

CUTOOUT 4.0

International



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Introduction

CutOut 4 allows you to separate the fore- and background of an image and to edit them individually. This comprises the following steps: first you have to separate the content of the photo (digital matting), which is then followed up with further editing of the image, e.g. placing an isolated object into another photo (composition).

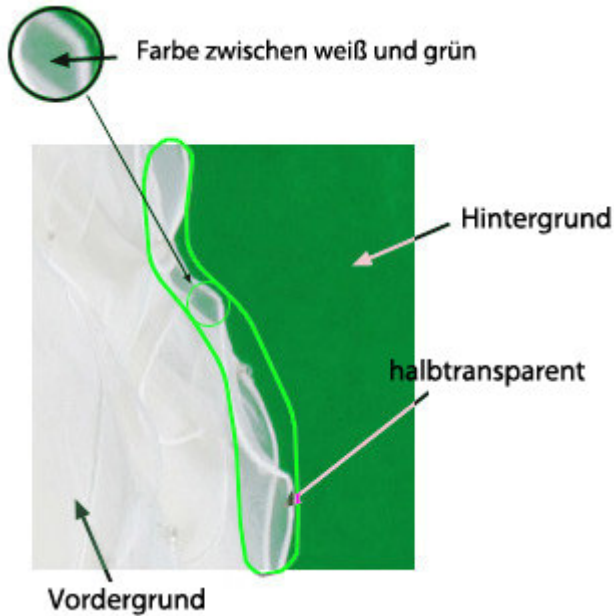
CutOut 4 mainly uses alpha channels to maintain the transparency information of the fore- and background of an image. The **alpha channel (α -channel)** is an additional colour channel found in digital photographs which stores, in addition to the colour information of the colour space, information regarding the transparency or opacity of every single pixel. Generally speaking, the term *alpha channel* mostly refers to the transparency information of an image.

What is matting?

Matting is defined as the separation of the fore- and background of an image. To do this you have to follow three basic steps:

- Define the edges of the foreground object.
- Define the opacity (transparent, semi-transparent, opaque)
- Conduct an inverse calculation for the original colour of the semi-transparent pixels.

Why calculate the semi-transparent pixels inversely? The following example provides an easy explanation:



Pixels in the semi-transparent area should be white in the original. However, as they are semi-transparent, they mix with the green colour in the background. If you take these pixels and paste them onto a separate background, they appear slightly green. By restoring the original colour of the pixels the inverse calculation manages to avoid this effect:



No inverse calculation

With inverse calculation

General information about matting technologies

Standard procedure

The simplest way is to select and cut out the objects in the foreground. Although, if you use this method, the semi-transparent pixels will not be considered.

Advanced tools

You could also use advanced tools like the magnetic lasso in Photoshop, but the problem of the semi-transparent pixels not being taken into account remains the same when you use this method.

Chroma key matting

This method originated in the film industry. The object that is supposed to be separated is filmed or photographed in front of a blue or green background. Then every pixel that is not of the plain background colour is defined as foreground.

Unfortunately, this method does not consider transparent objects in the foreground, such as a translucent piece of clothing. Objects like this will appear to be slightly blue, even after you implement them into a new background. This can lead to the slightly unnatural appearance that you might have noticed during stunt scenes in front of artificial backgrounds in older action films.

This method would be ideal if it weren't for the following restrictions:

- No aspect of the object in the foreground should be of the same colour as the background. Any part that has the same colour as the background will be defined as background and will appear as transparent or semi-transparent in the final composition.
- You will have to use a plain coloured background. Different colours will not be considered and you cannot include them in your selection.

For these reasons, chroma key technology is mostly used in the professional field. However, chroma key technology used by CutOut 4 is more flexible and perfectly suited for use by amateurs and semi-professional users:

Post-processing tools

CutOut 4 provides you with a variety of post-processing tools that can help you to further improve the final results.

Sensitivity settings

You can change the sensitivity settings with the post-processing tools to avoid certain effects like shadows in the background.

Inside-/Outside edge matting

Due to the restrictions that come with chroma key matting we need another way of matting. This should have no restrictions for the background, should support semitransparency, and be easy to use.

These criteria are met by the inside/outside edge matting, which makes this method perfect for editing most photos.

When you use this variant of free-form selection you start by defining the inside and outside edge of the object that you want to free-form select. Then you select the area that is supposed to be the inside of the object. Be sure to make your selection as close to the inner edge of the object as possible. After that, select the outside of the object. Be sure again to make your selection as close as possible to the outer edge of the object. The area between the inner and the outer edge is the semi-transparent area.

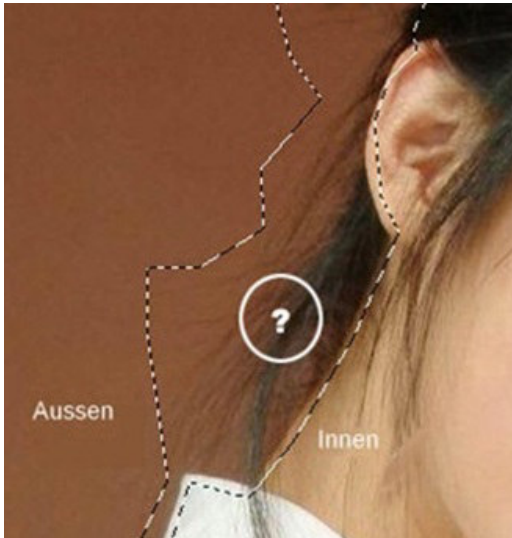
Due to the fact that the software cannot determine the colour values with perfect accuracy, errors in the first round of editing are to be expected.

Examples of sources of error:

1: Even the human eye can hardly see the difference between fore- and background.



2. The program tries to calculate the colour differences between the fore- and background. If there are many differences within the space in-between (e.g. the single hairs in this image), there can be errors in the calculations.

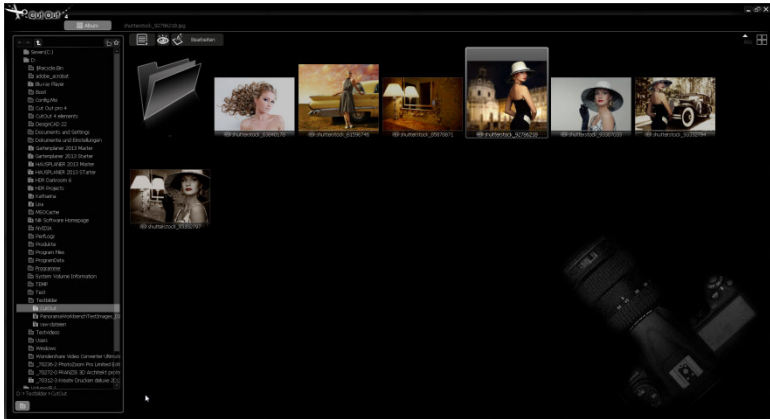


CutOut 4

User interface

The user interface of CutOut 4 is arranged clearly in order to get access to all the features of the program with a few mouse clicks.

Album mode

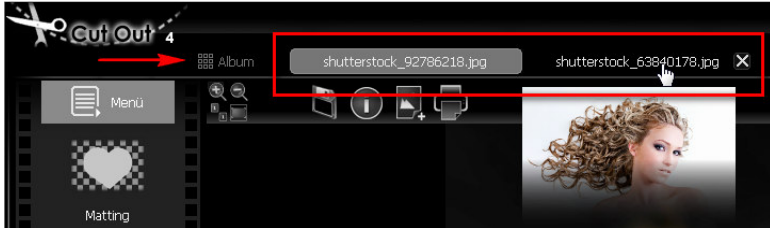


By default the program will be in album mode when you start it. On the left you can see the photo explorer. Here you can select the folder where the images you want to work with are stored. All the images in the selected folder will be displayed in the main window of the user interface.

In album mode you have access to general features like View, Sort, Rename, Copy and Paste. By right clicking on an image, a context menu with the available functions will appear.



Click on 'Edit' in order to start CutOut 4's edit mode.



If you click on 'Album' in the upper left you can switch back to album mode.

You can edit multiple images at once in CutOut 4. Move the mouse over an image's name in order to take a look at a miniature version of the photo. Click on 'X' if you want to close an image and save your latest changes.

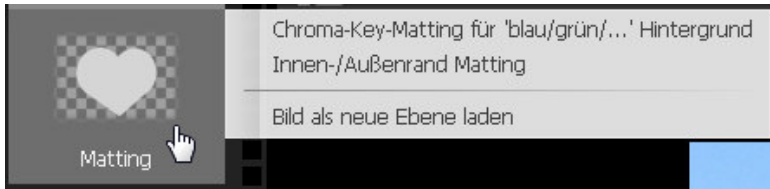
View images

You can zoom in and out of all the photos and navigate them easily in CutOut 4, except the thumbnails.

- **Scroll mouse wheel**
Zoom in/out
- **Drag**
Move if the image is too big to appear completely in the window.

Matting – Free-form selecting an object

Matting is the process of cutting out an object from its background. If you want to free-form select an object, choose the object within the image that you would like to free-form select and click on 'Edit'. You are now entering CutOut 4's edit mode.



In edit mode, click on the Adv. Matting button on the left. A context menu with the available matting methods will appear. Pick one of these options in order to start the matting process.

Chroma key matting for 'blue/green/...' background

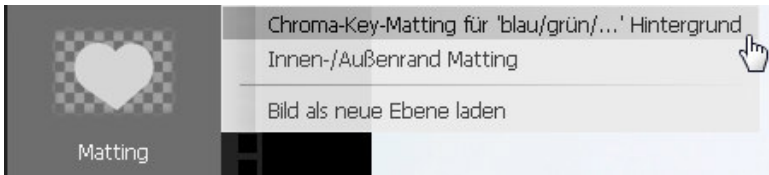
You can use the chroma key method for free-form selection if your image meets the following prerequisites:

- The background is plain coloured.
- The background colour is not black, white or grey, but a colour with saturation.
- The background colour does not exist inside the object in the foreground.

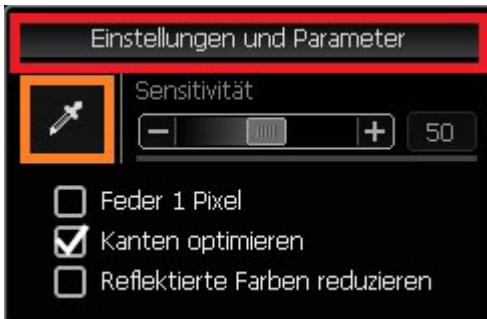
The chroma key method is particularly suitable for images with a plain blue or green background.



Choose an image and click on 'Edit' to enter edit mode. Then click on the Adv. Matting button -> Chroma key matting for 'blue/green/...' background to start the chroma key matting.



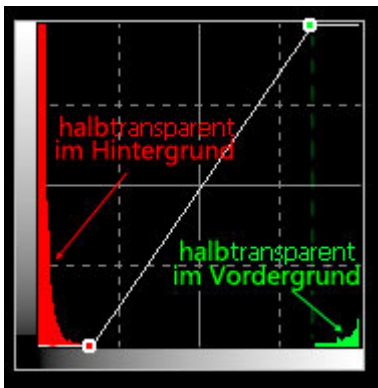
Now click on the eyedropper icon under 'Settings and Parameters'.



For the next step, set the background colour with the eyedropper by clicking on an area of the photo that has the corresponding colour. The program edits the image automatically and displays the results. If you have chosen a suitable photo, there are no more working steps necessary.

Additional options

- **Feather 1 pixel**
Adds one pixel to the mask.
- **Optimise edge**
Optimise the mask at the edge of the selected object.
- **Reduce reflected colour**
Sometimes you can see that the background reflects its colours on to the foreground. This might happen for example if a person in the image is wearing white clothing and is standing in front of a blue background. If this is the case, the clothing might be semi-transparent. By using this feature, this effect can be reduced.
- **Curves**
Improves the mask after matting. This graph shows the usual curve shape. When you take the histogram of the mask into account, the result becomes clearer.



If the matting result has some flaws, you can use 'General matting tools' to improve the result.

Inside- /Outside edge matting

The chroma key matting method does not offer you enough options for a free-form select. Most photos cannot be edited with this method. In comparison to the chroma key matting, the inside-/outside edge matting method offers you many more options for every kind of photo.

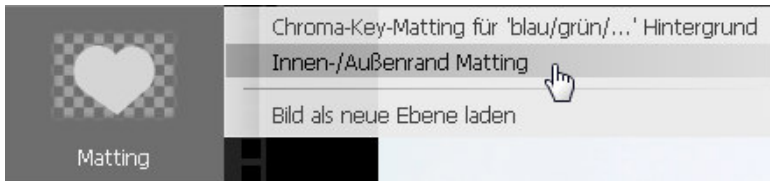
As described in the introduction, you have to choose an inside- and an outside section of the object that you want to select. CutOut 4 provides you with all the necessary tools for this process.

The inside edge of an object is a section inside the object close to its silhouette. The outside edge is a section that contains all the pixels of the object. It is located as close as possible to the edge, without touching the pixels on the inside of the object. The area between the inside- and outside edge is the actual edge of the object and is therefore the semi-transparent part. CutOut 4 can calculate the right mask of the user-specific inside- and outside edge.

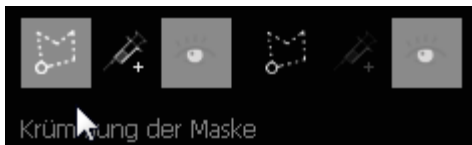
The inside- and outside edge are not the exact edge of the object. The aim of this selection is to create a trimap which contains a known background, a known foreground and some unknown sections.



To start the inside-/outside edge matting, select an image and click 'Edit'. Select the matting symbol in the edit mode and from there 'Inside-/Outside edge matting'.



Please click in the matting mode 'polygonal lasso tool for inner selection' in order to reduce the inner section of the object.



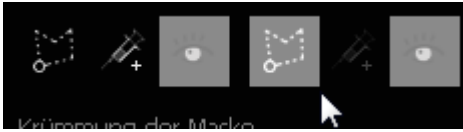
Trace the inside edge of the object that you want to free-form select click by click, staying as close as possible to the edge. Please do not select pixels on the outside of the object or semi-transparent sections.



The following instructions on how to use the inner selection tool might also be helpful:

- Click on the object to start the selection
- Right-click to remove the previous point
- Move the cursor and click on the object to continue the selection
- Double-click to complete the selection
- Press 'Shift' or 'Ctrl' to access the addition or subtraction mode
- Use the mouse wheel to zoom in or out

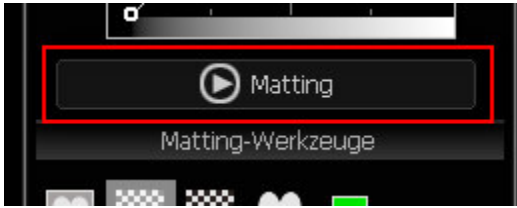
After marking the inside section, please use the polygonal lasso tool for the selection of the outside edge.



Move with the tool as close as possible along the outside and select the outside edge of the object. Do not select pixels on the inside of the object.



After choosing those two sections, click 'Matting'.



The program is now calculating the sections and will then cut out the object. The result is shown in the image below.



Should one section not be selected during the first process, the program will use the free-form select mode for it.

Use both polygonal lasso tools again to mark the inside- and outside edge, but this time in the subtraction mode (press Ctrl). The subtraction mode is indicated by a

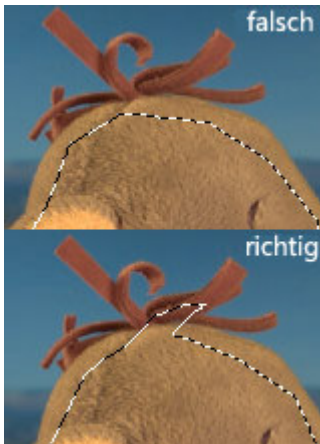
minus next to the cursor.



If you also want to mark sections that are difficult to access, you can do so by using the injection tools. With these features, you can paste a single pixel from the fore- to the background.

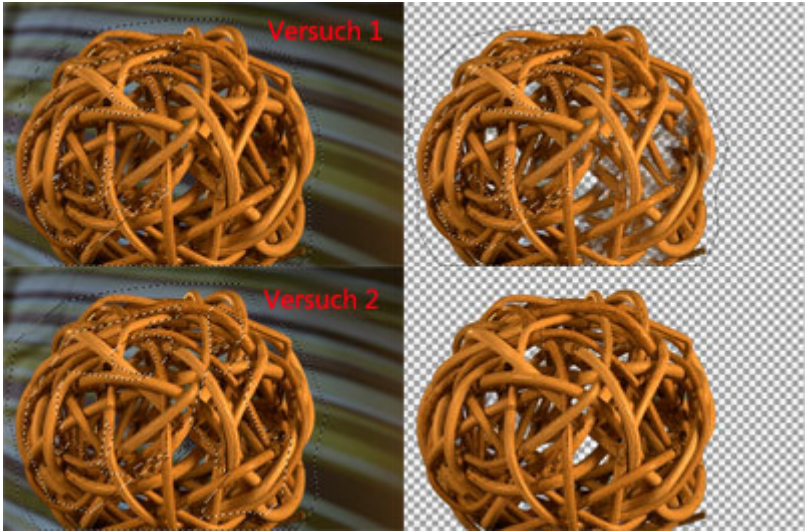
Further information

If the area contains different colours or structures, try to select these sections as precisely and as close to the edge as possible. If the scene is rather basic and obvious, a rough selection will be enough.



How do I perform a free-form select on a complicated object?

You can first select a wider section and separate it from the rest of the image. Please control the result. If the fore- or background becomes semi-transparent, use the addition- or subtraction mode of the polygonal lasso tool to add a pattern. Please continue matting the object until you are satisfied with the result. The injection tool can also be very useful in this case.



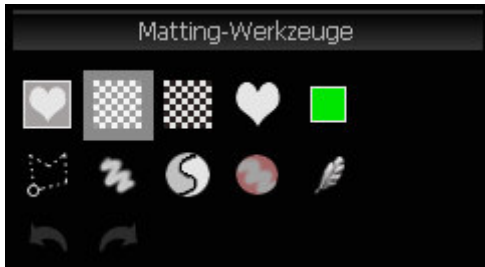
Why is the result not flawless?

- If the foreground and background contain similar colours, the program cannot see the difference, which leads to an incorrect result.
- Unknown colour. If the colour of a pixel is not recognised in any section, including fore- and background, the program regards this as a wrong alpha value.

Please use the matting tools in order to remove such errors.

Matting tools

On the right side of the page, you can see the matting tools. If they are not shown automatically, please click 'General matting tools' to open the window with the tool selection.



If you hover the cursor over one of these tools, you will see a tooltip with a tool name and further instructions regarding the use of this tool.

You can use the first five tools in the image above to modify the display of the image:

- **Show original**
If you click on this tool, you can see the image in its original form. Click on this icon to see the original image and remove the cursor to get to the latest mode.
- **Test result with default chequerboard background**
The default background for every free-form selected object is grey/white.
- **Test result with black and white chequerboard**
By clicking on this tool, you will see the free-form selected object on a black/white background.
- **Show mask as greyscale**
By clicking on this tool, you will see the whole mask of the image as a greyscale image.
- **Test result with pure colour background**
By clicking on this tool, you will see the selected object in front of a customised coloured background. Double-click the tool icon to change the background colour.

The following tools can be used to edit the fore- and background:

- **Polygonal lasso selection**
Please mark a section with the polygonal lasso tool to add it to the fore- or background. In the addition mode, indicated by a '+' next to the cursor, the selected section is added to the foreground. In the subtraction mode, indicated by a '-' next to the cursor, the selected section is

added to the background. Press 'Shift' to switch to a different mode. By pressing 'Ctrl', the polygonal lasso tool will switch to the free selection tool.

- **Free colour modification**

This tool uses a brush to mark sections as foreground or background. By clicking 'Set Brush', you can modify the size, softness and opacity of the brush. Move the brush over the transparent sections of the image to add them to the foreground. Press 'Shift' to access the subtraction mode which works like an eraser, removing repainted sections from the foreground. Please select a low opacity value for the brush for better control over the manual painting.

- **Re-matting**

This tool combines foreground colours in unison by clicking on the foreground with the cursor (indicated by an 'F' next to the cursor). You can also combine background colours in unison by clicking on the background with the cursor (indicated by a 'B' next to the cursor). You can only create six unified pairs. After creating at least one unified pair, the tool switches to the mat state. Afterwards, you can re-mat the edges of the free-form selected object by selecting the best unified pair and calculating the alpha value. Right-click to return to the original image. You can now reselect the foreground and background colour.

- **Desaturation**

If the edge of the selected object contains background colours, you can use this tool to remove these colours. First click on the colour to

determine a value and afterwards move the cursor along the edge to remove the colour. Right-click to return to the original image.

- **Feather brush**

Use the feather brush to soften the mask.

Layers

CutOut 4 uses layer-based image editing, so you can edit a single image without modifying other layers.

The first layer ('background') is a solid, non-transparent layer that defines the size of the whole surface. The layers above the background layer are called coating layers and have the following properties:



- **Visibility**

Show or hide a layer.

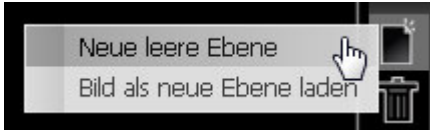
- **Opacity**

between 0 and 100

- **Blending Modes**

Supports different blending methods: Normal, Darken, Lighten, Multiply, Screen, Overlay, Hard light, Soft light, Difference.

There are two ways of creating a new layer: you can either create a new, empty layer or you can load a new image as a new layer.



Besides that, there are also several functions for the general setup of the layers. You can for instance delete a layer, combine two layers, rename a layer or save a layer as a PNG file with a mask.

Tools

There are three different tool types in CutOut 4: selection tools, paint tools and convert tools. CutOut 4 provides you with the following tools, among others:

- **Colour range selection**
The colour range selection tool provides you with a big colour palette you can choose from. This is a simple form of matting.
- **Camera paint**
The camera paint tool works like a clone stamp. Click on a section in your photo to copy it. Now click on a different section to determine the area you want to work with. You are now in the paint mode with which you can copy the selected sections from their original place to the area you chose. Right-click to determine a new area.

- **Modify shape**

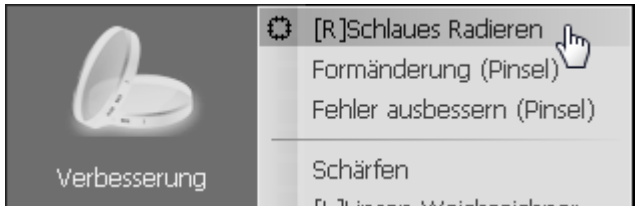
This tool allows you to change the shape of the photo. You can modify the size of the brush for a better control over the radius of the effects.

- **Repair and inpainting**

This tool is ideal for correcting little errors in the photo. Use this tool to paint on objects you want to remove. These sections are now highlighted in green. When you release the mouse button, the object is removed and replaced by surrounding pixels with similar colours. If the result is still not satisfactory, you can repeat this process.

Smart erase

This function allows you to remove interfering objects from a photo. Use one of the selection tools to highlight the object you want to remove. Now select Enhancement -> Smart erase.



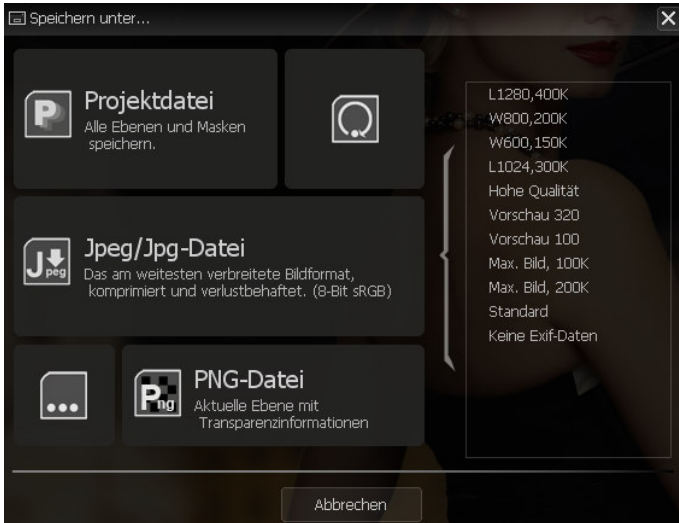
The program will now start to remove the object from the image. No parameters are needed for this process. If you are unhappy with the result, highlight the corresponding area and repeat this process until you have the desired result.

Open and save

CutOut 4 supports:

- Thumbnail
- Preview
- Common image formats, including most camera RAW formats: Jpeg, Gif, Tif, TGA, Pcx, Png, Bmp.
- Camera RAW formats: *.raw, *.nef (Nikon), *.cr2 (Canon), *.crw (Canon), *.orf (Olympus), *.mrw (Minolta), *.raf (Fujifilm), *.pef (Pentax), *.dcr (Kodak), *.srf (Sony), *.erf, *.dng (Adobe), *.arw (Sony), *.rw2 (Lumix) ...

The program supports Jpeg/Jpg, Png, Tif, Bmp and many more output formats.



Note: Save the image as a PNG file if you want to keep the transparent background!

Save as JPEG

- **Quality**
Jpeg compression settings.
- **Adjust by file size**
Enter the desired file size. The program will now try to provide you with the corresponding settings and the desired quality.
- **High quality colour**
Use YUV 1:1:1 for Jpeg encoding.
- **Adaptive**
Use the adaptive quantification table for Jpeg encoding. This might reduce the file size.
- **EXIF data**
You can decide whether you want to have all, some or no EXIF data in the file. EXIF data requires approximately 1-64K of the file size.
- **Compression optimisation**
The program will now try to reduce the file size, using optimisation.
- **Max image size**
Please select a maximum image size. If this limit is exceeded, the image is automatically reduced.
- **Max file size**
Please select a maximum file size.
- **Method**
If the final file size exceeds the maximum file size, the program will choose a method to reduce it. This includes downscaling the image size or

decreasing the quality. The file size is automatically reduced.

Hotline/Support

If you have questions regarding the installation, problems or errors of the software, please contact the **FRANZIS customer support team**.

E-Mail: support@franzis.de

**Phone (Monday to Friday 12am to 6pm): 0900 140 96 41
(0,44 EUR/minute from German landlines, prices from mobile phones might vary)**

Fax: 0180 300 26 45 (0,09 EUR/minute from German landlines, prices from mobile phones might vary)

Customers from Austria and Switzerland, please use the following numbers:

Phone: 0900 45 46 46 (1,56 EUR/minute for calls from Austria)

Telephone: 0900 47 03 70 (1,00 SFr./minute for calls from Switzerland)

Please understand that your questions can only be answered directly by FRANZIS customer support. This is to give us the opportunity to constantly enhance our customer service for you and to make sure that you receive only the most qualified answers to all of your questions as fast as possible.

This is how our customer support works best:

Please have the most important details about your computer and about our product at hand when you call our customer support. These include:

- Name of the product
- Product **ISBN (which you can find on the back of the packaging, above the easy to spot barcode)**.
- Operating system of your computer
- Technical details of your PC including all your peripheral devices

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