Overview

PhotoBrush is a photo editor, picture enhancer and painting program for Windows. It has many rich tools and effects for photo adjusting and photo retouching found in much more expensive professional tools, And there are also some effects and tools you can hardly find elsewhere. With PhotoBrush you can easily correct all unwanted problems in your digital images, you can create a new painting or combine and create different photographs.

Besides standard paint brushes, you will find a strong set of tools for photo retouch, where you can remove or add part of the images with rubber stamp, use brushes to directly paint various effects like contrast, sharpen, boost, or use red−eye or scratch removing tool. With the Texture Pick tool you can even pick−up a part of the image and use it for texture painting or save it as a seamless background texture for web page use.
Another set of brushes are for special effects where you can brush−in emboss effect, age the photo, shift color or paint a glass effect. You can then add sparkles, beautiful lens flare or try the Warp tool to make fun of the faces of your friends.

PhotoBrush has not only many built−in effects and filters, but it also supports **Adobe compatible plug−ins**. There are hundreds of commercial or free filters available on the internet. PhotoBrush can use the plug−ins from any directory of your computer (or even network), so it could share and use the filters installed in other graphics programs.
There is also added support for special plug−ins called Extras. Extras can be anything − from image manipulation to export to different formats. There are already a few PB Extras available on the home site.

PhotoBrush supports most of the scanners using the **TWAIN** interface. It also supports 32 bit film scanners.

PhotoBrush is also an excellent painting program that competes with many professional tools. It has more than a hundred unique brushes, from standard brushes, pen and airbrush to artistic brushes simulating oil colors, painting ropes, pipes or sparkles. You can paint not only with color, but also with texture or clone existing image by using the artistic brush.
As with all the best painting programs, PhotoBrush also supports pressure sensitive graphics tablets. With a pressure sensitive tablet you can control the intensity of the brush. This control is especially effective for artistic brushes.

PhotoBrush also has the image hose function, which can spray flowers, trees, lego blocks, coins, foot−steps and many more nice effects onto your image. You can even set up the nozzle to colorize the spray images. You can even fabricate your own nozzles, or convert them from other supported formats.

For adjusting images you have all the necessary tools to Auto Enhance an image, change Contrast or Brightness, change the Levels, adjust Curves, Gamma, color balance, saturation, hue, sharpen image and more...

You can add text with very cool effects like 3D or drop shadow. The text is rendered perfectly antialiased, with smooth edges. The result is very stunning.

The best news is that PhotoBrush comes as shareware, so you can try this fine tool yourself for free, and if you like it, you will like the price even more.

Main Features

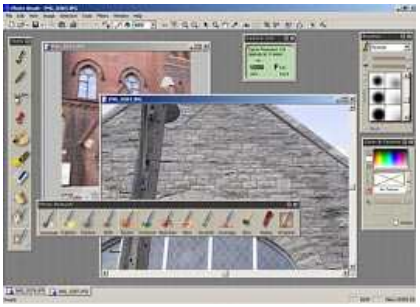
Photo−Brush has many of the tools and features of the much more expensive professional packages, but it has also many new and unique tools as well.

- Open and work on multiple images at the same time.
- More than 30 different Brushes.
- Each brush has its own library of predefined variations.
- You can paint not only with color but also with texture − many variations are available.
- Image Nozzle for spraying cute images as well as photographic quality images.
- Natural and artistic brushes simulate real painting techniques.
- By using cloning techniques you can turn photography into painted art.
- 3D brushes simulate shaded pipes or ropes.
- Support for pressure sensitive tablets.
- Texture pick can make a seamless texture from any part of your image.
- TWAIN support for scanners and digital cameras.
- Support also for 32 bit film scanners.
- Support for Adobe compatible plug−in filters. (*.8bf)
- Filter plug−ins can even be used across the network.
- Photo−Brush can search for the plug−ins.
- Support for external procedure plug−ins called Extras. (*.xtr)
- Many standad image adjusting tools and color corrections.
- Automatic enhancing of images from digital cameras and scanners.
- Many built−in filters and effects.
- The Photo Retouch set of brushes can "paint" contrast, sharpness, color corrections etc.
- There are Special Brushes for Red eye removal or cleaning of the skin, warping.
- Adding beautiful Lens flares or sparkles to your images.
- Antialiased text with rendered shadows or a 3D appearance.
- The Rubber Stamp can cycle − wrap on the image.
- 12 standard modes for any brush, image nozzle, stamp or other retouching and special effect brushes.
- Edge−Smart Brush mode for edge − sensitive painting.
- Multiple Undo and Redo
- Colorize images
- The help file explains each tool and procedure with examples and detailed 'behind the scene" descriptions.
- Support for major image formats including PNG, JPG, BMP, TIF, PCX, TGA and Adobe PSD
- Fast loading

.. and more

Main Screen

PhotoBrush has a modern, easy to use multi−document interface.



Here is the typical screen of PhotoBrush. You see 2 opened images, a Brush Tool Bar with Expanded Retouch Bar on the left side and a Color & Texture Bar and Brushes Bar on the right side. The edit tools, like copy/paste, zoom or text are on the top toolbar. However some tools will also show additional Bars and options.

See the description of the main toolbars.

What is what

Edit Tools

The toolbar at the top of PhotoBrush gives you tools for File, Copy, Paste, Zoom, Floater, Text, Crop, Resize and Enhance

Here you will find:

New, Open (arrow shows enhanced Open options)*, Save (arrow shows Enhanced Save options)* see below.

Copy, Paste − more Copy/paste options in the menu Edit.

Undo / Redo − Return to previous step.
Hold and Lock Undo − Holds current image in the Undo buffer until this button is pressed. See more in the Eraser section.

Basic Tools

- Zoom Percentage,
- 1:1 − zoom to the original size (one pixel on image is one pixel on monitor)
- Fit to window − Zoom the image out to fit in the editing window
- Zoom In and Out − Zooms 20% plus or minus
- Arrow − the tool for resizing Floaters, Cropping, or moving Text
- Magnifying Lens − zoom into the rectangle you draw.
- Hand − Moves the image in the window (pan)
- Text tool − Add text to the image
- Floater − Creates a Floater − a part of the image floating over the image. To paste the floater permanently to the image press Enter or double click on it.
- Crop − draw a crop rectangle, then press Enter or double click on it to crop the image to the size of the rectangle
- Proportional Crop − the crop rectangle will keep the user selected proportion, for example 7:5.
- Resize − resize the image to the desired pixel size.
- Auto Enhance − one−click automatic color and dynamic range corrections on the image.
- Image Browser − Simple thumbnail/list browser

Brush Tool Bar

Paint Brush, Pen, Air Brush − basic brushes for drawing.

Rubber Stamp − Great tool for cloning one part of the image into another part, or another image. Great for adding or removing part of the image.

Artistic, natural & 3D brushes − a special set of brushes simulating artistic and natural painting (Oil paint, Impressionists etc..) and various 3D brushes (rope, 3D tube, etc..)

Image Nozzle − Sprays a series of images

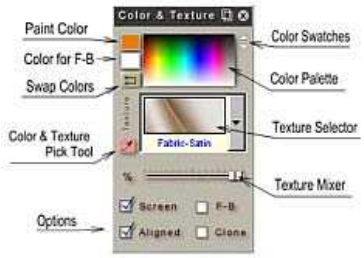
Eraser − By painting with eraser you undo, at will parts of the last stroke

Paint Bucket − Fill up the whole area with the background color and / or a selected texture.

Photo Retouch − A set of brushes for various photo retouching − painting contrast, sharpen, blur, lighten or darken, colorize, remove red eye or clean skin etc....

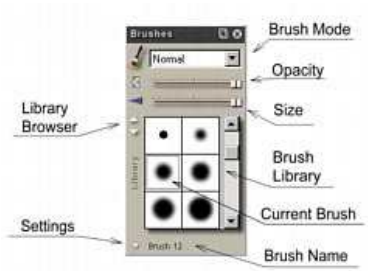
Special Effects − A set of brushes and tools for special effects − Emboss, Aged Photo, Warping, adding lens flare, sparkles etc....

Color & Texture Bar



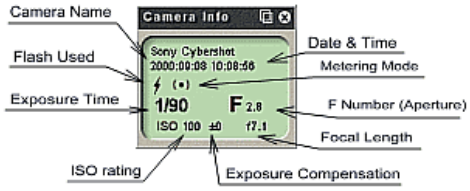
See the full detailed description in the Color & Texture section.

Brushes Bar



See the full detailed description in the Brushes section.

Camera Info Bar
EXIF informations



If you load a JPG image which was taken with a digital camera, this display will inform you about the camera settings for the shot.
You will find all important information here. By clicking on the window you will get detailed information about all available parameters of the camera.
On the display you could see: The name of the camera, date and time when the shot was made, if a flash was used, the metering system (average, center weighted, spot), the exposure time (shutter speed), the ISO rating, Exposure Compensation, Focal length and F Number (aperture). Note that F number and Exposure Time can be directly supplied by the camera EXIF info (like in Canon S10) or it will be calculated from Aperture and Shutter speed (for example Minolta Dimage7)

Icons:

From the left to right:
Flash, Center−Weighted metering, Spot metering, Average metering.
Your camera may not support all type of meterings.

These are very valuable data, because you can, for example, learn which camera settings work best for each type of shot.

Your camera may not support all the data.

If you don't see this window:

− the image you loaded wasn't taken with a digital camera
− the image is from digital camera, but your camera doesn't write the information into the JPG file (some of the old ones don't)
− the image was processed with an image editor which doesn't save the camera information back to the file.

You can switch off this option in the Settings.

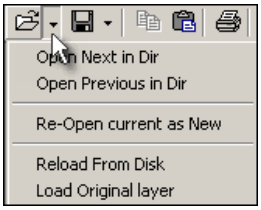
Note: Photo−Brush will also automatically save the EXIF data back to the JPG file.

35mm Equivalent
(Menu − Tools)
This will calculate the CCD size from Exif Info and then show an 35 mm camera Equivalent of Focal length.
For example Canon PowerShot S10 has the CCD size 6.24x4.68 mm that means this camera default Focal length of 7.5 mm gives you the same "zoom" as 43.7 mm in 35 mm camera. This is good to know because many people understand the focal lenght in 35mm cameras. For example you can imagine an 35 mm image taken with zoom lens "300". However each digital camera has different CCD size so the Focal Lenght tells you nothing you can relate to− for example what is 52mm?
In fact with the Powershot CCD size the 52 mm would give you the same zoom as 300mm in 35mm format! If the basic Focal lenght (unzoomed) is 7.5 mm this means you would need 7x optical zoom to get there. (of course most of the cameras have 2x or 3x zoom)
Some cameras such as Sony Cybershot doesn't show their CCD size in the Exif data. In this case the 35mm equivalent can't be calculated so the tool is grayed out in the menu.

Enhanced option menus for Open and Save

Clicking the arrow beside Open and Save buttons will bring a special menu which enhanced open and save functionality

Open:



Open Next in Dir & Open previous in Dir
If a current image is loaded from disk (or it has been recently saved to the disk) these commands will quickly load next or previous image in the same directory as a current image. This has obvious benefits of loading next image without going into Open dialog box.

Re−Open Current as New
This will open the current document from disk, however it will name it as a new document (Image1..).
For example we open image: mypicture.jpg and change colors. Before we save it back we would like to compare it with the original image on disk. All we need is to use Re−Open as new. The original **mypicture.jpg** will be loaded directly from disk and placed as a new document − so we can compare these two images or perhaps try different correction on the new image.

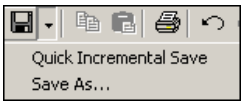
Reload From Disk
This will simply reload the current document from disk and all what wasn't saved will be lost. Ideal if we need to start again.

Load Original Layer
When you load image the original stays unchanged in Original Layer − so we can bring back changes with Original Brush. Load Original Layer will let us to load any image from disk into the Original layer then use Original Brush. This we can repeat many

times.
Example1: We changed image **mypict.jpg** certain way, then save it into new file **changed.jpg**. We can still use Original Brush to change areas back to original. However the next day we decide that we need to bring some of the original back so we load **changed.jpg.** Of course since we load it from disk the Original is now what we saved the previous day. Instead of redoing it or cloning from **mypict.jpg** we simply load **changed.jpg** then use Load Original Layer to load **mypict.jpg**. Now we can use Original brush again to paint in areas we need to return back to original.

Example2: We load one image1 then load another image2 as original and use Original Brush to brush image2 into image1. Now we can load image3 as original and brush that into our composite....

Save



Quick Incremental Save
A fast way how to quickly save current image into disk (without going to Save dialog) however without overwriting the original image.
For example we are working on image **portrait.jpg** and do some changes. Then we use Quick Incremental Save the current image will be saved as **portrait−1.jpg**. Then we can make another changes and use QIS, the image will be saved as **portrait−2.jpg**. This way we can simply create series of images on disk without any need to go to Save disk or worrying about overwriting something else.

The QIS will always make sure that it doesn't overwrite any file. If for example portrait−2.jpg already exist it will simply continue with incrementing and save the image as portrait−3.jpg or whatever is not yet used.

Note: the image will be saved in the same format as the current image. If we are working on png image the incremental files will be also png.

For jpg images the last used quality setting will be applied without asking. That means if you are not sure it is always better to check what jpg setting we have by simply using Save As before you do QIS.

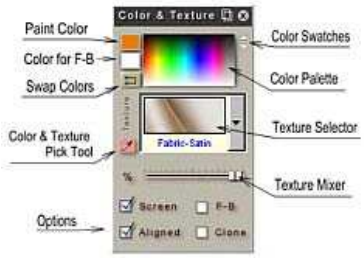
Tab Bar

A Tab Bar appear on the bottom of screen if two or more images are opened. With the Tab Bar you can easily switch between images during editing. Right clicking on a tab will open a menu with common items such as Save, Close, Open Next, Copy etc.

The Tab bar appear only when certain number files (2 and more − default) is opened. You can set this number in Settings.

Color & Texture Bar

This is the bar where you select your brush color, optional texture and set paint options.



On the Top there is a Color Palette.
By clicking with the **Left mouse button** anywhere in the palette you select the main (foreground) color.
Clicking with the **Right mouse button** will select the optional (Background) color. Such color is used for F−B otion or for Paint Bucket.

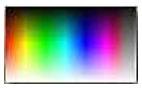
The palette is for fast approximate selection of color, you can of course select an exact color by using it's numerical value.

Click on the Top (Foreground) color wheel.

A standard color selection dialog will appear.

Swatches

You can select different palettes with the small arrow on the right side of the palette, for example if you are working on a black and white image you can use a more precise Black & White swatch.



This is the default palette

Click on the down arrow a few times untill you get the desired palette

This swatch is great if you intend to paint in grayscale

Texture

With Photo−Brush you can paint not only with color, but also with a mixture of color and texture. With various settings this can give you endless possibilities. Photo−Brush has a list of predefined textures, you can also add your own permanent or Custom texture.

No texture − only color will apply.

We can select any texture.

By adjusting the Texture Mixer, you can create different mixtures of color and texture.

There are around 140 quality seamless textures already included in this version, and you can add as many of your own as you want. You can download them from the Internet or even create them from a part of your image.

Options

There are various options for you to adjust how the texture and color will interact.

Screen
The Screen Option discards the color information from the texture and uses the Foreground color on the texture instead. With the texture Slider you can then regulate how much of the solid color and texture will be mixed together.

F−B
This is an additional option for the Screen function. While screen uses the Foreground color to White, the F−B option uses Foreground to Background color range for the texture. On the example below we used Red as a foreground and Blue as a background.

The Screen and F−B can completly change the colors in the texture − making the new mixture a new original texture.

Aligned
With the Aligned option checked, the texture will always be applied in the same position − if you paint over the stroke again, the texture will remain as before.
If you uncheck the aligned option, the texture origin will be applied in random order − if you paint over the same stroke, the texture will change, since the origin has changed.

This brings a very interesting random effect to the texture. If you feel that the texture is repeating a pattern, you can break it with non aligned strokes.

Clone
Clone is an additional and very exciting way to change the color of the brush. While the normal brush color doesn't change during a given stroke, with clone the brush can get a different color in each step − from a texture or from the original image. To learn more about cloning, read the Clone full description. .

Texture and Color Pick

Color Pick
Sometimes you just want to pick a color from an image, instead of selecting it from palette.

Click on the Pick Button	From the menu that appears, select Color Pick	Now click anywhere on the image with the eye dropper cursor to pick up the color you want.

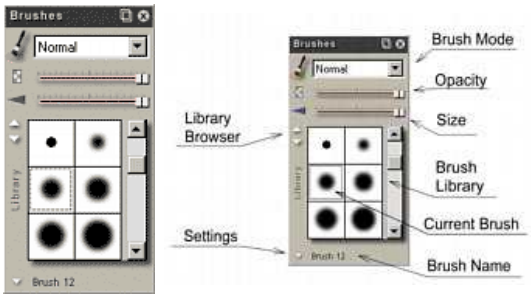
Texture Pick

The Color pick is a pretty common feature, however, Photo−Brush goes far beyond simple color selection with its' unique Texture Pick.

Read the full description in the Texture Pick page.

Brush bar

The Brush bar is used with all brushes. Each Tool (or set of tools) has its own predefined brushes and they will appear on the Brush bar.



There are also other options on the Brush Bar: Brush Mode, Opacity of the brush, Brush Library and settings.

Brush Mode

The Brush Mode determines how the Paint color affects the color in the Image.

Normal
The most commonly used brush mode, Paint color will just paint over the image.

Edge−Smart
This is a special and very useful PhotoBrush mode which allows you to paint along the color edges. The **Edge−Smart** mode will find a nearest edge and determine which side you wish to apply paint and not paint beyond the edge.
You can easily paint around troublesome/complex shapes or objects without painting over them.

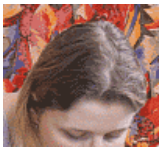
See example:

First we painted this "potato" with a "normal" brush and various texture.

...next a different color and the"Edge−Smart" brush was selected...

by painting from the outside of the object, close to the edge...the brush will trace the edge − it won't go into the object if it is kept "mostly" outside.

You just need to keep most of the brush on the side that you wish to paint.
After you trace the edges, you can switch to the normal brush and finish the less difficult places.
Tip: You can change Opacity and paint with Edge−Smart a few times around hard to determine edges − for example hair, etc..
With very little training, this brush can be a big help.

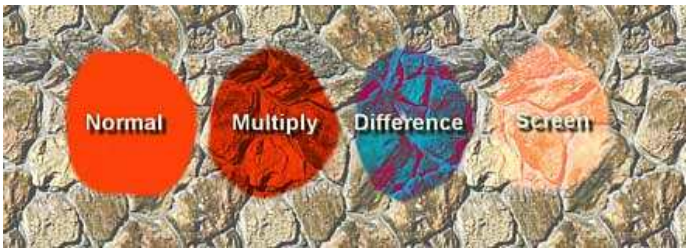

Here is an example of what **Edge−Smart** can do. We painted with Edge−Smart around the Head, then changed the Opacity setting to 75 % and again painted with Edge−Smart around troublesome areas to finish details.
The result is a perfect fit − see the detailed image.

Multiply
Multiplies the Image color and the Brush color. The result is darker. Painting with Black will produce black, painting with white will leave the Image colors unchanged. All colors in between will darken the image.

Difference
Subtract the Image Color from the Brush color or Brush color from the Image color, whichever is brighter.

Screen
Works the opposite of Multiply. The result is lighter. Painting with black will leave the Image unchanged, painting with white will produce white. All the colors in between will lighten the image.

Tip: You can use a copy of the image as a texture and enhance areas in the listed modes of Multiply, Difference, and Screen... to add highlight and reduce focus on other areas by simply controlling the Opacity setting and the brush size and type. Start out with a very low setting and you will be happy with the results. Each time you release the mouse, the work performed is added as an accumulated change, allowing perfect photo retouching results to be accomplished. Use the Undo and redo function from the menu to compare your changes to the previous image appearance.



Here is a sample of the four basic modes. All were painted with Red color and 100% opacity. (opaque)

Overlay
Overlay will colorize (mix) the Image with the Brush color. It uses either Multiply or Screen depending on the brightness of the Image color in the area that you are modifying. This is a fun way to colorize an image. If you are looking for a more optically realistic colorizing method, use the Colorize brush from the Retouch Collection.

Darken
The resulting color is Brush Color or Image Color − whichever is darker. Painting with white will have no effect since the pixels from the Image will be always darker − (in other words, the image color will dictate the resulting color if the brush color is lighter than the image color).

Lighten
Similar to darken, but the resulting color will be the lighter of the two (brush or image). Painting with black will have no effect − Image pixels will always be lighter − so the resulting color will be the one within the Image.

Hard Light
This works similar to Overlay, it Multiplies or Screens the color, but the decision between modes is dependant on the Brush color, while in Overlay it is dependant on the Image color. If the Brush color is lighter than 50% gray, the image will be Screened. If the Brush color is darker than 50% gray , the image will be multiplied.

Soft Light
This darkens or lightens colors, depending on the Brush color. If the Brush color is lighter than 50% gray, the image will be lightened. If the Brush color is darker than 50% gray , the image will be darkened. While Hard Light can be pure black or white, Soft Light can t produce pure black or white. It will just darken or lighten.

If Lighter
The Brush Color will be applied only to areas where the Brush Color is lighter than the Image Color. (In other words, this will paint only in areas darker than the Brush color.)

If Darker
The Brush color will be applied only to areas where the Brush Color is darker than the Image Color. (In other words, this will paint over areas lighter than the Brush color.)

Note: The mode settings will work with all brushes, Image Nozzles, and Rubber Stamp.

Opacity

The opacity slider controls the Brush opacity. An Opacity setting of 0% is completely transparent, and an Opacity setting of 100% is opaque.
With a combination of Opacity and modes, you can control various aspects of the mode, allowing almost infinite effects.

The Opacity setting works with all brushes, as well as with Retouch or Effects. While painting color it controls the opacity of the color, when painting with Retouch or Effects it controls the intensity of the particular effect. Painting with the Contrast Brush with an Opacity setting of 50% will enhance contrast less than with an Opacity setting of 100%. Etc.

Size

This slider will decrease the size of current brush (as well as Artistic, 3D or image Nozzle brush) if moved toward left.
This slider can be also directly used by Intuos Airbrush Fingerwheel. See more in Pressure Sensitivity.

Brush Library

Brush Library is the selection of brushes for each Brush tool. For example: Image Nozzle will display Image Nozzle Brushes, etc..The Collection of Tools such as Retouch or Special Effects all share the same set of brushes. There are other Libraries hidden behind each tool. To change the active library you use the Library Browser.

Library Browser
What you visually see for each tool are not all of the brushes available. There are small arrows near the left side of Brush Library that browse through other libraries. With the functions displayed with these arrows, you can add many libraries of brushes specific to each tool. For example, you may have an Image Nozzle library divided into Flowers, Rocks, Trees, Mountains, etc.

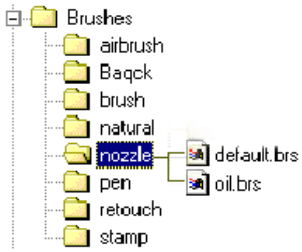
Default Nozzles in the Image Nozzle Tool.

Click on the small arrow on the left side of the Library.

Another Image Nozzle library will appear!

The last Sub−Libray used will be remembered after you choose another tool.

Each tool has its own brush library in separate sub−directories in the Brushes directory. One of the libraries is named default.brs. If you download new libraries (for example, the popular Nozzles) you just need to copy them to the proper directory and that's all. With the Library Browser arrows, you will be able to access all of them. Seldom used libraries can be given their own library tree at virtually any accessible location; a CD rom is not out of the question if you have the capability to burn your own CDs. There are also many CDs available that have thousands of textures available.

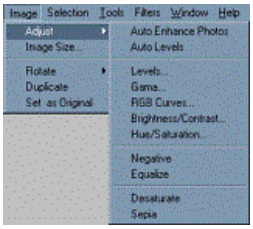


Settings (Brush Library)
Settings allows you to load/save a new Library set, Import/Export a single brush, delete a brush from the Library Set or edit the Brush properties. You enter the Brush Library menu by clicking on the small arrow at the bottom of the Brush Bar.
See Brush Settings for more info.

Adjust Image

Image −> Adjust

PhotoBrush offers a set of color correction tools that allows you to adjust the color or tone of your image easily. With these tools you can correct contrast and brightness values, eliminate unwanted color casts, or even create special effects within an image



Automatic Adjustments

Auto Enhance Photos
This command performs a few automatic adjustments to the image. It adjusts the color levels to the full dynamic range, as well as adjusting midtones and correcting the color tone.

Auto Levels
This command performs an automatic level adjustment. It redistributes (stretches) the range of brightness in the image to the maximum tonal range. You can find more info in the Levels.

Color and Tonal corrections

Levels
Use the Histogram function to check the tonal range and quality of your image.
With the Levels controls, you can set and adjust the highlights and shadows, change midtones, or stretch the tonal range.

Gamma
Use this tool to adjust midtones.

RGB Curves
Color correct the image, remove different color casts.

Brightness/Contrast
Make contrast and Brightness adjustments to the image easily.

Hue/Saturation
This command allows you to easily adjust the hue, saturation, and lightness of an image.

Other commands

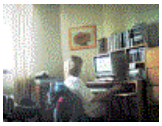
Negative
This command will create a negative of the image. (Note to photographers: the “masking” as used by some film manufacturers is not included in this conversion; it is a reversal of color as utilized in non−masked negatives. If a photo−print negative is desired, you must fabricate your own mask and overlay with the resulting image.)

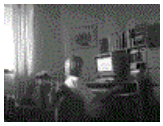
Equalize
This command redistributes the brightness of the pixels to evenly cover the entire range within the open image. In some cases it produces well balanced images, but in many digital images, Auto Levels or Auto Enhance Photos is a better choice.

Desaturate
Convert the image to gray scale.

Sepia
Convert the image to a desaturated sepia tone. The use of sepia tone is a visually pleasing method for expressing "The Retro−Look".


Negative


Equalize


Desaturate


Sepia

Auto Enhance photos

Image −> Adjust −> Auto Enhance Photos...

This is a special automatic procedure which basically analyzes the image and then performs necessary corrections.

- Let the image use the full range of colors by stretching the levels
- Adjust midtones to the optimal range
- Remove an unwanted color cast

In most cases this function works very well on images from a scanner or from digital cameras. Images become more life−like. You can repeat this function if necessary.

Original Image | First time Auto Enhance | Second time Auto Enhance

Eventually after Auto Enhance you can use some of the other filters (menu Filter) for example: **Filter−Noise−Auto Clean Skin** and **Filter−Sharpen−Unsharp Mask**

Note: Auto Enhance uses default settings which can be changed in Settings dialog. If you need more freedom in settings, you can use DCEnhancer plugin (Extras) instead.

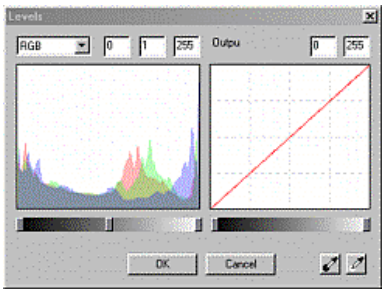
Levels

Image −> Adjust −> Levels...

The Levels dialog displays Histogram, Tone Curves and allows you to change the level values.

Histogram

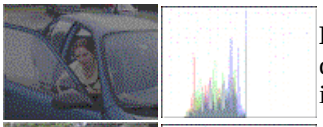
The Histogram (graph on the left) displays the tonal distribution of the image. It displays values based on their level of brightness, on the x axis from dark (0) to light (255). The y axis represents the total number of pixels in the image with that level of brightness. You can see the Histogram for all RGB image parts or for R, G, or B separately. You can see only the intensity histogram also. (Which merges the RGB to one graph)



The Tone Curve (graph on right) represents the mapping of input tones to output tones. The default curve is a linear upward line. It represents the relationship between the image before and after correction. On the x axis are the levels from 0 to 255 of the image before correction, on the y axis are levels after correction. Obviously if the curve is linear from bottom left to top right (as on the image above) there are no changes − the input levels are mapped 1:1 to output levels.

What Histogram shows

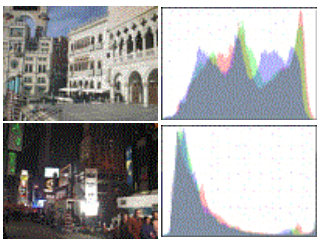
Histogram can tell you many things about the image, about the processing already done on the image and also about the originating device (digital camera, scanner ...etc). First look at the x axis. This represents the dynamic range 0−255 (dark−light). The wider the histogram , the greater the dynamic range and that means an image with better contrast as well.



Dull Image − Narrow histogram − small dynamic range means low contrast and flat image

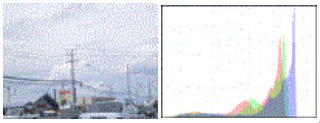
Normal Image− Wide histogram, great dynamic range also means good contrast

Low Key: If the histogram has the peaks concentrated along the left side of the graph, we call this a "low key" image. Depending on the image it can also mean an underexposed image.
High Key: If the peaks are concentrated on the right side, the image is called "high key". This could mean an overexposed or too bright of an image. Note: most of the digital cameras underexpose, you will have more pictures with low key than high key.
Tone jumps: If the histogram has empty spaces in intervals, this means a lack of smooth gradation. This usually tells you that the image was already processed. (It was stretched to full dynamic range, or there was a color reduction, gamma correction or other adjustments applied.)

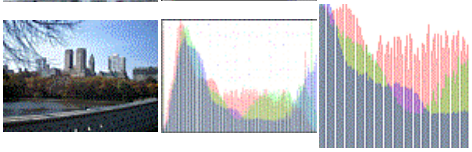


Normal Image− The histogram is mostly uniform, the image covers most of the dynamic range.

Low key−Most of the colors are in dark



High Key−Most of the colors are in the brights.

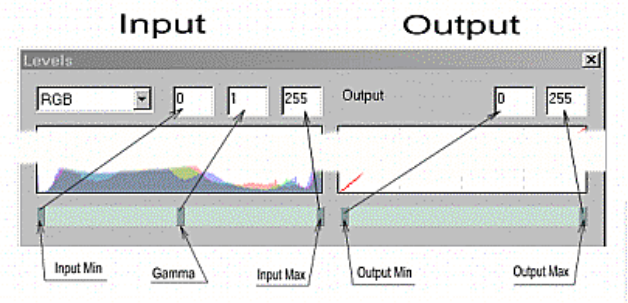


Tone Jumps−The detailed histogram shows that the image brightness was already stretched, there are Tone Jumps in regular intervals.

There are many other things that a histogram can tell you − you will learn the art of it as you work with many images.

Adjusting Levels

There are 2 sets of controls: Input and Output. The Input control has Min, Max and Gamma, where the output Control has only Min and Max. You can either type numbers directly or move the handles on the multiple slider control.



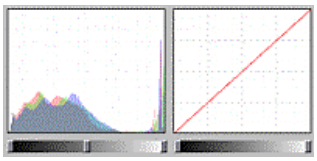
How it works:
You are mapping the brightness of RGB channels (or any channel separate) from input to output. As you move the sliders, the Tone Curve graph changes as well. You can change values on the RGB together, or you can choose any channel separately to change its levels. After you change channel R for example you can select channel B and make additional changes.

The Input Min slider adjusts the shadow areas: moving it to right − shadows become darker.
The Input Max slider adjusts highlights: Sliding it to the left − light areas become lighter.

The Output Min adjusts the dark areas: Moving it to the right − dark areas become lighter.
The Output Max adjusts the light areas: Sliding it to the left − light areas become darker.

The Input Gamma value changes the linearity of the Tone Curve.

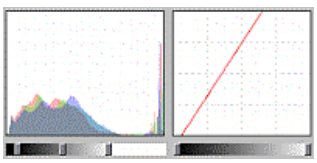
Example of using Levels



The image is Low Key, that means most of the colors are in dark areas.Almost half of the range is not used (there are almost no pixels after the first half of the histogram)

The sharp peaks at the very right part of the histogram shows that a large number of highlights are blown out. We can cut them out as well.

Now we select Blue channel only and move the Gamma to 1.1

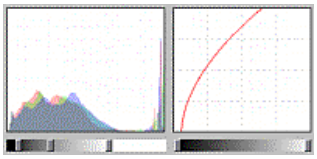


We selected the range of Input where the majority of pixels are. This stretches the histogram to full range. The image is no longer in Low Key

Selecting different Input Min and Max will stretch the image to the output values 0−255, making the image full range.

We moved the sliders on the Input Min to 15 and Max to 165. The

Tone curve shows the mapping Input/Output.

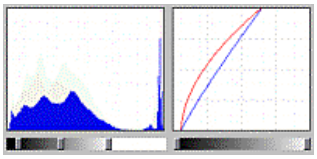


Adjusting gamma changes the linearity of Input/Output.

In our case, dark colors are mapped into brighter values, making the midtones brighter.

We still don't see much midtone, so adjusting gamma (>1.0) will make the midtones appear brighter. It also flattens the high contrast a little that was created by stretching.

Now we change the gamma to 1.8
This changes the Tone curve to non linear

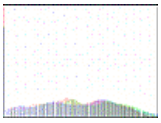


We don't like the blue cast the image has, so we put gamma of Blue channel a bit back − make it almost linear again. This pushes the Blue back to dark tones and shows more realistic colors.

See the result histogram below. The image is no longer in Low key. The pixels cover the whole dynamic range.

We change the gammaof Blue Channel

Result:



The image is no longer in Low key. The pixels cover the whole dynamic range.

With Levels you can fix many of the color and range problems your images have.You can try to adjust various levels and see what effect it has on an image. Look at the Tone Curve also and try to understand it's relation with the histogram.

Pick Up Shadows and Highlights

With the two buttons on the bottom right of the dialog box you can pick up shadows and highlights from the image. With these tools you can adjust areas on image that you want to have black and other areas that you want white.

Shadows: Click on the Pick Shadows button (the left one), cursor will change to an eye−dropper. With this tool you can click on the part of the image where you want to have black. The curves of the R, G and B channel will adjust in such a way that the color you point at will become black.
Highlights: Click on the Pick Highlights button (the right one), the cursor will change to an eye−dropper. With this tool you can click on the part of the image where you want to have white. The curves of the R, G and B channel will adjust in such a way that the color you point at will become white. All the other colors and tones will adjust as well.

Note: The Pick up tool will not only let you to pick a color from the image, but from anywhere of the screen as well (for example from the Color & Texture Palette).

White Balance Compensation

Histogram Shift

Image −> Adjust −> White Balance...

In the previous topic we learned about Histogram and its important functionality.

You may noticed that on many pictures the R,G and B curves look similar to each other, sometimes just shifted left or right. It is usual that you will see more shifting in the indoor pictures.

When the curves look similar but they are shifted (they don't overlap) it means your white balance of the digital camera wasn't set properly. And you may usually tell by looking at the histogram which color is mostly off.

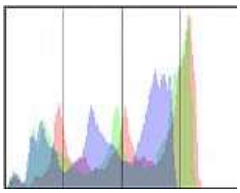
Most of the digital cameras have automatic white balance, but it usually works best during daytime. Some cameras allows you to change the white balance program when you are taking images inside (and you can even change which light type you have). Some better cameras have a manual white balance where you can set the white manually.

What is white balance? − It simply means that a white color in a real life will become white on the image − which is not always true in bad light conditions − the white may look pink or blue. Automatic white balance should correct that in most of the "normal' lights and the manual white balance will certainly works best.

Histogram shift may help you to fix some troublesome white balance images, or at least determine what should be the next step. It displays the histogram and you can shift each curve with the slider. You see the result either on histogram or the image itself.

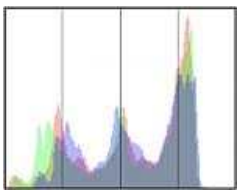
Note: The RGB curves may not always look similar. One or all may have different shape (the image may have little gray colors, but many different pastel colors) so it is important that you visually check the image itself −and as always, work a way so you like the result.

You should look for a similar peaks on all 3 curves in the right part of the histogram. The last peak on right certainly means whites and if the peak is visible on all curves (image has indeed whites) try to align the curves to this peak.



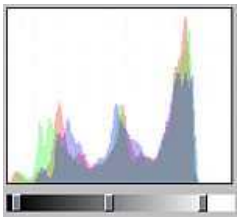
This indoor taken image may look fine for someone (little more on warm colors), but looking at the histogram we see that the blue is underexposed − it is shifted toward left, while the red and green are almost aligned.

The most important part for us is the aligment on the right side − aligment of the grays and whites.



With the sliders we move the green a little to right and blue again to right, but more so the highest peaks overlap. The image will look more natural.

However there is a big gap on the right part which only means that the camera didn't take the whole intensity spectrum and the white isn't white but greyish.



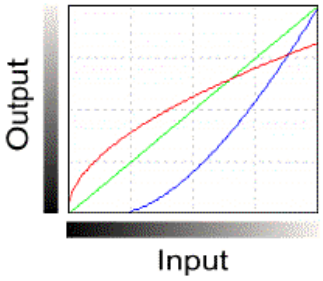
The next logical step is to open Levels and adjust the tonal range of the image so it will fill the whole intensity bandwidth.

The image now looks fine, white looks white and the image has nice contrast.

Remember that you should shift toward the area where are less colors or maybe a gap. Like in the example above we were shifting blue and green channel to right (toward the gap) not the opposite way − shifting red and green channel to the left. This will make sure we don't cut too many shades of colors out.

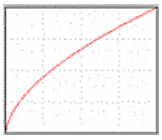
Tone Curves

You can find tone curves in various places. Understanding what the graph of a Tone Curve shows will help you to understand some of the image adjustments.

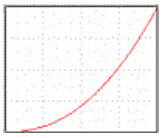


The Tone Curve shows the shadow/highlight relationship between the input (Original) values (on the X axis) and output (Result) values (on the Y axis).
The default is an upward curve from bottom left to top right corner. This represents linear relationship between the original and result − that means no changes.

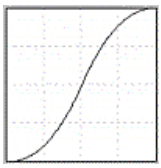
Examples:




The Gamma >1.0 shifts the shadows toward lights

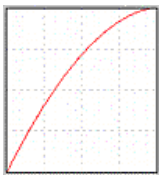



The Gamma < 1.0 shifts the shadows toward dark

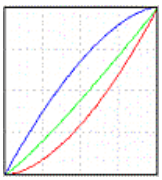



Contrast changes both shadows and highlights. The curve becomes more vertical making greater differences in midtones.

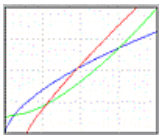

Linear shift changes the brightness of the image. Here the image is darker because the whole range of input is mapped only in the darker area of output




RGB Curves works like half contrast − making contrast highlights or dark, but not both at the same time.




Changing the R,G,B curves alone creates different color adjustments.



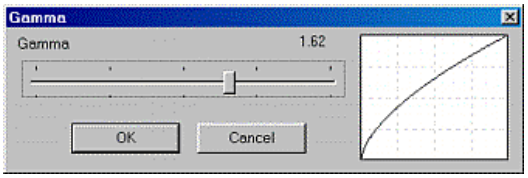

With Levels you can adjust all curves separate in various ways making almost any color corrections.

As the curve becomes more vertical − the contrast of the image becomes stronger.
As the curve changes more toward vertical − the image becomes less contrasty.
By changing Gamma or Contrast settings you change the shape of the curve(s). This changes the tonal feeling of the image, reduces or enhances midtones etc..

Gamma

Image −> Adjust −> Gamma...

This allows you to apply Gamma correction to an image.You can immediately see results on the image as well as the Tone Curve.



What is gamma correction?

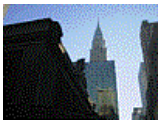
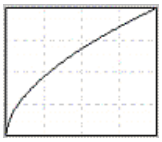
If an image pixel has an intensity of 255, that would mean it will produce twice as much light as a pixel with an intensity of 127. This is true only if the display device (monitor) is photometrically linear. This is far for current display devices. The relationship between the voltage and brightness of the monitor was approximated by: Intensity = Voltage^gamma. Gamma correction changes the intensity values by the inverse of this function:I' = I^(1/gamma)

This means that if you don't use the gamma correction on your monitor (or display software), your images will look darker on the monitor than they really are. Most people don't have calibrated monitors at home − so they don't use any gamma correction.

You have to think about this when you are preparing images for the internet. Instead of telling thousands of people to correct the nonlinearity in their monitor, you can just adjust your image.
Note: The average gamma value of monitors is about 2.2 − but remember your images were generally taken by non−linear devices, like Digital cameras or scanners. In most cases values around 1.4 looks best on most monitors.

If you look at the Tone Curve graph next to the Gamma slider you will see how you are adjusting the nonlinearity of the image.

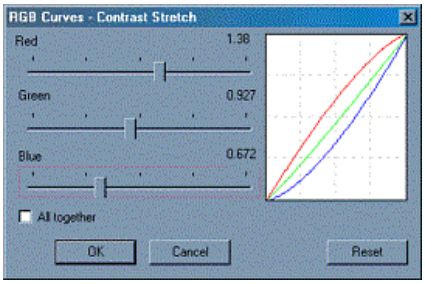
Whatever is your reason to change gamma it basically makes the low−midtones look brighter, so you will see more details in shadows.


RGB Curves

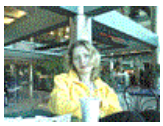
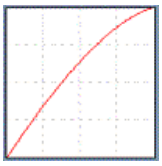
Image −> Adjust −> RGB Curves...

This allows you to apply nonlinear correction on separate RGB channels.You can immediately see results on the image and Tone Curve.

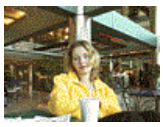
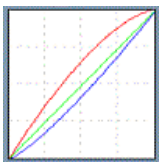


With RGB Curves you can adjust the image color tone. This correction has similar characteristics to gamma for the values <1.0 enhancing contrast in the shadows for each channel.
For the values >1.0 the curves have (1−gamma) characteristics enhancing contrast in highlights (unlike gamma which decreases contrast in bright areas).

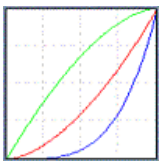
You can lock all sliders with the **All together** check box. Then all channels will have the same value. On some image values >1.0, RGB Curves may work better than Gamma adjustments, because the image contrast will be enhanced in its bright areas.

Moving all sliders to the right (All together) will enhance contrast in bright areas.

The original image had a blue cast. We can remove it by moving the red slider to 1.5 and Blue down to 0.8

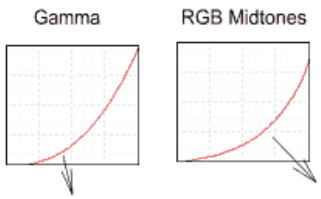



We can create interesting color creations. R−0.4, G−1.2, B−0.2

RGB Midtones

Image −> Adjust −> RGB Midtones...

The RGB Curves are non−symmetrical (same as Gamma curve). RGB Midtones have symmetrical characteristics.

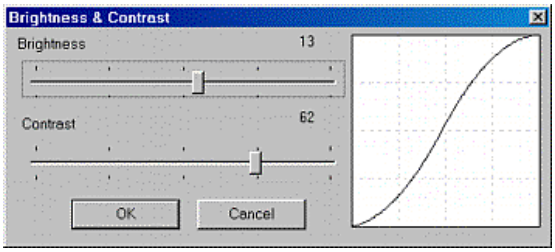


The RGB Midtones is just a variation of the RGB Curves with different type of curve affecting more the middle tones.

Brightness & Contrast

Image −> Adjust −> Brightness/Contrast...

This dialog allows you to change the contrast and brightness of an image. This is a very simple and fast adjustment of the tonal range of the whole image.

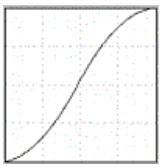


As you move the sliders, you can immediately see the results on the original image. The Tone Curve shows you the Input/Output relations as well. On the X axis are the values of original image, the Y axis displays the adjusted values of the result image.

Contrast is the difference between light and dark tones. As you move the Contrast slider up, you will see that the tone curve angle changes and becomes more vertical. This means that more values around the midtones from the original image are mapped into a larger tonal scale (stretched around the gray midtones) on output.

Brightness moves the tonal curve up and down, thus shifting the input image more toward a bright or dark tone.


Original

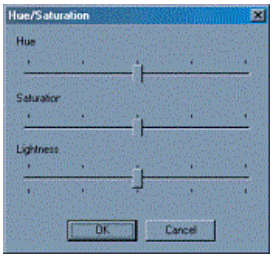

Adjust Contrast


Result

Hue/Saturation

Image −> Adjust −> Hue/Saturation...

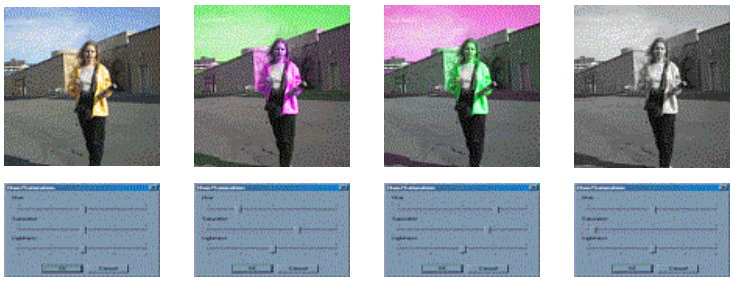
This simple dialog lets you adjust the hue, saturation, and lightness in an image.



The Hue is the color. Hue will shift all the color values of the image. With Hue you can adjust the tone or if you move the slider further to left or right you can completely change the colors.

Saturation is the purity of the color. All the way to left it will desaturate the image (make it Gray scale). The values to the right will enhance the color − make it more pure.

Brightness will enhance the brightness of the image.

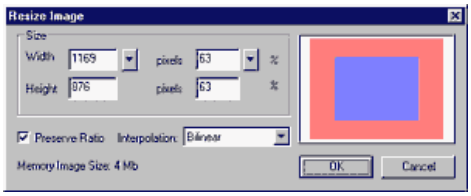


Original Image	Hue is moved to 1/4. Saturation is also enhanced	Hue is moved to 3/4. Saturation is also enhanced	Saturation is all the way to left. The image becomes desaturated.

This will affect the whole image. If you need to change only a selection of colors, use Equalizer function.

Resize Image

Image − Image Size



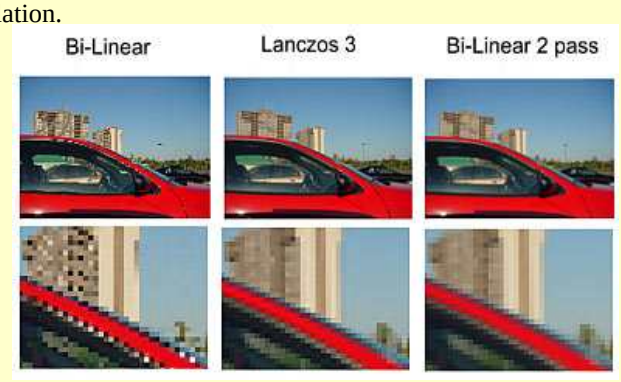
You can choose how to resize the image − by percentage or by entering the new width and height.
If Preserve Ratio is ON, then changing one dimension will also change the other to preserve the W/H ratio of the image.

Interpolation: Photo−Brush has several types of interpolation. Generally, for images, the Bi−Linear 2 pass, Bi−Linear or Bicubic should produce the best results. However, in some special cases (like resizing line art or text), a different filter may give you better quality.

Bi−linear 2 pass is great for shrinking images and **Lanczos 3** or Bicubic should be better for enlarging. You probably won't see much difference with the other filters if you use them with normal photographs and the resizing factors are not very big..

If you need to create a very small thumbnail from your image (resizng down by a great deal, then **Bi−linear 2 pass** or **Lanczos 3** will create the best results − smooth image without jagged edges.

Bi−Linear 2 Pass (Photo−Brush only) is a special interpolation filter designed for **sizing down** digital photography. It produces very smooth image with no jagged edges. Result image is also usually **softer** than with other interpolation. As a next step after Bi−Linear 2 Pass you should apply a **sharpening** (Unsharp Mask). With this setup you can control the overall feel of the image much more that with other interpolation.



You will see the effect more obvious when you resizing big image into much smaller, thumbnail size. On the image above we resized original 3 MegaPixel digital image to 150x112 pixels. You see the result thumbnail and a zoom into it. The Bi−Linear (or Bi−Cubic) will produce visible jagged edges. The Lanczos 3 will produce much more pleasant image which is already sharp and without many disturbing artifacts. Bi−Linnear 2 Pass will produce even more smoother image, just ready to apply some sharpening.

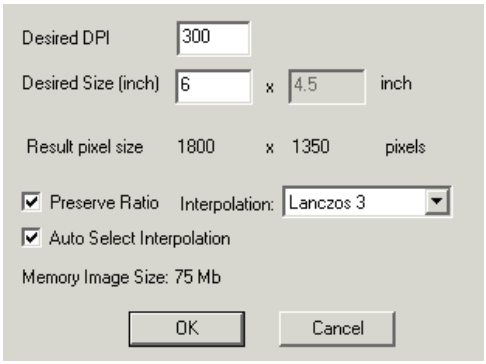
We designed the **Bi−Linear 2 Pass** to be the **best** Interpolation filter for most of your digital images. Of course you have a great choice of Interpolation filter so you can use whichever produces best images for you.
If you would like to enlarge small image into much bigger size, then Lanczos 3 would be the best choice.

The size preview window shows the relationship between the original size (red) and the new size (blue).
Tip: You can change the size by clicking and dragging your mouse inside the preview window as well.

Resample Image

Image − Resample

Warning: If you are not quite sure you **need** to resample the image, then you most likely don t need to. Resampling can create unnecessarily large images which are difficult to edit.
In any cases use Resampling as one of your last step; do all your image tweaking before resampling.



Resample takes a different approach to resizing. In Resizing you are basically specifying the image size in pixels (which is most important information).
In Resampling you have to specify the desired DPI and also desired size in inches. This is obviously for cases when you need the image for a future printing project. Setting up DPI or the inch size for screen images makes little or no sense − in that case you should use Resizing.

As it is in the image above we specified **DPI 300** while output should be in desired **6*4.5 inch**. The dialog also shows the Result in pixel size, in our case 1800*1350 which is enlargement from original 1600*1200.

It is important that you need to set both values DPI and size.
The tool can suggest best interpolation for your resizing (− which is Lanczos 3 for enlarging), but you can choose your own.

If your result will be JPG then the DPI Resolution Flag of the JPG will be also set to this value.

Important:

If the exact DPI/size is not an absolute requirement (for example by your printing house), then you should probably avoid any Resampling. All printers should be able to resize the image into desired size. However, you may feel that Photo−Brush interpolation does a better job than the printers. In this case you may try to use Resampling and compare the results.

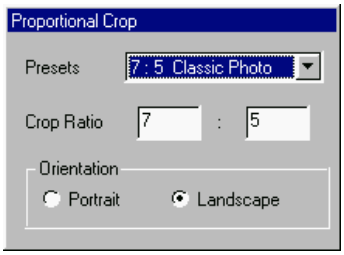
If you only need to set DPI of the image, but you don't care about the size, don't use Resample either. Simply save as JPG and set DPI resolution flag on the JPG quality settings.

Proportional Crop

Cropping is an essential tool for any photographer. Even the images you get from a photo−lab are cropped (the photo shows less than the film you exposed), and if you look at the new Advanced Photo System (Advantix) then each size Classic, HDTV or Panoramic is nothing other than a different crop from the original film image. Sad, but true.

Photo−Brush has normal Crop and Proportional Crop. With normal Crop you can draw a Cropping rectangle any size on the original image. If you double click on the cropping area, the image will be cropped to the desired size.

Proportional Crop goes further. While you are editing digital images, it is often necessary to create a compatible format with, for example, your photo−album. If you print an image from your digital camera and then try to put it in your photo album, you may notice that the camera has a different width/height ratio than a normal photographic film format so you need to crop your digital images in a predefined ratio; for example (7:5 or 6:4 which is a standard photo ratio)



When you use Proportional Crop − no matter how large you draw the crop rectangle, the specified ratio will remain the same.

You specify the orientation as Portrait or Landscape. Portrait will always have the larger number assigned to the Height and Landscape to the Width. (So it is the same if you use 7:5 or 5:7, Landscape will always be Landscape)

Proportional crop uses a relative ratio. That means it is the same if you use centimeters or inches; it doesn't specify the physical size!

How to use it in real life.
Example: We would like to make a print in a standard photo size of 6 x 4 inches for our photo album. The image from the digital camera is not in this ratio (it is, in fact, 4:3). We also need to crop, using only part of the image...

Our original image. The image is from a digital camera, so it has different w/h ratio than a photographic album.

We need 6x4 inch output so we simply type (or select from menu) 6 and 4. Select Landscape.
At this point it doesn't matter if it is in inches, since we just need to keep the ratio.

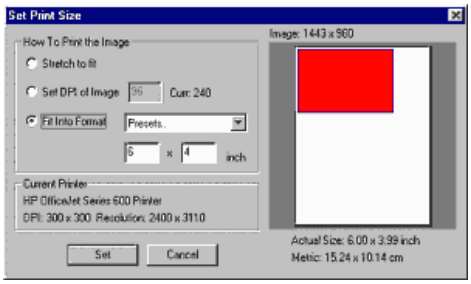
Now draw the cropping rectangle around the part you wish to save. It will keep the 6:4 ratio. You can always resize it later − and it will keep the same ratio.

Double−click on it to finish the crop.

The image has the desired 6:4 ratio. Now we need to print it as an exact size 6x4 inch image!

To print, we can save it in JPG format and load it into any reasonable **photo print tool,** which probably came with your ink jet printer. If you have no special tool for printing photographs then you can print it from Photo−Brush:

First you need to Set print size − from menu File.



Now is the perfect time to talk about the exact size (in inches) since we are going to make a physical print out!
Use **Fit into Format** and specify 6 x 4 inch. The blue rectangle (desired size) and the red rectangle (available image) will overlap − which is why we were doing all this − to have the image in an exact 6 x 4 inch size.

Now use the Set button and then Print!

While this may seem complicated, the Proportional Crop is a great helper function for many specific tasks.

Why we use relative coordinates (ratio) and not absolute (inch) directly?

If you are editing your images on a computer, then the only absolute value is in pixels. Setting real size (in inches) has no meaning yet. If you make an image 640 x 480, then it may show in different sizes (in inches) on different monitors and different resolutions − but it will always be 640 x 480.
The inches are important only when you going to print. Here is why we need inches: We want to have a printout in an absolute size − and once it is printed, it will always stay that size, right?

DPI?
DPI means dots per inch. Since computer monitors don't understand DPI, you may set your image to whatever DPI you are comfortable with, and it will always shows in its pixel size on your monitor. (for example, on a web page) **The DPI is important only if you going to print.**

What is even more confusing is that the **DPI** of the **digital image** is never the same as the **DPI** of your **printer**!

Example: You are going to scan an image 6x4 and then print. You may be tempted to scan it in 1400 DPI, because that is a resolution that your printer has. But that's wrong!
One pixel on your scanned image can have millions of colors (exactly 255*255*255), but one pixel produced by a printer can have only one from 3 (or six). It doesn't look like that on the printer output because these dots are tiny and they are printed in a diffusion pattern. From a distance they look like a solid color to us − but use a magnifying lens!

Instead we can scan our photo in 300 DPI and it would look just fine on the printer.

So what does the 300 DPI then tell me? If we divide the number of pixels in width and height by the DPI, we would know what the original width and height in inches of the scanned material was. That may be nice for some scans, but it is worthless for digital cameras. What would the DPI from a digital camera tell me? That the CCD chip size was 0.4 x 0.4 inch? That's definitely not the size we would like to print back!

There is a lot of **confusion** around DPI, and most of the time it doesn't tell you anything useful. It is **essential** when you are planning a print job (and you also need to know the parameters of your printer). It is simply best to avoid thinking in DPI and stick with PIXEL size instead.
The equation is very easy: more pixels − better quality and you can make a larger printout.
But you never know how large until you try it on your printer! All printers have different quality and behave differently...No numbers will give you a truthful indication of output until you actually try it.

Chromatic Aberration Auto−Removal

Menu: Image−Adjust−Chromatic Aberration

A simple lens will not focus different colors in the exactly same place because the refraction depends on the wavelength. Short (blue) wavelengths are refracted more than long (red) wavelengths. Camera lenses are made to correct or minimize the impact of aberration. Lens may be corrected for two primary colors (achromatic lens) or even for three primary colors (apochromatic). Camera lenses are very complex masterpieces. A very good lens will show just very little if any aberration defects. However, poorly a designed lens will suffer from aberration a lot.

The lens is more affected by aberration usually in tele mode with the aperture wide open. Especially large zoom lenses will suffer from this because it is virtually impossible to make corrected lenses for all zoom values.

Digital cameras suffer more from aberration than film cameras because of the large density of pixels in CCD − the uncorrected light can propagate to dark neighbors making the aberration more visible in high contrast images.

So the best chance to catch chromatic aberration with your digital camera lens is to look at images with high luminance contrast such as looking through tree on front of a bright sky etc.

The color of the aberration varies from blue to purple.

The **Chromatic Aberration Auto−Removal** tries to fix the aberration problems. The process may also change the appearance of some colors on your image (In many cases it is usually toward better looking colors).
If the image suffers just a little from the aberration, it is probably safer to leave it as it is unless you like the color effect of the result.

The only thing you need to do is to choose the color which best matches a typical aberration of your lens. In many cases it will be blue. Once you are satisfied with the result, you don't need to change it for other images from that camera − the lens always performs the same way.

It is true that chromatic aberration will tell you a lot about the **quality** of your lens (and also the camera). In a very good camera you will probably have a hard time finding an image which shows aberration problems. If you look at the sample on the top of this page, and if you have very good lens, this is probably the worst case which will happen. (And you will have to go through many photos to find one which exhibits it). Lenses on cameras such as Sony 505v, Canon S300, S10, S20 etc. are proven to be the highest quality with very few aberration problems.

Tips:
The removing of aberration is one task, but you may experiment with this function also on any other image just to get a bit different color look.

Note:
The human eye is also a simple lens and as such it theoretically must suffer from chromatic aberration as well. However, we don t see such problems partially because our brain seems to filter any unwanted data and also a yellow pigment in the fovea helps to correct this problem by absorbing blue light.

Perspective Correction

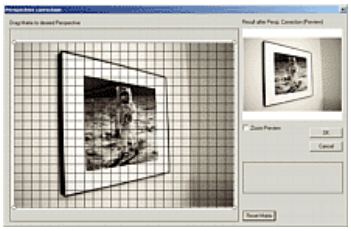
A very useful tool you can find in menu **Image−Adjust−Perspective Correction**.

Imagine you take a shot of some picture from weird angle as shown below:

Nothing special about it; you may have a few images like it. Of course, when you try to take a picture of an image, you don't usually choose such a bad angle. You will most likely try to position your camera facing parallel the image on the wall. But sometimes you can't access the best angle (in a museum, for example) or simply there is a strong reflection from a window directly opposite the wall.

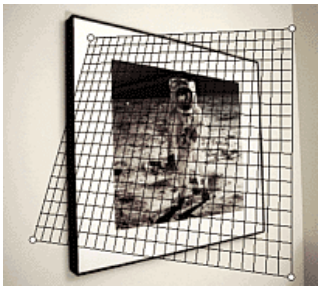
How can you fix the perspective of such an image?

Open the Perspective Correction box.



You will see a large window with a net and a small preview of the result.

The net has four handles in the corner. By moving these handles, you are changing the perspective of the net:



Now your goal is to move these handles so the net aligns to the desired perspective of our image. So in our case we will move the handles to align with the 4 corners of the Image frame.

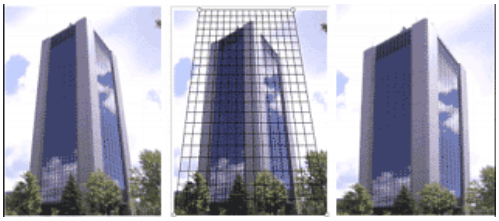
When you do this, you will see that the preview shows the Image with the perspective fixed.

Now press OK, and this magic will be applied on the full quality image.

Note: The result image still suffers from a Barrel Distortion. The right way is always **first** correct the barrel distortion and **then** fix the perspective.

You may already see the big potential of this tool. You can align images from museum, building facades or anything else.

This is definitely great for architectural shots since almost always you can't take shot of a building without distorted perspective − because you can't get too far from the building:



The tool uses high quality interpolation, so if your picture has enough resolution you won't see any artifacts.

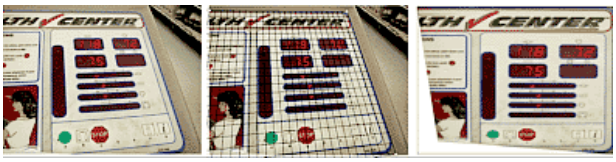
Since this tool will stretch the new image into the original image size/ratio, it is recommended that after applying Perspective Correction, you resize the image to correct proportions and then optionally apply the unsharp mask.

Perspective Correction is also necessary tool for 3D game developers.

Options:

There are just a few options:

Allow Matrix outside image edge − this will let you to drag the corners of the net also outside the image frame. This may be good for some incomplete images; however, the result will also be obviously incomplete.



In the image above we needed to drag the lower−right handle beyond the image edge to have as much image in the result as possible. However, the result has obviously missing some parts of the image.

Note: You don't have to drag the exact edge handle − you can click anywhere on the net and the closest handle will be affected. Also the lines in the grid will help you to align the matrix even if you can't see all the edges.

Zoom Preview − Simply zoom into the preview and then drag it to see part of interest.

Reset matrix − Lost? Reset the net to the default position.

Interpolation: Choose Bi−Cubic for best quality or Bi−Linear for speed. None affect the preview (the preview is without any interpolation)

Barrel and Pincushion Distortion Correction

A very useful tool for correcting Lens distortions you can find in menu **Image−Adjust−Barrel Distortion**.

Barrel distortion is associated with wide angle (or minimal zoom) lenses and it causes the images to appear spherical (curved outward). You can notice this when you have straight edge near the side of the image.
On the image above the left side is original image suffering from barrel distortion, the right image is corrected.

As opposite the Pincushion distortion is associated with Telephoto lenses (or maximum zoom) and the images appear pinched (bent inward) toward the center. The Pincushion is often less noticeable than barrel.

Most digital and compact film cameras suffer from this type of distortions especially if it has a zoom lens. The consumer digital cameras have been criticized by many professionals mostly because of their unacceptable lens distortions − effect which shows disturbingly on architectural and similar shots.

PhotoBrush can correct these distortions. Because it can use high quality Bi−Cubic interpolation, the result images are both clean and sharp without any trace that the image was manipulated. This is truly professional quality function and only very few software packages can produce similar results.

Type of Lens Distortion
For wide angle shots select Barrel, for telephoto shots you can use pincushion (may not be needed − depending on the lens)

Correction Coefficient
For Barrel distortion most digital cameras should be in the range of 10 to 20 promille (or 1 to 2%). In our example we used 11 promille (1.1 %) to correct the image. That means our lens (Canon S300) has quite low (but still noticeable) barrel distortion and it shows quite serious quality of the lens (despite its tiny size).

Interpolation
The Bi−Cubic produces the best results, but is also the slowest. However it is strongly recommended to use Bi−Cubic.
The Bi−Linear interpolation has more soft−like effect, which may be some times desirable.

Find out once, use all the time
Once you find out the correction amount which works best, you can simply use it for all other wide angle shots from the same camera. You can even create simple Action to do it. Note that this works only for minimal (wide angle) zoom. As soon as you use zoom the correction amount would change to be less and then may go toward pincushion.

Important Note: The barrel/pincushion correction must be done before any Crop or size changes. (Including Perspective Correction). In fact the Barrel/Pincushion should be the very first step on the full image. If you crop image and then use barrel correction the effect would be obviously wrong.

When using pincushion correction the result image will have a black border in the corner. You will need to crop out this with crop tool.

On most images using the Barrel correction is enough, however in shots such as our example (front pictures, frames, paintings) the next logical step is to use Perspective Correction to make all the angles 90 degrees. (When you hold your camera by hand on front of a picture you almost always introduce some kind of slight perspective distortion)

Some more ideas for toying around
You may notice that you can enter quite large numbers into the correction which will produce drastically bent images. One way of using it is to play with Fish−Eye lenses (if you have one) − you can unroll the fish eye sphere into full frame image:

First we cropped the image so the sphere cut a bit into the 4 sides of the now rectangular image (to get the black frame out of the image), then we used the Barrel correction 420 promille (42%)

Here is a Pincushion used with extreme value (500 promile) to create a funny face. Sure your friends will thank you.

Filter−SIM

This filter simulates the real−life usage of CC and Light Balancing glass or gel filters with the normal photographic film or digital camera.

Background

Each type of negative/positive film is factory−optimized for a special color temperature of the light measured in Kelvin.

If the color temperature of the light conditions match the color temperature of the film, then we will get picture with just the right colors. However, if we use this film in different light conditions (pretty often) − then the colors will be − well, different than those in real life.
For example, use a daylight film (most films you buy) in tungsten light (which is ~ 3200° Kelvin) without a flash and your pictures will come out reddish...
Even during the day the color temperature changes rapidly: dusk is at 2000° K, overcast 4000° K, bright noon 7000° K ...

Professionals need the best results so they use CC (**Color Correction**) filters to lower or raise the color temperature. If a pro has a film for daylight in his camera then for tungsten light, he will pull out a blue filter (80A) to raise the color temperature (filter 3200°K to 4100°K) and vice−versa. If he has a tungsten film in the camera and he wants to snap some shots in daylight, he will use an amber filter (for example 85B). And even the lights in a studio have known and written color temperature.

A subset of CC filters are **Light Balancing** filters. Such filters make a minor color temperature change and they are mostly used creatively to warm or cool a scene (filters such 81, 82, 2E and many others).

CC filters are of course still used − in studio photography or motion pictures to name just few.
For example 81A is very often used to add warm to skin tones.

How does it work?

Just select a filter type and the image will be shown with the filter on! You can also move the glass filter on the image.
Some filters are often used with B&W photography (for example, yellow filter to enhance skies). You can simulate this from your Color images by simply setting Black & white option.

What is the Wratten and the filter number?
Wratten is a brand name of Kodak and their filter numbering is quite common. Most of the other manufacturers adapted these numbers as well. If the filter is known by other numbering (Schott, etc.), this will be shown as well. Also a short description about the filter usage in professional photography is displayed.

Simulate Auto White Balance

In real life during the exposition your digital/film camera will try to auto compensate the lower light. On digital cameras the AWB (or color balance correction on film during developing) will also try to correct the color balance of the shot. For light balancing filters this option (default) will give you more natural looking and pleasant result.

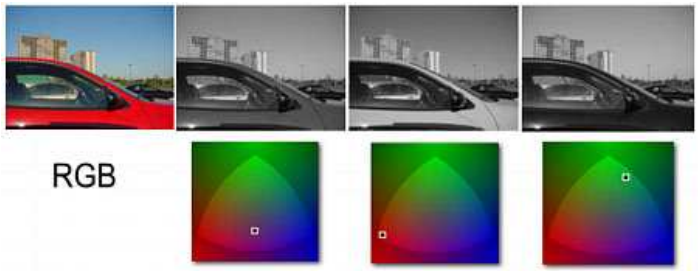
What is with the dark or clear filter?
Filter for Example 18A is a transparent UV filter. It is included, but in fact the result can t be properly simulated for obvious reasons − the filter is just blocking invisible UV radiation...

From the other hand filters such 87C are Infra Red filters − they are transparent only for IR light. Normal film wouldn't be able to take any pictures (you need IR film), but digital cameras are sensitive to IR light. (Point any remote control toward your digital camera and press few buttons on it − the display should see a light). Anyway this effect can't be simulated either because you don't have the IR information distinguished in the already taken image.

FilterSIM is also a very educational. You may not only warm or cool your digital images, but you will also learn the art of using real life filters.

B/W Channel Mixer

Menu − Image−Adjust − B/W Mixer



To create the perfect B/W image with just the right feel you can use B/W Channel Mixer. By moving the point in a color space you will set how each channel affects the result B/W image. You can really change the feel of whole image.

Note: The source must be a Color image.

RGB Channel Mixer

Menu − Image−Adjust − Channel Mixer

Simillar to the B/W mixer but this time for creating Color images.

While the B/W Mixer needs only one Color Space control, the RGB Channel Mixer needs 3, for each color one.
On the image above, the left picture is the original, without changes. The R,G,B components are each in their default position of the color space R is in most red, G is in most green etc.

By moving the point of each component into different color you will affect the result image. For eample the third picture has reversed Red and Green channels.

With Channel Mixer you can either adjust image by using just a small changes or go totally wild and change the whole feel of image to something new or alien.

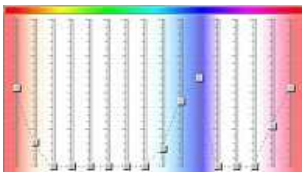
Color and Hue Equalizer

Image −> Adjust −> Color Equalizer
Image −> Adjust −> Hue Equalizer

These are PhotoBrush−only inovative tools for adjusting selective saturation or hue.

Color Equalizer
The 16 sliders each represent part of the hue spectrum. Moving slider up will saturate the particular hue and moving it down will desaturate it.
Wit this tool you can selectively (de)saturate or adjust saturation of any color without affecting the others. You can use it for fine adjustement of image (for example saturate more red, without enhancing any other colors) or you can use it for artistic purpose (desaturate all and pick only few colors from hue spectrum for a special effect) − the case below:

Here is the origianl. It has all colors of spectrum.



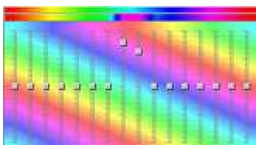
We put down all sliders and then return back only reds and blues.

This is the result image, all hue colors except reds and blues are desaturated (black & white)

There are much more way to use it for normal photography − for example you may little desaturate somebody's red face or enhance saturation of green.

Hue Equalizer
Similar in idea to the Color Equalizer. The 16 sliders each represent part of the hue spectrum. Moving slider up will shift the hue from its original value into new.
With this tool you can change color only of particular hue, yet the other colors will stay intact.

Here is the original. Note the cyan car − normally it is too close to blue, by using standard hue tools you would affect also the sky.



We moved 2 sliders around cyan color towards pinks−violet. The thin upper horizontal bar represent the original hue spectrum and the bar below represent the new adjusted spectrum

The car changed into the violet−pink yet the sky remains unaffected.

Note: The first and last slider both represents the same hue (red) so they move in sync.

Many objects in real life often contains wide area of continual hue (the car on the original is not only cyan, but it has some parts going from green and blue). Sometimes you would need to adjust wider area of hues to change color of an object.

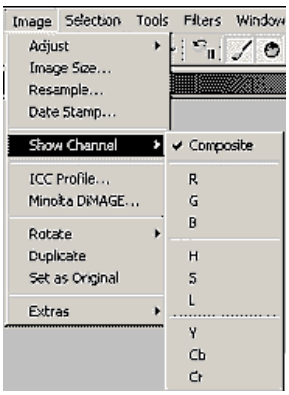
Shortest way rule
The hue is a cyclic parameter. That means you can get from violet to yellow through blue,cyan and green or you can go simply other direction through red. The Equalizer keeps the rule of shortest way. That means if you move slider 8 up to violet and slider 9 down to yellow the transition will go through red, because it is the shortest way.

Some more examples of using Hue and Color Equalizer:

Channels

Image −> Show Channel −>

A digital image is a composed from components containing a pixel information for a color and we call these components channels. Digital camera images have three channels − R,G,B



Normally you work in Composite mode − all channels are visible, you see the whole RGB color image. If you take just one (any single one) channel this is then represented as Black and White image.

When you Show any channel, then all image processing and painting will affect only that particular channel. Any time you can switch into any other channel or back to Composite and the image will be updated.

This wouldn't be PhotoBrush if it doesn't add some twist: Beside the typical basic RGB channels, PhotoBrush lets you see also other derived channels : HSL and YCbCr

Sample of channels

Composite RGB R channel H channel Cr channel

This gives you some **additional** interesting way to adjust photos. Besides some new way to enhance images (for example you can adjust contrast only on one of RGB channels, apply sharpen to each channel differently) you can also experiment; What will happened if you for example blur H (hue) channel?.

There are limitless possibilities.

Channels:

RGB − Typical channels, each represents pixels for red, green or blue channel.
Each shade of gray in the channel represents the intensity of the channel color.

HSL − Hue, saturation, lightness. These channels give you some creative way to experiment.
(H)ue − This is a color information, each shade of gray in the channel represent a different hue. Hue channel doesn't represent intensity nor saturation of the color − it is just pure color information.
(S)aturation− this represents the saturation of the hues.
(L)ightness − or intensity − this is an intensity of the hues.

YCbCr − These are channels used by JPEG compression. It breaks the image into two color channels Cb and Cr and one intensity Y channel.
Y − intensity channel. You can for example apply sharpening to it which will not affect the colors, yet the composite image will appear much sharper. This is because eye is much more sensitive to intensity changes than to color changes. JPEG compression uses this fact − it compress color information much more than intensity.

Cb and Cr channels − They contain color information −both color and saturation mixed and split into two channels. Cb contains blue and part green color info and Cr contains Red and part Green info. Cb and Cr channels are symmetrical around middle gray − that means no color is middle gray.

Here is how the Cb and Cr channels affect the Composite image. We "erased" the other channel by using Brighness/Contrast on the particular channel and setting Contrast to far left so the channel become gray.

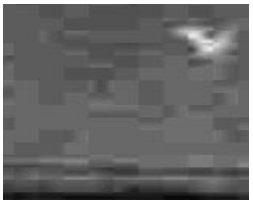
Composite image

Composite image with only Cb channel

Composite image with only Cr channel

Note: In JPEG the most compression goes into Cb and Cr channels which are a color information − Images on this channels may be quite pixelated − depending on the level of compression. This is also a best way to determine if image was originated in jpg and what level of compression was used. Smoothing (Despeckle) Cr and Cb channels may remove JPEG pixelation artefacts on strongly compressed files.

This is a Crop from some strongly compressed JPEG image.



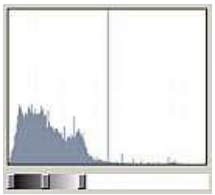
This is enhanced Cr channel. It reveals typical JPEG artifacts of strong compression. This is not a zoom into image, the artifacts are really that big!

Of course a quality JPEG image **should not** reveal such big artifacts.

Examples
Below are some Tricks using channels. There is of course much more room for experimentation. Some procedures are worth keeping − you can create an action for future.

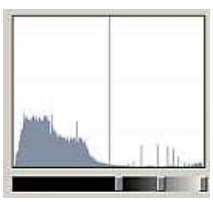
Original Composite RGB

S − saturation channel



We use levels and take only the bottom part

The composite became over−saturated in an interesting way.



This time we take the upper part of histogram on the S channel	The composite image become desaturated, yet some part remains its color!

Images below use the same original and we applied just one operation on one channel at time.
Imagine to combine more operations on different channels!

Very strong Gaussian Blur applied on L channel

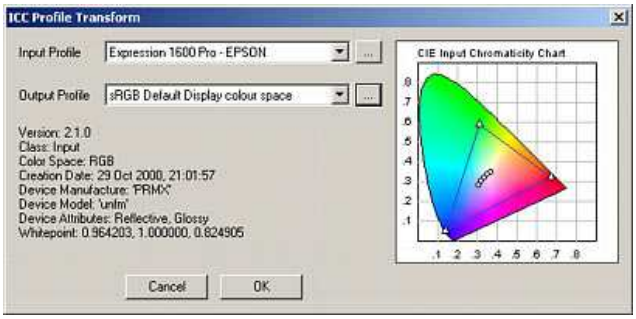
A Sketch filter applied to Y channel

A Negative applied to H channel (Reversed Hue)

A Negative applied to S channel (Reversed Saturation)

Color Matching Profiles

Menu − Image−ICC Profile



ICC Profile transform will let you to load input and output profiles and transform the image between them.

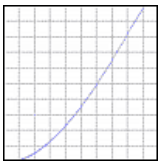
The CIE Chart

The CIE Chart is a representation of the color that is available on a particular device. The color gamut of the device is displayed as a triangle on the chart.

The colored "shark−fin" gamut represent colors that can be viewed by humans with normal vision. The color gamut triangle represents colors produced by the device. The larger is the triangle, the more colors the display device is able to produce. In the corners of triangle are the primary colors produced by the device.

The few white dots in the middle create a color temperature curve and are an achromatic (gray) points for one of the standard illuminants : 5000K (D50),5500K (D55),6500K (D65),7500K (D75),9300K

There is more into it than meets the eye
The CIE chart will tell you just how the device works with COLOR. It doesn't tell you anything about luminance which has hardly a linear characteristic in any electronic devices. Luminance has usually the shape similar to gamma function (That's why gamma can compensate for it). A typical scanner luminance function of one color is on the image below:



So the ICC profile includes also data for each RGB luminance characteristic. Most of the input devices would have more or less similar characteristics. PhotoBrush of course takes this characteristic into account. (but it displays only CIE chart in the dialog)

How it works

Imagine you have two scanners from different manufacturers and you scan a photo in each. It is probably true that each scanned picture will look different from each other and most likely also from the original. One may be more into green, other into red for example. This all would be reflected in the ICC profile which may be supplied with the scanners.

Instead of tweakking with other controls you can just transform the colors from the scanner profile into your display profile. And if you are living in a perfect world the image should look on your display almost like in the original.

Input
For the **input** it is then obvious − you load the ICC profile of your input device (scanner, digital camera...). But what about output? To use ICC profile of your monitor as an output would be not very wise. Monitors differ, the room light differ and people can tweak their brightness or contrast knobs as they like.

Output − sRGB
Instead of this Hewlett−Packard and Microsoft initiate a support for a Standard output color space, called **sRGB**.
And this is exactly what you should use as your output. Even more, new operating systems with build in color management would actually expect the images be in sRGB and the system build color management may then automatically adjust the view for everybody's monitor profile.(sRGB −> to the monitor for example SyncMaster Profile)

Shortly: sRGB is the most common profile you should use as Output.

Alternative Output − Printer Profile
Other output variant could be a Printer ICC profile. However, most of the commercial Inkjets are already somehow adjusted for printing of sRGB and they use some internal matching method (according to the selected paper), but if you can get the output profile for your printer (and paper!) you may get more out of it in terms of true color reproduction. Also with a more difficult printers such as dye printers this would be quite desirable.
However since the print output depend not only on the printer itself but also on the type of paper (and type of ink!) finding the right print profile which creates the best output may be quite a task. Often manufacturer of your printer or company making a printing paper may supply you with a handful of print profiles.

Where the listed profiles come from?
The profiles listed in the list boxes come from 2 sources. One is a PhotoBrush Profiles directory and the other is a Windows color management directory (System32\color\)

The profiles come in two possible flavors: *.icc (International Color Consortium) or *.icm (Microsoft® Image Color Management)

PhotoBrush will sort and divide the profiles to Input profiles in the Input list box and suitable output profiles in the Output list box. The sRGB profile is suitable for both output (ex. Scanner ICC−>sRGB) or for input (ex. sRGB−>Printer ICC)

If you get any *.icc or *.icm profiles you would like to have listed in the boxes, then copy them to PhotoBrush Profiles directory or to your windows\System32\color\ directory.

You can of course load directly the profile with the [...] button from anywhere else on disk.

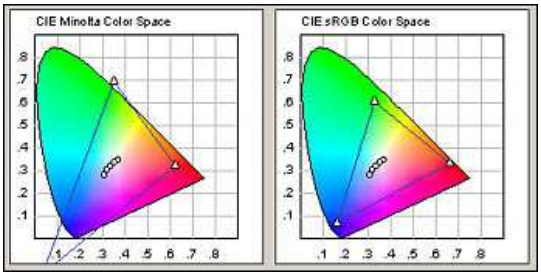
The scanner manufacturer may supply you with suitable input profile or you may simply search internet. Little of advice: good profiles are hard to make. It require adjusted and color matched equipment. It is not uncommon that many profiles from private amateurs are way off the real values.

Digital camera input profiles
Most of the cameras will try to compensate the image already inside for reasonable realistic colors. However a good camera profile may get most of the image. You may look on the company web site − but most of the consumer cameras will come with no ICC profile. However some third party may sell such profiles.
One exception is Minolta, but this is different story, read further.

Minolta DiMAGE

Menu − Image−Minolta DiMAGE

Minolta digital cameras (DiMAGE 5, 7, S304, S404, DiMAGE X ...) uses more sensitive Color space than sRGB. It is apparent from the CIE charts. Minolta color gamut triangle is larger than sRGB. The device can capture more greens and more blues than you can see on standard CRT monitor. This is of course not that unusual. Many CCD devices do that. What is unusual is that Minolta doesn't internally match the image to sRGB (which ultimatelly would loose the sensitivity) unlike other digicams. Minolta idea is probably that their cameras are intended for pro−sumers who would appreciate to have larger color gamut to start with.

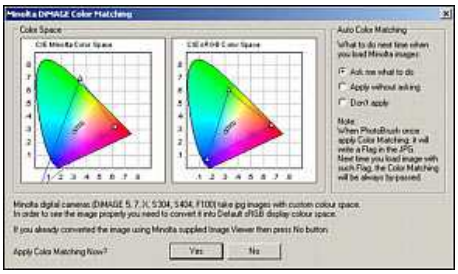


The problem may not be apparent at first sight since the images are still quite good. However close inspection on sRGB device (monitor) would show a slight shift in the blues and greens, less saturation in there and so a little overall dullness. This is again normal if you consider the CIE chart. The data are there, but you need to interpret them properly.
Once you color match the images to sRGB you should notice quite an improvement in color reproduction. The colors will become more vivid and balanced. Unfortunately Minoltas icc profile has other specific nonstandard tags which normal ICC profiler

doesn't know how to interpret. If you load Minolta's supplied icc profile into the normal Color Matching function (like above or in any other software such as Adobe PhotoShop) the result will improve in colors but it will become more dull (worst than original).

In order to properly Color Match Minolta DiMAGE color space into sRGB we created a new dedicated Color Matching function which performs the **same transformation** like the original Image Viewer utility supplied by Minolta.
So now you don't have to run the images through the Image Viewer first− you can do it all in PhotoBrush and in fact automatically.

How it works?
When you load image created by Minolta in its original Color Space, PhotoBrush will display the color matching dialog:



Here you have the choice to Apply Color match or Skip it. Once a Color Matching was done (either by PhotoBrush or Image Viewer), this Color Matching offer will be by−passed.

Automatic Color Matching
If you leave the Auto Color Matching to **Ask** then any time you load Minolta image it will ask if you want to do Color Matching at this time.

If you select **Apply without asking**, the Color matching will be applied on all Minolta images which are in original color space. The software will by−pass Color Matching if it was previously done either by Image Viewer or PhotoBrush. It is safe to use this option.

Don't apply − this will not offer, nor apply the Color Matching and you can do it manually any time later.

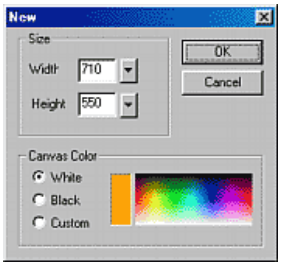
Note: You can apply Minolta Color Matching manually to any images even not taken with Minolta but the result may be unpredictable. Most of the other digital cameras have already color space tweaked to be close to sRGB so they would not benefit from such conversion in color terms.

*DiMAGE is trademark of Minolta Co., Ltd

New

File −> New

This is the way to go when you are going to create a brand new, cool creation!



Here you can specify the Width and Height of your new document and also the color of the background. The small arrows near Width and height can help you to set the size if you hate to touch your keyboard.

Basic Brushes (Paint Brush, Pen Air Brush)

Shown above is the trio of basic brushes. Each brush icon will open its own library of predefined brush definitions.

Remember, the same rules apply with these as well as any other brushes.

- From the Color & Texture Bar you can choose Color, Color options, Texture, Texture−Color mix
- From the Brushes Bar you can select the Brush (size, shape), Brush mode and Brush Opacity.

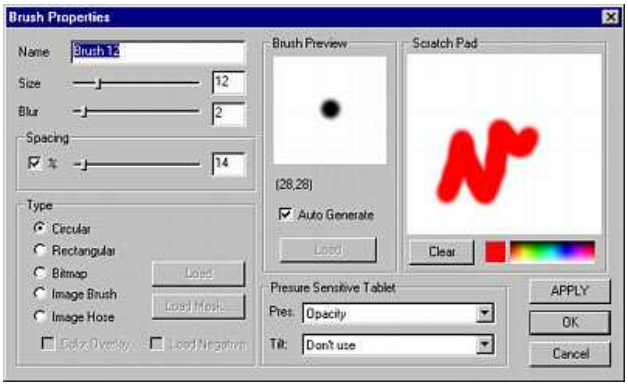
You can get more control of each brush if you use a Pressure Sensitive tablet.

The image above shows examples of some of the basic brushes.

Brush Properties

It is important to understand how Brushes work. You could add your new brushes and with the different options available, you can create many interesting variations.

In case you want to adjust brushes or add a new brush, you will do it from the Brush Properties dialog box. To get to the Brush properties, select any brush from the Brush bar, and click the small arrow at the bottom of the Brush Bar. From the Brush Library menu, select Edit. If you want to create a new brush, click Add.



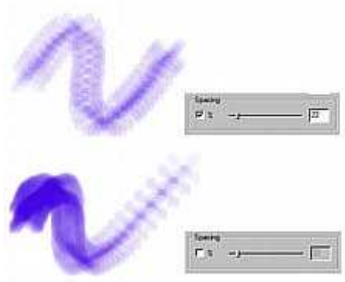
Name
The name of the brush − could be anything.

Size
In the case of Circular or Rectangular brushes, this is the size of the Brush.

Blur
In the case of Circular or Rectangular brushes, this is the Blur of the brush − the blur creates a smooth blending edge − (for example Air Brushes generally have a large Blur Value.)

Spacing
The Spacing is the distance between brush marks in the stroke. The value is a percentage of the brush Size. The different spacing is most visible on Non−circular brushes:

Enable or Disable Spacing − In order for most of the Brushes to work properly, they should have Spacing Enabled, (a check mark next to the Spacing slider) otherwise, the steps will depend on the speed of the mouse as it travels accross the image. In many Brushes this will result in separation of the complete stroke into dots as you move faster, however, in some exotic brushes this could be a desired effect.



The first Brush uses Spacing, the Second does not have spacing enabled (no Check mark) so the spacing will depend on the speed of the stroke. When we move slowly, the brush is more dense; quickly, it will become more sparse.

Type of Brushes

There are generally 2 kinds of brushes − a generated brush − such as Circular or Rectangular, and a brush created using different bitmaps and masks.

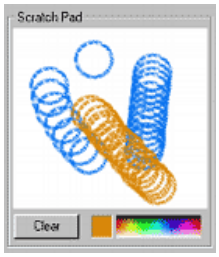
Circular or Rectangular
These are basic brushes, you can set size, blur and spacing.

Bitmap
The Bitmap brush uses a bitmap for the brush mask. The bitmap brush doesn't take the color information from the bitmap, it uses only the intensity of the image to make the brush mask. Generally for Bitmap brushes, you would use black and white images. (Image nozzles that DO in fact have color information, can also be used within the brush selection, this is an advanced technique that may have a very productive use in some cases).
The Black is transparent and the white will be opaque − and it will paint the selected color.
An example of a Bitmap Brush is shown below.

This is what we designed. A white circle on a black background. We need to save it to disk with a name.

Now we select the Bitmap as a Type and load the image with Load Mask. (You can check "Negative" if you want to load the mask as a negative image.)

The brush Preview shows the black and white image of the resulting brush. Now let's try it on the scratch pad.



We can try different colors and Spacing on the scratch pad. This is how our first Bitmap brush looks. Now this is not actually a very useful brush (unless you're drawing a "Slinky") Most brushes shouldn't be donut shaped.

Image Brush
This is an extension of the Bitmap Brush. While Bitmap brush takes only the mask for the brush, the Image Brush takes the mask aas well as texture − or image information. So we need to create 2 files, one is a mask and other one is the image itself. (Note: PhotoBrush can recognize transparent PNG files with an alpha channel and utilize the alpha information as a mask. In this case you don't have to create 2 files, you just load the 32 bit PNG with the Load button.)
Example of Image Brush.

This is our **image** for the brush. We used a black background, because we want a black drop shadow.

This is the **mask** for the brush. You can see the mask of the drop shadow on the bottom right part.

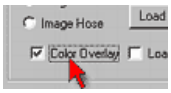
Now we select the Image Brush type and load the image with the Load button first, and then the mask with Load Mask.

This is how the combination of image and mask looks in the preview window.

Let's try our first Image Brush in the scratch pad. Notice that it doesn't matter what color you select, it always paints as an image.

This is a great way to add interesting brushes. But what if we want to change color? For that function, Image Brush has a Color overlay option.
Color Overlay allows you to select any color for Image Brush. See Example

Without Color overlay



Select Color overlay

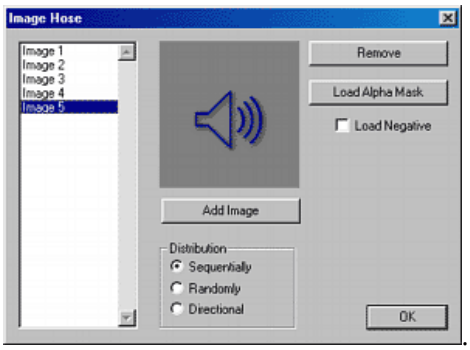
Now we can paint in any color !

You can see that Image Brush is an incredibly strong type of brush. With experimentation you can create very interesting and unique brushes.

Tip: How would you create images and masks for Image Brushes? You can use many tools, for example CompactDraw from http://www.mediachance.com . There are many functions within that program that lend theirselves to un−believable results for image creation.
Watch for next version of CompactDraw which will enable exporting masks and also 32−bit transparent PNG.

Image Hose
The image brush is very powerful, but how about adding a few different images and masks into one brush? Here is an image Hose type of brush!

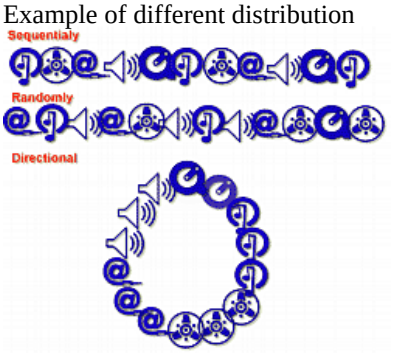
With Image Hose you have to click Settings to go to more advanced options



This is basically the same idea as with Image Brush, but here we have a list of images. You can load the image with Add Image and the mask with Load Alpha Mask. (If you use PNG files only the first step is necessary.)

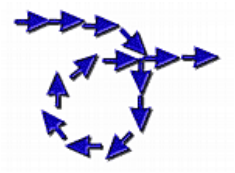
Distribution of the images
Sequentially − the images will be "sprayed" in the same order as they are listed in the list box.
Randomly − the images will be randomly chosen
Directional − the image will be chosen from the angle you paint. (For example if we have 5 images, 360 degrees divided by 5 is 72,. That means as we paint, a different image will appear for every 72 degree change in mouse travel angle.)
Note: 0 degrees (and image 1) is horizontally oriented to the right side. The angle used for image selection will continue in a clockwise direction at 72 degree increments in the above example.

Example of different distribution



The Directional distribution is great for Brushes which should follow your path as you draw. For example, arrows, here we created 8 images of an arrow, each rotated 45 degrees from the previous angle. Drop that calculator.. 45 x 8 is 360 degrees, thus

requiring 8 images.



The Image Hose type of Brush also has the Color overlay option.
Note: all Brushes in the Image Nozzle tool library are Image Hose type of Brushes.

Presure Sensitivity − Pressure.

This works if you have a Pressure Sensitive Tablet. There are a few options as to how the brush will behave regarding of the pressure information (how hard you press with your stylus), Tilt and Angle of the stylus (if you have Wacom Intuos or other tablet supporting Tilt).

None
No Pressure will be applied − this would be usefull for Image Nozzles for example.

Pressure
This will change how hard you press on the brush − this is a good choice for Natural and Artistic brushes, because it simulates the real situation.

Opacity
This will change the opacity of the resulting brush according to the pressure on the stylus. Good choice for Airbrush − like brushes

Speed
This doesn't work with the pressure on stylus, but it takes into account the speed of your drawing stroke. If you draw slowly, the stroke will be more dense than if you draw fast. The minimum density is set by the Spacing parameter and in order for Speed to work, the Spacing must be enabled.
This one actually works without a Pressure sensitive Tablet..

Size
This will change the size of the brush according the presure on the stylus.

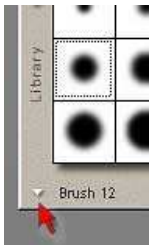
The rest are various combinations of the above.

Prerssure Sensitivity − Tilt
Some tablets support also Tilt and Angle feature. (See more in Pressure Sensitivity)
You have few options how the tilt and angle will be represented:
Don't use − brush don't use tilt
Hue Change − rotating the stylus will change the hue, tilting it towards the tablet will apply more of the hue change. This produce effect used in Artistic brushes to simulate various paint load on the brush.
Intensity Change − Tilt will change the color intensity.
Desaturate Tilt − More tilt will desaturate the color
Color Wheel − Simillar to the Hue change but more strong effect. Good for special colorizing effects.

Brush preview
You can let Photo−Brush generate the preview for you automatically, or if you want a specific image, (for example for Nozzles you might want to show the path) You can paint anything and save it as a file. In the Brush properties window, turn the Auto generate switch off, and Load the saved image. − this image will now be the preview image seen in the library list box.(Secret: Instead of loading the image, you can even paste an image from the clipboard into the preview by pressing Alt−P)

Brush Settings

You can reveal the Brush Settings menu by clicking on a small arrow at the bottom of the Brush bar.



Click on the small arrow on the bottom of Brush Bar.

The Brush Settings menu will appear.

Add
Add a new brush. For more info about creating a new brush see Brush Properties.

Delete
Delete currently selected brush from the Brush Library. (That's the set of brushes you see)

Edit
Edit the Brush Properties.

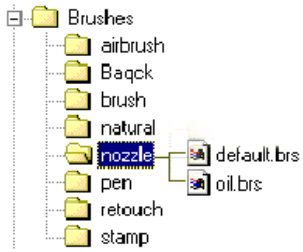
Import / Export
Import or export one brush from/to current Library. The brush has extension *.br1
You can use Export and Import if you (for example) want to move or copy a brush from one Library into another.

Load / Save Library
This loads or saves the ***.brs** library. Brush Library is a set of Brushes grouped into one library. Each Tool − for example Image Nozzle − can have more than one Library. In the case of Image Nozzle, think about sets with different group of brushes − Nature, Technology etc...
To make a library available for particular tool you have to save it in the directory Brushes under the tool sub−directory − in the case of Image Nozzle it is in "nozzle" sub−directory. Then you can browse forward and backward through the Libraries from the Brush Bar with the small up and down arrow on the left side.

Sort
Sort the brushes in the library. For example, you would like to have brushes you use the most on the top etc... You can also change a name of the brush here.

Creating your own library

Each Tool has its own set of Libraries, they are in the subdirectories for a particular tool. To move between sub−libraries you use the Library Browser arrows (Small arrows on the left side of the Brushes Library)



If you want to add a new library into the set for any Tool, you can just copy an empty .brs file from the Brushes folder into any of the Subfolders. This will create a new library set.

Natural, Artistic and 3D brushes

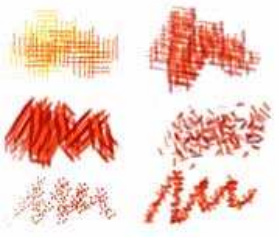
A special collection of Brushes is available resembling the natural brush methods (Oil Paint), Artistic methods and 3D brushes.

The Natural and Artistic brushes gain a lot of power when used with Pressure Sensitive tablets.

Remember to check out all the libraries for this tool with **Library Browser buttons** on the Brushes bar.

There are many cool brushes here. Try some of the following: Oil Brush, 3D Pipes, Ropes... (You can easily fabricate your own specialized brushes for projects, and save them to your own personal library as well.)

Example of Natural Brushes



Example of Artistic Brushes

Example of 3D Brushes

The Artistic, natural and 3D brushes are also perfect for a technique called Color Cloning. Read more here.

Image Nozzle

Image Nozzle is a special brush which sprays images. The Brushes for Image nozzle can have various options, it could spray the images in sequential or random order. It can also spray the images selected from a list by the angle of movement of the cursor. Each brush can have different settings.
After you select the Image Nozzle tool you will see a default set of Nozzles in the Brush bar window. These are not all of the available Nozzles, you can check for other sets (from what we call the library) by clicking on the small Up or Down arrows near the left side of the library window. You can create any number of these libraries as well, and file them into the \Brushes\nozzle directory. PSP "Paint Tubes" are also supported in the latest version.

The default set.

Click on the small arrow to check for other sets.

A new set will be loaded.

You can always change or add to the Brushes in the library or create/add a new library.

Remember when adding a new library set into Image Nozzle (for example you download additional nozzles), The library (*.brs file) must be saved into the \Brushes\nozzle directory. See Brush settings for more info.

Besides normal drawing, Image Nozzles operate the same way as other brushes, and can use many other parameters. In the Brush Bar menu you can use **Opacity slider** to change the opacity, or you can use different **Brush Modes**. (Detailed Modes description is here)

In the Color & Texture bar you can add and mix the Nozzle with any texture, you can use Screen option or Clone. With these options you have unlimited ways to tweak the nozzles! See the Clone page for more details about cloning brushes.

See also Brush Settings.

Rubber Stamp

Rubber Stamp is a great tool for removing unwanted parts of an image, or adding something that wasn't there. It can clone from one part of the image (the source) to another part (the destination). It can even clone from one image into another.

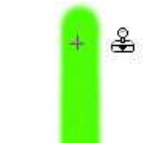
First, after you select the Rubber Stamp tool, you have to select the Source. This is the origin from where you want to start cloning. You can always select the origin with a **Right mouse click** on the praticular section of the image, or when using it the first time after selecting the Rubber Stamp icon, even a left−click will select the origin.

The origin (Source) will be marked by a small cross. The next step is to click with left mouse button somewhere else on the image − this location becomes the Destination. Next, as you hold the mouse button down and move, the cross will move along with it as well. You will clone the part under the Source (the cross) to the Destination location.
In this manner, you can cover one area of the image with another part of the image.

Rubber Stamp has a few options:

Aligned − the cross (the Source) will remain its distance from the mouse cursor (the Destination) even after you release the mouse. If you uncheck this option, the source will return to its original position as soon as you release the mouse. (that is, to the position where you right−click it)

Feedback − this option controls whether the source will also see the pixels you are painting at the moment, or the Source will not see it untill you release the mouse. See example.



We paint a line and then select the source in the middle of the line.
Now we move the Rubber Stamp cursor on the right, click and drag to the right.

With Unchecked Feedback, the cursor copy what is under the source, but without picking up the new pixels we are painting.

With Feedback on, the Source also sees the pixels we are painting right now − so it performs the feedback, painting in a loop as we drag the mouse.

Wrap − When the source goes outside of the image and Wrap is off, nothing will be drawn in the destination. If we set Wrap On, the source cross will appear on the other side of the image.

What is Rubber Stamp good for ?

Rubber Stamp is an excellent tool for retouching. Since everything repeats in nature − we can always find something to cover unwanted parts of an image without the image appearing retouched. The easiest patterns are in nature, a bit more complex patterns are man made − like bricks − where we have to align the Source and Destination very closely.

Removing people from backgrounds is easy, there is usually plenty of material around. Don't forget the reflections in the water!

If we do the job right, no trails of retouching will be discernable even in extreme close up.

Photo Montage

We can also use stamp to clone from one image into another. This is the best way to bring something from one image to another. We work the same way generally, but we choose the Source on one image and the destination on another.

For this retouching method to look natural, we have to choose images with simillar light conditions and the same direction of light.

A Photo−Montage done with Rubber Stamp. We cloned the image from the left to the image on the right.

Using Stamp and Brush Cloning
This is different than normal clonning. See more info in Clone Tool.

Eraser

Eraser works with the Undo command. When selected you can "paint" a previous undo step.
That is, if you made a mistake, you can press the  Undo button, or if you want to just correct a part of it, you can use the Eraser to remove only the area you wish.

Remember:

- The Eraser only goes one step back, so as soon as you make a mistake you have to stop painting and use the Eraser.
- You have to do at least one editing step to the image in order to use the Eraser.
- To return the image to it's original state, use Original Brush.
- With standard brushes, Eraser doesn't change the brush library − it erases with the last brush you selected. When you paint with Image Hose or Artistic brushes it actually uses the Library from Rubber Stamp − which is a good mixture of hard and soft brushes to select from.(You can create your own custom brush as well, and add it to the library.)

Fun with Hold Undo.

There is another command worth mentioning: The Hold Undo button.

Until it is pressed, the Image in the Undo buffer is locked and preserved. That means you can save an important Undo step for a while. When you Uncheck the Hold Undo button and use the Undo or Eraser command, it will use the saved buffer.

Note: When the Hold Undo is checked you can't use Undo, but (and this is important) you can use Eraser. Eraser will paint back the saved state of the image when you press Hold Undo.

You may not see it at this time, but there are many ways you can benefit from it.

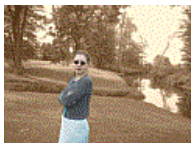
When you are working with images on disk you have the Original brush (see Photo Retouch), so you can always go back to the original. With Hold Undo you can also preserve the step that you made any adjustment at, and you can switch between Eraser and Original brush to put changes back & forth.

Example:

We load an image from the disk so the Original is automatically defined.

Now let's make some adjustments to the whole image, here for example we used Sepia.

Now It is the time to push Hold Undo Button so the Sepia image will be preserved in the Undo buffer even if we do something else.



Now with Original brush "reveal" the original image. If you made a mistake, don't worry − you can paint back the "locked" Sepia state with the Eraser.

When you finish, Uncheck the Hold Undo so normal Undo operations can work.

This simple command makes retouching much easier. You can have 2 "saved" appearances of the image. One is the Original (and you can set any step as Original with menu Image−>Set as Original) and the other one is in the Hold Undo buffer.

Remember, if you don't press Hold Undo, you can still use Eraser, however, it then will work only on one step back, so you have to stop painting and fix the problem as soon as it appears.

When you have Undo on Hold, resizing of the image isn't a good idea, unless that's the effect you want to achieve, since the two images will be of different physical size.

Photo Retouch Tool

On the tool bar Tools, select Photo Retouch

This opens the Photo Retouch Tool bar with many different tools (Brushes) for photo retouching. These tools will help you retouch an image with special selection of retouching Brushes. You can paint to change contrast, lighten up the image, boost colors etc.... exactly in the spot you are painting.
With Photo Retouch tools you have your own set of Brush types in the Brushes bar. They cover the most common sizes and sensitivity. Of course you can load your own set of brushes. If you want you can also experiment with different Brush Modes beside Normal. You can try Overlay, If Lighter etc..

When retouching photographs, remember that you can always use **Original Brush**, to paint the Original image back, or use Eraser − Undo last stroke brush.

This brush allows you to Brush−In contrast to any area of the image.

You can of course change the contrast of the whole image with Contrast & Brightness, but the contrast brush will allow you to brush−in the contrast to the exact place where you need it.

This brush lightens the image. With the soft brush size you can use it as a tool for creating highlights.

The Lighten image will enhance the brightness of the spot you are painting.

This Brush darkens the image. With the soft brush size you can use it as a tool for creating shadows. This tool will decrease the brightness of a spot where you are painting.

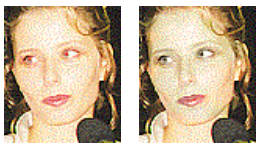
This brush changes color into Black and White. You can de−colorize some part of the image, or with Brush Opacity, make the colors less visible. Also you can use it as a composition tool to enhance a particular object. You can achieve the same effect in opposite fashion − first turn the whole image to gray scale and the use Original Brush to bring up the original colors.

This Brush boosts and enhances the colors of the image as you paint. Be careful not to over burn the image with color...

With this brush you can colorize any image. Just select the foreground color from Color & texture bar and paint on the image. This isn't the same as simple painting over the image, coloring preserves the details and intensity. Now you can change car or clothing colors! If the coloring is too strong use the Brush Opacity slider to soften the color cover. As always, if you paint over something else, don't worry, you can remove it at anytime with Original Brush. (See the end of this page)

Colorize simulates the old fashioned technique of "colorizing" black and white photos with special colors. It can produce very realistic results.
If you are looking for other simple ways to replace colors on image , you can use any normal brush (Paint Brush for example) and select **Overlay mode** in the Brush bar. This produces stronger "artificially looking" results.

This brush removes Red eye. Just paint over the eyes of the person on the image with it.



Skin brush cleans the skin. You will need to use it a few times over the face to remove most disturbing skin details.You can also try an automatic filter from Filters−Noise−Auto Clean Skin

This brush removes thin scratches from the image. The tool is best for a film scratches, but it could also remove thin telephone cables, lines etc....

A group of 3 tools for average retouching: Bridge, Line and Spots.

For more info see below:

This is a simple yet sometimes very powerful brush. It allows you to paint a horizontal or vertical transition between 2 points. Great for removing vertical lines, horizontal lines, or objects. First you have to define the horizontal/vertical limits (bridge), then you paint over the image.

We want to remove the pole from the front of the car.

Click on the Bridge tool and draw a horizontal line crossing the pole

Now you are ready to paint over the pole...

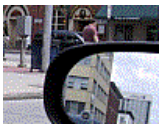
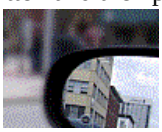
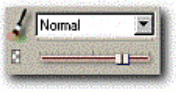
If something goes wrong, use Original Brush and Repeat Bridge a few times until the image become perfect.

Line − masking horizontal lines, such as electrical wires on the sky or horizontal scratches etc. This works only if the line is on background with few or no details (such as the sky). It replaces the pixels by averaging the value above and under the brush center. A different brush sizes would use different top/bottom average ratio and you should use a brush little bigger than the wire. The best is to use short strokes along the horizontal line of the wire with the brush center on the wire.

Spot − masking alone standing spots on the image. It replaces the pixels by averaging the values from four corners of the brush. To remove single spots select a brush bigger than the spot and click on it, then release. You may repeat this few times.

It could be used also as a smudge tool where you click and then drag the mouse.

This brush will paint a Blur into the image. The blur effect is not very strong so you should paint, then release mouse button and then paint again to achieve a stronger effect.

This brush sharpens the image under it as you paint.

The effect may be a little strong, but you can adjust it by sliding the opacity slider.

This brush paints back the original of the image.

The original is defined when an image is loaded from the disk (such as digital photography). Original is not defined if you start painting into a new document, however, at anytime you can set or define a new original of the image from the menu Image >Set as Original. You can also paste a completely new original with Paste as original in the menu Edit.

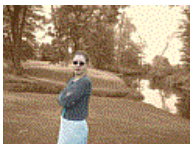
You can use Original brush not only to regress if you make a mistake, but you can also try a reverse process, where you can apply the effect to the complete image and then paint back areas which shouldn't have the effect. See also Eraser tool for tips.

Example:

Open an image from your collection.

Use Sepia from the menu **Image > Adjust >Sepia**

Click on Photo retouch Tool and select Original Brush. Select a reasonable Brush Size from the Brushes bar.



Paint over the person with the Original brush. If you make a mistake, immediately use the Eraser (Undo) brush to regress to the Sepia image.

Special Effects Tools

The Special Effects button opens the Special Effects Bar.
With special effects you can add emboss, shift colors, warp add mosaic, add lens flare etc.

The difference between Filters and Special Effects, is that with the Filters you apply the effect to the whole image, whereas with Special Effects you actually paint the effect. A few of the Special Effects also have a whole−page version in Filters.

Swap R−G−B channels. By randomly painting over an area a few times you can create a rainbow texture. You can also use it to change clothing color...

Create an Aged Photo Effect with all the 1920 scratches, noise and brownish look. And because this is a brush, you can affect only the exact part of the image you want.

If you want to apply the effect to the whole image you can use a filter in the menu Filters−>Stylize−>Aged Photo which produces very interesting effects to the complete image

Emboss an image where you paint. It can add a texture look to smooth images.

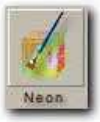
Create Mosaic where you paint.

Create poster like effect with Pastel colors

Create an effect of motion (radial zoom inward) blur from any point from that you click and drag.

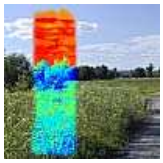
Create an effect of image behind glass

Make funny faces with this tool. Warp lets you grab a part of the image and stretch it. And of course you can use it for more serious work as well.



It creates an interesting neon effect, where edges glow in different colors.

Simulates Thermovision. However, you can in fact, use it to reveal some unseen details of an image. Such effects are used in geographic satellite photography. The normal colors are replaced with the spectrum palette.



Add beautiful Lens Flare effects. The Lens Flare is most visible on dark images where it creates amazing light effects.
To add Lens Flare, click on the Flare button and then click on the image where you want to have the center of the flare. Do not release the cursor, instead, drag it from the centre, creating the size of the flare. You also control the angle origin of the light streaks.

Click and drag to set the size and origin.

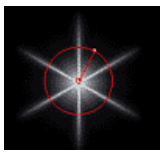
It creates amazing space−like reflections on dark backgrounds

Create flares on sunsets..

You can control the amount of light streaks from the light source (the Sparkle in the middle) with the Opacity control on the Brushes Bar

You can add Sparkles the same way as the Flare

Add Sparkles to glass or metal... or anywhere you like them.



You can combine 2 sparkles with different streak angle....

...to create more complex sparkle. Changing

You can control the intensity of the light streaks with Opacity slider on the Brushes Bar.

This brush paints back the **original** of the image. It is the same brush as in the Photo Retouch Bar. The original is defined when an image is loaded from the disk (such as digital photography). Original is not defined if you start painting into a new document. However, you can at anytime set or define a new original of the image from the menu Image >Set as Original. You can also paste in a completely new original with Paste as original in the menu Edit.

RGB Noise, Dust and Hot Pixels removal

Noise removal is important task in many image processing jobs. Most of the noise (including dust and scratches) is usually in scanned material (such as scanned photography or film) Digital brought us one big advantage: digital image is free from dust and scratches. However digital images have its own specific problems such as RGB noise in bad light conditions and Hot Pixels in very long expositions.

Dust and Scratches

Virtually any scanned image will have some amount of dust. Dust, while not visible on the film or photography with naked eye, is a reflexive for scanner producing visible white dots on the scanned image. Scanning from negatives will usually produce less dusty image because we usually keep the negatives in tight closed space for most of the time. Any photography, especially old will probably have great amount of dust.

What to do before you start scanning:

1. Make sure you take most of the dust from the photo before scanning. You can blow on photo or use antistatic cloth (Never use any wet cloth). Use this only with photos never with negatives.
2. Make sure your flatbed scanner is clean from dust or fingerprints. These may be not visible by naked eye.

Important: For negatives and film scanners NEVER use blowing or anything which touch the negative (cloths not even a brush). Contact manufacturer of your film scanner for recommended way (or kit) how to clean the scanner and negatives.

Removing Dust with PhotoBrush.

Even if you take care of your photos and scanner you will probably get some dust in your scanning. We build a special Dust Removal process in the PhotoBrush. This special PhotoBrush dust removal algorithm (created by the author himself) is highly sensitive to scanner dust and it could remove it in large amount without much affecting the rest of the image.

Menu: **Filters−Noise−Dust Removal** (or Auto **Dust Removal** button in the Scanning bar)

Detail of image from scanner

After Dust Removal applied

Removing Scratches

To remove scratches you can use a Scratches brush from the Photo Retouch Tools.

Hot Pixels Fix

Some of the more expensive cameras lets you to extend your exposure time even for few seconds (Sony 505V up to 8 sec). When you actually try it, your image will be .... full of tiny little white dots, all over. These are Hot Pixels.

What is Hot Pixel

Each CCD has millions of pixels sensitive to brightness. These pixels are on a very small space. In consumer cameras this would be somewhere below half an inch. These pixels are never the same and each of them has different charge leakage rate.

If you expose the CCD long enough, the pixels thanks to this leakage will simply lighten up even with no light. (Any photosensitive silicon material is sensitive not only to light but to charge as well)

Because of different quality and sensitivity of each pixel, they will start appearing as a noise − but if you would able to expose for much longer, finally all pixels will lighten up.

Many consumer digital cameras don't have longer exposure times − and this is always because of Hot Pixels (80% of people would think that the CCD is defective). Today CCD's are reasonable up to 1−2 sec of exposure. (It depends on a temperature as

well − remember, more heat, the electrons are vibrating faster − more of them will escape from wherever they are − more charge leakage)

Some cameras (Canon G1 as example) which allow for longer exposures have also some simple hot pixels aware algorithm which will usually cover the pixels with black dot. This is not exactly right (the dots are visible on the image), but on the night image the black dots are much less disturbing than white dots.

In PhotoBrush we added better solution to this common problem − **Hot Pixels Removal** algorithm.

Menu: **Filters − Noise − Hot Pixels Fix**

Detail of 8s night shot

After Hot Pixels fix was applied

RGB Noise

RGB Noise, unlike the Dust or Hot pixels produces a darker RGB dots all over the image. If it appear in large amount is usually pretty bad problem − simply because if the whole image is too noisy you can't really remove it without affecting the image. Noise will appear in bad light conditions where digital camera uses higher ASA settings. (200, 400...). Because such random RGB noise will cover the whole image it is impossible to remove the noise without visibly changing the image.

Typical detail of a RGB Noise

After the Despeckle

If the image has not too much noise you may:

1. Use **Despeckle** in the **Filters−Noise** menu. You may try to repeat it more than once.

2. If the Despeckle is too strong use DCEnhance Extras (in the Image−Extras menu) which allow various degree of de−noissing. Don't forgot to check the image in full detailed view and select amount which produces less visible artifacts.

If the image has a lot of RGB noise you may do the same as above but be prepared that the image will change rapidly. It may be noise free but it will probably look more like drawing than photography.
Of course the best solution (if possible) is to try to shoot the image again with more light.

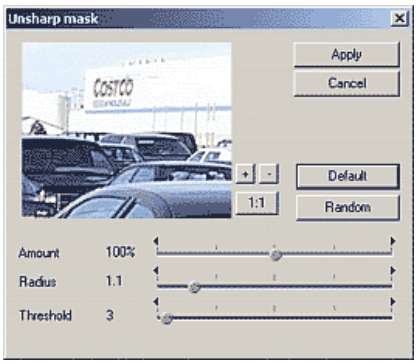
Sharpen, Unsharp Mask

Menu: Filters−Sharpen−Unsharp Mask

Sharpening is a basic tool − when you resize image the next step is often to sharpen it. Most of the beginners would simply hit the Sharpen or Sharpen More menus. However there is much better sharpening tool, yet with quite unfortunate name − Unsharp Mask.

This name come form the time of classical photography. A negative was contact−printed on a film with a glass separating the negative and film which produced a blurred or Unsharp positive. This was then sandwich with the original negative and printed on photo paper. The result was sharper image.

The Unsharp Mask (or USM) in digital photography does similar thing. It first blurs the image (mask) and then subtract that mask from original. The result is optically sharper image (edges are with higher contrast). In fact USM is preferred method of sharpening because it is less Noise sensitive than regular sharpening. Also thanks to the Gaussian Blur used to create the mask it is more "natural" looking than normal sharpening



It is important to view image at 100% zoom − this is how the Unsharp Mask filter will be set by default.

You can click on the small preview image which will toggle it to the state before the applied effect. This is simple way to view the changes before and after. You can also click on the image, hold mouse button and drag the image to find the region of interest.

Controls:

Amount:
How much of the effect is applied. Usually around 90−100% for normal sharpening with small radius.

Radius
Radius of the blur on mask. This result in how far the edge detection goes around the pixel which is being processed. Small radius (around 0.5−2) is used for normal sharpening.
Fine details needs a smaller radius.

Threshold
A tolerance of how much the pixels have to differ before the effect is applied to them. 0−effect is applied to all pixels.
This is a good setting to prevent smooth areas from sharpening. Usually applied about 3−4. For human faces try even higher than 5.

Good values to start from:

For Objects: Amount 100%, Radius 1.0, Treshold:3
For Portraits: Amount 50%, radius 0.5, Threshold: 5

The best advice is to try different setting however for normal sharpening the rule is small radius and bigger amount.

Large radius
A normal sharpening requires small radius, usually below 1.0. Why do we have the radius slider go all the way to almost 100?
By using **large radius** and **small amount** you can do "haze removal" which will globally improve contrast of image in a certain way, yet it will not sharpen the details. Try for example Amount 25% Radius: 60 and Threshold: 4

For even larger radius you can use next tool:

USM large radius

Menu: Filters−Sharpen−USM large radius

Since genuine USM with larger radius takes more processing power we added second tool USM Large Radius which is especially fast. Everything what apply to the USM apply here as well, however you can adjust the radius in much larger amounts.

The USM gets a lot of attention between professionals because of its universality, relative speed and simplicity. In fact there is no better sharpening than USM and many "special" and "secret" sharpening processes use USM as its base.
Some people experiments with multi−pass USM. That is they do USM few times in a row with different settings. One of the (maybe too exaggerated) example can be

1. Pass Amount 20% Radius 100
2. Pass Amount 20% Radius 20
3. Pass Amount 30% Radius 4
4. Pass Amount 90% Radius 0.6

You can easily create Action for this.

Intelli−Sharpen

This is based on USM, where threshold is calculated dynamically. The USM sharpening in Intelli−Sharpen is applied only around the objects edges and ignore large, even noisy areas. This is very fine sharpening and has much lower overall effect than USM. It takes longer to apply but it could be helpful if the image has large solid areas such as sky.

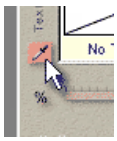
Texture Pick

Most of the graphics software packages you use have a simple Color Pick, and of course Photo−Brush has it's version as well. We wanted to go further,though. If we have Color pick, why not also have a texture pick, where you can click on a part of an image and the tool will grab not only color, but also a texture!

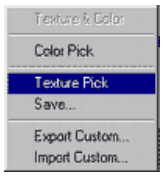
The Texture pick (as well as the Color Pick) can be selected by clicking on the Color & Texture Pick button on the Color & Texture Bar or from menu Tools − Texture Pick

Let's Pick−up some texture!

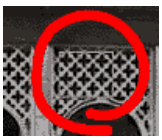
Here is the Image we would like to change.



Click on the Color & Texture Pick button

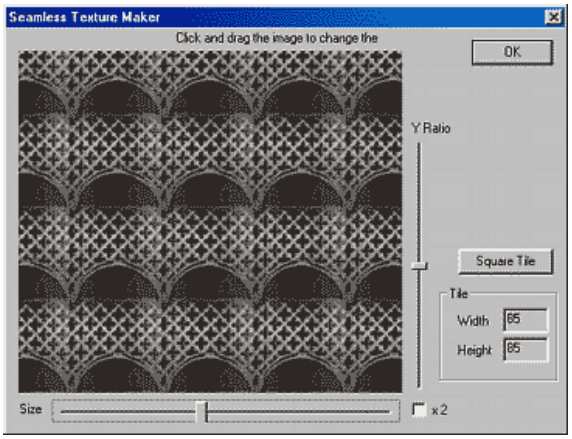


Select the Texture Pick from the menu.



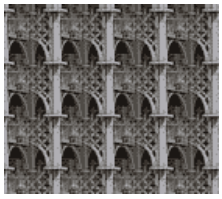
Now you are ready to pick−up a texture!

Because most of the textures you would pick are not seamless by nature, the Texture Pick now goes to the simple and very effective Seamless Texture Maker.



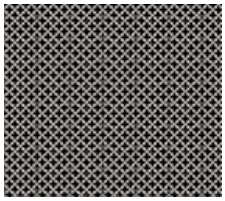
Seamless Texture Maker is the magic tool which will help you to make any texture from your image seamless.
We can adjust the Size of the Texture and the Y to X ratio (depending on whether we need square texture or not)
To adjust the origin of the texture, just simply click on the Display on this dialog and drag the image.

You are already making a very interesting Seamless texture:



Moving the Horizontal slider you can adjust the Size of the Texture Tile. Moving the Vertical slider you adjusting the ratio between width and height.

By dragging the image − you can change the origin of the texture − the source of the texture.



This is what we wanted! We adjust the controls so the texture appears symetrical and without large intensity shifts.

Now we press OK and the texture will appear in the Color & Texture Bar under the Custom texture label.

Now we can use this texture the same way as any other textures, we can paint with it, clone colors, mix it with colors etc..

Texture Pick is a wonderfull tool, because the textures you create from any image fits into the originating image very well − they use the same colors and sub−texture.

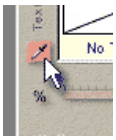
You don't have to use it just for retouching, you can just simply create great seamless textures for web − pages or for other software like CompactDraw.

Custom Texture vs Permanent Texture.

All textures you create with the Texture pick tool will appear as a Custom Texture. There is only one Custom Texture allowed − so the next texture Pick will replace the old one. And after you exit Photo−brush, the texture will be erased. If you think that the texture you created is worth saving as permanent, you have 2 options:

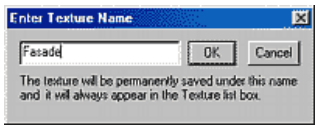
- Save it as a permanent Texture for Photo−Brush
- Export it as an image file to use on your home page or in other software.

The **Permanent texture** will allways appear in the texture list in Photo−Brush. This will Convert the Custom Texture into permanent texture under a name you specify. To do so, click on the Color and Texture Pick button and from the menu select Save.



Click on the Pick Button

Select Save from the menu which will appear



Specify a name of the permanent texture. This name should be unique

The texture will allways appear in the Texture list of your Photo−Brush

You can also export the Custom Texture as a file by **Export Custom** from the same menu. You can then specify format of the file and a path where you want to save it. This will be a stand−alone texture − it won't appear in the list of your Photo−Brush textures.

With the **Import Custom**, you can import any texture from your disk (for example: one you downloaded from Internet) Again this will create a Custom Texture, which is temporary. You can again make it permanent with the procedure above.

As you can see the texture pick tool itself is an incredibly powerfull tool.

Note: The MediaChance Site has an additional program called PhotoSEAM that utilizes the same GUI as Photobrush. The PhotoSEAM program was developed SPECIFICALLY for seamless texture development. If you have a need for an infinite texture development tool, I suggest that you try that one as well.

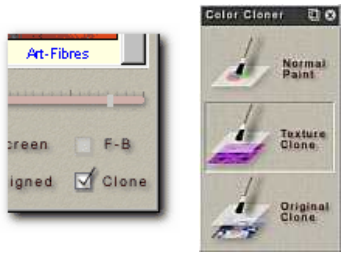
Clone Tool

Cloning is an extremely powerful procedure which enhances the capabilities of the brushes.

Normal brush takes its color from the Color & Texture bar. Also you can mix it with texture as well.

With the Clone option, the brush can use dynamic color − from the original image or from any texture.
To start using Clone you have to check Clone option in the Color & Texture Bar. In order to use clone you must have one of the following:

- For Texture Clone you need to have selected any texture in the Color & Texture Bar
- For Original Clone your image must have an original. Original is defined if you load the image from disk, or you can set the current image at any time as its Original in menu Image − Set as Original.



Here is the difference between normal paint with texture and a clone from texture. With Clone − each sub−step will take a different (solid) color from texture or original.

How to use the Clone?
There are many ways to use it. You can create colorful brushes, try clone with Airbrush for example.

Painted Art with Artistic brushes

Cloning from an original is a great and fast way to create an impressive art images.
1. Load a photographic image, for example, a portrait
2. Select for example, Oil brush from Artistic, Natural and 3D brushes ,
3. Set clone and select Original Clone

Now as you paint your image changes to oil paint.

Original Photo | Clone with Oil Brush | Clone with Oil brush using pressure sensitive tablet

The best usage of Clone is with large details as originals. You can use different brushes and sizes. Using a Pressure sensitive tablet is recommended − you can create art which looks simply amazing. After you finish you can use the Emboss effect to create more depth.

Image Nozzle with Clone Option

You can use Image Nozzle with Clone the same way as with other brushes! After a while, when the Nozzles become boring, select some interesting texture and click Clone − Texture Clone − and you have a new colorful Nozzle.

Here we used different textures and Nozzles for Texture Clone

Clone with Rubber Stamp Tool.

Rubber Stamp can use Clone only if you use it between 2 images.

Click on the Rubber Stamp Tool and then on the Brushes bar, click one of the small arrows for changing the brush library. You will see an Artistic library of brushes for the Stamp tool.

When you use the Stamp Tool in the same image − there will be no Cloning− no matter what you select, The brushes will just add a little texture to the Stamp and that's all.

When you use the stamp tool from one image into another and you specify Clone (either Texture or Original) the Stamp tool will use the brush in a similar way to the Clone with Artistic brushes.

Stamp tool on the same image. The Clone has no effect − the artistic brush just adds a little texture.

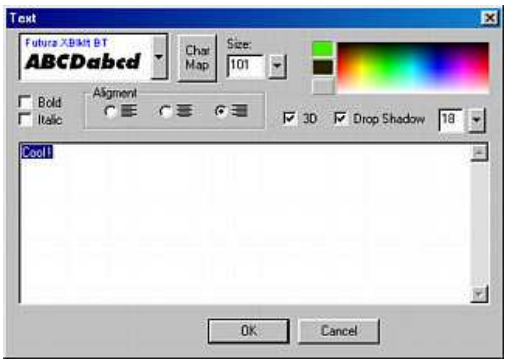
Stamp tool between 2 images with Clone option.

Add Text

 On the top tool bar, press the Text Button

The text in PhotoBrush is smooth and you can add a drop shadow or make it appear 3D.

First click on the Text Button on the top tool bar. The cursor changes to a cross−hair. Now click anywhere on the image. The Text window will appear.



Here you enter the text, chose the Font, size, formatting, color and use either one or both of the effects 3D or Drop Shadow

When you press OK, the cursor will change to an Arrow (also the  Arrow tool will be selected) and your text will appear on the image with the bounding rectangle.

The bounding rectangle around the text means the text is still in editable mode, you can reposition the text or change the parameters (or the text itself).

- To **change** the text properties double click with the  arrow tool inside the rectangle. The properties window will open and you can adjust any control you want (or type different text)
- To **render** the text into the image click with the  arrow tool somewhere outside the rectangle. The bounding rectangle will disappear and the text is now part of the image. Clicking on the Text Button to enter an additional new text will also render the previous text into the image.

Effects

You can use two additional cool effects for text − Drop Shadow (with adjustment for the distance of the shadow) and 3D effects.

Shadow − you can choose the color of the shadow in the color selection. Left mouse selects the color of the text, Right mouse selects the color of the Shadow. You can adjust the distance of the shadow as well.
Selecting, for example, a white color for shadow and distance 0 you can simulate a light glow.

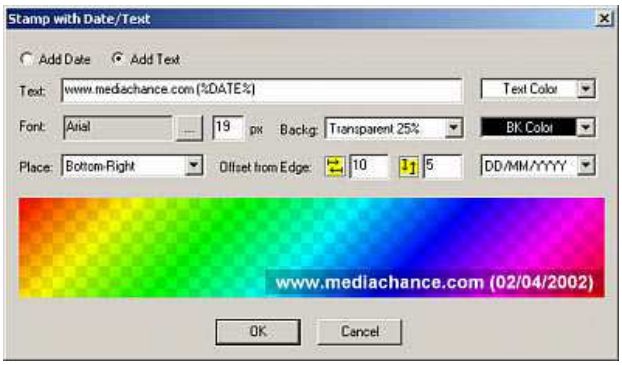
3D − The text will be rendered with a 3D appearance. This works best on larger fonts.

Note: While you still have the text in editable mode, you can paint over the image − but it will not affect the text. It will paint the image behind the text. Once you finish the text by clicking with the arrow anywhere outside the text rectangle, the text will become a part of the image and you can paint over it with other tools.

Date/Text Stamp

Menu: Image −>Date Stamp

Another way (which can be automatized using actions) to add simple text is to use Date Stamp in menu Image.

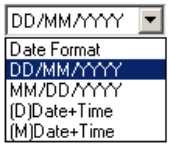


You may want to upload your images to a online web photo album so why not to sign them, put your copyright in a corner or your web page?

The Date Stamp can add a **Date of Shot Taken** to any corner of the image and you have a lot of control over the color, size, font offset from edge etc.. The Date is determined by EXIF data. If no Exif data are available the current date is used.

The **simulated preview** will help you to see your settings. The preview is on a colored rainbow background to get an idea about the final look

For the Date it is a good idea to select also a format of Date or Date+ Time if you prefer, since the date format stored in EXIF may not suit everybody taste. (The original format is chosen when you leave the format on "Date Format")



Background
You may use transparent background, so only the letters are visible or put a Semi−Transparent or fully opaque background.
The semi−transparent background is the nicest choice since it creates enough contrast for text to be readable , yet it doesn't show too strong on the image.

Offset
The offset is the offset of the text from a closest edge of image. You may want to place the text right on the edge or move it more inside the image.

Font
To change the Font, and its attributes (Italics, Bold..) Click on the 

button.

If you select a size inside the Font dialog it will show a different (higher) number in the Font size edit box. For example a size of 11 Arial will show as 15 px in the Font size edit.
This is because the Size edit shows the size in pixels. You can't go lower than 8 pixels and higher than 80.

Of course you can add also your customized text. You can still keep the date in a customized text by leaving the key %DATE% in the edit box. The key will be replaced by the date format selected.

Example:

www.mediachance.com (%DATE%)

will on the final image look like:

PhotoBrush Plug−Ins

Plug−Ins extend the functionality of the software. PhotoBrush generally supports two kinds of plug−ins:

- Adobe Photoshop (tm) compatible plug−ins, commonly called Filters (*.8bf)
- PhotoBrush Extras (*.xtr)

Both work similarly, but they have different methods of loading. The Adobe Photoshop compatible plug−ins could be found anywhere on the Internet.
The PhotoBrush Extras are "native" plug−ins, specially designed for PhotoBrush.

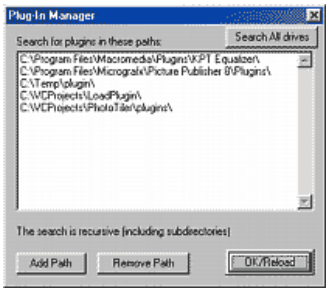
Adobe Photoshop (tm) compatible plug−ins *.8bf

These are the most common plug−ins, also called Filters. There are many of the filters available, some of them free, some of them not. Look for free Filter Factory plug−ins also.

PhotoBrush can load the plug−ins from anywhere on your computer (and also from network). This means it could use plug−ins installed in other graphics applications. When you run PhotoBrush the first time, it will ask you if you want to search your drives for compatible plug−ins.

To Add/Remove plug ins, you use the Plug−In Manager (in the menu Filters)

Filters −> Plug−In Manager



Plug−In manager lists a directory where PhotoBrush should look for filters. You can add a directory with the Add Path button or remove it from the list with Remove Path. Anytime you click Ok/Reload button PhotoBrush recursively searches these directories (it looks into the subdirectories as well) and saves links to valid compatible filter plug−ins.
Note: Photo−Brush doesn't verify if the links to filters are still valid, for example if you install a new Plug−In, PhotoBrush doesn't know about it until you go to the Plug−In Manager and click OK/Reload button. This is because Photo−Brush can use plug−ins across the network and it would take too much time at the beginning of an editing session to verify all the links. It is better for Photo−Brush to start as quickly as it can − nobody likes for a program to take a long time to start!

You can let PhotoBrush search for the plug−ins on all your hard drives simply by going to the Plug−In Manager and pressing Search All Drives.

You can specify All Drives or the drive you want. After selecting OK, PhotoBrush will scan all drives, load compatible plug ins and change the list of paths in the Plug−in Manager to the directories where the plug−ins were found.

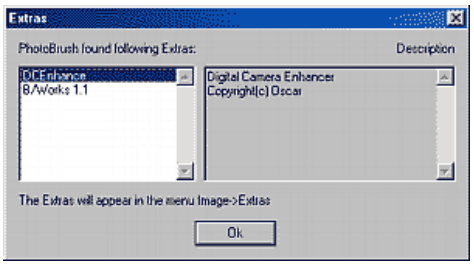
How to Use Plug−Ins

It is simple − with any image open, click menu Filter and select the plug−in Filter you want. The rest depends on the plug−in.
If you have a Floater (rectangular selection) on the image, the filter will be applied to the floater.

See PhotoBrush Extras also.

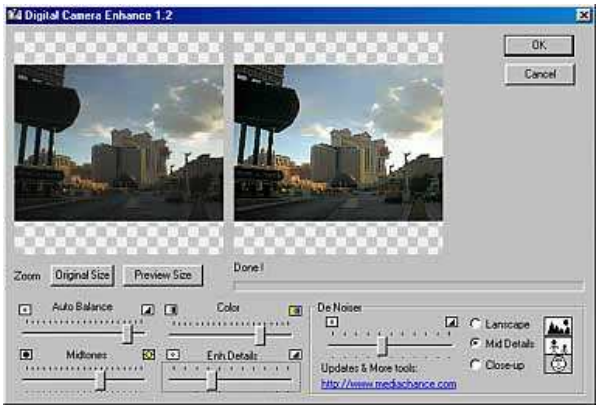
Photo−Brush Extras Plug−Ins (*.xtr)

PhotoBrush has extensive support for Adobe Photoshop compatible plug−ins. However there are also other kinds of "native" plug−ins for PhotoBrush called Extras.



Extras are special PhotoBrush plug−ins with the extension *.xtr. The first difference is that they don't reside in the Filter menu. You can find them in the Image menu under submenu Extras.
Extras are not just filters. An Extra could have any functionality − for example it could export the image into new file formats. The PhotoBrush extras must all be in the subdirectory Extras. If you add any new Extras into the subdirectory, you have to reload them with the Extras Manager.

The Extras manager searches and displays all plug−ins found in the Extras folder. Whenever you add or remove an Extra plug−in, go to Extras Manger and press OK. The Extras will appear in the Image−>−>Extras−> menu

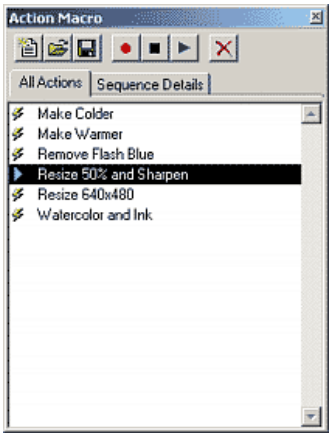


You can find the updates for extras plug−ins on the www.mediachance.com page, in the Digital Camera pages.

One of the most popular Extras is the **DCEnhancer** (or Digital Camera Enhancer) plug−in. It makes unbelievable enhancements to the digital images from digital camera. The Plug−in version of the DCEnhancer is just 200kB in size.

Actions & Macros

Action Macro is a sequence of general command steps such as resizing, full scale color corrections or built−in filters. Instead of applying a sequence of actions one by one, you can record them into an Action Macro sequence that can be saved and reused later.
To show Action Macros use the Action button on the main toolbar or in menu **View − Actions**

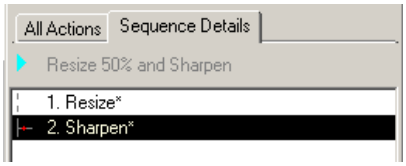


An example could be a simple macro for resizing image 50% and then sharpening the image. You can do it manually: 1. Menu: Image − Image Size; 2. Set 50%; 3. Filters − Sharpen
or if you plan to use it on more images, you can record this sequence into the macro and simply "play" the macro sequence on the image. This will save you a lot of clicking and adjusting.

All Actions
Under this tab you can see a list of saved actions (also called action sequences). These are *.acc files saved in the Actions Folder. If you save any new action sequence into this folder it will appear here.

On the first image we can see we have selected the **Resize 50% and Sharpen** action sequence. Now we can press Play button or simply double click on it and it will apply the sequence on the current image.

Sequence Details
Each Action sequence can have one or more steps. We can see the sequence steps of the currently selected action by selecting the second tab or by clicking at the triangle on the left of the action.

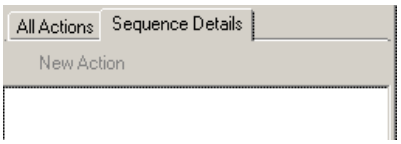


Here we see, our **Resize 50% and Sharpen** action has two steps: first is Resize, second is Sharpen. When you press the Play button, the sequence is always executed from the first step to the last step.
It doesn't matter if you Play the sequence from the All Actions or Sequence Details tab.

If you double−click on any step you will get into the actual numerical parameter settings. These are very similar but simplified settings you can see on a dialog box of a particular effect. Sometimes the step settings offer more adjustment than the parent action invoked from the menu. For example, a simple sharpen in menu Filter − Sharpen−Sharpen will sharpen the image without giving us a way to adjust the intensity of effect; however, the same recording in Actions will give us access to the sharpen coefficient.

Record new Action Macro

First select the **All Actions** tab and then press Record button. If you select the record button while in Sequence Details, then you will be given a choice to start recording a new action or continue adding more steps to the currently selected action.
We would like to record new action. The sequence details list is empty.

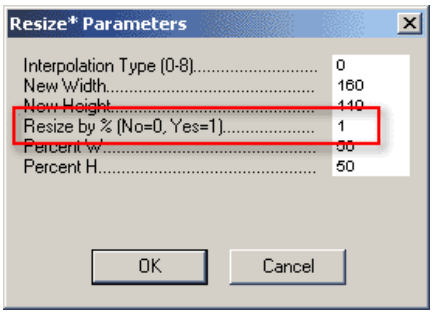


Now whatever general adjustment you do to the image will be recorded until you press Stop button.
Note: These **don't** include extras, external filters, saving or loading, or painting with brushes. All commands in Image − Adjust, Image Size, Rotate can be recorded as well as all built−in filters (not any external).

To record a macro which would first resize to 50 % and then sharpen, we simply use commands from menu Image − Image Size, set 50 % and then use command from Filters−Sharpen−Sharpen.

Now we can press Stop button.

Resize − a special case
At this moment we need to modify the recorded data. When using the **Image Resize** command, we must tell the macro if we would like to resize by absolute coordinates (such as resize to width: 160 height: 200) or by relative (such as 50%). Double click on the first line Resize in the Sequence details to open the numeric representation. We need to change the value **Resize by % (No=0, Yes=1)** to 1 as in image below.



Press OK.

You can similarly adjust the intensity of sharpening in the Sharpen line if you wish to do so.
When you change any data directly in a sequence step, a small star * will appear next to the step name reminding you that data were changed from the recorded data.

You may use (play) this macro right away, but remember if it is not saved, it will be lost as soon as you select any other action macro. So the last step is to save this sequence. While still in Sequence Details, press the Save button. In order for the new action sequence to appear in All Actions, you need to save it in the Actions directory − this will be the default directory opened when you press Save button, so simply enter new name and save.

Whenever you change the data in any step, you need to resave the sequence. If you fail to do this, the changes will be lost as soon as you select other action sequence.

Delete button

This button has a double functionality. While in **All Actions** it will remove from disk the currently selected action sequence. While in **Sequence Details** it will remove the currently selected step. You will, of course, need to re−save the sequence if you do so.

Image Browser

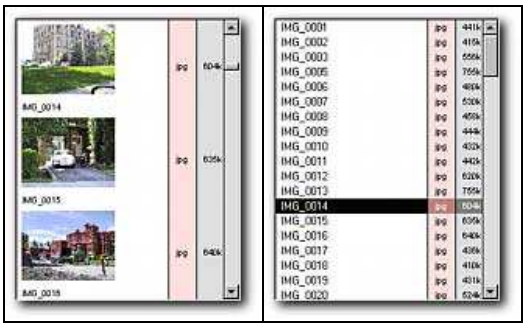
File −> Image Browser

Photo−Brush already has a cool built−in Image Browser. It will let you see directories of images on your disk, network or even on your digital camera in thumbnail image format. It even has a Delete function. It's great for directory clean−up when utilized carefully!

It has the familiar Explorer interface where you select the viewing directory in the Tree control box, and you see a thumbnails/image list with file size and file type info in the list box below.

Clicking on any item will load it into a larger preview window to the right of the list.
You have the option to delete the file or load it into Photo−Brush.
Note: Delete File will ask if you are sure you wish to delete the image. Once the file is deleted you can't get it back unless you have a back−up of that file elsewhere!

There are 2 ways to view directories: As thumbnails (below left) or as a simple list (the default at below right). You can switch between viewing methods with the **<< Thumbnail** or **<< List button**



Both Thumbnails and List will display the same information for image type and the file size.

Thumbnail view requires creation of a small thumbnail image for each of the files in a given directory. This will be a small *.tmb file saved into the same directory location as the image. Once the thumbnails are created, the Open Dialog box will reuse them for future preview (otherwise it will always load the whole file and then resize − which could be much slower).

Tip: You can enable or disable creating thumbnails in the same directory as images. This setting is available in menu Tools−Settings.

The image browser will update the thumbnails whenever you change the original file or if the thumbnail doesn't exist. It is safe to delete the tmb files anytime you wish.

If you browse images on CD, it is obvious that the thumbnail can't be recorded there. Photo−Brush then saves the thumbnail in the Windows Temporary directory (usually C:\Windows\TEMP\) in the Subdirectory Thumbs. The same applies for Removable Disks (such as Memory stick, Compact Flash etc..)
The tmb files are small in size; however, if you browse many CDs with a lot of images, it may take some space on your disk (around 8MB for 1000 images). It is safe to delete these *.tmb files and the Windows built−in clean up should do it automatically if you are getting low on disk space. You can also do it easily at will by simply clicking on the List/Thumbnails with the right

mouse button and from the context menu select Clear CD Thumbnails. If you browse many CDs for images within one editing session, this may prove to be a very useful tool.

EXIF and Image thumbnails.

If you only use the browser in normal viewing situations, you don't need to study the text below. Image Browser will always choose the optimal viewing method for whatever you are doing. However, if you are interested in what is behind the image, read on:

Some Digital Cameras save a thumbnail of the original shot in the EXIF info section of a Jpg File. Digital Cameras usually use this thumbnail for display in the Play mode − it is great for fast access.

Image Browser can use this speed advantage by trying to find this type of thumbnail within the image file before creating a thumbnail from the full size image. This method will improve the speed of creating thumbnails. However thumbnails from EXIF information may have lower quality (depending on the algorithm used in the camera when the original image was created) and they are mostly landscape − even if your image is already rotated or cropped. Also if you make any adjustments to the jpg image, the EXIF thumbnail will still reflect the original camera image. EXIF data is not updated during editing. If the thumbnail is from Exif data, then Image Browser will put a small red EX in the top corner.

If you right click on the thumbnails/list you will see a context menu. Here you can adjust the method of loading the thumbnails:

Reload Thumbnail from Image − this will always reload the selected thumbnail from the image itself by resizing the data.

Reload All Thumbnails from EXIF − this will delete all thumbnails in the current directory and reload them from EXIF information of JPG files (if it exists). The thumbnails which come from the EXIF data will have a red EX in the top corner. Exif thumbnails may not reflect the current image data − they will show the original shot recorded by the digital camera.

Reload All Thumbnails From Image − delete all thumbnails and load them from the image data by resizing. This takes significantly longer, but the thumbnails will always reflect the current image data.

Clear CD Thumbnails − These are the thumbnails saved in the Windows Temporary folder for images on CD or removable media (such as memory cards). Clear will delete these files − do it if you think they may take too much space (usually 8 MB for 1000 thumbnails).

If you have no images within the EXIF info, any of the options will load thumbnails from the image data only.

To set the default mode you have to go to Settings and check or uncheck Try EXIF thumbnails in the Browser.

Saving Images

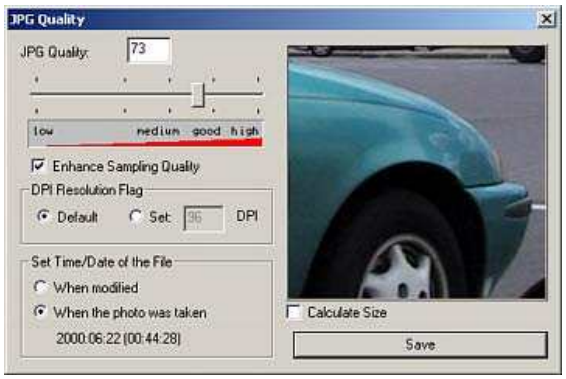
File − > Save or Save As.

Note: By default Photo−Brush will use the "Save..." command the same way as "Save as..."
That means it will always show the "Save−as" dialog box where you can enter name of the file and choose the file format − or leave the current/last used name and format.
This is in order to prevent new users from overwriting the original images − which is surprisingly a common mistake. Overwriting an original file can be fine in a text editor − you can always type the text again, but if you overwrite an original image mistakingly, you have no way to get it back! (You can only retake the photo). Backup your images, and never overwrite an original unless you are sure you won't need it again. By default, Photo−Brush will remind you to do this by always using the "Save as..." command.
If you want Photo−Brush behave the standard way − that is; if you click "Save", it will save the file without prompting; then go to menu Tools − Settings and check "**Allow Save without asking"** to ON.

Formats

Photo−Brush supports various standard formats that are good for sharing digital photos.

JPG format.
This format uses a lossy compression. This means that by saving in this format, the image will always suffer from some degree of data loss (not always visible), but this allows producing a much smaller file size than any other format. This format is used on web pages, benefiting from the small file size. All consumer digital cameras save their images in this format.



When saving a JPG, you have to select the quality level. Lower Quality also means smaller file size. The compromise is usually around 75 − marked as good. On most images if you go higher than 82, you won't see any visible difference, but the file size will be considerably larger.

Enhance Sampling Quality (by default ON)
By using this option Photo−Brush will use a superior sampling technique for JPG compression, producing absolutely the best possible output for the desired quality. The file size is slightly larger than when set to OFF, but it prevents color streaking of details common to many jpg compressed images.

The JPG quality window will show you a small preview of a part of your image where you can check how the quality settings will affect the image. You can click and drag the image to find a place with important details. The window is updated automatically − and you may check for yourself that the loss of quality starts to be rapidly visible after settings of 50 and lower.

For archiving purposes you may use a Quality setting of 80−100 with Enhance Sampling Quality. Note: The JPG format is always lossy, even if you use 100 as a quality; however, the loss is mostly in the areas where the human eye can't really see the difference.

By default Photo−Brush uses integer jpg compression, you can switch it to floating point in the Settings.

DPI resolution flag
Some software reading JPG can benefit from DPI information stored in JPG. For example, printing software can calculate the desired printing size based on DPI. Photo−Brush allows you to set this DPI flag during saving. You can leave it on Default − no additional information about DPI will be stored in JPG, which most of the jpg readers would translate as 96 DPI, or you can set the flag to specific DPI. (If a you loaded JPG with DPI information already stored in, this will be displayed here and the switch will be on Set flag to)
Note: Any value here will not change the saved JPG file, the file size, or quality at all. This is just a flag inside the JPG file, and it doesn't affect the data. If you don't know anything about DPI or simply don't care, leave it on Default.

The DPI stands for Dots Per Inch. If you have image of size 1200x1200 pixels and you set the DPI flag to 300 DPI, that would mean for printing software that your image should have desired size on paper 4x4 inch (4 x 300 = 1200). Of course any printing

software should let you adjust the size no matter what DPI flag you set.
Using DPI has application mostly for flat bed scanners. If you scan a postcard on 120 DPI, which will give you 720x480 pixels, the stored flag (120 DPI) will always carry the information about the original size.

n the other hand, using DPI for digital camera images has no logic reason − there isn't original size of image − it would be something like 1/2*1/2 inch or smaller (which is the size of CCD chip in camera). It isn't very probable that anyone would like to print it back in that size. If digital camera stores any DPI information, this is just what the developers of camera feel would be the reasonable size of image if it is printed on paper. In other words, don't worry much about DPI.

Set Time/Date of the File
Normally any software sets the file date and time when the file is being modified. Photo−Brush can change the saved date and time to the date and time when the image was originally taken (Extracted from EXIF info). This may come very handy feature since your images on disk will show the exact date when it was taken, not when it was modified. You will be able to tell by simply looking at the date in Windows Explorer when the photo was shot.
If original image has no EXIF info (such as image not originated from digital camera) the option will be disabled.

PNG format.
If you are editing a new file, Photo−Brush will prompt you to save in this format by default. This is because PNG is a loseless format, the quality doesn't change, while it still produces reasonably small file sizes. Even more interesting is the fact that most of the new web browsers (IE 5.0 as well as Netscape Navigator 4.3) now support this format.
You can use the PNG format for archiving or for files you will be changing repeatedly. While this format is in many aspects superior to JPG only new graphics applications will support it. (Because it is newer than JPG format)

BMP format.
BMP format is a native Windows format. There are no benefits to using this format except the fact that any windows application, even very old ones will probably support at least this format. The file sizes are much bigger in comparison to JPG or PNG. It is a loseless format, so the quality doesn't change.

There are a few other formats for compatibility, but any other graphics application should read one of the first 3 described here.

Scanning Images

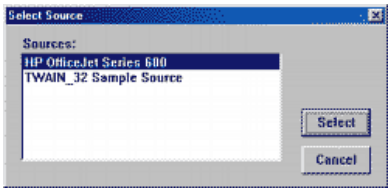
File −> Import −>Acquire

PhotoBrush can import images from TWAIN 32 compliant devices such as **scanners** or **digital cameras** with Twain 32 support.

While most of the scanners (flat−bed or film scanners) support TWAIN interface, not all digital cameras support it − instead they have their own software for loading images to the computer.

PhotoBrush also supports 32 bit film scanners.

Working with scanners is easy. If you have more than one installed device you have to first select the source from menu **File − Import − Select Source:**



The TWAIN driver will display a list of installed devices.

To start scanning you use menu **File−>Import−>Acquire**

PhotoBrush will run the TWAIN driver and the rest depends on the driver software supplied by the manufacturer of the device. The driver does all the scanning job and then it returns the pictures to PhotoBrush.

Because each scanning software is different, if you need help, you must refer to the documentation supplied with your individual scanner/digital camera.

Scan Bar

File−>Import−>Show Scan Bar

If you planning to scan more images, you can open a Scan Bar with the most useful buttons for scanning job.

The first two buttons are **Select Source** and **Scan! (Acquire)** as described above.

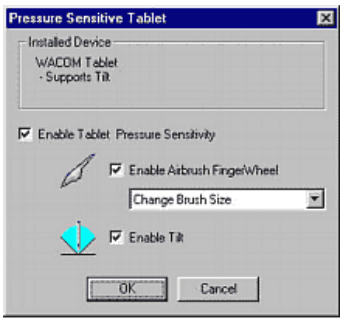
Then the next 3 buttons are for rotating the image then the Levels and Dust Removal follow next.

Pressure Sensitive tablet

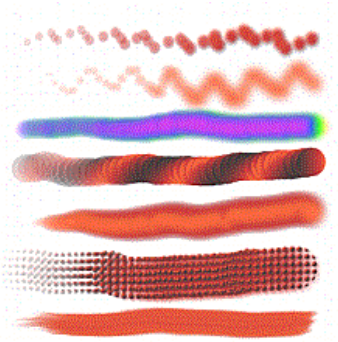
Tools −> Tablet...

PhotoBrush has support for pressure sensitive tablets. This gives you not only better control over the stroke, but also it allows you to control the opacity or density of the brush. In cases of Art brushes it really gives the impression of a painted stroke.

To set up the pressure support, open the Tablet properties from menu Tools. You will see if you have any tablet installed.



Each brush can handle the pressure differently. There is an option in the Brush Properties for that.
Any tablet which supports WINTAB should work with at least Pressure Sensitivity.



Example of a few Artistic brushes using pressure sensitivity.

Airbrush can be also controlled with pressure very well.

Eraser.

The pressure sensitive stylus has in many cases (for example Wacom series) an "eraser" on the top of it. When you turn your stylus over and use it as an eraser you will:

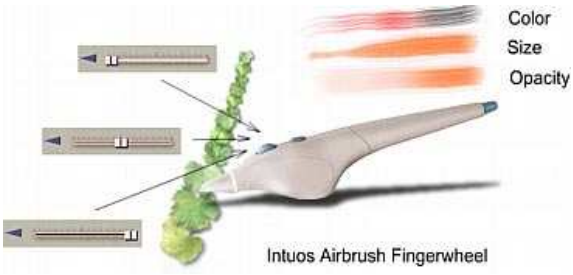
- If no Original image is defined, you will erase into the background color (defined in Color & Texture)
- If the image has an original (it was opened from file, or you used Set as Original) you will erase into the original image.

Try It! It is very convenient!

Wacom Intuos Tablet.

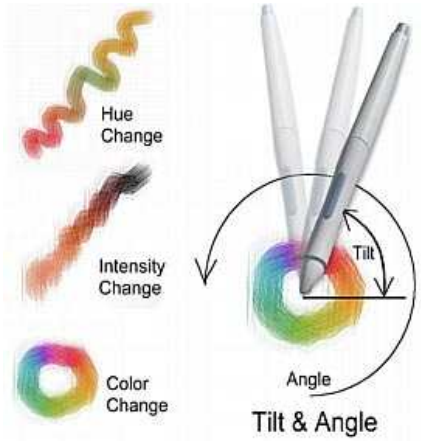
The previous should work with any pressure sensitive tablet, however there are few more options beside "Tablet Pressure Sensitivity" which works with WACOM Intuos or compatible tablets:

Airbrush FingerWheel
If you have an Airbrush tool, you can set which parameter the FingerWheel of the airbrush controls.

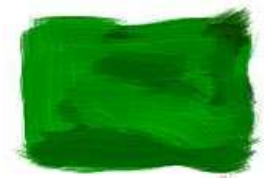


You can control Opacity, Size or Color Intensity of the brush by the FingerWheel.

Tilt
Intuos and few other tablets support Tilt and Angle. That means the tablet is not only sensitive to pressure, but also is sensitive to the tilt of the stylus (tilted toward the tablet) and the angle of the tilted stylus (tilted left, right...). This brings you more control for the Brush. Each brush can control different aspects by the tilt: for example, hue of the color, intensity, etc. You need to set the specific action for each brush in the Brush Properties.



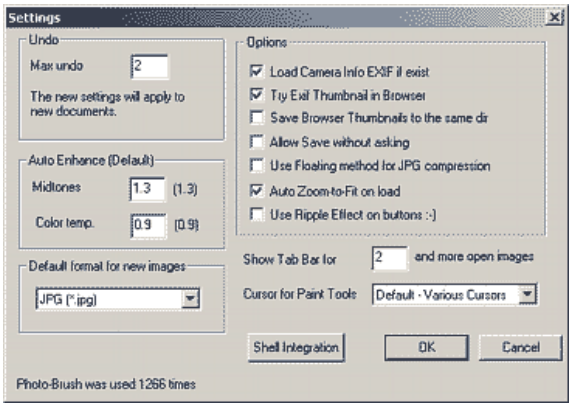
Tilt is a very convenient way to add a natural painter's feel to the strokes. In the example below we used an Artistic brush with Tilt: Hue Change. By tilting the pen and using different angles (tilting to left right...) we can simple produce realistic brush effect:



Note: When you are using the stylus to draw, and then you switch to mouse, the first stroke with the mouse will be "silent" . This is needed in order to properly reset the tool.

Settings

Menu: "Tools"−."Settings"



Undo − Here you can specify the number of Undo steps.

Warning: The Undo buffers are in the memory, so if you have enough memory, and you are working on small documents, you can eventually increase the number of undos.
However, it is not recommended − it could lead to slowing down of the software or even crashes when all the memory is gone.
Photo−Brush 1.2 and newer saves larger undo files to disk.

If you want to know how much memory you have, you only need to look at the right bottom corner of the Photo−Brush window.

If the number is close to zero, you are headed for trouble. Save what you can, close documents, and decrease the number of undo steps.

In case of very large documents, you may even want to put 0, no undo. This could save a lot of memory.

Show Camera EXIF Info

If you load a JPG image, which was taken by digital camera, Photo−Brush will display EXIF information in a Camera Info Bar.

Some older cameras may not support EXIF data − in this case the Camera Info will not show.

Read more here:

Try Exif Thumbnail in Browser

This is related to Image Browser only. If checked, the Browser first looks into the EXIF for a thumbnail. If nothing is found, then a new one is created.

Save Browser Thumbnails to the same dir

This is related to Image Browser only. If checked, the Browser will save thumbnails to the same directory as the source images. This may be not desired so unchecking it will save the thumbnails into a temporary space.

Allow Save without asking

Normally Photo−Brush always asks when you click the save button (it works like Save As...). The reason is to prevent new users from overwriting original images. Some users, however, prefer the standard "Save" command− (no prompting) − if this is your preference, then check this option ON. (For advanced users)

Auto Enhance (Default)

This allows you to change the coefficients for Auto Enhance procedure. There are just two which can be adjusted:
Midtones − adjusts midtones. (recommended values 1.0 −1.4, higher number makes lighter image, default 1.3)

Color temp.− adjusts color temperature. Values below 1.0 will make the image warmer, above 1.0 colder. (recommended values 0.85 −1.15, default 0.9)

Use Floating point method for JPG compression

By default (OFF) Photo−Brush uses an Integer algorithm for saving JPG images. The reason for this is that it produces the same quality on any computer using any processor. Use of the floating point algorithm is processor dependent. Strictly controlled by logic, floating point should produce the best quality − but you never know these days. Each processor uses floating point operations differently. In a processor with fast floating point calculation, this method may even be faster than the integer algorithm. Try it, but you probably won t see any differences with the naked eye.

Auto Zoom−to−fit on load

When selected, the loaded image will be automatically zoomed out to fit in the window.

Use Ripple Effects on Buttons

That s just an Eye−Candy... Set it On and then click on any brush button on the main left vertical toolbar...yes we have nothing better to do :−)

Cursors for Paint Tools

You can select what cursor the software will use during painting:
Default (Various cursors) − each tool will have its own small cursor (like a brush, pen or stamp);
Cross−hair or Small Cross − all tools will share this cross hair type of cursor which is easier to see behind.

Show Tab Bar for x or more open images

This will show a Tab Bar on the bottom of the screen for easier switching between images when number images is the specified number and more. Default 2 − this will show the Tab Bar only if you open 2 or more images.

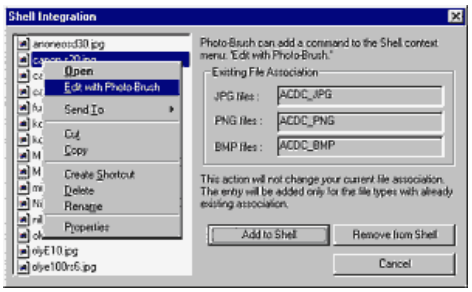
If you want to have the tab bar always present put 0. If you don't want to have the tab bar at all put hight number such as 100.

Default Format for new images

When you create a new document, or scan image there is not yet associated file format. When you press save you will be as usuall given a list of format to save. What you set in this option will be the default format − offered first. If you scan a lot images this will save you some mouse clicking. Two most used formats as default are available − jpg and png.

Shell Association and Edit with Photo−Brush Shell Integration

Menu Tools−>Shell Integration or Button Shell Integrattion in Settings.



Photo−Brush can add a new entry into the Shell context menu: Edit with Photo−Brush.

It could be added for JPG, PNG or BMP files.
This action will not change the file association you already have (when you double click on the image in Explorer). You usually have these file types registered (associated) with some image viewer or Internet Explorer.
Pressing the **Add to Shell** button will add a new entry into the shell context menu. Then whenever you see a JPG, BMP or

PNG image in the Explorer, you can click on it with right mouse button to open the shell context menu and then select Edit with Photo−Brush item to open this file in Photo−Brush.

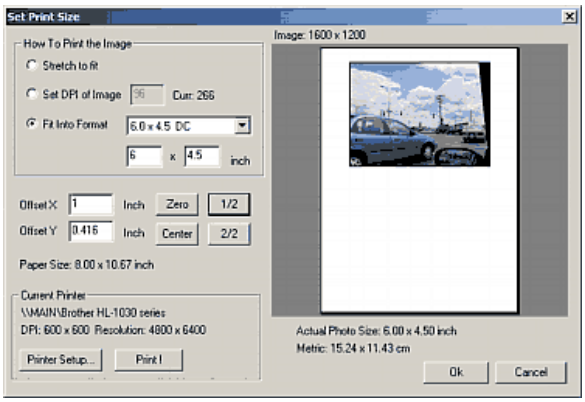
Things to remember:

- Photo−Brush needs you to have the file types associated with some program. (That is, if you doubleclick on them in Windows Explorer, they will open in an associated program) By default this may be Internet Explorer or some other image viewer you installed.
  The dialog will show you if the file is associated or none if it isn t. If there is no association, for example for JPG, you can create one very easily: Close this dialog, then go to Windows Explorer and double click on any JPG file you have on your hard disk. Windows will pop−up the Open With dialog box. Now select a program you want to associate with this file (for example, Internet Explorer or Photo−Brush if you want) then check the Always use this program to open this file and click Ok. If you ever wish to change the file association later, go to Explorer, menu View − Folder Options, then click File Type tab. It is advised that you read the Windows help file concerning file associations before you start making changes there.
- If you added the Photo−Brush extension to the shell and then later you wish to uninstall Photo−Brush, you need to remove the shell integration before you do the uninstallation. Just go to this dialog box again and click **Remove from Shell** button.

Printing, Set Print Size options

Menu File−>Set Print Size

If you want to print an image, here you can set up how the image will be printed on the printer.



This dialog shows a few parameters about the printer and the current image.
On the left side we have a size preview control − which shows how the image will be printed in proportion to the page. The orientation of the Page depends on the **Printer Setup** settings. (Menu File −> Print Setup or the Printer Setup button on this dialog box) Under the Size preview we can see the actual size of the image in inches and cm.

There are 3 types of printing:

Stretch to fit

This will print the image to fit the width of the page. The actual size also depends on the page orientation:

Set DPI of image

This is an image dependant setting. It will print an image depending on the resolution you specify here, also the actual size depends on the size of image.

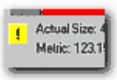
We have an Image of 1600 x 1200 pixels, paper orientation s landscape.

DPI: 200
Print: 8 x 6

DPI 150
Print: 10 x 7.5

DPI 96
Print won't fit on the page

For example you specify that you want to print an image which is 1600x1200 pixels at 96 DPI, that would mean you will print the image 16.6 x 12.5 inches... Well this won't fit on the paper at 11 x 8.5... so you need to increase the DPI of image to 160 (so image is more dense).



The Dialog will display a warning when your image will not fit on the page because of your DPI setting. In that case you have to INCREASE the DPI of the image.

The other options also display an actual DPI of the image Curr: 240, that means if you use this value in the Set DPI of the Image, you will get the same size as the option which displays that.

Note: The DPI of the image is just an output image characteristic value − there will be nothing done to the image itself.

DPI 200

Image:
1600 x 1200

DPI 200
But this time we have an image of only
800 x 600

This is type of printing is good if you have images of various sizes and you want them to be **printed proportionally** to each other (a bigger image will also be printed bigger)

Fit Into Format

This will fit the image into the format size you specify. The image will be printed in such a way that it all fits into that specified size. The image proportions will remain the same.
For example, an Image of 1600x1200 pixels using Fit Into Format: 6 x 4 will be actually printed 5,1/8 x 4 inches (that's the best fit, so it all fits into 6 x 4) and it doesn't matter if it is in Portrait or Landscape mode. In Both, the actual size output to the paper will be the same.
This is good if you want to print images for example for a photo album. You want them all to fit into the album, right?

When you are using this option, the control display will show a blue rectangle outside of image. The red rectangle in our first image is our image and that is how it will be printed. The blue rectangle is the actual size we specified. So that image shows how much we will fit into the desired size.

Presets − You can use presets to fill up the Fit into Format sizes. These are the most common photo sizes.
The ones with DC are 4:3 proportional sizes for Digital Cameras. The others without DC are standard photo−formats. Now you can see that images from digital cameras actually have a bit different format than real photos.
There are also formats for APS Panorama − but for these you really need to turn the page orientation in the Landscape mode.

Offset

With offset you can center or otherwise move the image on the paper (in inch). The offset X is from the left edge of paper to the left edge of photo and Offset Y is from the top edge of paper to tp edge of photo. There are few buttons to help you fill the x,y − Center − will place the image in center of paper, Zero will move it to offset 0 and 1/2, 2/2 will place the image in top or bottom part of the paper.

Conclusion

- The **Stretch to Fit** and **Fit into Format** will print various sizes images in the same size.
- With the **Set DPI of Image** option, different images will be also printed in different sizes.

Note:

Don't be confused, if your printer says it has a resolution 1200 dpi. That doesn't mean you should (or even can) have an image with this resolution. Actually if you get such image with this resolution, even a small size photograph will be too large for the

printer memory.

The DPI on the printer is not the same as the DPI on your image. Each pixel of your image can have 1.6 million of different colors.
But the printer pixel can't have that.
Laser printers can only have 2 color (black or white) and Bubble Jet printers can only have 3 (or 6 if you have 6 color cardridge).
So printers need to have a huge resolution to actually create the color by using many dots (each using one of 3 color)
They use various dithering methods to represent your color with just the 3 colors. From a distance the dots look like a single color to us. However if you look close on the printout you will see the dots.
That's why your printer needs 1200 dpi, but you print images which have 10 times less DPI and they look great!

Monitor Calibration, Gamma correction

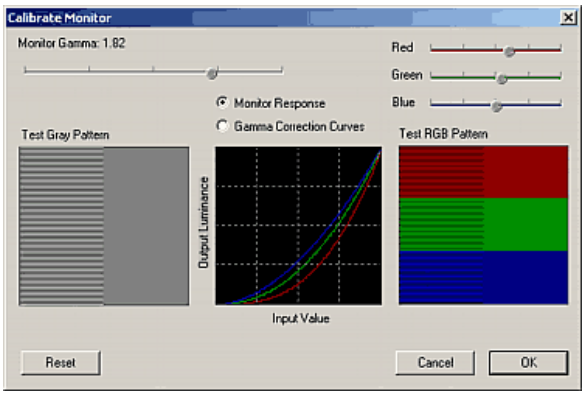
Menu; Tools−Calibrate Monitor

What is monitor gamma?

On an ideal monitor, black would be black, white would be white and grey would be the 50% of white. In real life this is far from true.

Low or High monitor gamma
If a 50% grey is displayed darker than the 50% average between black and white, then the gamma is "low", if it is other way it is "high". All PC monitors have low gamma − that is the 50% gray is in fact displayed darker than it should be. This can be a problem if you edit for example image on PC and it looks to you quite dark so you brighten it. Now the new image would look fine on your monitor, but viewed on systems with gamma correction such as MAC this would give you washed−out image.

These are typical problems of monitor gamma.



If this is your concern, then you can correct monitor gamma directly within PhotoBrush (some video cards may not allow this, then the sliders are disabled)

You have few graphs: Gray Pattern, Monitor response/Gamma Correction Curve and RGB Pattern

How to Calibrate your Monitor:
First, look on the Gray Pattern from a distance so the lines are not visible.

The left part of Gray pattern is an average gray and the right part is a 50% gray created by the monitor. On uncorrected monitor the right part would probably look darker. Now move the large slider on top toward right until the gray look even.
Look at the number above the slider "Correction for Monitor Gamma:" It could read for example 2.20
This is your Monitor Gamma and the Graph in the middle will show the Monitor response curve. Such graph can be found in the technical papers of your monitor.
You will also notice that everything went brighter on monitor − this is because the gamma correction is already in place. You can switch the graph to Gamma Correction Curves and you will see what the gamma correction curve (which now is your computer using) looks like. (It will be mirror of the Monitor Response curve)

Now look on the right RGB Pattern. Does the colors left and right look alike from distance? They most likely should be quite fine. If not you can re−adjust the particular color curves with the three sliders above.

Now what? The image is too bright!

You calibrated your monitor − what that means? If you look on any image now the 50% gray will be exactly half way between black and white and you will be able to see much more details in dark areas.

But unfortunately your image on CRT monitor will be now much brighter and the windows and buttons will look way too bright. This is of course logical − it is a nature of CRT. We are so used to the monitor gamma than even Windows Operating system uses this knowledge in the color scheme. The true 50% gray is RGB 128,128,128, yet the color used on background of buttons, tool bars and menus is a lighter gray 198,198,198 which thanks to the monitor gamma we see as a "normal" gray.

Because of the CRT monitor natural response the images after calibration now looks actually washed out. And sure you are probably dying to click on the Reset button to put everything back. But if you look at any picture (and forget about the monitor burning your eyes) the image is much closer to what you get on photo if you print this (just forget the high brightness − we are talking about the evenly distributed shades)

Do you need to calibrate monitor for every day use?
No. The normal CRT monitor have the gamma response by its nature and by correcting it to linear response you unfortunately getting more overall brightness. This is not easy on eyes. And in fact we are so used to seeing images on "non−linear" monitors that they appear to us as normal.
The best advice is to use the correction only when it is needed.
For example: You need an image for professional print (poster for example) It may appear on uncorrected PC monitor that many of the image details are hidden in a shadows. You may be tempted to correct that directly in image with various adjusting functions. However you should first set Monitor gamma correction and look at it again. Maybe suddenly the shades are not so dark and the details are quite visible! Correcting this in image would be a mistake because the result poster from print house (where it is expected to have calibrated printer) would be probably too light. This is a prime example when the people need to calibrate monitor and compensate for the gamma.

For most of the **web and internet** work you simply don't need to calibrate monitor − in fact you do better **without** calibration. Vast majority of population would view your images on monitors without correction so the images would appear to them more or less what you see (even that the gamma vary between monitors)

If you need to use gamma correction on your monitor you can make the experience more enjoyable with lowering the monitor contrast and using the monitor in a well lit room.

Tips and Tricks

Here are some tips you may want to try:

Use Bridge

1. Use Bridge Tool to add some interesting graphics effects. You don't have to use Bridge tool strictly for retouching!

First we used a Text Tool with Text Bridge. Then we applied the text by clicking outside text rectangle. Next we used Horizontal Bridge Tool to paint the transitions between **r** and **g** letters. Last we added **id** text with different parameters.

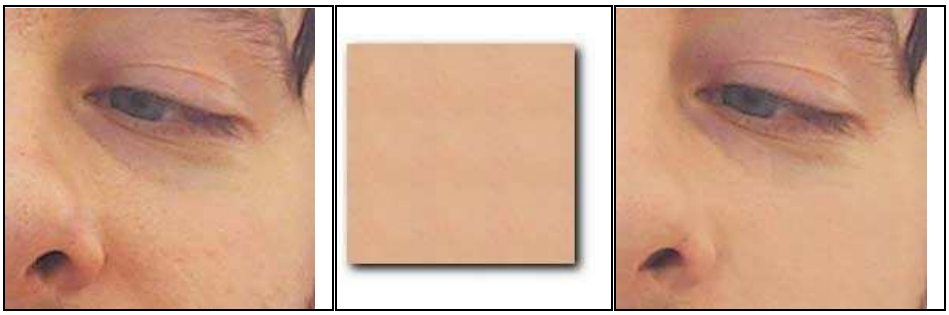
Use Image Nozzle with texture or Clone

Sometimes you need different color Image Nozzles. You can experiment with the Texture. Just select any texture and move the % slider to get the right mixture. Also you can try Texture Clone.

Use Texture Pick as a Make−up tool.

Skin is never perfect on photographs. That s why models wear a thick layer of make−up. Well, with Photo−Brush you can do almost the same on the image!
Use the Texture Pick tool to pick a texture of the skin. Try to find a spot which has average color. In the Seamless texture maker try to move the origin (by dragging the image) and set the controls so the texture is almost smooth.

Then use AirBrush and move the opacity slider way back to left to about 20%



Paint with the Airbrush and the texture over problem areas. You should use light cover (little Opacity) and repeat it a few times. Now you have your personalized Make−Up!