

# MAKING HDR

## USING PHOTOMATIX 5

**FREE GUIDE**



*Detail Enhancer*

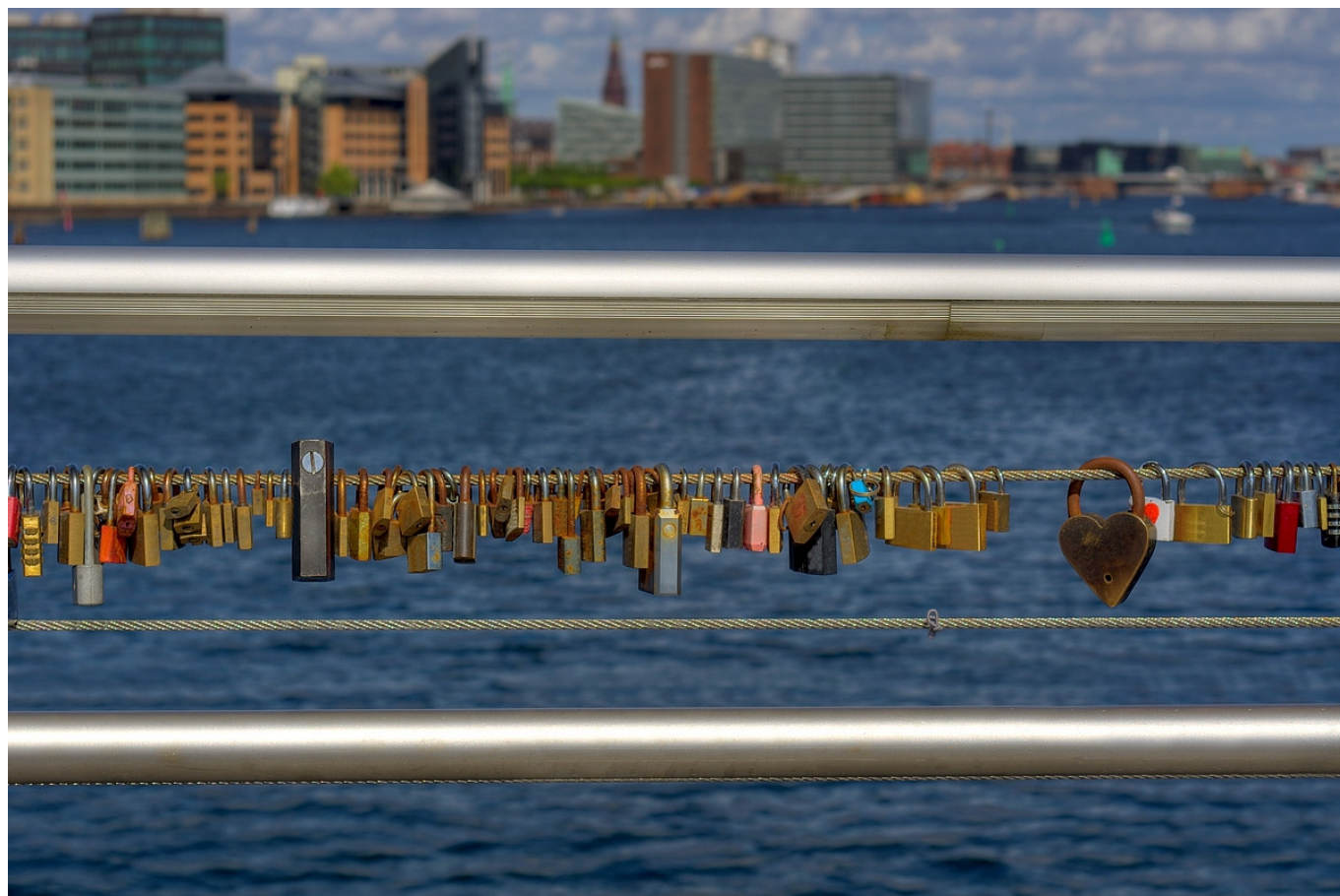
Introduction	2
Load bracketed pictures	3
Preprocessing options	4
Tone mapping	10

© HDRfoto.dk 2014

You may link to this guide but you may not copy the guide and place it in your website, in debate fora's or anywhere else.



# Introduction



This free guide is written for you, if you are looking for a simple and easy-to-understand guide into the great world of using Photomatix 5. In clear language and with good illustration I will guide you through the most important steps making HDR images with Photomatix. The guide will focus on the work with Detail Enhancer and I will not go into the Finishing Editor.

I might as well start by explaining some of the words and terms I use. Pictures are the files before they have been merged and tonemapped. Images are the images after merging and tone mapping. HDR images are always merged from two or more individual pictures. Single tonemapped pictures are not HDR; they are tonemapped. No such things as “pseudo HDR” or “Fake HDR” exist.

The guide is give you a number of screen dumps. I have permission from HDRsoft.com to use these screen dumps. But the guide is not filled with screendumps. It is very boring to look at; instead I have placed a lot of my images here. I hope you will enjoy them.

I really hope that the guide will be to inspiration and joy for you. There are millions of fantastic motives out there. Just reach out and snap that series for your next HDR.

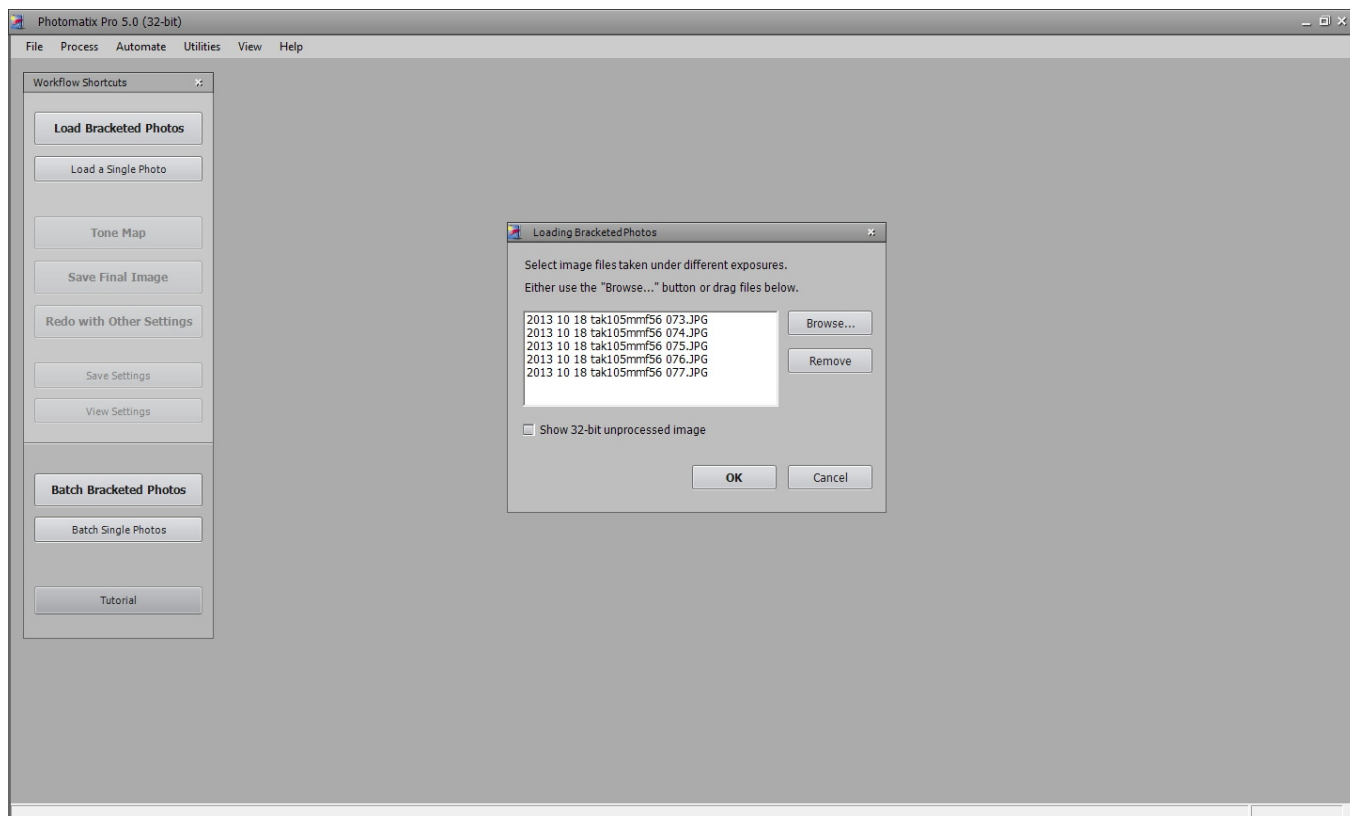
**John Nyberg**

*John Nyberg is the author of several books about photography.*

*His first book about HDR photography was released in 2012 and is available as E-pub, on paper and as PDFfile from [www.libris.dk](http://www.libris.dk). The book is in Danish.*

*John Nyberg's images are used many many places all over the world.*

# Load Bracketed images

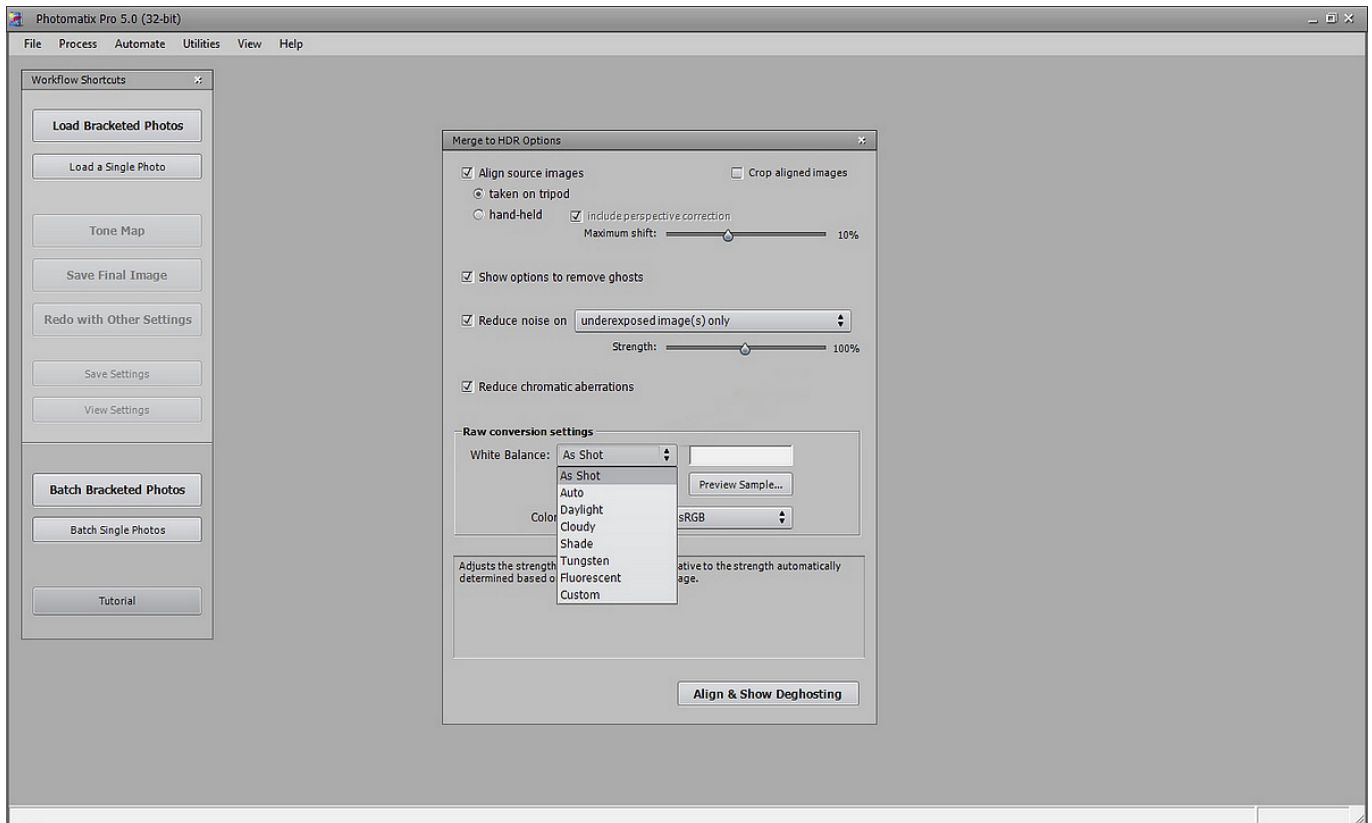


It is very easy to start the process. Press "load bracketed images" and a small window appears giving you the possibility to search for and choose the pictures you want to work with.



*TIP: Sometimes it can be hard to see when a series for one HDR ends and a series for another HDR begins. However, you can ease that task. When you set up your camera for Automatic Exposure Bracketing (AEB), you might get the option to choose in which order the pictures are taken. Choose most underexposed first and ending with the one most overexposed. That will make it easier to identify ends and beginnings of series of pictures.*

# Pre-processing Options



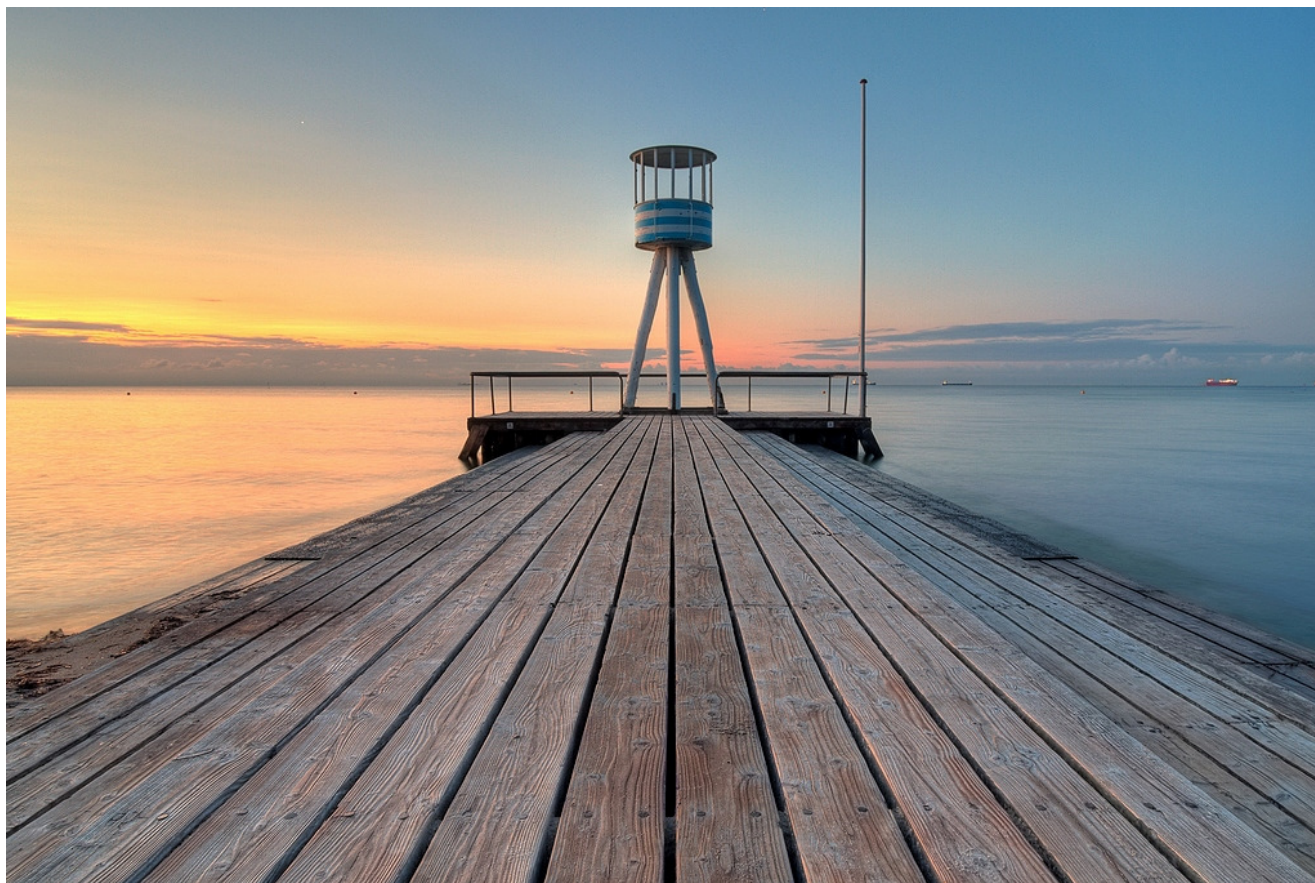
The next window in Photomatix let you set the pre-processing options and here is where you lay the foundation for your HDR image. Note that this pre-processing window is for using RAW files – and you do (of course) use RAW files.

The options are: “Load bracketed images” (previous page), “Alignment”, “Remove ghostlines”, “Reduce noise”, “Reduce chromatic aberrations” and “White balance”. We will look at each and every one of these options in the following pages.

During the rest of this chapter, you may refer to the illustration above. I have chosen to show you some nice HDR images instead of repeating the screen dump on every page.



## Alingment



HDR images are merged using individual pictures. Therefore, you will always face the risk that the camera has been moving during the process of taken the pictures. That is why Photomatix offer a build-in function to aling the pictures. You choose between two difference methods depending on how steady the camera was during the process.

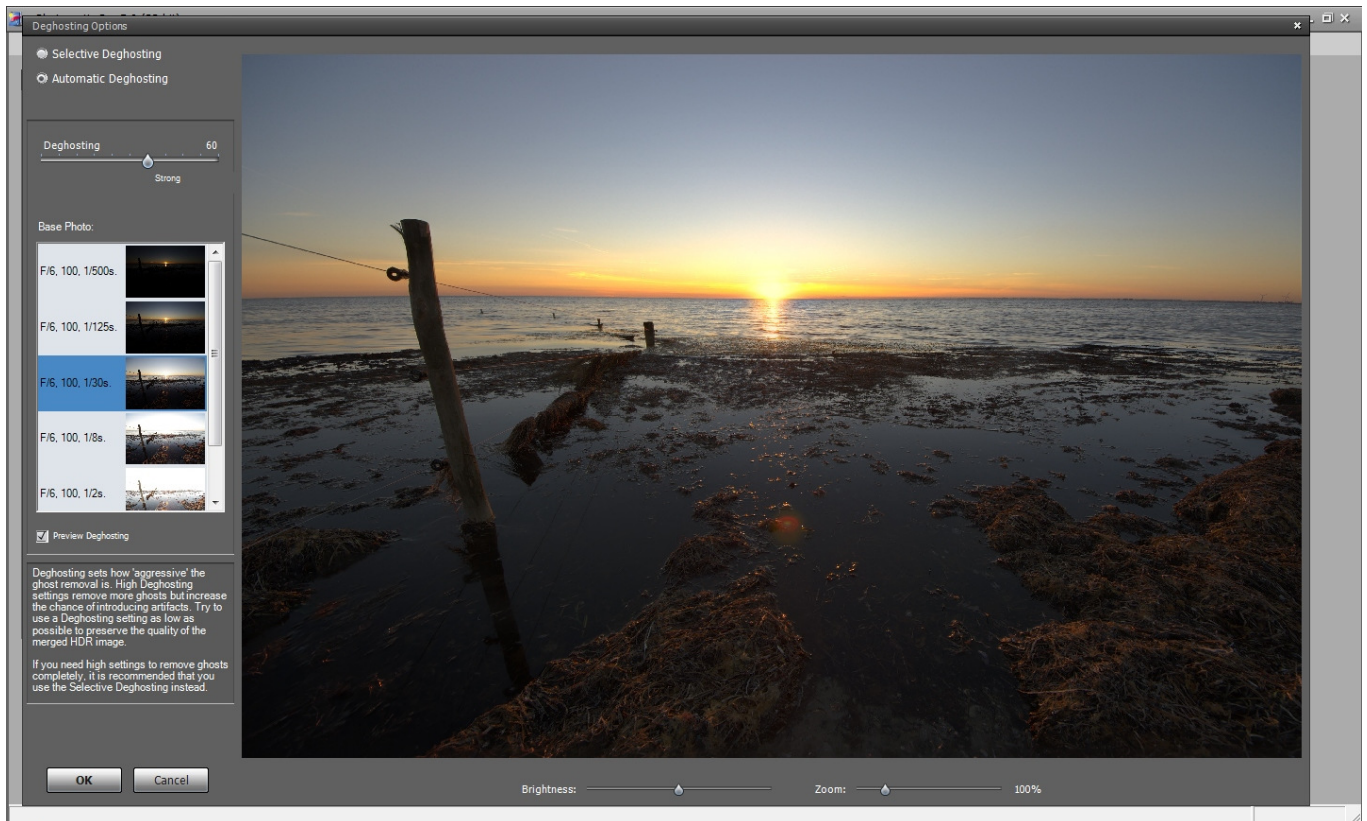
You should tick “Taken on tripod”, if you used tripod. And you should tick “Hand held”, if you toke the series holding the camera in your hands.

“Taken on tripod” is fast, but will only correct for vertical and horizontal camera movements. Here the pictures are stretched for alignment. “Hand held” will correct for several types of movement and will (if ticked) correct for perspective errors due to movement of the camera. Her the pictures are stretched and twisted for alignment.

You may want to let Photomatix crop your image så the edges are nice and clean. I never let Photomatix crop my images. I never move the slider for “maximum shift”. Large shifts mean risk for wrong alignments.

The image above is merged from seven pictures and Photomatix has analysed every single one in order to aling them perfectly.

## Remove ghostlines - Automatic



If stuff in your motive has been moving around during the time you took the series of pictures, the final HDR might be blurry. To avoid that Photomatix includes the option of "remove ghostlines". You may choose from two methods. "Selective" or "Automatic". Here we look into "Automatic".

Everytime Photomatix fixes ghostlines in the image, you risk losing some details. So you want to keep the strength to a minimum and still have all the ghostlines removed.

You can move the slider to see the effect – and do it. Just do it. Because it is only by trying, you find the best settings.

*TIP: Keep an eye on both ghostlines and details.*



## Reduce noise



Noise is a special issue in HDR images. Mostly because merging and tone mapping might help you lose all noise and might produce a whole lot of extra noise. Rest assured that if your pictures are noisy, that noise will be enhanced in the final HDR. Tone mapping is all about enhancing details and noise might be mistaken for details, you see.

You may choose which input pictures, you want Photomatix to run noise reduction in. If you are confident that your images are without noise, you might just want to run noise reduction in the underexposed pictures. If you think there might be some highlight problems, you might want to include both underexposed and the normal exposed picture. Finally, if you know that you have noise issues in the series, you want to run the noise reduction on all of the pictures.

Never go higher than “100%”. Every step you go higher will cost (a lot of) details in your final image.

The insertion above shows how noise can be very annoying even in an image with plenty of light. This happened because Photomatix boosted details in the shadow area; thus boosting the noise too. Photomatix might have big trouble distinguishing between interesting details and noise....

*TIP: I always let Photomatix run remove noise at 100% in the underexposed pictures.*



## Reduce chromatic aberrations



Chromatic aberration is a lens fault and you can see in the insertion above, what chromatic aberrations is all about: purple edges around things against bright backgrounds – typically the sky. The problem is normally concentrated to wide lens pictures, or in other words: Exactly what 95% of HDR images are.

If your pictures have chromatic aberrations you may rest assure that the tone mapping will enhance it. Purple edges is an interesting detail in the “eyes” of Photomatix and the programme will enhance the colours and the contrasts.

I always ask Photomatix to reduce chromatic aberrations. But unfortunately Photomatix isn’t very good at it. You normally have to combat the problem in your ordinary image editor.

**GET 15 %**  
**DISCOUNT**  
**PHOTOMATIX**  
*USE THE CODE:*  
**hdrfoto15**  
**RABAT**  
**DISCOUNT**  
**NEW VERSION**

## White balance (RAW conversion settings)



When you load your RAW input files into Photomatix you have the possibility to set the white balance, and that is a very important possibility. White balance defines how the colours in the image are reproduced.

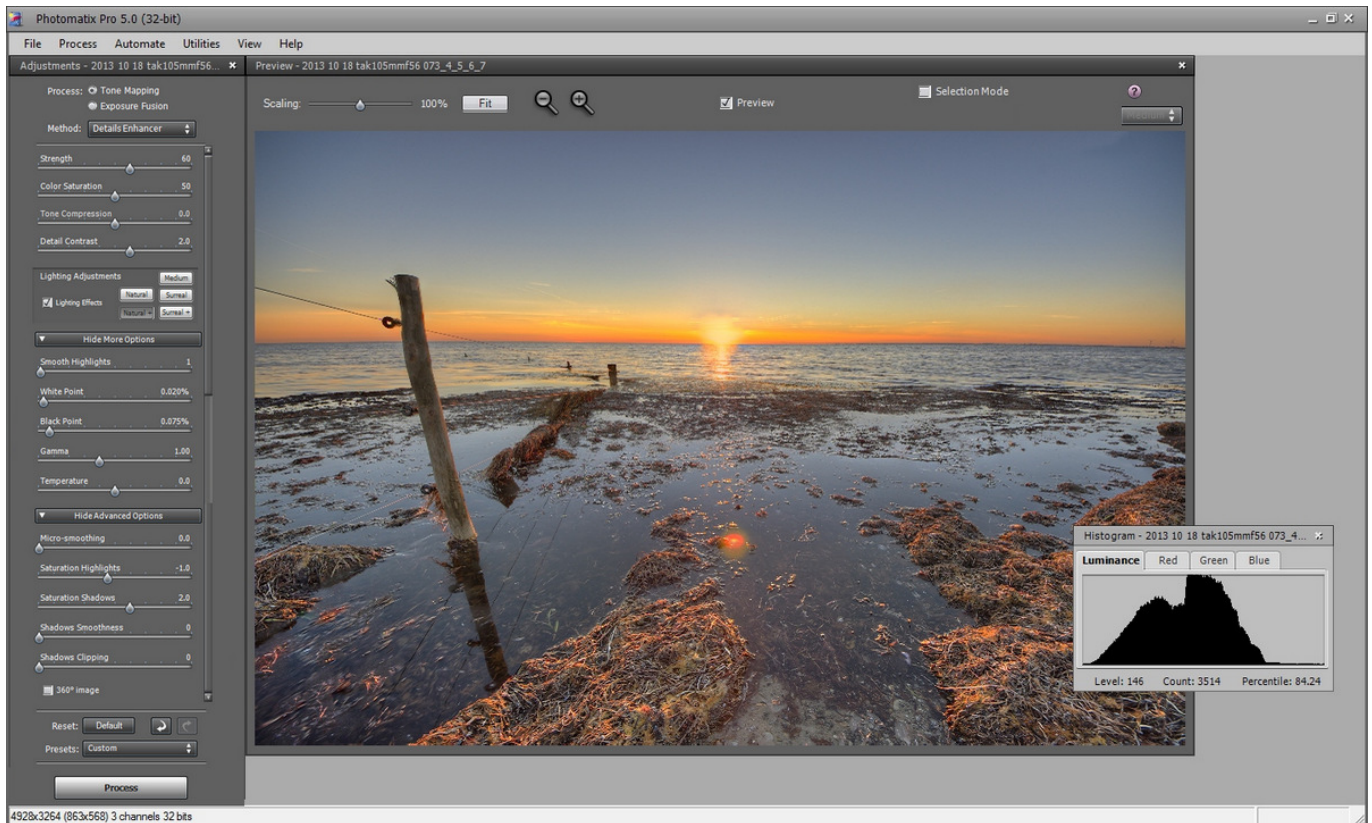
Look at the screen dump on page 4. You can see that Photomatix offer the standard settings as you know them from your camera.

But Photomatix also offer you manual white balance. You press “preview sample” and you can browse to one of the input pictures in the series. Open the picture and set the white balance. Once you click “ok”, Photomatix will set the white balance for all the picture in the series.

*TIP: Wrong white balance might give you many problems in controlling the light during tone mapping. Besides that, a wrong white balance will often make the image look very artificial.*



# Tone mapping



*You are normally not able to see all the possibilities for adjustment at the same time; I have manipulated a little. I use the screen dump above as reference during this chapter.*

Tone mapping is the process of fitting all the information from your HDR into the limited dynamic space of tiff and JPG's. Your HDR file offer about 117 billion levels of light in each pixel, tiff offer you about 60,000 levels and JPG 256 levels. When you tonemap with Photomatix you have very good control of the process due to the many adjustment possibilities.

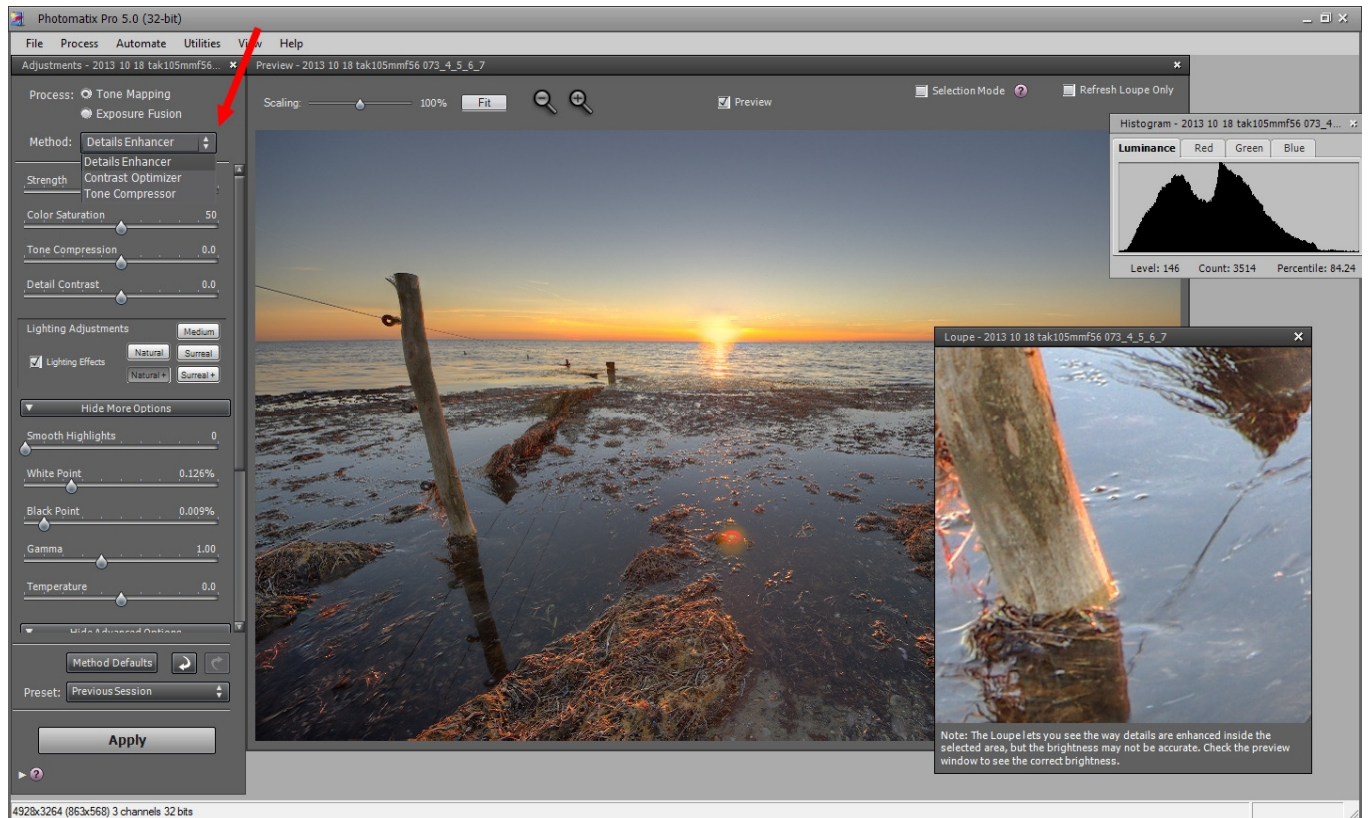
You can choose between different tone mapping systems: 1) Exposure Fusion and 2) Detail Enhancer.

In this guide, we look into Detail Enhancer. Compared to Exposure Fusion, I am sure, you will find much more fun in Detail Enhancer.

*TIP: Even though I don't explain and analyse all the controls and possibilities in Photomatix, I really will suggest that you take the time to explore the programme.*



# Detail Enhancer



Detail Enhancer does precisely what it says: Enhance the details from a series of pictures. Photomatrix analyses every single picture and find the best areas to use from each picture – at pixel level. Each pixel is then analysed to determine how it looks compared to the neighbour pixels, and if significant contrasts or colourshift are found, the pixels will be enhanced.

That means a lot of calculation for your computer. It shouldn't surprise that Photomatrix will take a short while to calculate its way through e.g. five 20 MB files, should it?

The red arrow show where you find "Detail Enhancer". Notice the dot in the "tone mapping" field above the open drop-down menu.

Lets look at the possibilities for adjustment:

## Strength – styrke



Strength control the degree of detail- and contrast enhancement in the image. The tone mapping process will enhance the image, and here you can control how much.

The scale is from 0 to 100 and Photomatix points out that default is “70”.

The higher value you chose, the more strength is used to boost details and contrast. It is my experience, that strength has the most effect in those areas, Photomatix perceive as dominated with direct light.

You might be able to fight halos by reducing strength. But remember that tone mapping always reduces the general contrast of the imaged (as explained earlier) and a very low value will give you “flat” images.

The image above is of the castle “Kronborg”, know from Shakespeas “Hamlet”. The image is merged from five pictures.

*Normally I set strength between 40 and 70.*

*TIP: A halo is a bright ring around dark objects meeting a more bright background. The tone mapping will perceive such objects as interesting and therefore enhance the contrast – creating a halo. Halos make an image look very unnatural.*



## Color Saturation



You know Color Saturation from your normal image editor. Saturation determine how intense the colors in your image are.

The scale is from 0 to 100 and Photomatix points out that default is “46”.

The higher value you chose, the more intense the colors get.

This saturation adjustment will affect the whole image; but you must be careful not to “overdo” the colors. If you have some nice colors in a sunset, you should try the “Saturation Highlights” first. If you have some colors in a shadow area (maybe some stone in a beach), you might want to try “Saturation Shadows” first.

The image above is from the northcoast of Zealand, Denmark. The image is merged from five pictures spacing two EV-steps each.

*Normally I have saturation between 45 and 55.*



## Tone compression



Tone compression controls the compression of the tonal range.

The scale is from -10 to +10 and default is "0".

Moving the scale to +10 will enhance details in shadow areas and brighten your image. Moving the scale to -10 will provide a more natural look.

I normally try to move the scale first to the left, and after that to the right to see the difference. I find it hard to guess the impact of the movement.

The image above is from a car graveyard in Sweden. The image is merged from five pictures spacing one EV-step each.

*Normally I have tone compression between -1 and +1.*





## Detail contrast



Detail contrast determines the amount of contrast applied to the details in your image. Notice that the detail contrast works at the details in the image – and a little more.

The scale is from -10 to +10 and default is “0”.

Moving the slider to the left (towards -10) will decrease the contrast and brighten the image. Moving the slider to the right (towards +10) will increase the contrast and darken the image. Increasing the contrast will make the image look more sharp.

*Normally I have Detail contrast at “0”.*

The image above is the entrance to “The Blue Planet”, the National Aquarium in Copenhagen, Denmark. The image is merged from five pictures spacing two EV-steps each.

*TIP: Be very careful not to increase the detail contrast as a way of getting more sharpness into your image. Applied sharpness is best obtained as last adjustment in your normal image editor.*



## Lighting adjustments



Lighting adjustment is, I think, the most important adjustment in the process of tone mapping. Photomatix states that the adjustment determines whether the image will look natural or surreal. Lighting adjustment controls the distribution of light between areas of shadow and bright areas.

Lighting adjustment works as slider or buttons. Using buttons will produce a "Magic light effect", it says in the explanation window in Photomatix. I normally use the buttons.

The scale in buttons is from "Natural +" to "Surreal +".

*My default is "Natural".*

"Natural" and "Natural +" produces images with distribution of light close to what you see. "Surreal" and "Surreal +" will enhance areas in shadow and give the images a somewhat unnatural look – surreal.

*TIP: If your image suffer from halo (brigt ring) you have probably choosen settings "Normal", "Surreal" or "Surreal +". The closer you get to "Natural +", the less halo will show in your image.*



## Smooth highlight



Smooth highlights is used to control noise the bright areas as the sky. Smoothing highlights works by making bright pixels give a little brightness to the neighbour pixels. This is a reduction of contrast in the highlights and will also fight any tendency to produce halo around objects with bright background.

The scale is from “0” to “100”.

*I standard setting is between 5 and 20. The higher you turn Smooth highlight, the more details you will loose in the bright areas.*

The image of the old boat above is merged from five pictures spacing one EV-step each. Smooth highlight is turned up to about 40 in the images. I wanted to keep a bright expression of the ice in the shadows, but the price has been that some areas of the clouds have lost details.

## White point



White point set the maximum value for your tone mapped image. Moving the slider to the right will lower the maximum value and brighten the image. The image will also have increased contrast. But you have to take care of burn out in the bright areas. Because the maximum value defines all white – leaving no room for details.

The scale is from “0%” to “10%”. Default is “0.25%”.

*My standard setting is “0.143%”; but I happily move the slider in order to bring the necessary brightness into the image.*

The image above is merged from nine pictures spacing one EV-step each. I have raised the white point in the image to obtain a bright snow.

*NOTICE: Be careful that you don't get burned out areas when using the White point.*



## Black point



Black point work, in the princip, just as White point. In Black point you control when dark areas clip to black. HDR images are often seen without any black at all – because that is the nature of HDR: To prevent any loss of details in dark and brught ares. But looking at e.g. night inimages it must be clear that all black does excist. The higher value you choose, the more dark areas will clip to black and the more contrast you will obtain.

The scale is from “0%” to “10%”.

*My standard setting is “0.143%”; but I happily move the slider in order to bring the nessecary brightness into the image.*

The image above shows a section of Copenhagen Harbour one late night. The image is merged from five pictures spacing one EV-step each. You will find black areas in this image, and I have helped those areas foreward by turning the Black point up a little.

*TIP: Black point is also used to control noise in the dark area. Black point can be used as an effective noise killer, but the price is a lot of details.*

## Gamma – gamma



Gamma is all about controlling the midtone areas in your image. Gamma is a key to your image opening or closing the most dominant areas. And your images will benefit from any time you spend adjusting gamma. Choosing a high value for Gamma brighten your image and reduces contrast.

The scale is from “2” to “0.35”. Default value is “1”.

*I often have gamma at “1”, but in bright images, I normally move the slider to the right in order to obtain the wanted brightness.*

The image above of “New Harbour” (Nyhavn) in Copenhagen, Denmark is merged from three pictures spacing two EV-steps each. Gamma is in this image set at 0.85 in order to lift the midtones a little and to keep the very bright expension of the scene.





## Temperature



Temperature adjusts the temperature of the colors in the image. The temperature is regulated by adding yellow/orange or blue color to the images. Adding yellow/orange color will make the image more warm to look at, and adding blue color will make the image more cold to look at.

The scale is from “-10” to “+10”. The minus scale is cold/blue, and the plus scale is warm/yellow. Default is “0”.

*I normally have saturation set to “0”. If I want a more cold or warm expression in the image I prefer to adjust bright areas and shadow areas individually.*

The image above from a wild life park north of Copenhagen is merged from seven pictures spacing 1.7 EV-step each.

HDR is the master of keeping and enhancing such richness of colors. But be careful: It is very easy to produce images with too much richness in the colors; and you seldom see it yourself.

*TIP: If you have a lot of old wood in your image and want to enhance the texture of it, you could add some warmth. This will often bring the structure forth.*

## Micro smoothing



Micro smoothing does exactly what it sounds like. Micro smoothing smoothes at pixel level. Micro smoothing is very useful to combat noise in e.g. the sky or clouds. Micro smoothing evens out contrast differences at pixel level. The price of combatting noise is loss of details. You have to look carefully at the tradeoff and decide in which direction you want to go.

The scale is from “0” to “10”.

*I normally have micro smoothing set between “0” and “6”.*

The image above from an open window in my bedroom in Copenhagen, South West, tells the story of a rainbow. The image I merged from five pictures spacing two EV-steps each. The image had much noise in the sky; and that is a common challenge when making HDRs in rainy weather. The drops are clustered together and Photomatix will tend to “see” the clusters as interesting details in need of enhancement. Thus producing what looks like noise. Micro details at 8 took care of the most of the noise.

Micro smoothing is also very useful when you work with pictures of cars and other objects with shiny surfaces.

*NOTICE: The loupe function in Photomatix is not always showing a true picture of the noise in an image. Very often the loupe will show much more noise than the finished image. Placing the loupe with both solid structure (roof, tree and such) and sky will often be more correct.*



## Saturation highlight



Saturation highlight is simply just the delight of sunrise (and sunsets). Saturation highlight controls the amount of color you have in the bright areas of the image. This is very useful since the delicate colors in the bright areas often burns out and turn all white in photographs.

The scale is from “-10” to “+10” and default is “0”.

*Normally I have the saturation highlight set between “-1” and “+1”. But in images with delicate colors in the highlight, I might work my way up to “+3”.*

The image above is showing a sunrise above a forest lake. The image is merged from tree pictures spacing two EV-steps each. In order to get the colors in the high light areas, I turned the Highlight saturation up to +3.

*NOTICE: Be aware that turning Saturation highlight up might turn your image into something very unrealistic (surreal). Colors are wonderful, but use them with care.*

## Saturation shadows



Saturation shadow controls the saturation of the shadow areas in your image. Very handy since lowering the light will give you less saturation. Saturation shadow might compensate this.

The scale is from “-10” to “+10” and default is “0”.

*Normally I have the saturation shadow set between “-2” and “0”. But in images with delicate colors in the shadows, I might work my way up to “+2”.*

The image above showing a roaring stag is merged from five pictures spacing one EV-step each. The stag is, as you can see, in the shadow giving a quite pale impression. I have turned the Saturation shadow up to +2.

*NOTICE: It is only natural that saturation in shadow areas is low. Turning Saturation shadow up high might cause the image to appear very artificial and “fake-like”. Again: Colors are wonderful, but use them with care.*



## Shadows smoothness



Shadows smoothness reduces enhanced contrasts in shadows areas. That is how simple the function can be described. Photomatix identify all shadow areas in your image and reduce any enhanced contrast in those areas, thus providing you with more smooth image – less noisy.

The scale is from “0” to “100”.

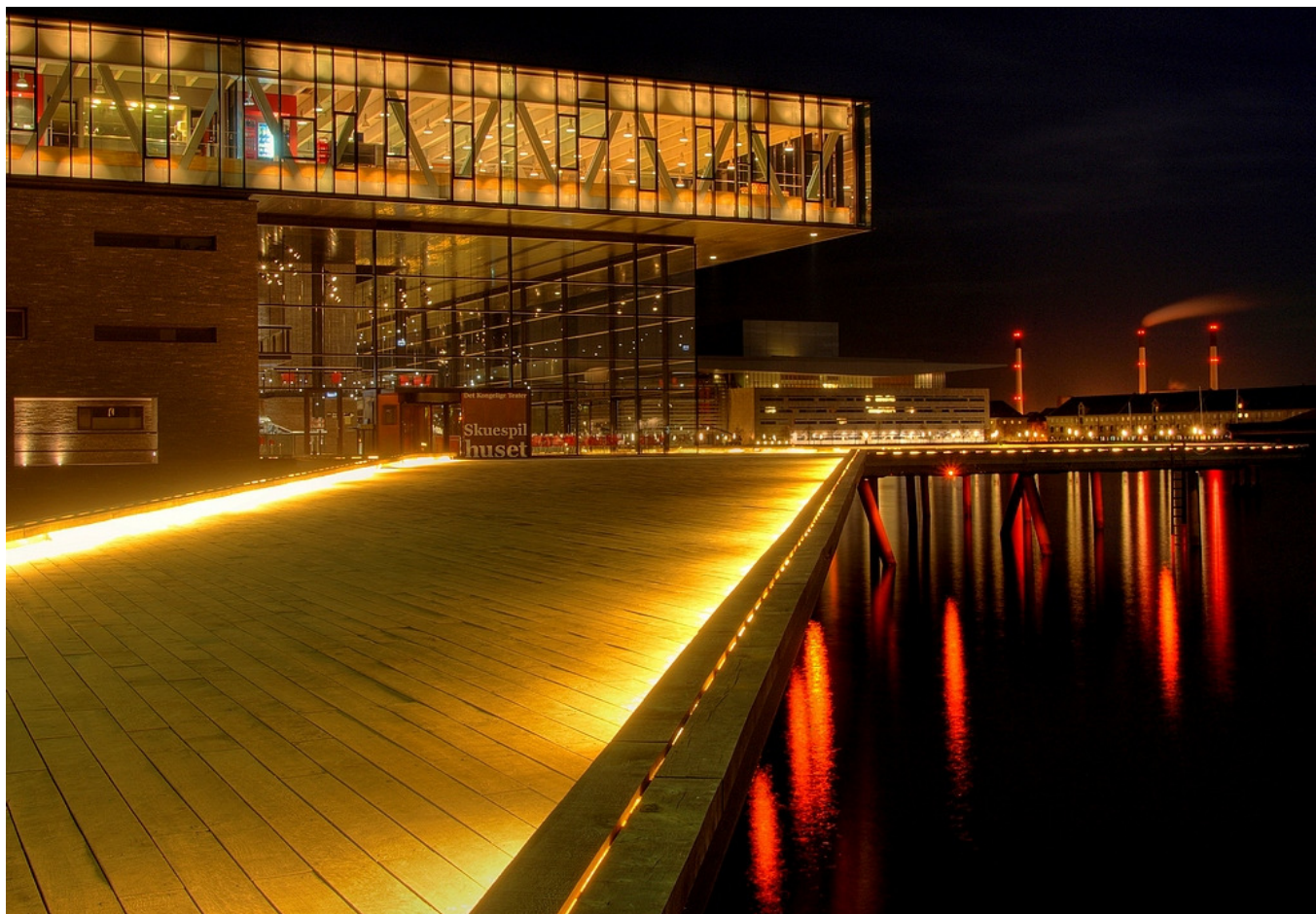
*Normally I have the saturation shadow set between “0” and “20”. But in night images, I might work my way up to “40” or even more.*

The price is, however, loss of details. Photomatix is not very good to distinct between noise and details.

The image above showing a modern office building in Copenhagen Harbour is merged from five pictures spacing one EV-step each. I have applied Shadows smoothness at the level of 30.

*NOTICE: Again, you must be careful. When Photomatix smooth out your shadow areas, the programme also smooth out many details in those areas.*

## Shadows clipping



Shadows clipping controls when and what turns all black in your image. This is a very powerful tool what very rapidly can change your image completely. The control kicks any noise out of the door at once; but as always with such “wondertools” you have to be careful. Turning shadows into all black will very fast look wrong. Gentle does it.

The scale is from “0” to “100”.

*Normally I have the saturation clipping set between “0” and “10”. But in night images, I might work my way up to “20”.*

The price is, however, loss of details. Photomatix is not very good to discinct between noise and details.

The image above showing the “Skuespil Huset” (House of Acting) in Copenhagen Harbour is merged from three pictures spacing two EV-step each. I have applied Shadows clipping at the level of 15.