. (If this is not visible, select **Recent Colors** from the **View** menu.)



Select any of these colors to make it the current Foreground Color.
You can use the **Color Picker** (see Color picker) to select a color from an image and make it the Foreground Color.

While we are on the topic of color it is worth mentioning that the **Information** dialog (select **View/Information** if this is not visible) can give you useful data about the color values in an image, amongst other valuable pieces of information (see Information dialog).

Opening an existing image

You'll probably spend most of your time editing already existing images, especially photographs that have been scanned, rather than designing new images.

In this case, select **Open** from the **File** menu and use the "Open" dialog to locate and open the required file.

The image file will appear in the Photopaint window as a file of the type in which it was originally opened. Since there are some file types which do not preserve any layers you might have added, you may choose to use **Save As** from the **File** menu to convert the file into a Photopaint image file (that is, with extension .apx). This guarantees that any layers you add will be preserved, rather than being flattened onto the original image's background (where they cannot be recovered on a subsequent opening of the file). Photopaint files will, of course, require more memory to preserve layers.

Once you have opened the file, the image will appear in the image window. At first it will be displayed using the actual pixel size and therefore might be larger than the image window. If you would like to see the whole of the image, select **Fit on Screen** from the **View** menu.

The image will appear on a layer called Background, unlike a new image where the background layer is called Level 1 (see Layers for some notes on the difference between the two).

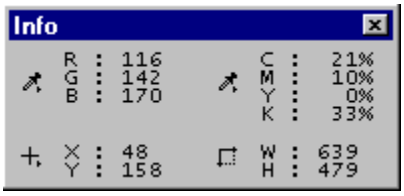
At this point you can immediately begin to use the paint and selection tools on the image. However, you probably don't want to change the background image itself, so it is best to create a duplicate layer, hide the background and proceed to edit the duplicate or create further layers. All this is explained in the section on layers (see Layers).

Another option is to create a duplicate of the image file, using **Duplicate** in the **Image** menu. You can then work with the duplicate and leave the original untouched. Whatever you do it is highly recommended that you have at least one untouched version of the original file.

Information dialog

The “Information” dialog contains useful information about the color values, selection dimensions and current position of the pointer in an image window. It can be a valuable source of instant information as you work on an image.

To open up the dialog, select **Information** from the **View** menu.



There are four sections in the dialog:
R G B in the top-left corner gives the respective values (between 0 and 255) for red, green and blue in any color that the pointer is currently passing over.

C M Y K in the top-right corner gives the respective percentage values for cyan, magenta, yellow and black in any color the pointer is currently passing over.

X Y in the bottom-left corner gives the coordinates in pixels (horizontal and vertical respectively) of the current pointer position.

W H in the bottom-right corner gives the width and height of a current selection, hence helping you to size selections accurately as you make or edit them.

Selections

Photopaint allows you to *select* parts of images or photographs. The advantage of selection is that you can work on a particular area within an image, without having to worry about altering areas outside the selection boundary. You may, for instance, want to change the color scheme in only one part of an image, leaving the rest of the image untouched. Since all images in Photopaint are pixel-based there is no way of automatically selecting, say, the head of a man from a picture that includes the rest of his body. Unlike a mere software package, only you, as perceiver, have a definite concept of parts of the body. This is where the selection tools come to your aid in helping you target the areas you want to work on.

There are several ways of making selections, each achieved through its own selection tool. The selection tools are grouped together at the top of the **Tools** bar, which is visible on the left-hand side of the screen when you open up a file. (If it is not visible, select **Tools** from the **View** menu).

Once you have made a selection, you can later edit it to refine its borders, change its position or alter it in some other way. There is a range of editing options available through the **Transform Selection** tool and the **Select** menu.

If you have already made a selection, the application of another selection will always override the first.

The selection tools available are:

Rectangular Selection

Elliptic Selection

Single Row Selection

Single Column Selection

Lasso

Polyline Lasso

Magic Wand

B-Spline Selection

Crop

Rectangular selection

Outline of selection is always comprised of horizontal and vertical outlines, joined in a rectangle. Click on **Rectangular Selection**  tool on the **Tools** bar. Hold down the mouse and drag the cross until required horizontal and vertical area is selected.

See:
Selections

Elliptic selection

Outline of selection is always elliptical or circular. Click on **Elliptic Selection**  tool on the **Tools** bar. Hold down mouse and drag the cross till required area is surrounded by ellipse or circle.

See:
Selections

Single row or single column selection

A single line selection selects one row or column of pixels. Click on **Single Row**  or **Single Column Selection**

 tool on the **Tools** bar. Click mouse once at point through which you want row or column to run. To reposition line just click at another point.

See:

Selections

Lasso

The lasso tool gives you the freedom to create a selection outline by hand. Click on the **Lasso**  tool on the **Tools** bar. Hold down mouse and drag lasso symbol around area you wish to select. When mouse is released the ends of an incomplete outline will automatically be connected by a straight line. This may cut off part of the area you wish to select, so it is best to complete the outline yourself by finishing off at the starting point.

See:
Selections

Polyline lasso

The outline is formed by a series of straight lines, joined point to point. Click on the **Polyline Lasso**  tool on the **Tools** bar. Click at the point where you want the outline to start. Click at the next point. A straight line will immediately connect the two points. Continue clicking at various points till the outline is complete and then right-click. If you do not complete the outline by finishing on the start point, the start and finish points will automatically be connected by a straight line.

See

Selections

Magic wand

This tool automatically makes a selection based on the brightness of adjacent pixels within a certain threshold. For example, if you click on a solid yellow circle placed within a larger blue one the selection will outline the yellow smaller circle. If you click on the blue circle the outline will appear round the blue circle and also round the yellow circle, that is, it will select the whole of the blue area and exclude the yellow area (rather like a ring doughnut).

Click on the **Magic Wand**  tool on the **Tools** bar. The "Magic Wand" dialog allows you to set the threshold value between 0 and 255. The default value is 32. The threshold determines what range of pixels will be selected by the Magic Wand in relation to the original selected pixel. A value of 0 will result in only the adjacent pixels of exactly the same brightness being chosen. The higher the threshold value the greater the range of pixels selected, according to brightness. At 255 almost everything is guaranteed to be included in the selection.

Anti-aliasing is a technique for softening the edges of a selection by surrounding the edges of the selection with a one-pixel transition. You should nearly always leave the **Anti-alias** box checked.

See:

Selections

B-spline selection

The outline of this selection uses smooth curves to join a series of points.

Click on the **B-Spline Selection**  tool on the **Tools** bar.

Click at the point where you want the selection to begin. Click at the next point. The two points will be joined by a curve. Proceed with the clicking as you move around the area to be selected. Try to keep the points close-in to the area to ensure the accuracy of the selection. Finally click on, or at least near, the start point.

To finish, just right-click. The start and finish points will automatically be joined to complete the selection.

See:

Selections

Crop

The Crop tool allows you to draw a rectangular border round the area you want to keep, everything outside this selection being discarded.

Click on the **Crop**  tool on the **Tools** bar and drag the mouse until a reasonably accurate selection is made. Release the mouse button. You can refine the crop by moving the mouse over the handles, at which point a cross will appear. Depress the left button and drag till you are satisfied with the selection on that particular border. Do the same with the other borders, as required.

To perform the crop, right-click and select **Crop**.

See:

Selections

Selection editing

Once you have made a selection using any of the selection tools (see Selections), it is possible to fine tune the selection in various ways, for instance, to make it fit an area more closely or to expand the selection borders.

There are two main ways of editing selections. In the **Select** menu you can apply such features as feathering, inversion, smoothness, and so on. Using the **Transform Selection**  tool you can alter a selection dynamically, changing the selection's position, angle, shape, and so on. Both of these will be dealt with.

See:

Selection menu

Transform selection tool

Selection menu

You can edit a selection in various ways through the **Select** menu. Most of the options in this menu are grayed out until you have actually made a selection using one of the selection tools, as you would expect. Here are some of the most important option available through the Select menu.

- **All** selects the whole of the visible window, putting a selection border around it. (Note that it is best not to use this option if it is your intention to edit the whole of the image. Although the image as it stands may occupy only the visible window, it is possible that at some time you may only have a part of the image visible, the rest stretching outside the window boundaries. In this case the selection will always be restricted to just that part of the image that is visible. It is best, therefore, to select the appropriate layer without making a selection within the layer.
- **None** clears any current selection. (Note that on occasions you may try to add color to an image to no avail, even though you are on the right layer and the layer is visible. It is more than likely that in these cases you have not cleared a selection properly, that is, you have clicked on the screen when a selection tool is active and reduced the selection to a barely visible dot, outside of whose boundaries nothing can be done until the selection is cleared.)
- **Invert** reverses the area currently selected in the visible window. If, for example, you have a small circle selected and you then apply Invert, a selection border will appear around the whole of the visible window in addition to the circle selection. This means that the selection is now the area between the circle border and the outer selection, that is everything in the visible window *excluding* the area within the original selection.
- **Feather** softens the edges of a selection when color is applied at the selection boundaries. In effect, feathering creates a transition area of increasing transparency, which gives an appearance of gradual, gentle succession from the selected to the unselected pixels.

  The Feather radius is set in the **Radius** box in the "Feather" dialog and is measured in pixels. The greater the radius (2 to 50 is the range) the greater the extent of the feathering.

  Note that the effects of using Feather are only seen with colors applied *after* feathering has been applied to a selection. The immediate effect is merely to expand the selection boundaries in accordance with the radius set by you.
- **Border** takes the current selection as a basis for creating a new selection of a specified width. The original selection is then abandoned. The border width is set in the **Width** box of the "Border" dialog and is measured both in and out from the boundary of the current selection.

  If, for example, you have a circular selection and then you apply a border of 5 pixels, the new selection will consist of a circular band with borders 5 pixels in and five pixels out from the original selection, rather like a ring doughnut.
- **Smooth** reduces the rough edges of a selection. Only the selection outline is affected, not the colors within the selection. In the "Smooth Selection" dialog, set the **Radius** at a value from 2 to 50 pixels. The higher the radius the greater the smoothing that will occur.
- **Expand** increases a selection by expanding its boundaries outwards. The degree of expansion is determined by the value you enter in the **Expand by** box in the "Expand" dialog. The range is from 2 to 50 pixels.
- **Contract** decreases a selection by contracting its boundaries inwards. The degree of contraction is determined by the value you enter in the **Contract by** box in the "Contract" dialog. The range is from 2 to 50 pixels.
- **Transform Selection** is used for dynamic editing of selections and actually activates the Transform Selection tool on the Tools bar (see Transform selection tool).
- **Grow** uses a current selection to select adjacent areas of the same color as the selection. Grow works best when the currently selected area contains a single color.
- **Similar** uses a current selection to select the same color throughout an image. The areas of color

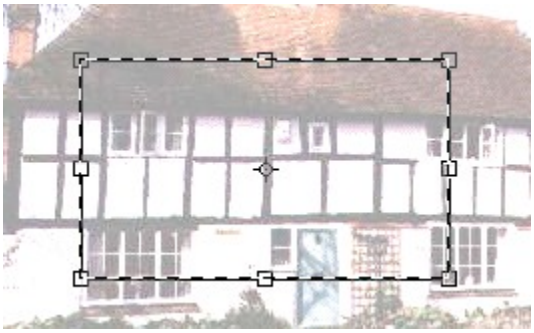
need not be adjacent. Similar works best when the currently selected area contains a single color.

- **Selection to Alpha** deletes the whole of the image on the current layer except for any areas you have selected.
- **Alpha to Selection** selects all colored areas on the current layer. On a layer which is otherwise transparent there will be as many selections as there are separate areas of color.
- **Make Pattern** uses the current selection to store a pattern in the "Pattern" dialog. This dialog is called upon by several of the tools, especially the Pattern brush.

Transform selection tool

This tool enables you to take a selection and transform it in various ways. **Transform Selection** works only on the selection boundaries and not on the image within the selection (use Transform Image if you want to transform the selected image itself). To transform a selection, obviously you need to have made a selection first, using one of the selection tools on the **Tools** bar (see Selections).

Click on **Transform Selection**  on the **Tools** bar. A rectangular box is placed around the selection, no matter what the shape of the selection. Handles are placed on the boundaries of the box and a moveable star-like symbol placed at its center.



The mouse pointer becomes an arrow inside the box, a cross while placed over any of the handles, and a curved double-headed arrow outside the box.
To move the selection as a whole, place the pointer inside the box and drag the arrow to a new position. The whole of the selection is moved to the new position. Note that the image within the original selection boundaries stays put when the selection is moved.
To stretch the selection, place the pointer over the relevant handle or handles and drag the cross to a new position. The selection border will be repositioned.

To rotate the selection, move the pointer anywhere outside the box and drag the curved double-headed arrow to a new position. Note that the selection rotates round the star-like symbol at the center of the box. You can move this symbol by clicking and dragging on it; the selection will henceforth rotate round the new position.

You can cancel a transformation by pressing **Esc** on the keyboard or selecting **Undo Transform** from the **Edit** menu.

The above operations are together known as **Free Transforms**, that is they are applied by you by hand, using the mouse, and are all available simultaneously. More precise and automatic transforms can be performed by right-clicking (or selecting **Transform** in the **Edit** menu) and choosing an option from the displayed menu (see Transform options). In choosing one of these options, you automatically make the others unavailable. For instance, while scaling you will be unable to rotate the selection.

See also:

Transform Image

Transform options

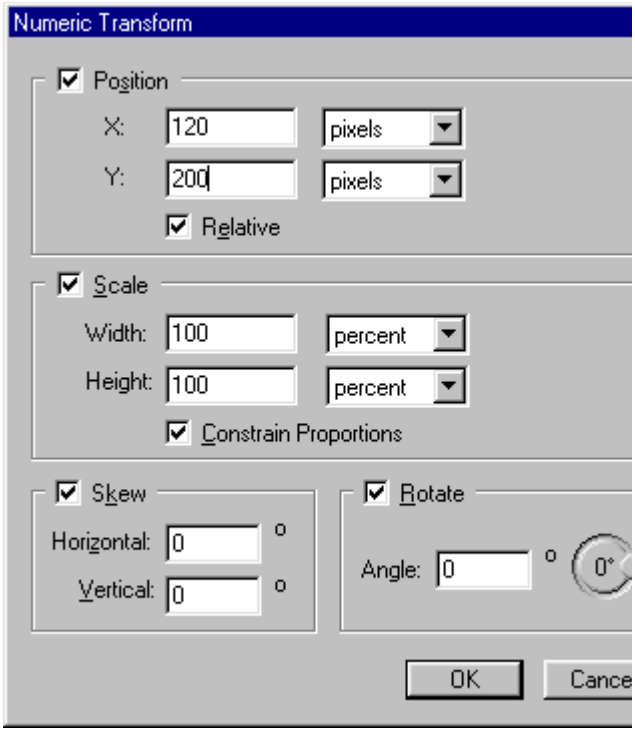
The Transform options are applicable to both Selections (see Transform Selection) and Images (see Transform Image).

They are available either by right clicking over a selection box or by selecting **Transform** in the **Edit** menu i.e. after you have selected either the **Transform Selection** or the **Transform Image** tool in the **Tools** box. Note that each of the options transforms either the selection itself or the image within the selection, depending on whether you have chosen Transform Selection or Transform Image respectively.

The options include:

Scale	Scale the transformation box either horizontally or vertically by dragging the handles. The selection will be scaled to match the new box dimensions.
Rotate	Rotate the transformation box by dragging the double-headed arrow outside the box. The selection will rotate with the box. Note that the star-like symbol acts as the center of rotation and can be repositioned.
Skew	Skew the transformation box by dragging a handle in the direction of the line on which it is situated. You can drag the handle in only one direction at a time. The selection will adjust to fit the skewed box. Note that dragging a center-of-line handle moves the whole of the line.
Distort	Distort the transformation box by dragging any handle in any direction. The selection will adjust to fit the distorted box. Note that dragging a center-of-line handle moves the whole of the line.
Perspective	The dragged handle will move in the direction of the line of the transformation box. If the handle is at a corner, the opposite corner will move the same distance in the opposite direction. Note that dragging a center-of-line handle moves the whole line.

Numeric



In the "Numeric Transform" dialog set the **Position** values in the **X** (horizontal) and **Y** (vertical) boxes. Leave the **Relative** box checked if you want the transformation box to move relative to the current position, rather than move to a position starting from the top left-hand corner of the window i.e. X = 0 & Y=0.
Set the **Scale** values in the **Width** and **Height** boxes. These will scale the width and height of the transformation box. If you want the scaling to be in proportion leave the **Constrain Proportions** box checked. Whatever you set for the width will also be automatically set for the height, and vice versa. Uncheck the box to set these separately.
Set the **Skew** values, in degrees, in the **Horizontal** and **Vertical** boxes. You can set the angle of skew anywhere between -60 and 60 degrees.
Set the **Rotate** value, in degrees, in the **Angle** box. The possible values run through -179 (clockwise from the x-axis) to 180 (anti-clockwise from the x-axis) degrees. Note that there is also an **Angle Indicator**: use your mouse to turn the little circle on the circumference of the big circle to set a new angle. The value in the Angle box will be automatically adjusted.

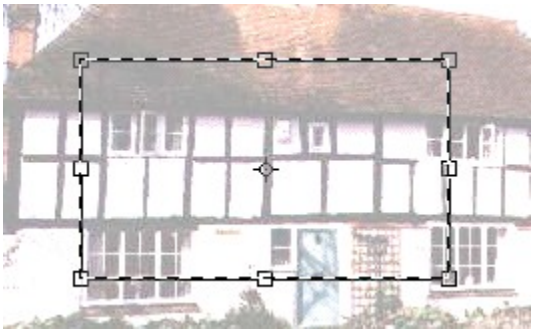
Rotate Rotate the selection by 180 degrees, 90 degrees clockwise or 90 degrees counter-clockwise.

Flip Flip the selection either horizontally or vertically.

Transform Image

This tool enables you to take a selected image or part of an image and transform it in various ways. This distinguishes this tool from the somewhat similar **Transform Selection** (see Transform selection tool), which merely transforms selection boundaries rather the image that is selected. Note that **Transform Image** only works with a selection and therefore you need to apply one of the standard selection tools first.

Click on **Transform Image**  on the **Tools** bar. Handles will appear on the boundaries and a moveable star-like symbol will appear in the center of the selection.



The mouse pointer becomes an arrow inside the selection, a cross while placed over any of the handles, and a curved double-headed arrow outside the selection.
To move the selected image as a whole, place the pointer inside the selection and drag the arrow to a new position. The whole of the selected image is moved to the new position.
To stretch the selected image, place the pointer over the relevant handle or handles and drag the cross to a new position. The selection border will be repositioned and the image stretched to fit the new border.

To rotate the selected image, move the pointer anywhere outside the selection and drag the curved double-headed arrow to a new position. Note that the selection rotates round the star-like symbol at the center of the selection. You can move this symbol by clicking and dragging on it; the selection will henceforth rotate round the new position.

You can cancel a transformation by pressing **Esc** on the keyboard or selecting **Undo Transform** from the **Edit** menu.

The above operations are together known as **Free Transforms**, that is they are applied by you by hand, using the mouse, and are all available simultaneously. More precise and automatic transforms can be performed by right-clicking (or selecting **Transform** from the **Edit** menu) and choosing an option from the displayed menu (see Transform options).

See also:

Copy, Cut and Paste

Paint tools

The paint tools allow you to apply and edit colors and special tone effects. These tools can be found on the **Tools** bar on the left-hand side of the screen (Select **Tools** from the **View** menu if this is not visible).

The available paint tools are:

Pencil

Paintbrush

Airbrush

Eraser

Duplicate

Pattern Brush

Blur

Sharpen

Emboss

Dodge

Burn

Smudge

Historic Brush

Pencil

This tool enables you to draw using a brushstroke with hard edges, as with a real pencil.

Click on **Pencil**  on the **Tools** bar.

In the "Brushes" dialog choose the method of applying the pencil from the following:

- **Free Hand**  enables you to draw directly with the current foreground color, the path of the applied color following the movement of the mouse when the button is depressed.
- **Spline**  enables you to plot a series of connected curves by clicking at the relevant points. To finish, right-click and the curves are replaced with the foreground color.
- **Line Drawing**  enables you to plot a series of connected lines by clicking at the relevant points, which are replaced with the foreground color when you right-click.
- **Ellipse**  enables you to draw an ellipse by dragging the mouse till you have the wanted shape and size. On releasing the mouse button the ellipse is converted into the foreground color.
- **Arc**  enables you to draw an arc (or incomplete circle). Click on the spot which you want to be the center of the arc and move the mouse (there's no need to keep the button depressed) till you have the required dimensions. Click once more and use the mouse to move clockwise to reduce the angle of the arc from a full circle or anti-clockwise to increase the angle from zero. Click once more to replace the arc with the foreground color.
- **Rectangle**  enables you to draw a rectangle by dragging the mouse till you have the required dimensions. On releasing the button the sides of the rectangle are replaced with the foreground color.

Select a shape and size for the pencil stroke from the **Brushes** box (see Brushes).

Select a mode in the **Mode** box (see Brush modes).

Change the degree of transparency in the **Opacity** box.

Note that Pencil produces a "harder" outline than Paintbrush, which employs a technique called "dithering" to soften the edges of a painted shape. Basically, dithering consists in softening the edges of an area of color by *fading* it into the surrounding color. This results in a less stepped edge than is produced by Pencil. The effect of dithering becomes more apparent if you increase the size of the image (see Zoom).

See:

Paint Tools

Paintbrush

This tool enables you to paint using a brushstroke with soft edges, as with a real paintbrush.

Click on **Paintbrush**  on the **Tools** bar.

In the "Brushes" dialog choose the method of applying the pencil from **Free Hand**, **Spline**, **Line Drawing**, **Ellipse**, **Arc**, **Rectangle** (for information on each of these, see Pencil).
Select a shape and size for the brushstroke from the **Brushes** box (see Brushes).

Select a mode in the **Mode** box (see Brush modes).

Change the degree of transparency in the **Opacity** box.

Note that Paintbrush produces a "softer" outline than Pencil, employing a technique called "dithering" to soften the edges of a painted shape. Basically, dithering consists in softening the edges of an area of color by *fading* it into the surrounding color. This results in a less stepped edge than is produced by Pencil. The effect of dithering becomes more apparent if you increase the size of the image (see Zoom).

See:

Paint Tools

Airbrush

This tool allows you to paint with soft, hazy brushstrokes, as with a real airbrush. Moreover, the color is fed out continuously and so will thicken whenever you keep the pointer in one place for a while or move it very slowly across the page.

Click on **Airbrush**  on the **Tools** bar.

Choose a brush size and shape from the options in the "Brushes" dialog (see Brushes). You can decide how transparent the paint should be by altering the value in the opacity box. 100% is, of course, the maximum.

See:

Paint Tools

Eraser

This tool allows you to “erase” pixels. In reality the effect of the Eraser tool is to change existing color values by:

- applying the current background color when used on the background layer
- converting the colored pixels of an image on any other layer to fully transparent pixels

Click on **Eraser**  on the **Tools** bar.

Select a brush shape and style from the “Brushes” dialog (see Brushes). Depending on the brush chosen you can erase colored pixels in a variety of ways, sometimes getting a complete erasure and sometimes a faded effect.

Change the degree of transparency in the **Opacity** box. The higher the value the more pixels will be erased by the selected brush.

See:

Paint Tools

Duplicate

This tool allows you to “clone” a part of an image and then paste it elsewhere. It is useful if you have an image that needs retouching and it would be appropriate to use a similar color and pattern from elsewhere in the image.

Click on **Duplicate**  on the **Tools** bar.

Select a brush mode from the “Texture Brush Options” dialog (see Brushes). This will determine the shape of the area to be cloned.
Select a mode in **Mode** (see Brush modes).

Change the degree of transparency in **Opacity**.

Next, press **Alt** on the keyboard and click once on the area that you want to clone.

Move the pointer to the area you want to paste to and press on the mouse button for a couple of seconds. The clone will be pasted in the shape of the brushstroke you chose. Drag the mouse if you wish to duplicate over a larger area.

Note that cloning can duplicate every part of an image window, starting from the paste point and copying everything that the cross moves over. The original position of the cross coincides with the copy point. If you wish to clone within a selected area you can use one of the selection tools first (see Selections).

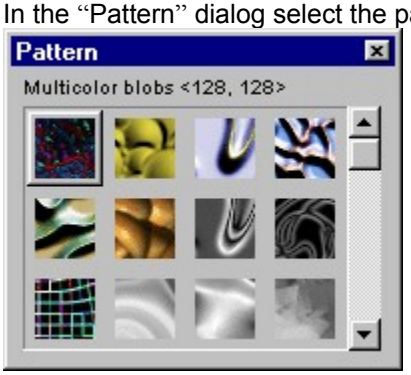
See:

Paint Tools

Pattern brush

This tool allows you to paint with a pre-defined pattern.

Click on **Pattern Brush**  on the **Tools** bar.
In the "Pattern" dialog select the pattern you want to paint with.



In the "Duplicate Options" dialog (this contains the same brushes as in the "Brushes" dialog) select a brush style with which to apply the pattern.
Proceed to paint with the brush by dragging the mouse.
You can, of course, draw the pattern in a restricted area by using a selection tool.

(Note that to use the Pattern Brush you must already have created a pattern. To create a pattern, use one of the selection tools to select the area containing the pattern you want to paint with. Next, select **Make Pattern** from the **Select** menu. Alternatively, you can use a pattern from a external file by loading the file in the **Patterns Editor** - see Patterns Editor.)

See:

Paint Tools

Blur

This tool blurs an image by reducing the contrast between adjacent colors.

Click on **Blur**  on the **Tools** bar.
Select a brush style and shape in the “Brushes” dialog (see Brushes).
Keeping the mouse button depressed, drag the pointer over the area that you want to blur.
See:
Paint Tools

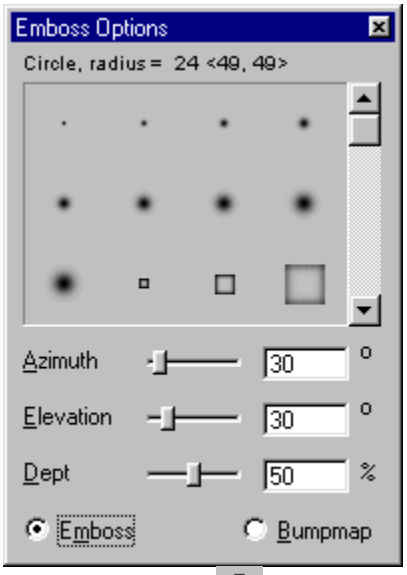
Sharpen

This tool sharpens an image by increasing the contrast between adjacent colors.

Click on **Sharpen**  on the **Tools** bar.
Select a brush style from the "Brushes" dialog (see Brushes).
Keeping the mouse depressed, drag the pointer over the area you want to sharpen.
See:
Paint Tools

Emboss

This tool enables you to cause an area of an image to stand out, as in a relief made of stone or metal. You can choose to maintain the color of the image or convert the image to grayscale as you paint with the emboss tool.



Click on **Emboss** on the **Tools** bar.
In the "Emboss Options" dialog select a style and shape for the brush (see Brushes).
Use the sliders to set an **Azimuth** between 0 and 360 degrees, an **Elevation** between 0 and 180 degrees, and a **Depth** between 0 and 100%. These control the amount and direction of light and shadow in the embossed image. You can think of the Elevation and Azimuth as determining the angle of a single light source in the vertical and horizontal planes respectively. The Depth determines the depth of the relief. The combination of these determines the appearance of the embossed image. (As you would expect, an elevation of 90 degrees i.e. the light source is directly above the image, makes the embossed image brighter, and an elevation of 0 or 180 degrees leads to a darker image. A depth of 0%, since it flattens the image, reduces the contrast between lights and shadows and therefore produces a more uniform embossed image, whether dark or light. The azimuth, since it determines the angle of light in the horizontal plane, alters the direction of light and shadow.)

Select **Emboss** for grayscale, otherwise select **Bumpmap** to preserve color.

Drag the brush over the area of the image you want to emboss.

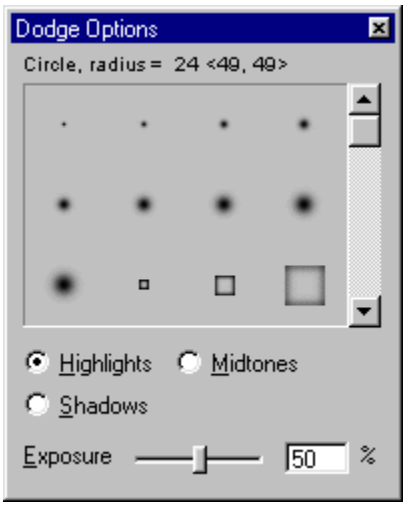
See:

Paint Tools

Dodge

This tool allows you to lighten the tones of the colors in an image.

Click on **Dodge**  on the **Tools** bar.



In the "Dodge Options" dialog select the style and shape of the brush (see Brushes).
Choose the tonal range on which to concentrate from the following:

- **Highlights** concentrates on the lighter tones, making them lighter still, but also affects the darker tones.
- **Midtones** concentrates on all tones, making them lighter, apart from the very light or dark.
- **Shadows** concentrates on the darker tones, making them lighter, but also affects other tones.

Adjust the value in **Exposure** to change the amount of tonal lightening you want to allow. A higher value results in a greater lightening over the tonal range chosen. (This effect is similar to a photographer's use of light intensity when exposing a negative.)

Proceed to drag the brush across the relevant areas.

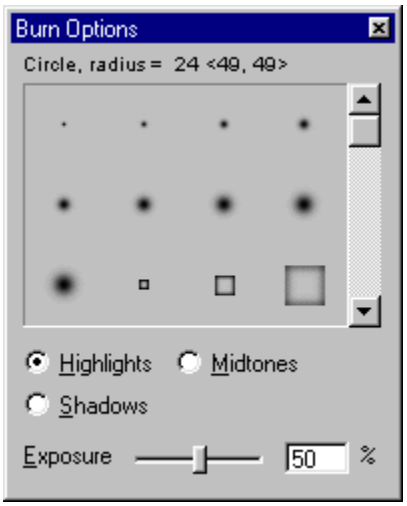
See:

Paint Tools

Burn

This tool allows you to darken the tones of the colors in an image.

Click on **Burn**  on the **Tools** bar.



In the "Burn Options" dialog select a size and shape for the brush (see Brushes).
Choose the tonal range on which to concentrate from the following:

- **Highlights** concentrates on the lighter tones, making them darker, but also affects the darker tones.
- **Midtones** concentrates on all tones, making them darker, apart from the very light or dark.
- **Shadows** concentrates on the darker tones, making them darker, but also affects other tones.

Adjust the value in **Exposure** to change the amount of tonal darkening you want to allow. A higher value results in a greater darkening over the tonal range chosen.

Proceed to drag the Burn pointer over the areas you want to change.

See:

Paint Tools

Smudge

This tool allows you to smear an image. The effect on the color values of the image is determined by the brushstroke used and amount of pressure selected. A larger sized brush will smear a greater amount of color and a higher pressure will redistribute the color over a wider range.

Click on **Smudge**  on the **Tools** bar.

In the "Smudge Options" dialog select a size and shape for the brush (see Brushes).
Use the slider to set the pressure in the **Pressure** box.

Proceed to drag the Smudge pointer through the appropriate areas of the image.

See:

Paint Tools

View tools

There are two tools that make it easier for you to view an image: **Hand** and **Zoom**.

See:

Hand

Zoom

Hand

This tool allows you to move an image when the image is larger than the current window. Since you can drag the image in any direction, this gives you more freedom than when using the scroll bars. Also it is handy for those times when you are using Full Screen view and the scroll bars are not visible.

Click on **Hand**  on the **Tools** bar.

Keeping the mouse button depressed, use the hand to drag the required portion of the image into view.

See:
Zoom

Zoom

This tool allows you to magnify the image in the current window.

Zoom comes with a selection outline that gives you the power to ‘‘zoom in’’ on a part of the image. You choose which part of the image you want to fill the window with after using Zoom. The smaller the selection the greater will be the magnification applied to the image as a whole. This is because the selected area is zoomed up to fill the whole of the window.

Once you have applied Zoom, you can use the **Hand** tool to move around the image. Alternatively use the vertical and horizontal scroll bars. With the magnified image before you, you can proceed to apply the paint tools as normal.

There are several ways of magnifying an image, as follows:

Click on **Zoom**  on the **Tools** bar. The pointer becomes a magnifying glass.
Click anywhere in the window and zoom will be applied.
To zoom in on a specific area, left click and drag the pointer till you are satisfied with the selection borders, that is, you have surrounded the area you want to zoom in on. Release the mouse and zoom will be applied, the selected area filling up the window.

If you want to cancel a selection before zoom is applied, press ESC on the keyboard. You can then go ahead and make another selection.

For further zoom options, right-click and select from **Zoom In** (increases magnification), **Zoom Out** (decreases magnification), **Actual Pixels** (reduces image to original size) and **Fit To Screen** (fits image to screen.

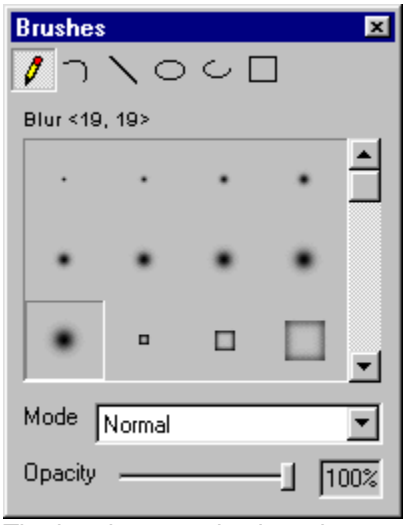
The maximum magnification is 1600% or 16 times the original size.

See:

Hand

Brushes

Every time you select a Paint tool a dialog is displayed with an array of brushes. Although the same brushes are common to each of the Paint tools, the dialogs in which the brushes are displayed are slightly different from one another, depending on the particular tool selected.



The brushes vary in size, shape and solidity, and determine how quickly color is applied, toned or erased, and over how large an area. This allows you to work, on the one hand, very quickly with large uniform patches of color, and, on the other hand, to concentrate on the details in a small area of an image. You can switch between brushes with ease.

The two main tools for painting are **Pencil** and **Paintbrush** (see Paint Tools). Whenever you choose a paint tool, you have the option to choose a brush through which the paint tool can be applied. If you do not specifically select a brush, the last brush used by the particular paint tool remains selected. (Pencil produces a "harder" outline than Paintbrush, which employs a technique called "dithering" to soften the edges of a painted shape.)

Whenever you select a brush its name and the number of pixels in the brush shape are displayed above the "Brushes" box. For instance, one of the squares has this attached information: **Square <10, 10>**. This means that the selected shape is a square that is 10 pixels by 10 pixels. Another option is: **Circle, radius = 17 <35, 35>**, for a circle with radius 17 pixels, and vertical and horizontal axes through the center of the circle i.e. the diameter, of 35 and 35 pixels respectively.

There are 53 standard brush styles in all. You can create and edit your own brushes by right-clicking in the "Brushes" dialog and selecting an option to open up the "Brush Options" dialog. Alternatively, select the **Brush Editor** from the **Tools** menu, where there is a full set of tools for editing and creating brushes. (See Brush Editor)

The effect of applying any Paint tool and therefore the particular brush style used with a tool, is to change the color value of every pixel that comes into contact with the brush. Three concepts relating to the application of Paint tools need to be understood:

Base color: the pixel color before the brush is applied.

Blend color: the color you wish to apply.

Resultant color: the color after the blend color has been combined with the base color using a particular brush style.

These notions are important in understanding the way the various **Brush modes** work (see Brush modes), that is the way the applied color blends with the already existing color. The default value for the blending mode is Normal, as you can see in the **Mode** box.

Another important concept when selecting a brush style and blend mode is that of opacity, which is set

in the **Opacity** box. If an applied brushstroke has opacity of 100% and the mode is set at Normal, the brushstroke will completely over-paint any color that it comes into contact with. The lower the opacity the more transparent or ‘‘see-through’’ the applied color will be, hence enabling you to see through to the colors beneath. Obviously opacity is a matter of degree and it is certainly worth experimenting with it to understand its full effect.

See:

Brush Editor

Brush modes

You can set a brush mode for several of the tools, for example, **Pencil**, **Paintbrush**, **Duplicate**, **Fill** and **Gradient Fill**. The brush modes determine how an applied brush stroke affects the colors already in an image. Essentially, this can be understood in terms of the existing or base color of a pixel, the color that will be applied by the brushstroke, and the color that results from the combination of the base and applied colors, as determined by the selected brush mode. For instance, if you paint a blue line over a patch of red in an image, do you want the red to be completely replaced by the blue, or somehow blended with it? The brush modes allow you to decide how and to what extent the applied color will affect what is already there.

The main options, which you can select in the **Mode** box in the "Brushes" dialog, are:

- **Normal** The color is applied in full, that is to say, the existing base color is totally over-painted.
- **Dissolve** A color applied with a less than 100% opaque brush is converted - "dissolved" - to 100% opaque randomly scattered pixels. The effect is of a rough brushstroke rather than an evenly transparent one.
- **Multipy** The brightness values of the base and applied colors can be combined to create a darker tone. This is done by multiplying the two brightness values when they are expressed as fractions. For example, white has a brightness value of 255 (the maximum) and is represented as 255/255 or 1; black has a brightness value of 0 (the minimum) and is represented as 0/255 or 0. All other brightness values are represented as fractions between 0 and 1 e.g. 150 is represented as 150/255; 100 as 100/255. Therefore, using Multiply we get the result (100 * 150) / (255 * 255), which works out at 59/255. You can immediately see that the resultant brightness will always be lower than (or equal to) the brightness of either one of the multiplied fractions. This intuitively fits in with our experience of placing one transparent sheet on top of another, where the result is always darker.

  Note that the above means that if the applied color is white, the resultant color is the same as the base color. If the base color is white, the resultant color is the same as the applied color. If either the base or the applied color is black, the resultant color is black. If the base color is transparent, the result of applying any color is black (since a transparent layer counts as 0, that is the same as black).
- **Screen** This mode has the opposite effect from Multiply, combining the base and applied colors to create a lighter tone.

These are some of the more important options but there are many others that it is worth experimenting with:

Behind, **Overlay**, **Difference**, **Addition**, **Subtraction**, **Darken Only**, **Lighten Only**, **Hue**, **Saturation**, **Color**, **Luminosity**, **Divide**, **Color Burn**, **Color Dodge**, **Hard Light**, **Soft Light**

See:

Brushes

Typing and color fill tools

In addition to the selection and paint tools, there are several other useful tools that enable you to insert text or color into an image.

These include:

Type Tool

Historic Brush

Fill Tool

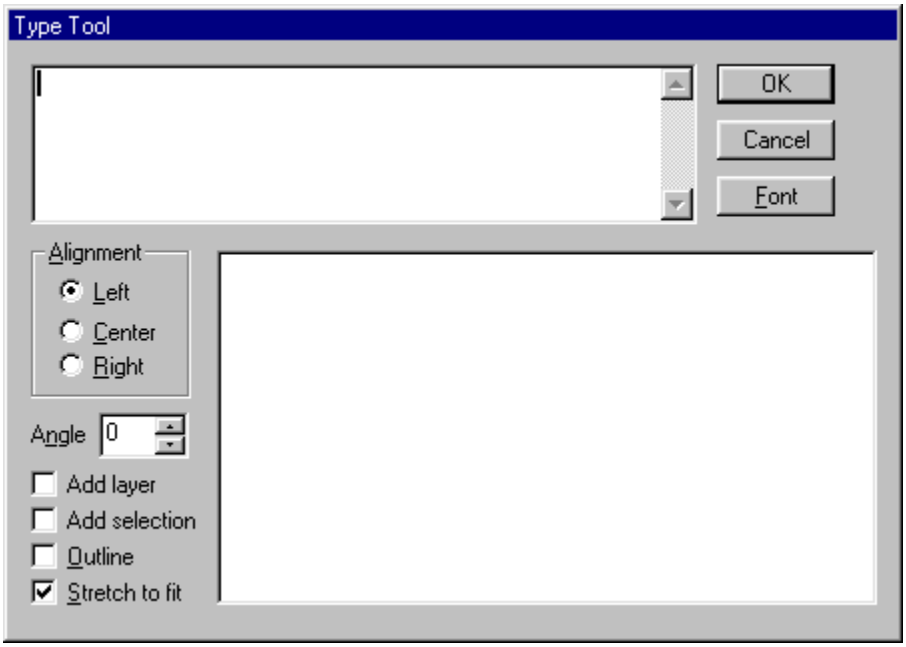
Color Picker

Gradient Fill

Type tool

This tool allows you to enter text. The text is placed in the document as if it had been painted directly by you i.e. it is pixel-based rather than object-based. This means that the text can be edited, using the full range of tools, just like any other part of an image, but cannot take normal text editing.

1. Click on **Type**  on the **Tools** bar. The pointer will turn to a T-symbol.
2. Position the T where you want the text to go and click once.



3. In the "Type Tool" dialog type your text in the top box.
4. Choose from **Left**, **Center** and **Right** in the **Alignment** box.
5. In the **Angle** box type a new angle or use the arrows to scroll. The angle will be measured anti-clockwise from the horizontal.
6. If you would like the text to go on a new layer, check the **Add Layer** box. A **Text Layer** will then be created for the text. Note that unless you explicitly change layers all new paint or text operations will take place on this new layer.
7. Check the **Outline** box to make text appear in outline rather than as solid.
8. All the usual font commands for your text are available through the **Font** button.
9. The text and the applied formats will appear in the **Preview** box, giving you the opportunity to make changes before clicking on OK.

See:

Paint Tools

Typing_and_color_fill_tools

Historic brush

This **Historic Brush**  on the **Tools** bar, enables you to reverse the last operation performed on an image. In this it is like the Undo command but limited to undoing the last operation only. However, unlike Undo the Historic Brush allows you to partially recover pixels from the result of the last complete operation rather than recover the whole result. (By ‘‘complete operation’’ is meant the action carried out between one click of the mouse and the next click.) The Historic Brush can be used in conjunction with the History palette to recover the state before a previous incarnation of an image (see History palette).

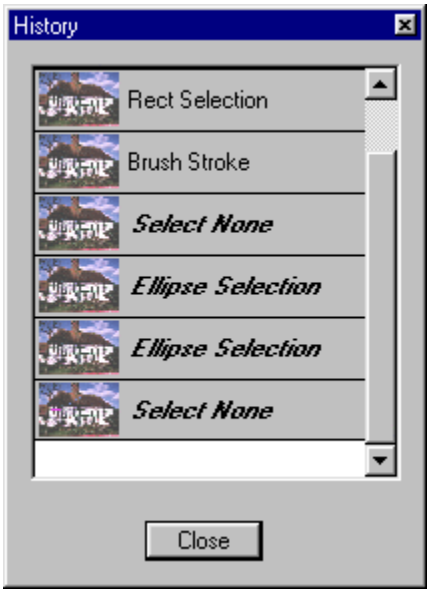
See:

Paint Tools

Typing_and_color_fill_tools

History palette

It is possible to go back to an earlier state of an image by selecting the **History** option under the **Edit** menu. The "History" dialog lists the states that you can recover. The actual states are shown on the left of the dialog and the operation that corresponds to each of the states is shown on the right.



Use the scroll bar, if necessary, to see more of the states of the image, and then click on the state you would like to recover. You can then proceed to work with the recovered image.

Note that any intermediate states between the current and the recovered state are lost, unless you choose one of them from the "History" dialog. Also there is a limit to the number of previous states remembered in the dialog.

You can use the History palette in conjunction with the **Historic Brush** (see Historic brush).

See:

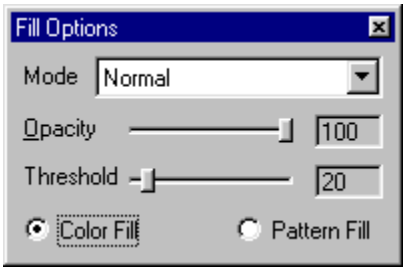
Paint Tools

Typing_and_color_fill_tools

Fill tool

This tool allows you to apply color by clicking on an image. The color you click on will be taken as the standard, and all adjacent pixels within a certain tolerance, using either the default or one set by you, will be filled in with the Fill color. The tolerance is a measure of the brightness of pixels and stretches out in either direction from the selected color. The Fill color itself is the currently selected foreground color.

Click on **Fill**  on the **Tools** bar.



1. In the "Fill Options" dialog set the following options:
2. Select a mode in the **Mode** box (see Brush modes). The default is Normal.
3. Set the opacity in the **Opacity** box: 0 is total transparency, that is the underlying color shows through totally; 100 is total solidity, that is the fill color covers the underlying color totally.
4. The tolerance is set in the **Threshold** box: 0 causes only adjacent pixels with exactly the same color (strictly speaking, brightness) to be filled; 255 causes all pixels in the image to be filled.
5. Leave **Color Fill** checked to apply a color fill.
6. **Pattern Fill** allows you to use a pre-saved pattern instead of the selected foreground color. (To create a pattern you first need to use one of the selection tools to select the area containing the pattern you want fill with. After this, select **Make Pattern** from the **Select** menu. The selected pattern will then appear in the **Pattern** box and will also be available for future use.)
7. Once you have chosen a suitable color or pattern and set the threshold, opacity and mode, just place the Bucket pointer over the area to be filled and click once. The fill will go ahead according to the settings you chose.

See:

Paint Tools

Typing_and_color_fill_tools

Color picker

This tool allows you to define a new color for either the foreground, background or paint tools by clicking on a part of an image.

Click on **Color Picker**  on the **Tools** bar. The pointer turns to an eye-dropper.

Position the eye-dropper over a color and click once. The foreground color box on the Tools bar becomes the same color as the color you clicked on.
You can now use a paint tool to paint with this color, or redefine the background color by exchanging the foreground color box with the current background color box.

(Note that the **Recent Colors** box displays a collection of the most recent colors picked out by the Color Picker, or selected in the **Select Color** dialog - see Color selection - when you are choosing a color for the foreground. If it is not visible, select **Recent Colors** from the **View** menu. Selecting any of the colors will make it the current foreground color.)

See:

Color selection

Paint Tools

Typing_and_color_fill_tools

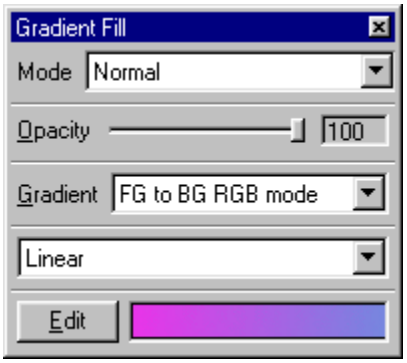
Gradient Fill

This tool allows you to fill an area, whether a selection or an entire layer, with a range of colors. Starting with one color and progressing to another, the colors in between are graduated according to the particular gradient used. The extent of the gradient is determined by the distance you drag the pointer.

There are four basic features of **Gradient Fill** that you will need to understand to use it properly:

- **Gradient** The various gradients available are ways of determining particular color progressions. Some use the current background and foreground colors to generate the gradient, others use different color schemes, depending on the choice of gradient (the gradient name is usually indicative of the range of colors to be used).
- **Gradient type** The gradient type is the "shape" of the gradient. The default type, **Linear**, takes the gradient set in **Gradient** and spreads it in a straight line from the start to the finish point, that is to say, in a definite direction across the image window. The **Spiral** type forms a spiral gradient around the start point; the shorter the distance you drag the pointer, the tighter the spiral. There are many other gradients types from which to choose.
- **Mode** The brush modes determine how the gradient will blend with any colors already there on the layer. Note that the mode determines a permanent state of the image and can only be undone by selecting **Undo** from the **Edit** menu. Some examples of blending are given in Brush modes.
- **Opacity** The opacity slider measures the degree of transparency or "see-throughness" of the applied gradient. A setting of 100% will completely cover any existing image with the applied gradient; anything less than this and the existing image will be visible through the gradient. Note that the opacity here determines a permanent state of the image and can only be undone by selecting **Undo** from the **Edit** menu.

All of these features are available in the "Gradient Fill" dialog.



To apply a gradient fill, do the following:

1. Click on **Gradient Fill**  on the **Tools** bar.
2. In the "Gradient Fill" dialog set the following options:
    - Choose from the blend modes in **Mode** (see Brush modes). The default is **Normal**.
    - In **Opacity** use the slider to set the transparency of the gradient. The default is 100% or totally opaque.
    - In **Gradient** select a gradient. The default is **FG to BG RGB mode**.
    - In the **Gradient Type** box select a gradient type. The default is **Linear**.

Once you have made your selections, click on a spot in the image window from where you want the gradient to start. Drag the gradient pointer to a finish point and release the mouse button. The gradient will be applied after a few seconds, in conjunction with the gradient type, mode and opacity.

Note that the shorter the distance you drag the pointer the more tightly will the band of colors be

packed.

In addition, you can create and edit your own gradients, which can be saved for future use. To do this click on **Edit** to open up the **Gradient Editor** (see Gradient Editor) and set the required options.

For some examples see Gradient Fill: examples.

See:

Paint Tools

Typing_and_color_fill_tools

Gradient Fill: examples

This section continues the explanation given in Gradient Fill and also gives some examples.

1. In the **Gradient** box you can choose the basic colors for the gradient. The default gradient is **FG to BG RGB** (Red, Green, Blue) **mode**, followed by **FG to BG HSB** (Hue, Saturation, Brightness) **mode**. Both of these produce a gradient that runs from the foreground color through to the background color, blending the tones in between. The next option, **Foreground to transparent**, produces a gradient in which the foreground color gradually thins out. These three gradients all use the current foreground and background colors to produce their effects.

   There are many other gradients, most of which, like **German Flag** and **French Flag**, generate colors independently of the current foreground and background.

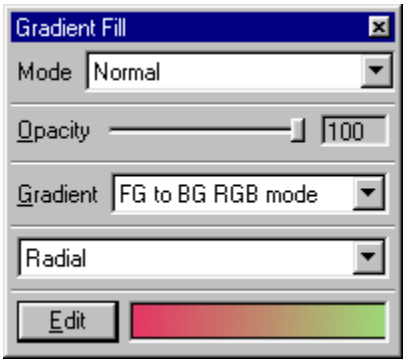
2. In the **Gradient type** box you can choose a shape or style for the gradient. The default type is **Linear**, which draws the gradient in a straight direction across a plane. The other options include **Radial**, **Spiral Clockwise** and **Anti-Clockwise**, **Square**, **Conical Symmetric** and **Asymmetric**, and **BiLinear**. Each of these defines a style for the gradient. For instance, if you select one of the spiral options and drag the pointer a short way across an image, a tight spiral will be drawn, of course using the currently selected gradient. If you drag the pointer a greater distance the spiral will be much wider. The same general principle goes for all the other gradient types. For instance, if you use the gradient **FG to BG RGB** (Red, Green, Blue) **mode** with the **Linear** type, the foreground and background colors will form solid blocks before and after the start and finish points respectively.

3. In the **Mode** box you determine how the gradient will be blended with the existing image. The default is **Normal**. There are many others, including **Dissolve**, **Multiply** and **Luminosity**. The best way to get to know how the modes work is to experiment. There is more explanation and some examples in Brush modes. Two things worth remembering are: the mode used with the gradient is permanent once applied and can only be undone by using **Undo** from the **Edit** menu; in most cases the gradient will cover the existing image if the **Opacity** is set at 100%.

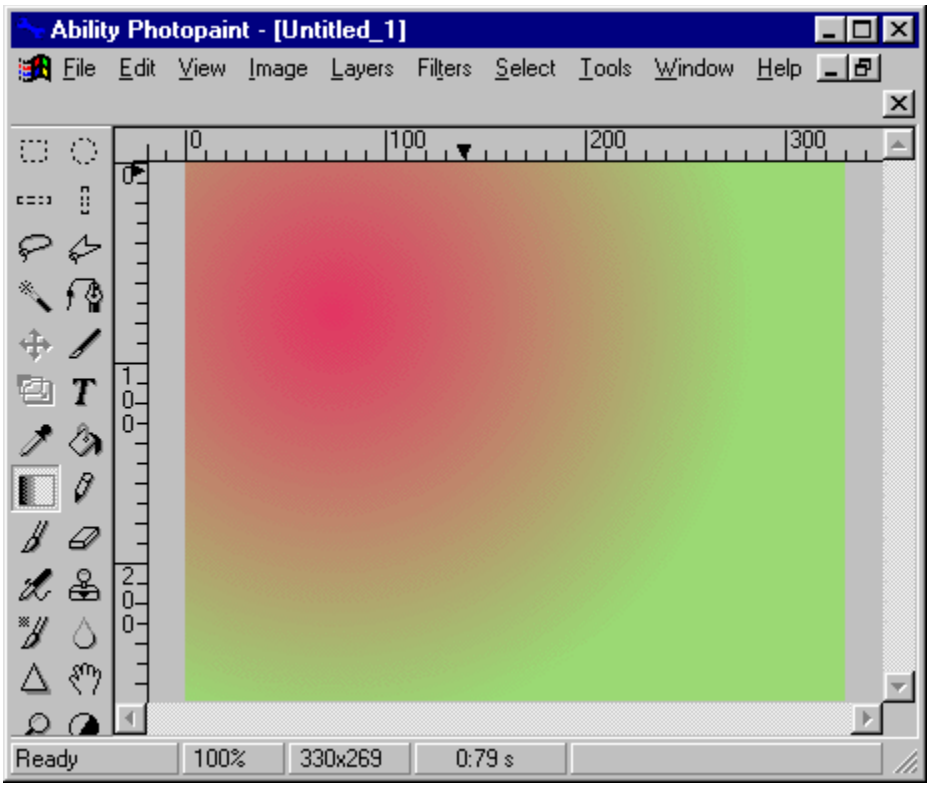
4. In the **Opacity** box you can choose the transparency of the gradient. The default is 100% opaque (or 0% transparent). As said above, you need to reduce the opacity from 100% in order to see the existing image show through the applied gradient. Remember that the effect of applying a gradient with an opacity is permanent and can only be undone by selecting **Undo** from the **Edit** menu.

The gradient is always applied by dragging the pointer and then releasing the mouse. Different gradients will take longer or shorter periods of time to be take effect. All in all the final effect depends on the combination of settings made in the **Gradient**, **Gradient type**, **Mode** and **Opacity** boxes.

Using these settings:



this gradient can be produced:



See:

Paint Tools

Typing_and_color_fill_tools

Filters

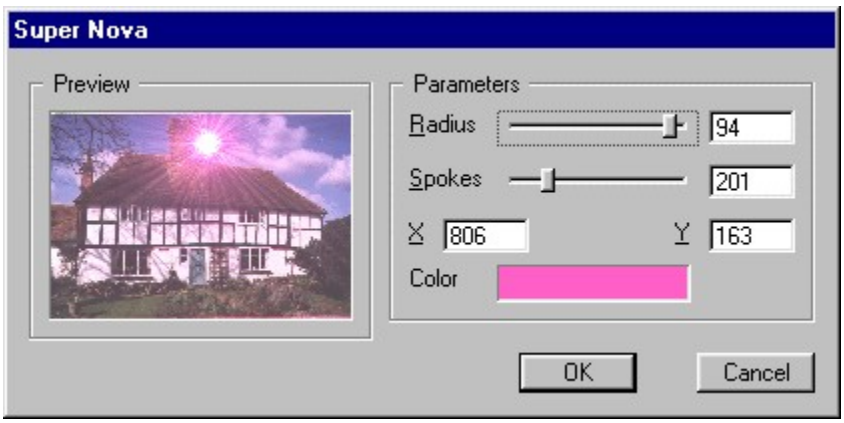
Filters are the Photopaint equivalents of the filters used in photography to create various effects. As in photography, some filters are merely *corrective* in that they try to preserve the appearance of the original image while removing some defects, and others are *creative* in that they radically change the image.

The best way to understand the effects of filters is to experiment with them a bit. Here only a few of the filters, of the many available, will be described.

All of the filters are accessible through the **Filters** menu.

They are grouped into several general categories, for example, **Artistic**, **Sharpen**, **Distort**, **Tiles**, and others. Within these categories there is a wide range of types, many of which are editable by you.

Take a look at **Super Nova** under **Light Effects**. A dialog will open, making it possible to edit and preview the filter before applying it.



- Use the **Radius** and **Spokes** sliders to increase and decrease the radius and number of spokes respectively of the super nova. The changes will immediately be displayed in the **Preview** box to the left.
- The **X** and **Y** boxes give the horizontal and vertical positions respectively. You can set these precisely by typing new values into the boxes. Alternatively use the mouse to click on a spot anywhere in the **Preview** image.
- The **Color** box contains the current background color. If you'd like a different color click anywhere in the Color box to open up the "Select Color" dialog. Here you can use the mouse to select a color. This will not affect the current background color. Once you have designed your super nova, click on OK and watch the filter take effect. Depending on the size of the image, it can take anything from a few seconds to a couple of minutes.

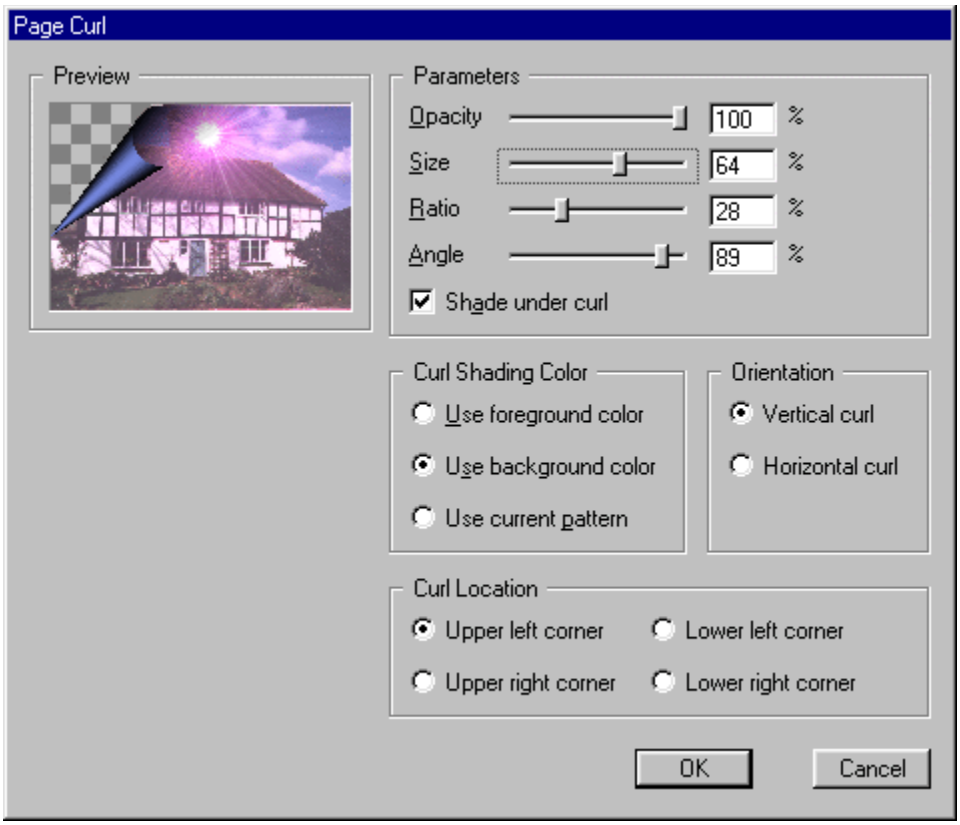
Note that whenever a filter is applied it affects only the currently selected - or active - layer.

You can undo the filter by selecting **Undo** from the **Edit** menu.

You can apply as many filters as you like to an image, whether on the same layer each time or across some or all of the layers, using many different types of filter.

Taking the above super nova effect, you can add a page curl filter on top. This is another good filter to experiment with and again easily editable.

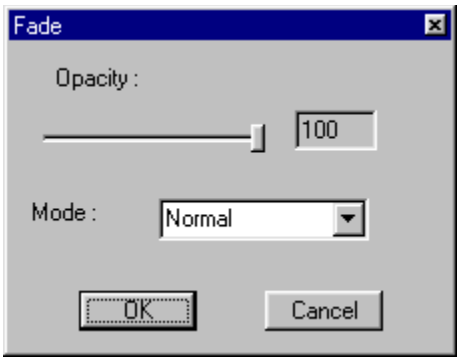
Select **Filters/Artistic/Page Curl** to open the "Page Curl" dialog.



- In the **Parameters** box use the sliders to set the **Opacity**, **Ratio**, **Size** and **Angle** of the curl.
- Click the **Shadow under curl** checkbox on for a shadow effect.
- (All of these effects will become obvious to you as you look at the immediate implementation of the changes in the **Preview** box.)
- You can change the color of the curl in the **Curl Shading Color** box, using either the current foreground or background color, or even a previously saved pattern.
- In the **Orientation** box choose between vertical and horizontal.
- Lastly, choose a corner for the curl in the **Location** box.
- Once again watch the changes take place in the **Preview** box and click on OK once you're satisfied.

The filter effects will take a few seconds to be implemented. If you decide you don't like them, just select **Undo** from the **Edit** menu and start again.

Note that once you've applied a filter you can make some further changes using the **Fade …** option at the top of the **Filters** menu. Thus in the case of **Page Curl** you can select **Fade Page Curl** to open the "Fade" dialog. In here you can change the opacity and the blend mode of the curl (or whatever was the last filter you applied).



The effect is to fade the filtered image into the original unfiltered image by reducing the opacity from the maximum of 100%. As the slider approaches 0 in the **Opacity** box the effect of the filter becomes fainter until at 0 the unfiltered image is restored. You can experiment with fading and immediately see the results in the image window.

The options in the **Mode** box - **Normal**, **Dissolve**, **Behind**, **Multiply**, and so on - determine how the filter will blend with the existing colors. The modes work pretty much as they do in Blending between layers, with the difference that once you've applied **Fade** the blend becomes permanent (although you can undo a fade or a filter by selecting **Undo** from the **Edit** menu).

Click on **OK** to exit the dialog and apply the Fade, otherwise click on **Cancel**.

For more examples of filters, see Filters: examples.

Filters: examples

In the section on Filters (see Filters) you were introduced to the concept of filters and shown a couple of examples (Super Nova and Page Curl). Altogether there are 93 filters divided into 10 categories. In addition, the Custom Filter option allows you to design your own filters. With such an extensive range of filters there are obviously many possibilities for combining different filters to produce even more effects. As ever, the best way for you to learn about these possibilities is to experiment.

The categories are: **Artistic**, **Sharpen**, **Blur**, **Stylize**, **Edge Detect**, **Tiles**, **Distort**, **Noise**, **Light Effects**, **Effects**, **Custom Filter**.

Here we will describe a few more of the filters:

Filter: Add Noise

Filter: Waves

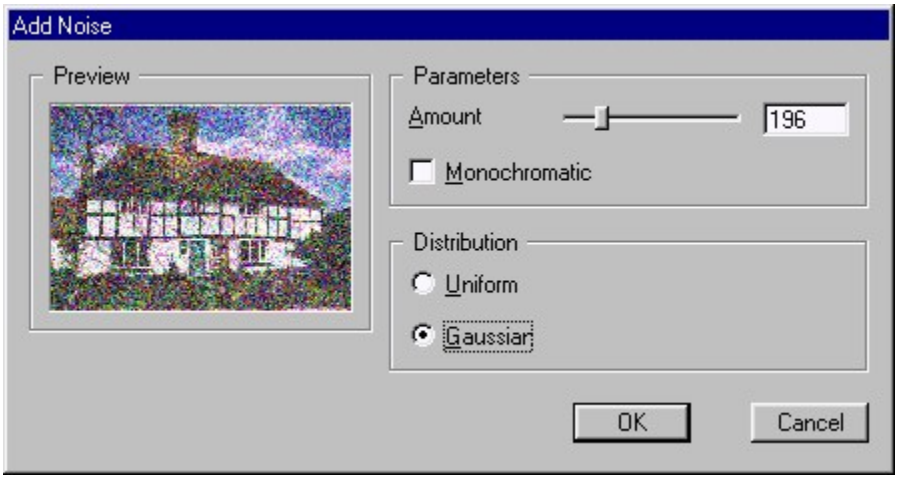
Filter: Blur

Filter: Mosaic

Filter: Light Effects

Filter: Add Noise

The **Add Noise** filter is accessible in the **Noise** category in the **Filters** menu. This filter concentrates on single pixels, increasing or decreasing their color values and thereby creating ‘‘noise’’ in the image. Noise can be defined as those single or small groups of pixels whose color values differ considerably from those of the bulk of nearby pixels. The overall effect can be like the grainy look of old film.



In the ‘‘Add Noise’’ dialog set the following options:

In the **Parameters** box:

- Use the slider to set the **Amount** of variation from the original colors. The lower the amount the closer are the pixels to the original image colors.
- Tick the **Monochromatic** box if you want to create noise that lightens or darkens pixels but leaves their hue unaffected. This results in most pixels being either black or white when Amount is set to high.

In the **Distribution** box choose the type of random distribution to be used for the noise:

- **Uniform** leads to a random distribution of even density throughout the image.
- **Gaussian** leads to a much more random distribution than Uniform, in which noise can be concentrated in single pixels and groups of pixels, and there can be areas of no noise at all.

All the changes you make can be seen immediately in the **Preview** box.

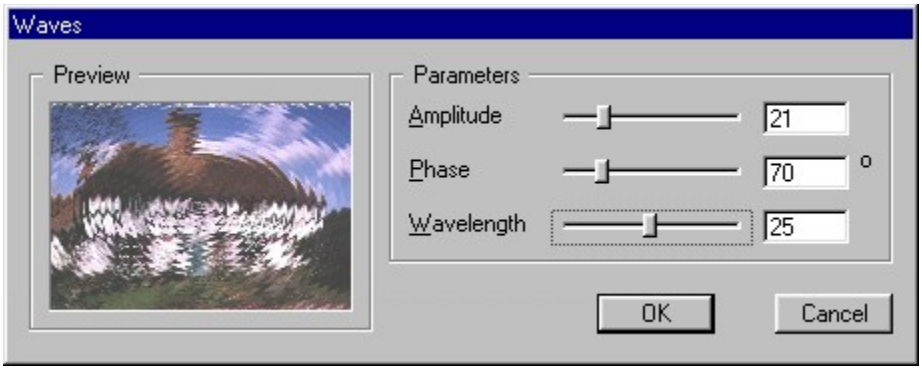
See:

Filters

Filters: examples

Filter: Waves

The **Waves** filter is accessible in the **Distort** category in the **Filters** menu. The effect is of an image being distorted when viewed under ripples of water.



In the "Waves" dialog use the sliders to set the following in the **Parameters** box:

- **Amplitude** The height of the waves between 0 and 100
- **Phase** The point in the wave cycle in degrees between 0 and 360
- **Wavelength** The wavelength between 0 and 50

All the changes are immediately shown in the **Preview** box.

See:

Filters

Filters: examples

Filter: Blur

There are several filters grouped together in the Blur category in the Filters menu. All of these filters blur images by searching out areas of strong color contrasts and sharp edges, which are then softened by converting pixels in the relevant areas to an average of their total color values.

The most basic and quickest filters to use are:

- **Blur**
- **Blur More**
- **Heavy Blur**

None of these brings up a dialog for you to make your own settings and there is no way to preview the results. Essentially they are a rough and ready way of averaging the sharp contrasts in an image, though without being susceptible to fine control. As the names suggest they are, in ascending order, relatively stronger than one another in their effects.

The following Blur filters give you much more control:

Motion Blur

Gaussian Blur

Smart Blur

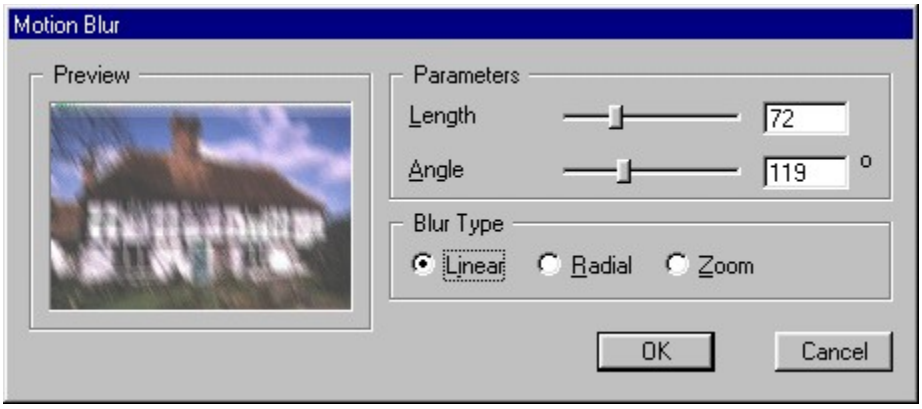
See also:

Filters

Filters: examples

Filter: Motion Blur

This filter, available through **Filters/Blur/Motion Blur**, makes the contents of an image look as if they were in motion.



In the **Parameters** box of the "Motion Blur" dialog you can do the following:

- Set the extent of the blur (between 0 and 255) by sliding the **Length** slider.
- Use the **Angle** slider to set the direction of the blur.

In the **Blur Type** box choose from these options:

- **Linear** blurs in straight lines. (Note that when you use Linear, the blur will run in the direction you set *and* in the opposite direction.)
- **Radial** blurs out from the center of the image.
- **Zoom** blurs within the original area, concentrating the colors according to the setting in Length.

All the changes you make can be seen in the **Preview** box.

See:

Filter: Blur

Filters

Filters: examples

Filter: Gaussian Blur

This filter, available through **Filters/Blur/Gaussian Blur**, gives a more naturalistic look to the transitions between adjacent colors when blurring. It achieves this by blurring unevenly, as is the case in real life, according to the distribution calculated using the Gaussian Bell Curve. Essentially this filter reduces detail in an image, while trying to avoid the artificial look of too smooth a blur across the image.

In the "Gaussian Blur" dialog set the following:

- Use the **Blur Radius** slider (or type in the value directly) to set the radius of blur, between 1 and 100. This controls the amount of blurring by using the blur radius, as a measure from the center of each pixel, for averaging of color values. The greater the blur radius the greater the overall blurring of the image.
- The **Blur Horizontally** and **Blur Vertically** checkboxes are both checked by default. Click to uncheck either or both of these. As their names indicate they determine the direction of the blur. You would normally want to blur in both directions. Note that unchecking both boxes makes it impossible to blur at all.

All your settings will immediately appear in the **Preview** box.

See:

Filter: Blur

Filters

Filters: examples

Filter: Smart Blur

This filter, accessible through **Filter/Blur/Smart Blur**, works to remove low-intensity "noise" from an image. It does this by preserving the areas where there is a sharp color contrast, such as edges, and blurring the areas where the colors are almost the same (within a tolerance set by you). As you can imagine, this is useful when treating grainy photographic images, since the grainy areas are usually only slightly different in color from the surrounding areas. The real detail of the image is largely left untouched.

In the "Smart Blur" dialog set the following:

- Use the slider to set the **Radius** - or type it directly into the box - between 1 and 50. The radius is a measure of the distance from the center of each pixel and determines the extent of the color averaging that constitutes the blurring process. Naturally the higher the radius, the greater the blurring.
- Set the **Maximum Delta**, again by using the slider or typing, between 0 and 255. This is a measure of the threshold for blurring. At low values there is blurring only between very similar colors; at high values almost any colors, no matter how dissimilar, may be blurred together.

The effects of your filter settings are displayed in the **Preview** box.

See:

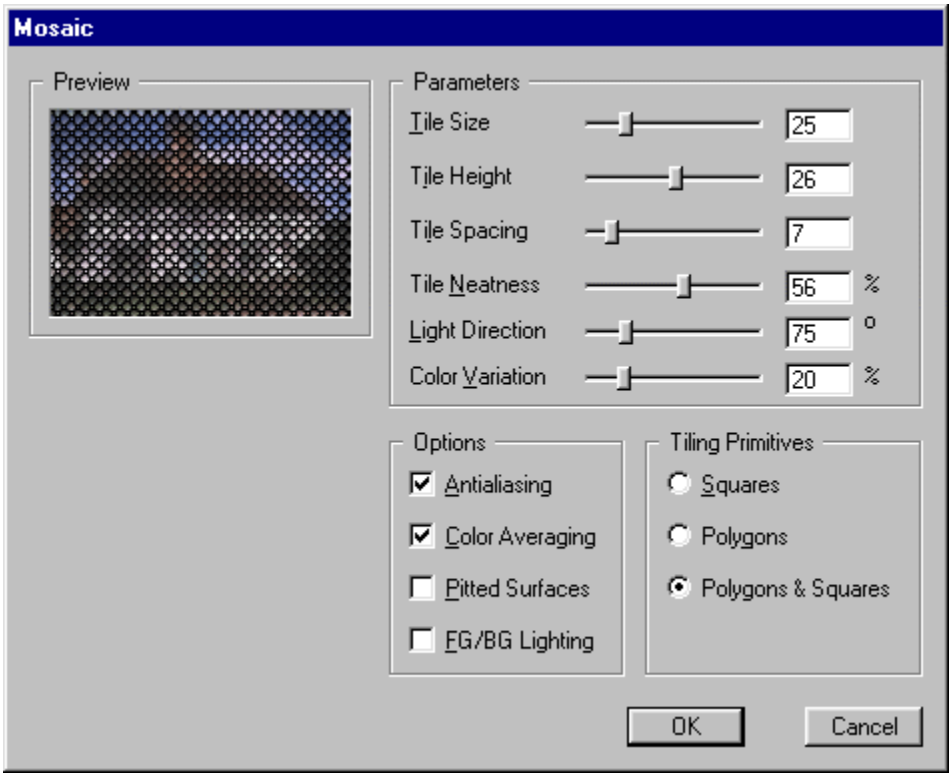
Filter: Blur

Filters

Filters: examples

Filter: Mosaic

This filter is accessible through **Filters/Artistic/Mosaic** and gives you the power to apply a range of mosaic effects. The mosaic tiles are surrounded by a black border and the colors of the tiles themselves are based on the colors of the original image. Any spaces between tiles are colored black.



Once you have entered the "Mosaic" dialog you have various options.
In the **Tiling Primitives** box, choose the basic mosaic shape:

- **Squares**
- **Polygons**
- **Polygons & Squares**

In the **Parameters** box, set the following as you wish:

- **Tile Size**: the size of the tiles between 5 and 100. The higher the value the fewer the tiles used to comprise the image.
- **Tile Height**: the height of the tiles between 1 and 50.
- **Tile Spacing**: the spacing of the tiles between 1 and 50. The lower the value the tighter the fit between the tiles.
- **Tile Neatness**: the degree of neatness, or regularity of shape, of the tiles between 0 and 100%. The lower the value the more irregular the tile shapes.
- **Light Direction**: the angle the light falls on the tiles between 0 and 360 degrees.
- **Color Variation**: the color differences between the tiles can be heightened or lowered between 0 and 100%. The lower the value the closer the tiles are in color.

In the **Options** box tick the boxes to set the following:

- **Anti-aliasing**: This is a technique for softening the edges of the individual mosaic tiles by surrounding their edges with a one-pixel transition.

- **Color Averaging**: This alter the colors of the individual tiles so that they are an average of their own color and the surrounding colors.
- **Pitted Surfaces**: The tiles are given a pitted look, rather like an image of the surface of the moon.
- **FG/BG Lighting**: The edges of the tiles are traced in the current foreground and background colors, according to the colors of the tiles they surround.

All your settings are shown in the **Preview** box.

See:

Filters

Filters: examples

Filter: Light Effects

The Light Effects filters all work with the qualities of light in your images. You may already have seen one of these, Super Nova, described in the Filters section (see Filters).

Here we will describe a few more of the light filters:

Lens Flare

Discotheque

Star

See also:

Filters: examples

Filter: Lens Flare

This filter, accessible through **Filters/Light Effects/Lens Flare**, makes part of an image stand out by brightening the pixels, with the surrounding pixels becoming progressively less bright. As the name implies the effect is as of a bright flare.

In the "Lens Flare" dialog set the following:

- Use the **Brightness** slider (or type directly into the box) to increase the brightness of the flare. The maximum is 500% or five times the original brightness.
- In the **X** and **Y** boxes you can set the location of the flare. The location is measured in pixels from the top left-hand corner of the image window.

Your settings will be displayed in the **Preview** box.

See:

Filter: Light Effects

Filters: examples

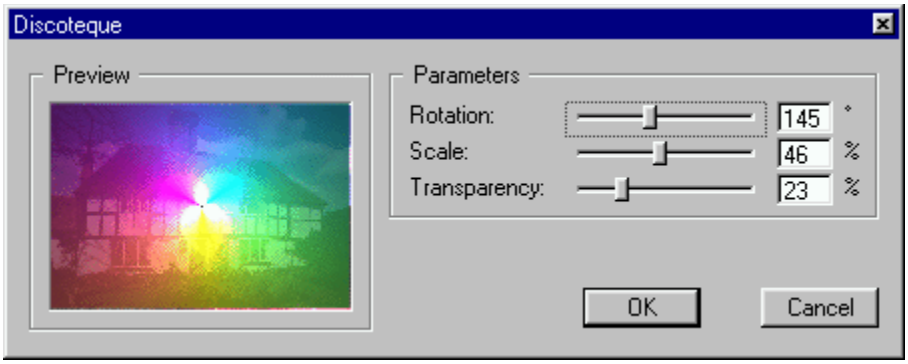
See also:

Filters

Filters: examples

Filter: Discotheque

This filter, accessible through **Filters/Light Effects/Discotheque**, imposes a bright disco-light effect on top of the original image. The light source is located in the center of the image.



In the "Discotheque" dialog use the sliders (or type directly into the boxes) to set the following:

- **Rotation** rotates the disco-lights through 0 to 360 degrees.
- **Scale** increases and decreases the intensity of the light source and therefore the extent of the light-spread across the image from the center.
- **Transparency** determines how much of the image is visible. A transparency of 0% causes the image to be not visible at all, with the disco-lights more or less the only thing visible, depending on the scale setting; at 100% the image is totally visible, with the disco-lights superimposed.

The changes you make are immediately displayed in the **Preview** box.

See:

Filter: Light Effects

Filters: examples

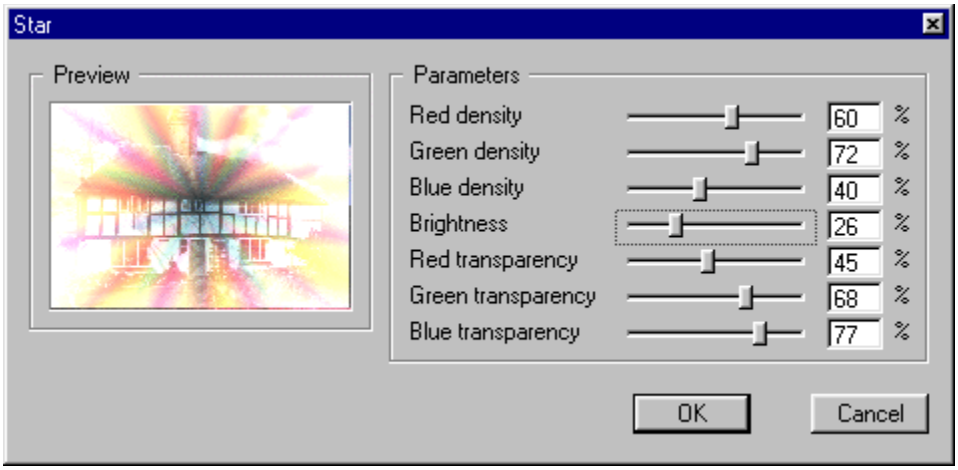
See also:

Filters

Filters: examples

Filter: Star

This filter, available through **Filters/Light Effects/Star**, allows you to apply various star-like effects. The possible variations are created through manipulation of the colors that comprise the image.



In the "Star" dialog you can use the sliders to set the following:

- **Red**, **Green** and **Blue Density**
- **Brightness**
- **Red**, **Green** and **Blue Transparency**

These are all measured on a percentage scale.

The effects are immediately shown in the **Preview** box before you apply them to the image itself.

See:

Filter: Light Effects

Filters: examples

See also:

Filters

Filters: examples

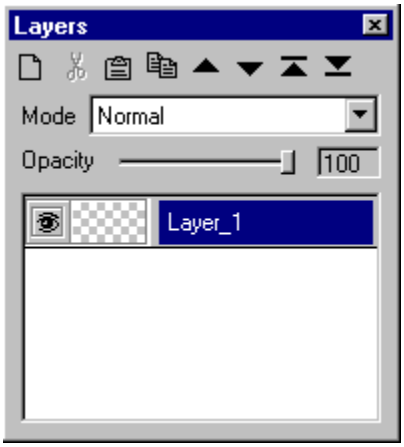
Layers

Layers are one of the most useful features of Photopaint. They enable you to treat an image as a series of separate superimposed images, each occupying its own transparent layer. This allows you to make changes to an image on one layer without upsetting the images on the other layers. In addition, the order of the layers can be altered. Altogether, layers are an essential tool in helping you to control how your images are created and edited.

The most important feature of layers is their capacity to be transparent in various degrees. Whenever you create a new layer it is shown as a transparent window, usually visible as a checkerboard pattern by default. (You can change the shading and size of the checkerboard pattern in **File/Preferences/Grid**. A grid size of *none* in effect creates a blank sheet, either light, medium or dark according to the setting. You can change the style of the layers either before or after opening a file.)

To reiterate, the essential characteristic of layers consists in the fact that whenever you create or edit an image on a particular layer, the images on the other layers will be visible in so far as they can be seen through a transparent area of the layers above. Obviously with more than two layers, the potential for complexity increases, especially if you start changing the order of the layers.

You can keep a check on the arrangement, visibility, opacity and blend mode of the layers you have created by selecting **Layers** from the **View** menu. This opens up the "Layers" dialog:



The following sections will further explain how to use the various features available in "Layers":

Background layer
Creating and working with layers
Layer options

Background layer

Each Photopaint document contains a background layer. There are several points you should be aware of in connection with the background.

If you create a new Photopaint document from scratch, that is to say, using the **New** command in the **File** menu rather than opening up an already existing image file, the default layer is called **Layer 1**. Whenever you open up an already existing image file, using the **Open** command from the **File** menu, the default layer is called **Background**.

The main difference between these is that a Background layer is always opaque, no matter what position you place it in the hierarchy of layers. If you erase any of the pixels in a Background layer the current background color is used to fill them in. With a new file where the default layer is called Layer 1, you can subsequently move this layer up the hierarchy of layers and it will behave in the same way as any other transparent layer. In both cases the bottom layer, whatever that is, will be opaque. This is as you would expect, since there is nothing to see beneath the bottom layer. Consequently, if you erase color from the bottom layer and it is called Background, the background color will show through, but if the bottom layer is any other type of layer a checkerboard pattern (or plain sheet) will show through. The checkerboard pattern does not mean that the bottom layer is transparent, as you can see if you select **Print Preview** from the **File** menu or print the document, in both of which the checkerboard pattern is converted into the current background color. Moreover, if you "look through" higher layers to parts of the bottom layer where erasure has taken place you will see the current background color.

Given the above there would obviously be not much point in changing the position of a Background layer in the hierarchy of layers. However, you can use the duplicate command to create a layer called **Copy of Background**, which will then act in the same way as any normal layer.

You can at any time rename *any* layer.

See:

Creating and working with layers

Creating and working with layers

The following section will show you how to create and work with layers, explain the relevant concepts, and illustrate some of the main operations that can be carried out with them.

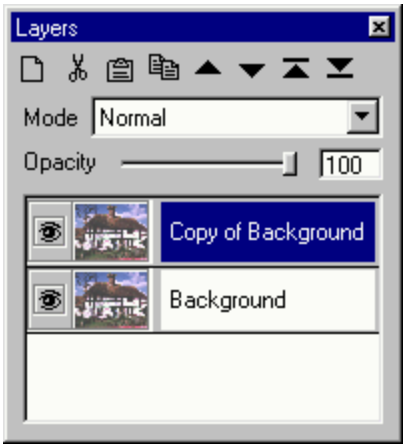
First, you may want to edit a picture file, for example, a photograph that you have already scanned in to your computer.

Select **Open** from the **File** menu and locate and open the relevant picture file.

The picture will be displayed in the Ability Photopaint window. If the picture is larger than the window and you want to see it as a whole, without having to use the scroll bars, then select **Fit on Screen** from the **View** menu. You can always select **Actual Pixels** to restore the picture to its original size.

The picture occupies the **Background** layer, as explained in Background layer. This is the default layer and can be edited directly or used as the basis for editing on other layers. It is best to keep the background layer clean; if you wish to edit it directly, work on a copy of it instead. (You might also choose to work on a copy of the original file: select **Duplicate** from the **Image** menu. A copy will be created and displayed. You can then close the original file by selecting it from the **Window** menu and continue to work with the copy, which is converted to an Ability Photopaint file. Note that **Image/Duplicate** creates a copy in which **Background** acts like any other layer.)

To create a copy of the Background layer, first make sure the "Layers" dialog is visible (select **Layers** from the **View** menu). Background will be the only layer visible in the dialog until you create another one. Click on the **Duplicate Layer** button in the dialog to open up the "Duplicate Layer" dialog. Click on OK to create a copy of the background layer.



Note that though these two layers are called **Background** and **Copy of Background**, they are in effect Layers 1 and 2 - if you add a new layer to them it will be called Layer 3.

Any layer can be renamed by clicking on the **Layer Options** button in the "Layers" dialog.

Now that you have created two layers you can see both of them listed in the "Layers" dialog. The bottom layer in the dialog is always the "background" layer, and the ones above are stacked on top of this. Any new layer is added to the top of the stack, that is, it becomes the layer furthest away from the background layer.

The list of layers has several important features. These need to be grasped if you are to use layers successfully:

- At the left-hand side of each layer there is an **Eye** button. As you would expect, this indicates that the layer is presently visible. Click once to switch off the eye button (and once again to switch it back on). By switching off a layer you make it impossible to see any image content from that layer, thereby making the content of the layer below visible (in so far as it was hidden by the image on the hidden layer). You can switch off as many layers as you like, and also have any combination of switched-on and switched-off layers.

- The currently selected (or highlighted) layer is the active layer. Any editing you do is always implemented on the active layer. Since it is not possible to have more than one active layer at a time, none of the inactive layers will be affected by your editing. This is, of course, the main value of layers in the first place. You can make any other layer the active one simply by clicking on it.

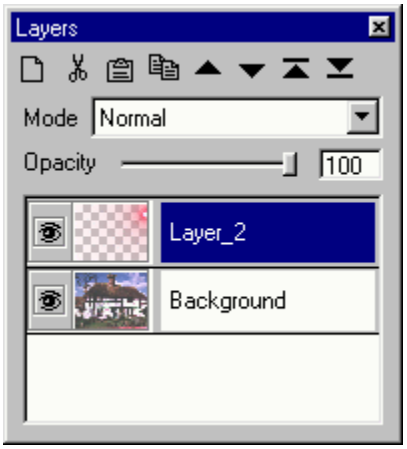
With this in mind it is important to note the following: a layer may be the active one and at the same time be invisible, that is with the eye button switched off. If this is the case, you will not be able to see the effects of editing until you switch on the eye again, but editing will be applied to the currently selected active layer whether or not it is currently visible.

See:

Layer options

Layer options

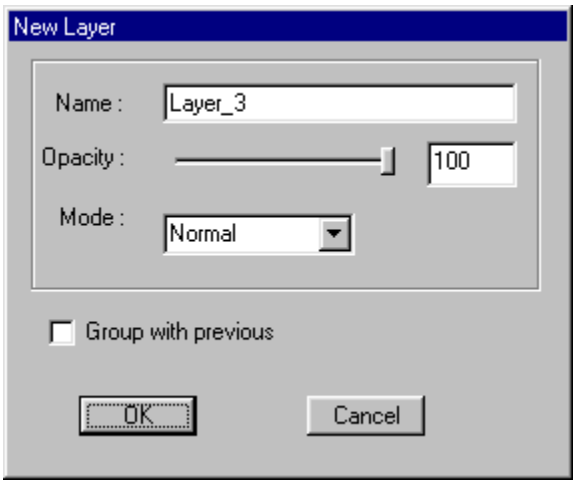
There are various layer options, available through the "Layers" dialog or, if not there, the **Layers** menu. These options show some of the most powerful features of layers.



(The example "Layers" dialog shows an image of a house on the Background Layer - see Background layer - and a Super Nova filter on Layer 2. The images can be combined in the image window to show a house with a super nova filter, or either layer can be switched off to show only the image on the other layer. The active layer in the example is Layer 2 and all actions will take place on this layer until the other one is selected.)

We will go through the options in the "Layers" dialog not already dealt with in Creating and working with layers. After that we will cover some of the options available through the **Layers** menu.

Click on the **New Layer** button in the "Layers" dialog to open up the "New Layer" dialog.

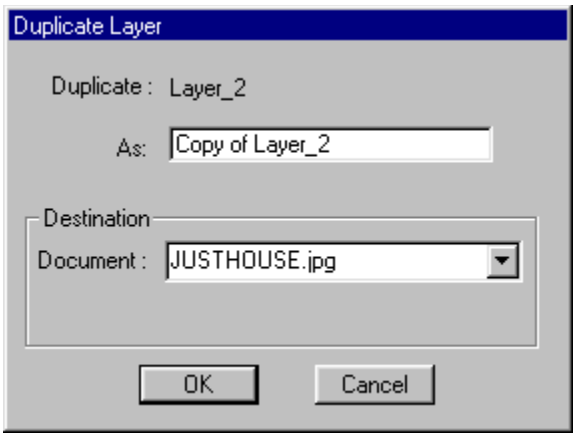


In the **Name** box the layer is given a default name e.g. Layer_3. You can change the name as you wish. (The **Opacity**, **Group with previous** and **Mode** options are dealt with in the account of the "Layer Properties" dialog later on in this section.) Click on **OK** to close the dialog and create the new layer.

Note that whenever you create a new layer it is placed directly above the current highest layer in the stack, that is it becomes the layer furthest from the background. This can be observed in the "Layers" dialog.

If you want to delete a layer, first select the layer in the "Layers" dialog and then click on the **Delete Layer** button.

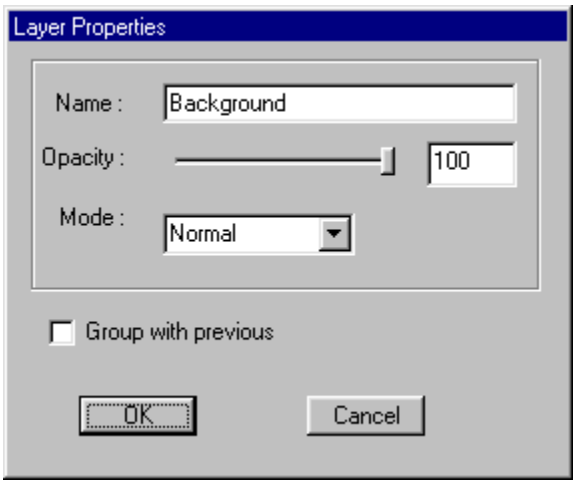
You can duplicate a layer by first selecting the correct layer in the "Layers" dialog and then clicking on the **Duplicate Layer** button.



In the "Duplicate Layer" dialog the layer to duplicated will be given a default name which you can change as you wish. In the **Destination** box you can choose whether to have the duplicate layer saved to the present document, an already existing document or to a new document.
There are several buttons that enable you to alter the order of the layers. In each case, first select the layer to be moved.

- Click on **Layer Up** to move a layer one up the stack, that is one layer further away from the background.
- Click on **Layer Down** to move a layer one down the stack.
- The **Layer First** button takes the selected layer to the top of the stack, that is the furthest away from the background.
- The **Layer Last** button takes the selected layer to the bottom of the stack, that is makes it the background layer.

Click on the **Layer Options** button to open up the "Layer Properties" dialog.



There are several options here which are also available in the "Layers" dialog itself, such as power to change the name, alter the opacity, and select a different blend mode for the layer. In addition, you can choose to group layers together.

- **Opacity**: use the slider to reduce the opacity of the active layer. In effect, 100% opacity on a layer prevents you seeing through an image to the layer below. As you gradually reduce the opacity the image fades more and more. Note that altering the opacity merely changes the appearance of a layer, but does not effect a permanent change unless you choose to merge or flatten an image (see

Merge operations with layers).

- **Mode**: the blend mode determines how colors on the active layer will blend or combine with colors on the layers below (see Blending between layers for more information).
- **Grouping**: The **Group with previous** checkbox should be switched on if you want to ‘‘clip’’ the active layer to the layer below. Essentially, grouping causes the information on one layer to mask the information on the other. So, if you have two adjacent layers, with the upper layer clipped to the lower, the only part of any image on the lower layer that will ‘‘show through’’ is that which coincides with the image on the upper layer. The image on the upper layer will be seen as if filled with the colors from the image on the lower. Another way of thinking about this is to see the transparent areas of the upper layer as masking the equivalent areas of the lower layer. An example of the use of the technique is when you have some text on the upper layer, say ‘‘Happy Birthday’’, which you want to be displayed with the colors that are directly underneath in the lower layer. You can cancel a grouping by clicking on the checkbox again or by selecting **Ungroup** from the **Layers** menu.
- Click on **OK** to close the dialog and apply the changes.

See:

Layers

Blending between layers

In the Layer Options section (see Layer options) we explained some of the various options available in the "Layers" dialog. One of the most useful is the **Mode** option, which determines how colors on the active layer will blend or combine with colors on the layers below. The effect of a Blend mode is usually obtained in conjunction with a setting for the Opacity of the layer.

There are several options for blending. The list of these is the same as for Brush modes (see Brush modes). There are, though, important differences:

- brush modes concern blending between colors on one layer, whereas blend modes concern blending between different layers;
- brush modes can be limited to a selection on a layer, whereas blend modes work on the whole of a layer;
- a brush mode will only take effect once you start to paint with it, leaving previously applied brushstrokes untouched unless you paint over them, whereas a blend mode is applied immediately it is selected to the whole of the layer and will continue to be applied as long as it is selected;
- brush modes are permanent, unless you use the Undo option in the Edit menu, whereas blend modes can be changed or cancelled by selecting another blend mode.

The usefulness of blending can be gauged from the following notes.

The image window can contain many layers in a definite order. Each layer can have its own image but all the layers share the same "space", namely the standard image window. However, when it comes to displaying or printing an image that is comprised of a series of layers, it is obviously impossible to display all the separate layer images. In other words, only one image can actually be displayed. Blending is a way of determining the final color values for an image you wish to display or print, when that image consists of more than one layer. Note that the Blend modes do not effect a permanent change and can be cancelled at any time by selecting **Normal** in **Mode** and setting the **Opacity** at 100%.

For some examples of blending between layers, see Blending between layers: examples.

Blending between layers: examples

The following examples show you how to apply the techniques discussed in Blending between layers.

Since blending is applied to the color values of the pixels on more than one layer, Photopaint has to calculate, for each pixel, the **resultant color** from a combination of the **base color** (or color of the layer below the active layer) and the **blend color** (or color of the active layer). The particular Blend mode used determines the way the resultant color is calculated.

The default value for the blend mode is **Normal**, as you can see in the **Mode** box.

Another important concept when selecting a blend mode is that of opacity, which is set in the **Opacity** box. For some blend modes an effect becomes apparent only if the opacity is set at less than 100% e.g. Dissolve.

The main blend options, which you can select in the **Mode** box, are:

- **Normal**

  The resultant color is the same as on the current active layer (subject to the amount of transparency set in the Opacity box, therefore visibility through to the lower layer). In effect, the base color is not used to help calculate the resultant color where the base and blend colors overlap.

- **Dissolve**

  A layer with less than 100% opacity is converted - "dissolved" - to 100% opaque randomly scattered pixels. The effect is of a rough brushstroke, containing a mixture of blend and base pixels, rather than an evenly transparent one.

- **Multipy**

  The brightness values of the base and blend colors can be combined to create a darker tone. This is done by multiplying the two brightness values when they are expressed as fractions. For example, white has a brightness value of 255 (the maximum) and is represented as 255/255 or 1; black has a brightness value of 0 (the minimum) and is represented as 0/255 or 0. All other brightness values are represented as fractions between 0 and 1 e.g. 150 is represented as 150/255; 100 as 100/255. Therefore, using Multiply we get the result (100 * 150) / (255 * 255), which works out at 59/255. You can immediately see that the resultant brightness will always be lower than (or equal to) the brightness of either one of the multiplied fractions. This intuitively fits in with our experience of placing one transparent sheet on top of another, where the result is always darker.

  Note that the above means that if the blend color is white, the resultant color is the same as the base color. If the base color is white, the resultant color is the same as the blend color. If either the base or the blend color is black, the resultant color is black. If the base color is transparent, the result of blending any color is black (since a transparent layer counts as 0, that is, the same as black).

- **Screen**

  This mode has the opposite effect to Multiply, combining the base and blend colors to create a lighter tone.

These are some of the more important options, but there are many others:

Behind, **Overlay**, **Difference**, **Addition**, **Subtraction**, **Darken Only**, **Lighten Only**, **Hue**, **Saturation**, **Color**, **Luminosity**, **Divide**, **Color Burn**, **Color Dodge**, **Hard Light**, **Soft Light**

Remember that you can always cancel or change the effect of a blend mode by selecting another one, especially the **Normal** blend mode. For information on how to make a particular blending permanent, see Merge operations with layers.

Merge operations with layers

The merge options, accessible in the **Layers** menu (see Layer options), provide a useful way of fusing the contents of layers to form one image on one layer.

- **Flatten Image** merges all visible layers into a single background layer, leaving out and discarding non-visible layers (the ones with the Eye switched off). At the end of this operation there is only one layer left.
- **Merge Visible** merges all visible layers into the bottom-most visible layer, creating a single background layer and leaving non-visible layers untouched and above the background layer.
- **Merge Down** merges the active layer with the layer below it.

The merge operations are permanent, although if you make a mistake with a merge just select **Undo** from the **Edit** menu to restore the previous state.

Copy, Cut and Paste

The **Copy**, **Cut** and **Paste** commands in the **Edit** menu work in conjunction with the **Layers** facility. Whenever you copy or cut a selected image or part of an image and then use paste, the selection is pasted onto a new layer. The pasted selection will be slightly off-center, rather than superimposed on top of the copied selection.

1. The Copy, Cut and Paste commands only become active after you have made a selection, in the normal way, using one of the selection tools (see Selections) or an option from the Selection menu (see Selection menu).
2. After making your selection, click on either **Copy** or **Cut** in the **Edit** menu.
3. Click on **Paste** in the **Edit** menu.

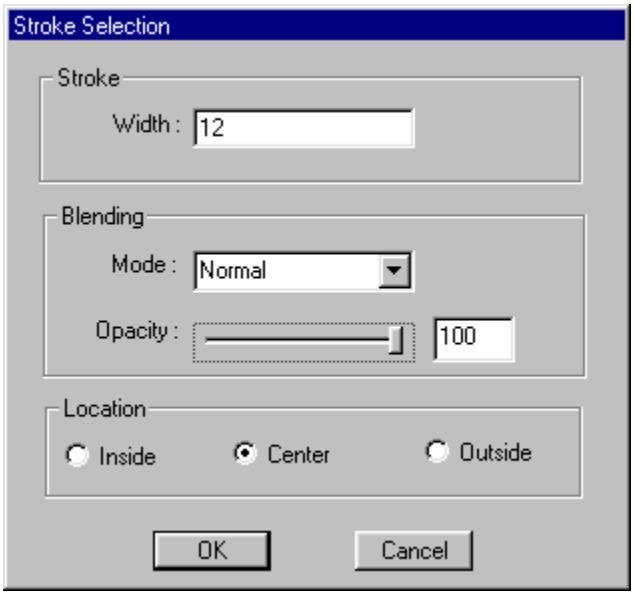
The selection is pasted onto a new layer, which automatically becomes the active layer.

Note that if you want to move a selected part of an image to another area on the same layer, you can't just copy and paste. Instead, you should drag the Move arrow when the selection is in Transform mode (see Transform Image).

Edit menu

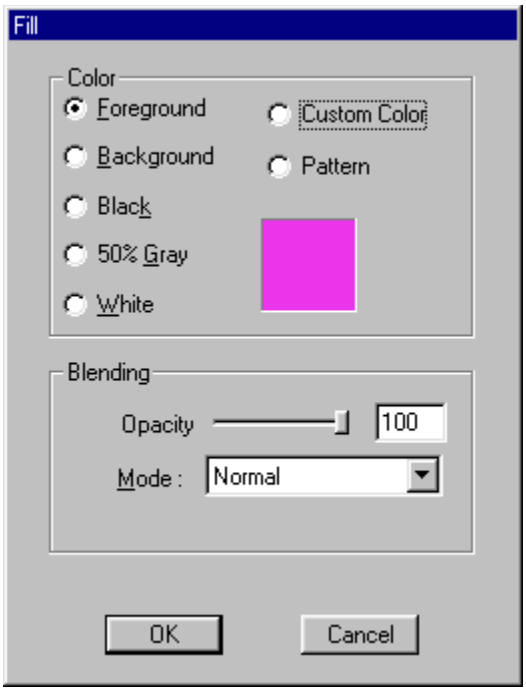
The **Edit** menu enables you to perform various editing operations. Nearly all of these have been dealt with in other sections:

- **Undo** undoes the last applied command. You can undo several commands, the precise number depending on what part of Photopaint you've been using. The next command to be undone always appears just to the right of Undo e.g. Undo Ellipse selection.
- **Redo**, as the word implies, restores the last undone command. Again the number of commands it is possible to redo depends on the nature of the commands.
- **History**: see History palette.
- **Cut**, **Copy**, **Paste**: see Copy, Cut and Paste.
- **Stroke** uses the current selection border as the basis for painting a band of color around the selection. The color used is the current foreground color (see Color selection for information on how to select a new color). In the "Stroke Selection" dialog you can set the following:



  - **Width**: enter a value for the stroke width (in pixels).
  - **Blending**: choose a **Mode** and **Opacity** (see Brush modes for information on the various ways of blending colors.)
  - **Location**: choose whether to have the stroke in the **Center**, **Inside** or **Outside** of the selection border.
  - Click on **OK** to exit the dialog and draw the stroke.

  The selection border will be traced with the foreground color, using the width and "location" chosen by you. When the selection is cancelled the stroke remains in place.
- **Fill** enables you to fill in a selection using any color or pattern you like. In the "Fill" dialog set these options:



Choose a Fill color in the **Color** box:

Foreground: the current foreground color

Background: the current background color

Black: solid black

50% Gray: half white, half black

White: solid white

Custom Color: select a color in the Select Color dialog

Pattern: select a pattern in the Pattern Editor dialog

Note that the Fill color is displayed in the **Preview** box.

In the **Blending** box set the **Mode** and **Opacity** (see Brush modes for information on blending).

Once you have set the **Color**, **Opacity** and **Mode** click on OK to apply the Fill.

- **Clear**: Deletes the contents of the current selection (or layer if a selection hasn't been made). Note that the deleted selection is "replaced" with the current background color, not with the transparent grid and not with the color of any underlying layer.
- **Free Transform** and **Transform** enable you to transform either the selection boundaries, leaving the image unaffected, or the image itself. They are described in Transform selection tool and Transform Image.

Image menu

The commands in the **Image** menu enable you to adjust the color values of and to resize, rotate, crop and duplicate images. The Adjust commands are especially useful when working with scanned images, since the colors are usually not perfectly duplicated in computer form.

These are the main options in Image:

Adjust

Duplicate

Image Size

Canvas Size

Rotate

Histogram

Adjust Image

The **Adjust** command in the **Image** menu opens up a new menu containing a variety of commands:

Auto Levels

Levels

Curves

Color Balance

Brightness/Contrast

Hue/Saturation

Desaturate

Invert

Equalize

Posterize

Threshold

Use these to adjust the color values of the image.

See:

Image menu

Auto Levels

The **Auto Levels** command - from the **Adjust** section of the **Image** menu - applies an automatic tonal readjustment of the image by repositioning the endpoints of the tonal range. The tones are readjusted to fit in between the new endpoints. The effect is to increase the contrast in the image.

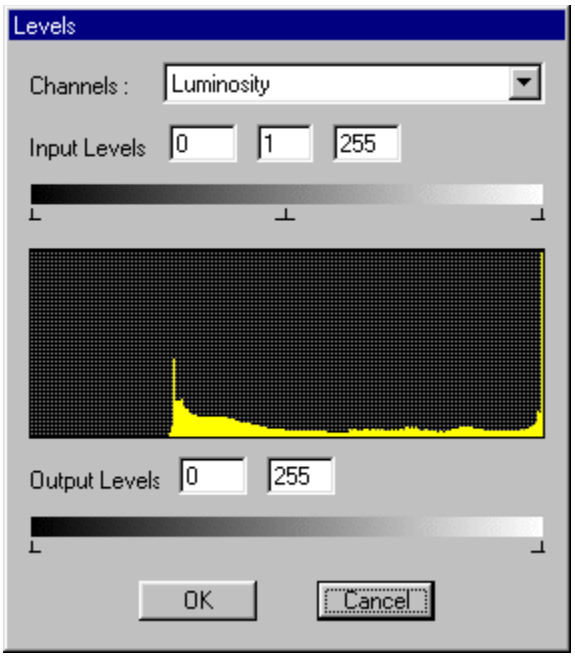
The lightest and darkest pixels of the image are reset as white and black respectively, and then the intermediate pixel values are redistributed proportionately. The dark values get darker and the light values get lighter, hence causing the image to have higher contrast and greater color saturation.

For more information on adjusting levels, see Levels.

Levels

The **Levels** command enables you to adjust the brightness of pixels, hence relocating the brightness values of an image. This is done by manipulating the controls which represent the shadows, mid-tones and highlights in the image. In effect the Levels sliders are used to expand or compress the current tonal range. The **Histogram** represents the tonal range of the image and measures how many pixels are colored with each of the tones between 0 (black) and 255 (white) (see Histogram for more explanation).

Access the **Levels** command in the **Adjust** sub-menu under **Image**.



In the "Levels" dialog you can set the following:

- Set the channel in **Channels**, choosing from **Luminosity** (red, green and blue combined), **Red**, **Green**, or **Blue**. Note that the histogram changes to reflect your setting.
- The **Input Level** boxes display values for shadows and highlights, thereby determining the range of pixels that will be turned black or white. You set these values by dragging the sliders just below the boxes.

  For example, if you use the left-hand slider, which adjusts the shadow value in the left-hand box, to set a value of 60, then all pixels with a brightness value of 60 or less will become black. Likewise, using the right-hand slider to set a highlight value of 200 in the right-hand box causes all pixels with a brightness value of 200 and higher to become white. The range of values is from 0 to 255.

  The middle box and slider control the brightness of the mid-tones. The default value is 1 and the range through which you can move the slider is 0.09 at the right side to 10 at the left side. Moving towards the lower value darkens and towards the higher value lightens all the tones of the image that aren't either black or white (these parts of the image stay the same).
- The **Output Level** slider and boxes are used to compress the tonal range. This is done by restricting the darkest and lightest tones, hence causing a decrease in the number of possible tones in between the new darkest and lightest tones. The effect of this is to decrease the contrast in the image.

  Set the shadow value by moving the left-hand slider to the right: a value of 50 reduces the darkest tone to 80.4% of black i.e. 0 is black and 255 white, so a setting of 50 represents a reduction of 19.6%. Set the highlight value by moving the right-hand slider to the left: a value of 200 increases the darkness of the lightest tone to 21.6% of black (alternatively, 78.4% of white). The tonal range

is adjusted to fit in between the new limits of 50 and 200, there being nothing outside of this range in the 0 to 255 scale.

Any changes you make are immediately applied to the image on screen. Click on **Cancel** to cancel these changes and exit the dialog; otherwise click on **OK**.

Note that the Levels command isn't as accurate or powerful as the **Curves** command (see Curves).

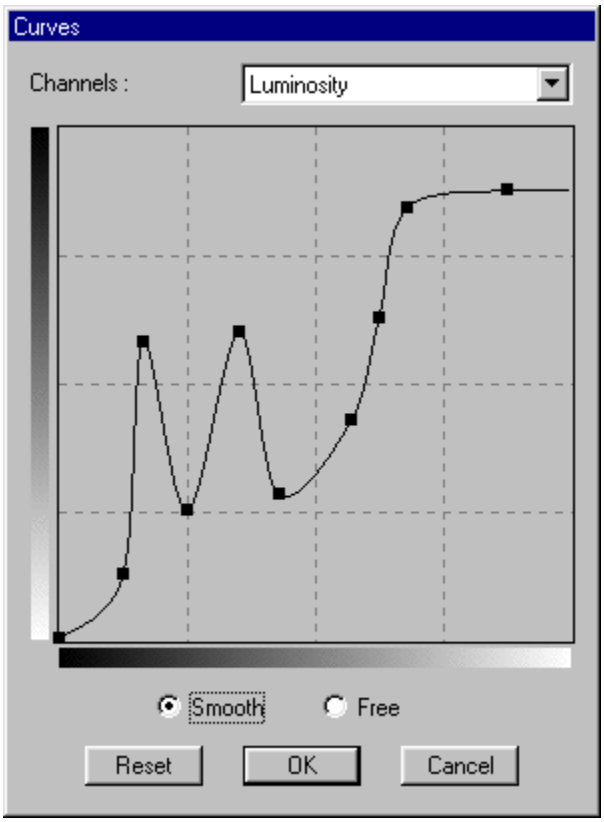
See:

Adjust Image

Curves

The **Curves** command (**Image/Adjust**) enables you to change the pixel values of an image. It allows you to focus with greater precision on certain tonal areas and is therefore more powerful than the **Levels** command (see Levels).

The "Curves" dialog consists of a tonal graph on a grid background. The tones of the image are altered by manipulating this graph in conjunction with the tonal range represented by a particular square or squares. The graph can take either of two forms: one which allows you to manipulate the graph by using points or markers, the other which enables you to draw a curve freehand. The two forms of curve can easily be converted into one another.



The "Curves" dialog contains the following options:

- **Channels**: Choose to edit one of the individual channels - **Red**, **Green** or **Blue** - or all the channels combined - **Luminosity**.
- **Tone Graph**: This is a diagonal straight line by default. It represents the spread of tones throughout the image. Pixel values are altered by manipulating this graph. The four-by-four grid against which the graph is set allows you to focus your changes on particular tonal areas. The horizontal bar at the bottom of the graph represents the gradual changing of the tonal range from black to white. So, if you would like to make the lighter tones darker you should concentrate on the squares towards the upper right-hand corner, but if you'd like to make the darker tones lighter concentrate on the squares towards the bottom lower left-hand corner. The square markers at the extreme ends of the graph represent the tonal end-points. It is not necessarily the case that the image contains these tones, so, for example, to alter the darkest tones in the image you may have to concentrate on a square that is further along the graph from the bottom left-hand square.

  The tones can be changed by clicking on the graph in the square that contains the relevant tones e.g. shades, mid-tones, highlights. A marker will appear on the graph at this point. There are two functions of markers. The first is to make tones lighter or darker by dragging the marker upwards or downwards respectively. The straight line graph will adjust to form a curve, using the marker as its

point of origin, and the image will dynamically darken or lighten to reflect the new graph. With only one marker in place the whole graph bends into a curve and therefore affects the whole tonal range. Since you will usually want to concentrate on a limited range of tones, the second function of the markers is to anchor the graph, therefore restricting the curvature whenever you reposition a particular marker. To do this put several markers in place along the graph at regular intervals and then move the relevant marker up or down as required. Only a small section of the graph will be affected and hence only a small part of the tonal range will be altered. Note that the graph will attempt to form the smoothest curve possible between the markers when the **Smooth** curve option is set (see below for the difference between Smooth and Free curves).

You can place up to fourteen markers on the graph. Reposition a marker by dragging it along the graph in the required direction. Remove a marker by dragging it horizontally till it disappears (dragging vertically alters the graph itself, of course). Usually you will only need to make small adjustments to the graph, anything greater altering the image tones radically.

- **Smooth** and **Free**: The default setting is **Smooth**. This ensures that the curve is adjusted smoothly i.e. no ‘‘sharp corners’’, therefore causing the tonal alteration in the image to be smoother too. Markers can be added only to smooth curves. The **Free** option removes any existing markers, including the end-points, and allows you to use your mouse to draw a ‘‘curve’’ freehand, without the rest of the graph being adjusted to remove sharp corners. You can switch between these at will. Note, though, that switching back to Smooth from Free smoothes out the curve and adds ten markers at key intervals i.e. it doesn’t return the markers that you may previously added while in Smooth mode.

  If you continually click on Smooth you will notice that the curve gradually straightens out, eventually returning to its original diagonal form.

- **Reset**: This resets the graph to its original straight diagonal form and removes any markers, apart from those at the end-points. The image dynamically reverts to its original state.

Once you are satisfied click on **OK** to save the changes and exit the dialog; otherwise click on **Cancel** to exit without saving.

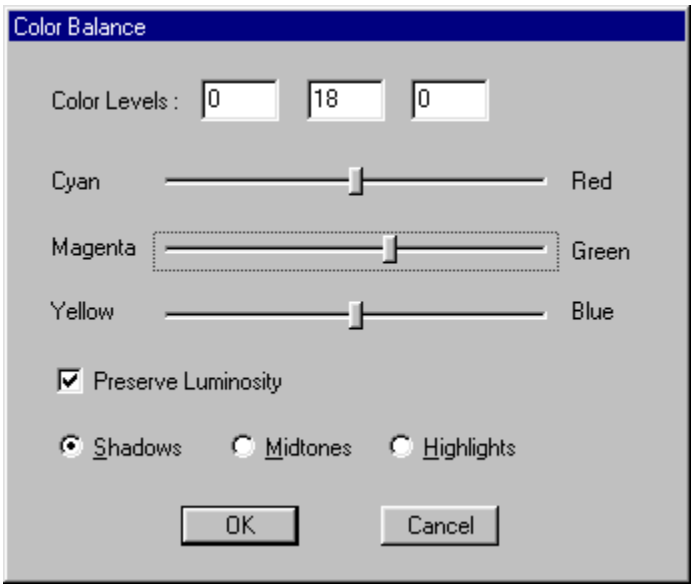
See:

Adjust Image

Color Balance

The **Color Balance** command in the **Adjust** section of the **Image** menu allows you to make adjustments to colors by altering their position in the Red Green Blue (**RGB**)/Cyan Magenta Yellow (**CMY**) color scale.

Each of the colors is linked with its complement on the color scale, for example, Cyan with Red, and connected by an adjustment slider. The **Color Levels** boxes just above the sliders display the current color values, reading from left to right, for the top, middle and bottom sliders respectively. The range of possible values lies between -100 and 100. The default is 0. Note that your adjustments should usually be small i.e. within about 5 units either side of 0, so that the color balance is not radically altered.



In the "Color Balance" dialog you can adjust the colors as follows:

- Color is added (or subtracted) by moving the slider towards (or away from) the color to be added (or subtracted). So, to add green move the middle slider towards the green end of the Magenta/Green scale. To subtract blue move the slider away from the blue end towards the yellow end of the Yellow/Blue scale, this in effect being the same as adding yellow.
- There are three **Tone** buttons which allow you to concentrate change over approximate tonal ranges in the image. The selected button guides the changes towards the relevant tonal range, hence helping concentrate the changes. The tones are:
  a. **Shadows** for tones over 75%
  b. **Midtones** for tones between 25% and 75%
  c. **Highlights** for tones below 25%
- The **Preserve Luminosity** button helps keep the current luminosity - or lightness - of the image. When this is unchecked the tonal values of the image are altered along with the colors.

The changes you make will be implemented while you are still in the dialog. Click on **Cancel** if you want to cancel these; otherwise click on **OK** to keep the changes and close the dialog.

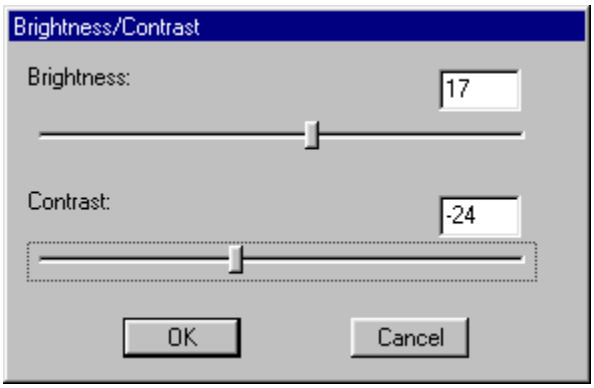
See:

Adjust Image

Brightness/Contrast

Use the **Brightness/Contrast** command - among the **Adjust** commands in the **Image** menu - to alter the overall brightness or contrast of the image.

The brightness of an image is a measure of its overall lightness; the contrast is a measure of the difference between lighter and darker tones. Both values are set by sliders in the "Brightness/Contrast" dialog. Sliding to the right increases the brightness/contrast; sliding to the left decreases them. The current value for both brightness and contrast is shown as 0 before any changes are made. You can set the value for each at anything between -127 and 128, these being relative to the current value.



Note that as you move the sliders the changes immediately take effect on screen. If you would like to cancel the changes just click on **Cancel** to exit the dialog and return to the previous state. Otherwise click on **OK** to close the dialog and keep the changes.
Since the Brightness/Contrast command acts on all channels at once, that is you can't make changes to individual color elements within the image (red, green, blue, for instance), you may want to look at Curves.

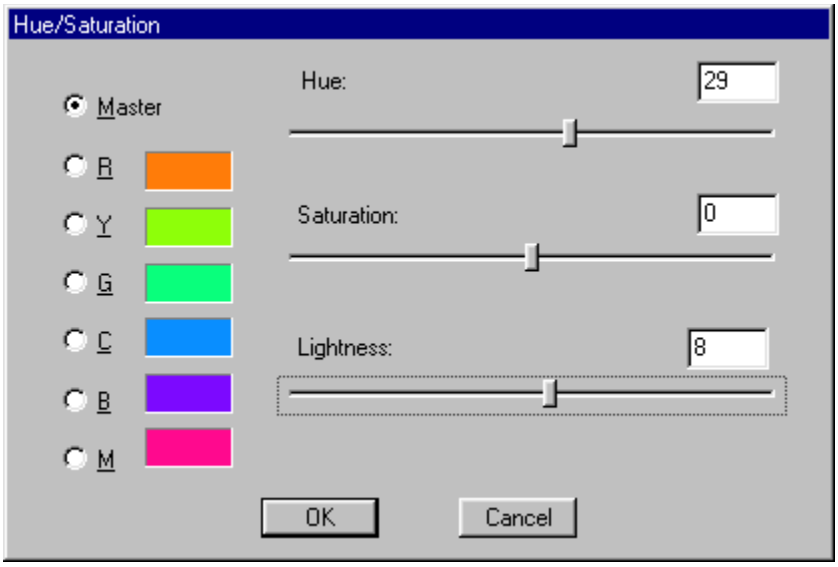
See:

Adjust Image

Hue/Saturation

The **Hue/Saturation** command in the **Adjust** section of the **Image** menu allows you to edit colors using the **Hue Saturation Brightness (HSB)** model.

Basically, you can take either all the image colors together or select a single color, then change the hue, saturation or brightness accordingly.



In the "Hue/Saturation" dialog there are sliders for the hue, saturation and lightness (brightness). The setting is always 0 for each of these when you first enter the dialog. You can move the sliders through -180 to 180 for Hue, and between -100 and 100 for Saturation and Lightness. These are measured relative to the current setting. (Note that the Hue values can be imagined as being degrees on a circle, so that -180 and 180 result in the same color being selected.)

On the left of the dialog there is a list of all the colors in the RGB and CMY scales. Any one of these can be selected and changed in its hue, saturation or brightness. The default setting is **Master**, that is , all the colors of the image are changed together.

- The **Hue** slider takes a selected color - or all the colors together - through the range of colors in the RGB/CMY scales. Once the slider position is set the relevant image colors change to reflect the new hue settings. Note that when you next enter the dialog the color list is returned to its normal setting, ready for you to make more changes should you need to.
- The **Saturation** slider increases or decreases the intensity of colors (or a selected color). Decreasing the saturation causes color to become grayer; increasing the saturation causes color to become brighter.
- The **Lightness** slider increases or decreases the brightness of colors (or a selected color). Decreasing the lightness causes color tones to become darker; increasing lightness causes them to become whiter.

All the changes you make in the "Hue/Saturation" dialog are immediately applied to the image on screen. Click on **OK** to exit the dialog and keep the changes; otherwise click on **Cancel** to close the dialog and abandon the changes.

See:

Adjust Image

Desaturate

The **Desaturate** command in the **Adjust** section of the **Image** menu causes all colors in an image to become gray. This is the equivalent of setting the Saturation slider to 0 while using the **Hue/Saturation** command (see Hue/Saturation).

Note that the command is immediately implemented without your needing to access a dialog.

See:

Adjust Image

Invert

The **Invert** command in the **Adjust** section of the **Image** menu inverts all the pixel values in an image, that is changes them to their opposite value. More exactly, it calculates a new value for each pixel by taking the current value and subtracting it from 255. The new value then determines the brightness of the pixel, and therefore the brightness of all the colors in the whole image.

Note that the command is immediately applied once selected. If you would like to revert to the original brightness it is usually safe to do a reverse inverse by just selecting Invert again. However, in some circumstances it is often safer to select **Undo** from the **Edit** menu.

See:

Adjust Image

Equalize

The **Equalize** command (in the **Adjust** section of the **Image** menu) is used to redistribute the tones in an image. It accomplishes this by examining the image for the lightest and darkest pixels and then changing the lightest to white and the darkest to black. The remaining pixels are adjusted so that their tone is spread between the new limits.

See:

Adjust Image

Posterize

The **Posterize** command (in the **Adjust** section of the **Image** menu) is used to reduce the number of tonal levels in an image. This is useful in creating a silk-screen effect, as in some of Andy Warhol's pictures.

In the "Posterize" dialog set the new number of levels in the **Levels** box (the default is 4, the maximum 255). The number you enter is used to give an average for the 256 levels making up each of the color channels. With a low number of levels the effect of posterization is to display conspicuous bands or areas of color, while with a high number the changes are much less obvious. At 255 the image remains the same.

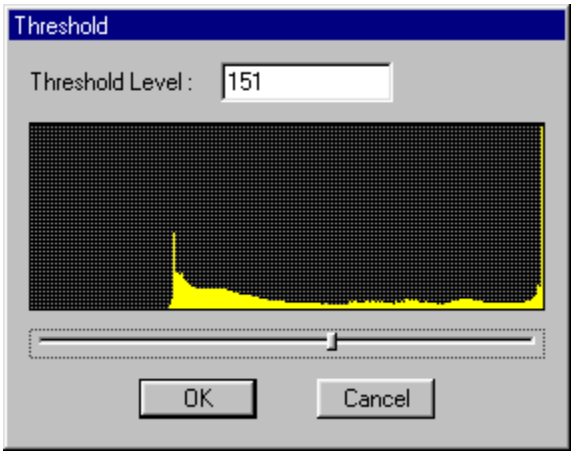
Any changes you make are immediately applied to the image, so you should click on **Cancel** if you want to abandon the changes and exit the dialog. Otherwise click on **OK** to keep the changes.

See:

Adjust Image

Threshold

The **Threshold** command (in the **Adjust** section of the **Image** menu) converts all the colors in an image to just two: black and white. The threshold is a limit value above which tones become black and below which they become white. Therefore you can decide how much of the image becomes black and how much white.



In the "Threshold" dialog use the slider to set a threshold value anywhere between 0 and 255. Towards the upper end of the scale the image becomes darker and is completely black at 255; towards the lower end the image becomes lighter and is completely white at 0. The current threshold is displayed numerically in the **Threshold Level** box. The default threshold is 127 when you first enter the dialog i.e. half way between black and white.

The histogram represents the distribution of image tones and can be used as a rough guide to help you set the threshold.

The command is immediately applied when you enter the dialog, initially using the 127 default threshold value and then any other value you may set with the slider. To cancel these changes and return to the original image click on **Cancel**, otherwise click on **OK** to exit the dialog and keep the changes.

Once you have applied the Threshold command you can only get back to the original colored image by selecting **Undo Threshold** from the **Edit** menu.

See:

Adjust Image

Duplicate image

The **Duplicate** command in the **Image** menu copies the open image to another window. The duplicate is given the title **Copy of (*name of open image*)** but can be renamed when you save it.

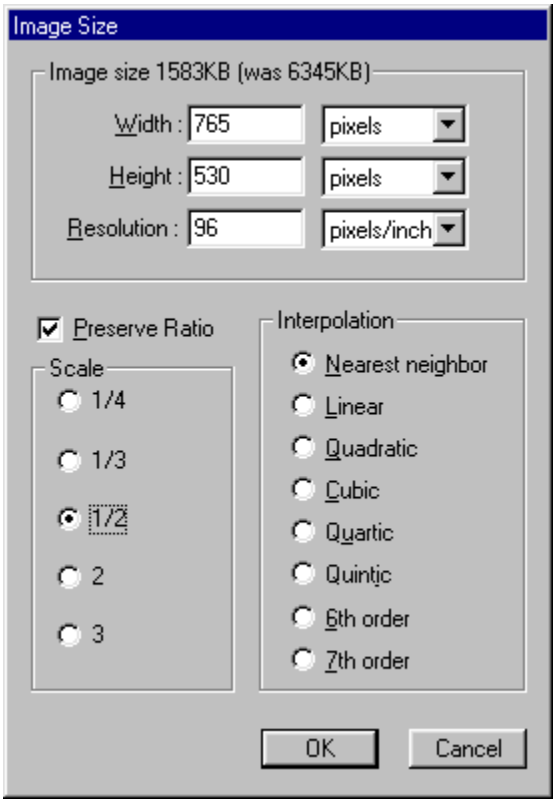
The duplicate is in every way the same as the original and can be edited in all the usual ways, including the addition of layers. To switch between the duplicate and the original click on the **Window** menu and select the relevant name at the bottom of the menu.

See:

Image menu

Image size

The **Image Size** command in the **Image** menu allows you to alter the size of the open image.



In the "Image Size" dialog there are several ways to do this:

- Type the new dimensions into the **Width**, **Height** and **Resolution** boxes in the **Image size** group box. Note that just above this the amount of space needed to store the image is displayed. The original measure is recorded in brackets. You can force the dimensions of the image to change in proportion by selecting the **Preserve Ratio** box, that is, typing a figure in Width will automatically cause the figure in Height to change in proportion.
- The **Scale** group box allows you to select from one of the displayed fractional scales: **1/4**, **1/3**, **1/2**, **2**, **3**.
- The **Interpolation** group box allows you to determine how the image will be affected when the size or resolution is changed. Since changing the dimensions of an image results in pixels being either added or removed, there needs to be a method of working out what color values the new pixels will have. Each of the interpolation values is used to spread color over a given range of pixels, in an attempt to maintain the appearance of the original image. The available interpolation values are: **Nearest Neighbor**, **Linear**, **Quadratic**, **Cubic**, **Quartic**, **Quintic**, **6th Order**, **7th Order**. The higher the order the better the result, although it takes more time of course.

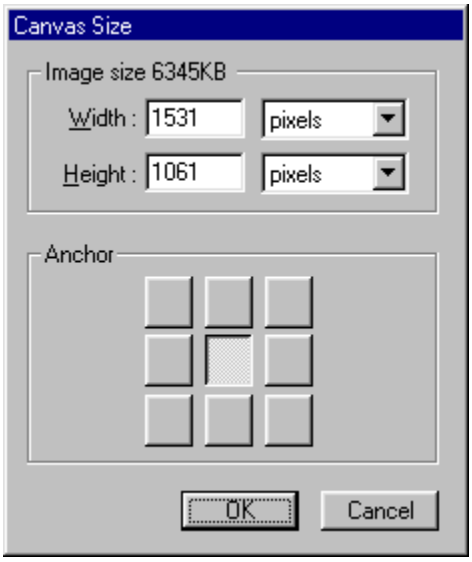
Once you are satisfied with your settings, click on **OK** to effect the changes. If you would like to reverse a resizing it is best to use the **Undo** command in the **Edit** menu, although you can of course resize in the opposite direction e.g. half the image size after a previous doubling.

See:

Image menu

Canvas size

The **Canvas Size** command in the **Image** menu allows you to alter the dimensions of an image. However, unlike the Image Size command, this is done without changing the resolution. In effect, when the width or height is reduced the image is cropped, and when it is increased transparent pixels are added to fill up the extra space. (Note that the image canvas is usually surrounded by a gray area if the canvas is smaller than the image window. This gray area is inaccessible to the Photopaint tools. Increasing the canvas size creates a newly accessible area, hence allowing you to add a caption, say, to the bottom of a scanned photograph.)



1. In the "Canvas Size" dialog you can make changes in the **Width** and **Height** boxes. Note that the amount of space required for the image is shown just above.
2. In the **Anchor** box there is a grid of nine squares which helps you to choose where the image will be located on a resized canvas. Since changing the canvas size results in either a cropping or expansion of the canvas, there are two basic uses of the anchor grid:
   - Use the grid to preserve a part of the image when cropping. For instance, if you are reducing the height by two units (of some scale) but wish to preserve the bottom of the image, you should click one of the bottom squares to ensure that the two units are cropped from the top of the image. Clicking on one of the middle (horizontal line of) squares will result in one unit being cropped from the top and one from the bottom of the image. The same principles can be applied to cropping from the left and right sides of the image. (Note that you can also crop using the **Crop** tool on the **Tools** bar - see Crop.)
   - Use the grid to determine where in an expanded canvas the original image should appear. For instance, if you are adding two units to the width and height of the canvas and you would like these to be distributed evenly around the image, then click on the center square to create a one-unit band around the image. If you click the lower-left square, two units are added to the top and two to the right side of the image.

Once you are satisfied with the width, height and anchor grid setting click on **OK** to implement the changes.

See:

Image menu

Rotate

The **Rotate** command in the **Image** menu allows you to turn the image through an angle set by you. (Note that, in effect, the image canvas is rotated and therefore the image along with it. This is different from the rotate commands in **Transform Image** - see Transform Image - which turn a *selection* of the image *without* turning the canvas and therefore allow images to be "cropped" once they are outside the canvas area.)

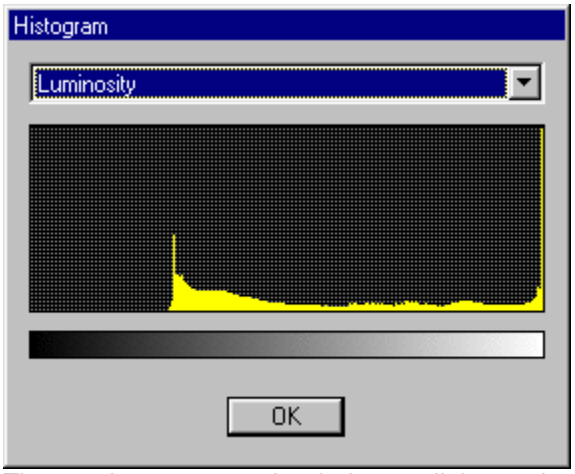
There are set options for rotating through 90 degrees clockwise (**90 CW**), 90 degrees counter-clockwise (**90 CCW**) and **180 degrees**. In addition, you can **flip** the image either **horizontally** or **vertically**. The most versatile command is **Arbitrary**, with which you can specify an exact angle of rotation, anywhere between 0 and 360 degrees, and choose to rotate either clockwise or counter-clockwise.

See:

Image menu

Histogram

The **Histogram** option in the **Image** menu is purely there for informational purposes. It displays in graphical form the tonal values of the image, according to which of the channels you select. You can choose to see a histogram for either the **Red**, **Green** or **Blue** channel, or for all of them together by selecting **Luminosity**.



The graph represents the darkest to lightest pixel values (reading horizontally from left to right) between 0 and 255. There are 256 lines representing 256 possible tones. The height of the line indicates the number of pixels in the image that have that particular tone. If a tone is not present in the image it will have no associated line in the histogram. For instance, if there is no pure black in the image there will be no line at the left-hand side of the histogram, and if there is only a small number of black pixels the line will be short. The same is true of the rest of the tonal range.

This information can be useful in guiding you in your color correction strategy.

See:

Image menu

The Tools menu

The Tools menu contains commands through which you can create or edit gradients, patterns and brushes. The following sections show you how to do this:

Gradient Editor

Brush Editor

Patterns Editor

Gradient Editor

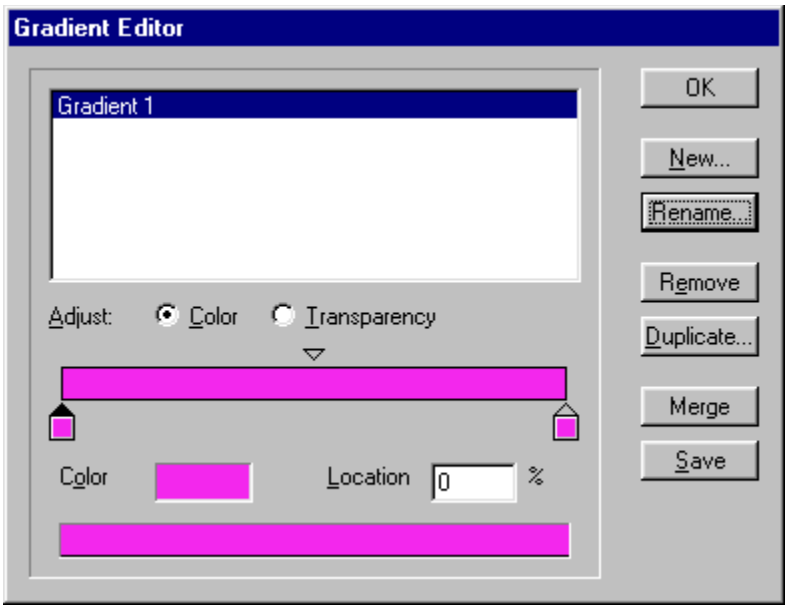
Although Photopaint already contains several default gradients, which are explained in Gradient Fill, it is useful to be able to create new gradients - or edit existing ones -to your own design. This can be done through the **Gradient Editor**.

You can access the **Gradient Editor** in the **Tools** menu. (Alternatively, click on the **Edit** button at the bottom of the "Gradient Fill" box after selecting **Gradient Fill** on the **Tools** bar.)

Once in the "Gradient Editor" dialog you can set the following:

- Create a new gradient by clicking on the **New** button. In the **Gradient Name** box enter a name or leave the default name and click on **OK**. The gradient name is displayed in the top box. Any gradient you create will be displayed here and will appear each time you enter the Gradient Editor.
- Change the name of a gradient by first selecting the gradient name and then clicking on **Rename**. Change the name in the **Gradient Name** box.
- Remove a gradient by selecting the gradient name and clicking on the **Remove** button. The Gradient will be deleted from the list.
- Copy a gradient by clicking on the **Duplicate** button. Give the duplicate a name in the Gradient Name box. Duplicates are useful if you plan to edit a gradient but also want to retain its original form.
- If you are creating many gradients you may wish to put them into a separate file. Use the **Save** button to either create a new file or save to an existing file. Likewise if you want to use gradients stored in an separate file, use the **Load** button to load the file.

When you first create a new gradient, it will have no distinguishing properties (all new gradients are shown as a solid line of color in the **Gradient Bar**). To begin creating the gradient proper, first make sure it is selected in the list of gradient names.



In the body of the Gradient Editor you need to select colors and transparency values for the gradient, as follows:

There are two **Adjust** checkboxes:

- **Color** enables you to determine the color of the gradient.
- **Transparency** enables you to determine the opacity of the gradient.

1. First select **Color** (it should be selected by default anyway).

The long box just below the Adjust commands is called the **Gradient Bar**. This represents the gradient itself, namely how its color content is spread out when you create the gradient on screen. By default it will be a solid block of color until you design the gradient.

Just *below* the Gradient Bar there are two **Color Markers**, one at either end of the Gradient Bar. Just *above* and half way along the bar, there is a **Color Midpoint Marker**.

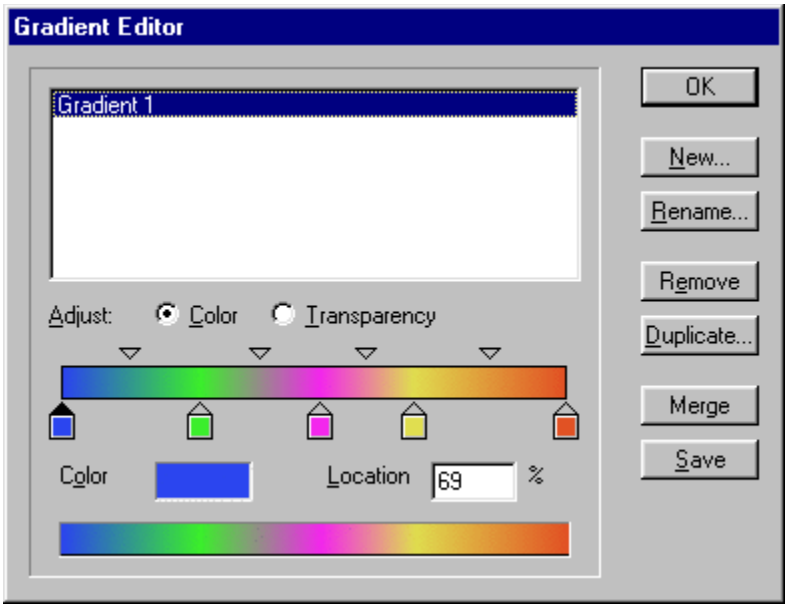
The Color Markers determine which colors the gradient will start and finish with; the Color Midpoint Marker marks the point where the two colors are equally blended.

Select a color for the left-hand side of the Gradient Bar by clicking on the left-hand Color Marker. The little triangle on top of the marker will become black to show that it has been selected.

Next, click on the **Color** box just below. The **Select Color** dialog is opened. Select a color for the marker (you can read about selecting colors in Color selection). Both the Color box and the left-hand marker are changed to the selected color. Set the color for the right-hand of the gradient in the same way.

Note that the gradient runs through from the first color to the second with the Color Midpoint Marker showing where the two colors are equally blended. Initially this is half way along - select the marker and the **Location** box will read 50%. You can alter the location of the Color Midpoint Marker by dragging it either left or right. The point of equal blending between the two colors will be situated at the new location, which will be reflected in the Location box. Note that the Location box shows the position of the currently selected marker (the Color Markers are at 0 and 100% respectively).

You are not restricted to just two Color Markers. To add another, click just below the Gradient Bar. A new marker is displayed. You can add several markers in the same way. If you would like to remove a marker just drag it away from the Gradient Bar and it will disappear.



There are two important points you should note:

- As soon as you add a Color Marker an extra Color Midpoint Marker is automatically added above the Gradient Bar.
- This new Midpoint Marker is placed half way between the new Color Marker and an adjacent Color Marker. The rest of the Midpoint Markers are shifted along to take account of the new Color Marker.

Once you have added a Color Marker you can proceed to create gradient sections between Color Markers, leaving the rest of the gradient unaffected. Moreover, you can drag any Color Marker, except the end markers, to a new position and thereby expand or contract particular sections of the

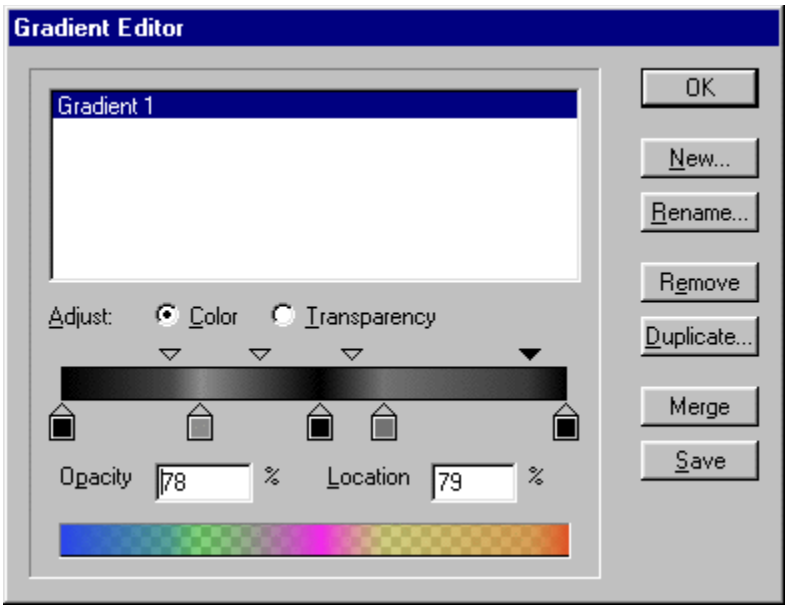
gradient. Likewise, by dragging the Midpoint Markers you can alter the point of equal blending in any particular section.

Note that when you click on a Color Marker its location is always displayed as a percentage of the whole Gradient Bar in the Location Box. However, with the Midpoint Markers the location is displayed as a percentage of the *section* between two Color Markers. If you have previously dragged a Midpoint Marker so that it is, say, 80% of the distance between the adjacent Color Markers, then it will retain this percentage distance no matter how many markers are added, until you choose to drag it to a new location.

The gradient is also displayed in the **Preview Bar** at the bottom of the box.

2. Initially the opacity of the gradient is 100%. To alter this, click on **Transparency**. Note that the **Color** box changes to the **Opacity** box and the Gradient Bar becomes solid black. Opacity and transparency are set in a similar way to color, using the same tools.

   As with color, you can add Markers (below the Gradient Bar) and therefore Midpoints (above the box). Between any two markers there is one midpoint which indicates the half way point between the opacity of the two markers.



   Set the opacity for a marker by clicking on it and typing a percentage value in the **Opacity** box. 0% is totally transparent, 100% is totally opaque.

   You can set a transparency for the section between any two markers in the following way: Drag the midpoint to relocate the half way point between the markers. A marker of, say, 30% and one of, say, 70% will have a midpoint value of 50%. You can drag any marker, except the end markers, to a new position and thereby expand or contract particular sections of the gradient. The Location box works in the same way as for color, with midpoints being measured between adjacent markers and markers being measured along the Gradient bar as a whole.

The gradient, with both its color and transparency values, is displayed in the **Preview** box.

Once you are satisfied with your settings, click on **OK** to save the gradient and close the **Gradient Editor**.

Apply the gradient by selecting **Gradient Fill** from the **Tools** bar. The new gradient will appear among the old gradients in the Gradient drop-down box in the "Gradient Fill" dialog. Apply the gradient by dragging the Gradient Pointer across the image window, as explained in Gradient Fill.

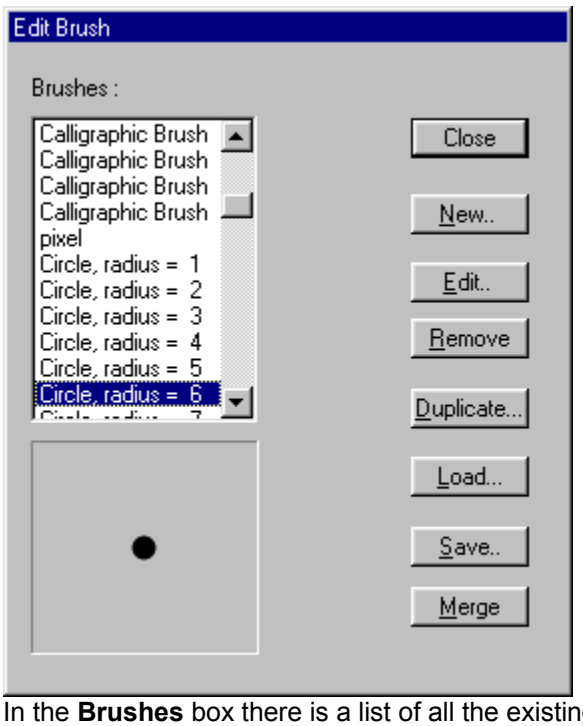
See:

The Tools menu

Brush Editor

Although Photopaint comes with a full set of brushes for use with the various paint tools, you may sometimes find it useful to be able to create your own brushes. The Brush Editor enables you to add, delete and edit brushes.

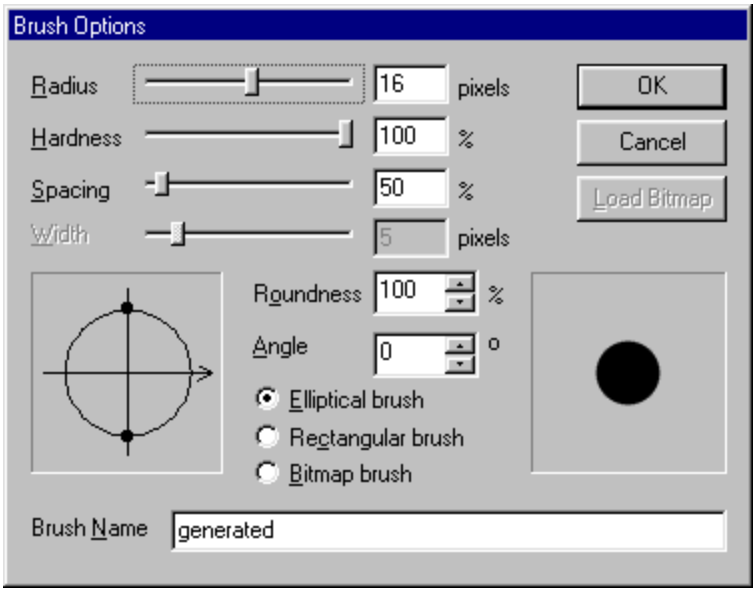
Open up the "Edit Brush" dialog by selecting the **Brush Editor** command in the **Tools** menu.



In the **Brushes** box there is a list of all the existing brushes. The currently selected brush is displayed in the **Preview** box below. Note that unless you have already created a brush all the listed brushes will be the standard ones displayed by default in the "Brushes" dialog (see Brushes). You cannot edit or delete a standard brush.

Create a new brush to your own design in the following way:

Click on **New** to open up the "Brush Options" dialog.



There are three basic brush types:

- **Elliptical**: rounded and elliptical brushes.
- **Rectangular**: rectangular brushes, which can be solid or hollow.
- **Bitmap**: bitmap brushes, which can be created from the images in a separate bitmap file (use the **Load Bitmap** button to locate and load your bitmap images).

Select one of these types before proceeding to create the brush.

Once you have selected a brush type, various tools for determining the brush's shape and size become available. The set of tools that can be used to create or edit a brush depends on the particular brush type.

- Use the **Radius** slider to set the radius of the brush (only **Elliptical** and **Rectangular**) between 1 and 30 pixels. The radius is defined as half the *maximum* length of the brush. A long thin elliptical brush will therefore take as its diameter the distance between the extremities rather than the shorter distance.
- The **Hardness** slider determines how soft (0%) or hard (100%) the brush (**Elliptical**, **Rectangular** or **Bitmap**) will be: the lower the value the fuzzier the brush, the higher the value the more defined the brush's edges.
- The **Spacing** slider determines the amount of space between the brush marks (**Elliptical**, **Rectangular** or **Bitmap**) when you use the paint tools. Note that the paint tools apply a series of identical brush marks in rapid succession, thereby creating the illusion of a solid line. If the spacing is set high enough the individual brush marks become visible. The spacing can be set at anything from 1 to 999%. This value is a relative measure of the spacing when compared to the radius of a brush shape. Anything below 100% will produce a continuous stroke; anything above will produce a stroke with space in between the brush marks. Note that the effects of spacing are more apparent when the brush stroke is applied quickly. If the application is slow the stroke will be solid even though the spacing is high, although the edges of the stroke will be "bumpy".
- The **Width** slider works only with the **Rectangular** selection and determines the *thickness* of the borders of the rectangle. The higher the width the thicker the border and the less space visible in the center of the rectangle. The width can be set at any value from 1 to 30 pixels.

You can keep a check on your adjustments by looking at the changing display in the bottom right-hand **Preview** box.

In addition to the above you can determine the roundedeness and angle of the brush (**Elliptical** or **Rectangular** only):

- The **Roundedness** box determines the shape of the brush. Use the arrows to reduce the value from 100% (or type in a value directly). A value of 100% indicates that the shape is a circle (using Elliptical) or square (using Rectangular). As the value is reduced towards 0% the shape becomes flatter in one direction and therefore appears elongated. (Note that the Radius setting is not affected. This can only be changed by using the Radius slider and is always based on a shape's maximum length.)
- The **Angle** box determines the direction of the shape. Use the arrows to increase the angle from 0 to anything up to 360 degrees (or type in an angle directly). Increasing the angle rotates the shape anti-clockwise.
- You can also set values for roundedness and angle in the **Roundedeness and Angle** box at the bottom left-hand corner. An outline of the shape is displayed, along with a direction-arrow and handles for adjusting the shape. Click anywhere on the boundary of the shape to set a new direction. Hold down the mouse and drag till the arrow is pointing in the direction you want (you can check this by glancing at the **Angle** box, in which the angle changes to match). Alter the roundedness by dragging one of the handles in or out. Likewise, the value in the **Roundedness** box will reflect your changes.

Again, your changes can be viewed in the **Preview** box.

Once you've designed your brush you can give it a name in the **Brush Name** box at the bottom of the

dialog.

Click on **OK** to return to the "Edit Brush" dialog. The new brush is displayed at the bottom of the **Brushes** box. Select it to see it displayed in the **Preview** box.

If you now click on **Close** and select any of the paint tools on the **Tools** bar, the new brush will appear in the "Brushes" dialog, ready to use.

The following are the remaining options available in the "Edit Brush" dialog:

- You can edit a brush shape by selecting the **Edit** button. This opens up the same "Brush Options" dialog that is used to create a new brush. The process of editing is similar to creating a new brush. All the techniques explained above can be used to edit an existing brush.
- Delete a brush by selecting the brush in the **Brushes** box and then clicking on **Remove**. The brush is deleted from the list.
- Copy a brush by selecting the brush in the **Brushes** box and then clicking on **Duplicate**. It is a good idea to use this command when you want to use a standard brush as the basis for a creating a new brush.
- Use **Save** to save all your current brushes, including new and edited brushes, to a separate file. Use **Load** to access brushes stored in a separate file.

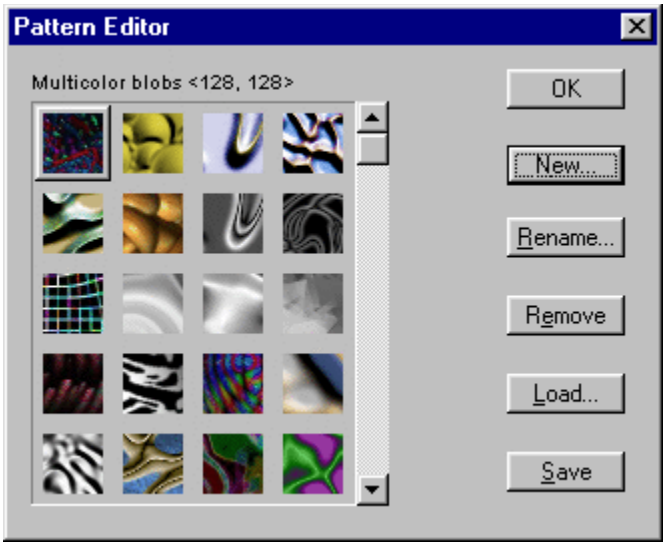
Once you have made all the changes you want click on **Close** to exit the dialog.

See:

The Tools menu

Patterns Editor

The **Patterns Editor** displays all your current patterns and enables you to access patterns that are stored in separate files.



- **New** enables you to access a pattern from a separate file and display it in the "Patterns Editor" dialog as a new pattern.
- **Rename** allows you to change the name of a selected pattern.
- **Remove** deletes a selected pattern from the current list.
- **Load** accesses patterns stored in a separate file.
- **Save** enables you to save the current patterns to a separate file.

Note that unless you load patterns from a separate file, you will have to create them from within Photopaint. See Pattern brush for details on how to create a pattern.

See:

The Tools menu