

HDR TOP TIPS

VOLUME 1

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10 TIPS FOR
BETTER HDR PHOTOS



The Photo Cookbook Series



*Photo Recipes
for practical people*

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About the author

My name is Klaus Herrmann. I am a photographer, instructor, author and a scientist at heart. On my website farbspiel-photo.com, you can access many free tutorials and other resources that will help you in your photographic work. This includes [before-and-after comparisons](#), [making-of videos](#) and [pics to play with](#). Learn photography and image processing at farbspiel-photo.com.

Photo Cookbook Series

This free eBook that you received for subscribing to my website, is an early installment of my latest project – [The Photo Cookbook Series \(PCS\)](#). The PCS is a series of eBooks, video tutorials and other material that provides in-depth practical information on different photographic topics and offers practical guidance to photographers at all levels. The topics do not only include [HDRi \(High Dy-](#)

[namic Range imaging\)](#) but also more general fields related to the technique, the technology, and the workflow involved with creating, processing and presenting your photographs. Over time, I will add more and more material to The Photo Cookbook Series to make it a living library that you can use to guide you through your photographic life.



Online Presence

If you need more information on my work or if you have questions concerning *The Photo Cookbook Series*, here are a few places where you can find me:

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HDR Top Tips - Volume 1

High Dynamic Range (HDR) photography can be rather challenging, no matter at which level you pursue it. The need to take multiple exposures and the complexity of the software involved create a number of ways in which you can mess up things badly. As a result, you may not be able to get the end result you were striving for.

In this eBook, I am going to give you a number of essential tips that can make your HDR life a lot easier. This list includes tips about shooting for HDR, preparing your images adequately for the post-processing stage, merging and tone-mapping your HDR images, and post-processing them.

You will not find a magic wand in this eBook – no secret recipe that will enable you to create stunning images with a snap of your fingers. What you will find though, are answers to some of the questions that may be bothering you. I encourage you to explore those answers yourself. Don't just absorb them, reflect them!

You will learn about . . .

- ▶ the philosophy behind choosing your subjects
- ▶ hand-held HDR shooting
- ▶ getting the best quality
- ▶ preparing your source photos
- ▶ avoiding the most common mistakes when processing your HDR images

1. Stop looking for HDR scenes

The first tip is related to what you shoot. At first glance, it may seem absurd. But let's face it, HDR has gotten a bad name partly because many people are choosing their subject based on its dynamic range: The higher the dynamic range of the scene, the better the final photo! Right?

Wrong! If you are a macro photographer, you will be spending your time crawling through the woods hunting insects. If you are a street photographer, you will try to find interesting people in interesting situations. But if you pursue HDR photography, choosing your scenes such that they have the highest possible dynamic range may not be the best idea. HDR is a tool for overcoming a limitation of current camera technology. You should not artificially try to cause a problem just to solve it, which is kind of common sense. Look for scenes that are appealing and optimize your composition. If the scene you end up with happens to have a large dynamic range, go for HDR. Photographing directly into the sun just to do some HDR will result in dull images.

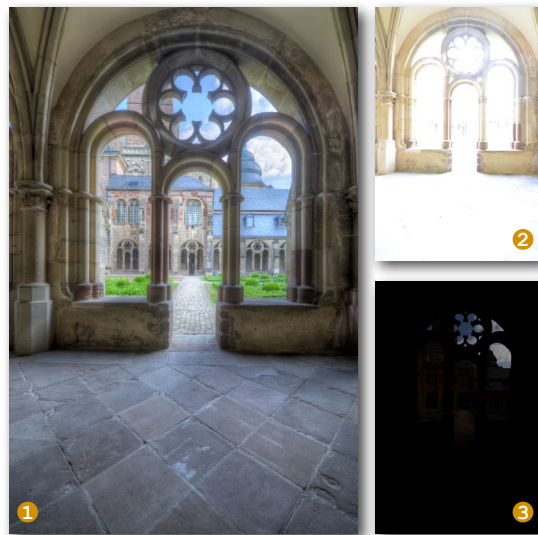


Figure 1 An HDR image (①) covering 12 stops between the brightest (②) and the darkest (③) image. So you have found the ideal scene for HDR – a bright sky and a dark interior. Still, the final image is boring? Forget about HDR for a moment. Go out and find scenes that are appealing because of the composition and the subjects – not for their dynamic range.

2. Learn to hand-hold your HDR shots

Sure enough, if you use a tripod, your images will generally have a better quality since camera shake and misalignment of the source exposures are not an issue with a tripod. However, you can also produce high-quality HDR images hand-held without a tripod. All you need is solid knowledge about your equipment and some practice. HDR software is constantly getting better at handling hand-held source images. Being able to hand-hold your shots gives you a lot of freedom and flexibility. It also allows you to shoot in situations and places that do not allow for setting up a tripod. Therefore, the number and the variety of shots you will be able to get increases a lot when you have mastered hand-held HDR shooting. Of course, *if* you have a tripod with you, *if* you are allowed to use it, and *if* you have the

Figure 2 Have you ever played hide and seek in a church that does not allow tripods? Don't do it! It will cost time, it will distract you, and it will lead to sub-optimal compositions. Learn to hand-hold your shots in such situations!



[View a larger version of the image »Santorini Cathedral \(HDR\)« with complete processing information.](#)



time to set it up, please do use it! But if any of these conditions does not hold, you will still be able to get the shot hand-held.

Here are a few tips to keep in mind:

Tip 1 - Take a natural position

Don't put your body in any unnatural or unstable position (e.g. bending over, or squatting). Stand or kneel! If you are standing, put your feet about one 1.5 feet apart such that they are right below your shoulders. Don't twist your body.

If you kneel, put your right knee down and keep your left foot on the ground. Rest your left elbow on your left thigh, like a soldier shooting with a rifle.

Tip 2 - Relax your body

It is good practice to close your eyes, take a deep breath, and relax before you shoot. This calms you down and gets any hectic out of your system.

When you look through the view finder, *don't* press the camera firmly against your eye brow. Keep your grip safe but relaxed and just lean your camera against your brow.

Don't squint your other eye. Many people squint their right eye (assuming that you look through the view finder with your left eye) so they can concentrate on what they see through their camera. Squinting means that you flex the muscles in your face which inevitable introduces instability. With a bit of practice, you can switch your attention to your left eye and ignore the image from your right eye.

Tip 3 - Breathing

Breath normally until just before you fire off your auto-exposure bracketing (AEB) series. Compose your shot and focus your camera. A second before you shoot, take a deep breath, *exhale* half way and hold your breath. Don't let more than a second pass before you take the shots. It is important to exhale because if you inhale and hold your breath, your blood pressure rises quickly and every heartbeat feels like

someone is padding you on the shoulder. With your lungs half-filled with air, you have enough oxygen and your body is relaxed. Don't forget to inhale once you took the shots!

Tip 4 - Focus your camera and mind

If you are shooting a scene like the one depicted in [Figure 3](#), you want everything to be in focus. Thus, focusing on the far end may not be the best choice. In this situation, I would point my camera at some object that is mid-way between me and the far end. At a short focal length (e.g. 10 mm), this will put more or less everything in focus. After focusing (pressing the shutter release button half-way through), recomposed your shot to get the final composition and try to relax (see Rule 2).

Tip 5 - Focus mode

Use the single point focus mode of your camera to control exactly what you focus on. Use the focus point that is displayed in the view finder to help you point consistently at the same position in the scene.



Figure 3 Typical view through the view finder onto the scene (central focus point activated) (1). Try keeping the focus point exactly in the same position (the cross at the far end of the church the figure) throughout the entire autoexposure series. Your movement will introduced an offset (2). Ideally, the focus point would remain in the exact same position for all images of the exposure series.

Keeping the exact same position is not easy. Especially if you are just starting to practice hand-held shooting, you will find that each time the mirror comes down again (clearing the view on the scene) during an AEB series, the focus point will be in a different place. This means that 1. your source images will have an offset, and 2. they will be blurry, both caused by the continuous camera movement.

Here is a little trick that will help you keep your camera as steady as possible: Try to keep your eye on the scene – not on the focus point. Look straight through the focus point and concentrate on the part of the scene that is behind it. You will find that this will help you produce images with much less offset.

Tip 6 - Keep your position

Keep your position a brief moment after the shots are fired off. This helps eliminating blur caused by premature movement.

Tip 7 - Shoot multiple series

In order to maximize your chances of getting a good series of source images, you should shoot more than one series of the same scene: When the conditions force me to use a slow shutter speed, I usually do three consecutive AEB series without taking the camera off my eye and without changing the composition. My experience shows that the second series is usually the best. During the first series, your body and your mind is still settling down, and during the third series your mind already tends to wonder off to the next scene.



Click here to read the full article »*The Secrets of Hand-held HDR Shooting*« at farbspiel-photo.com. It provides lots of tips about the right equipment and the technique for hand-held shooting.

3. Shoot in RAW format

The standard rule that you hear everywhere you go is that RAW images give you a better quality and more flexibility in your processing. This argument has been beaten to death up to a point where people started claiming that you can just as well shoot your HDR source photos in JPEG without seeing a big difference. Well, as much as I like a good argument and cases in which old rules prove to be wrong eventually, this one holds!

Don't be afraid of RAW images. I know that this can be intimidating when you are just starting out because it potentially adds another piece of software (the RAW converter) and even more complexity to your workflow. But dealing with RAW images is not as hard as it may

seem. Don't be too lazy to turn RAW images on. Don't try to save storage space by turning them off. Just use the ability every DSLR has and let it produce the highest quality image data there is – RAW images. Even if you cannot really deal with them at the beginning, you will be thankful for your decision later on.

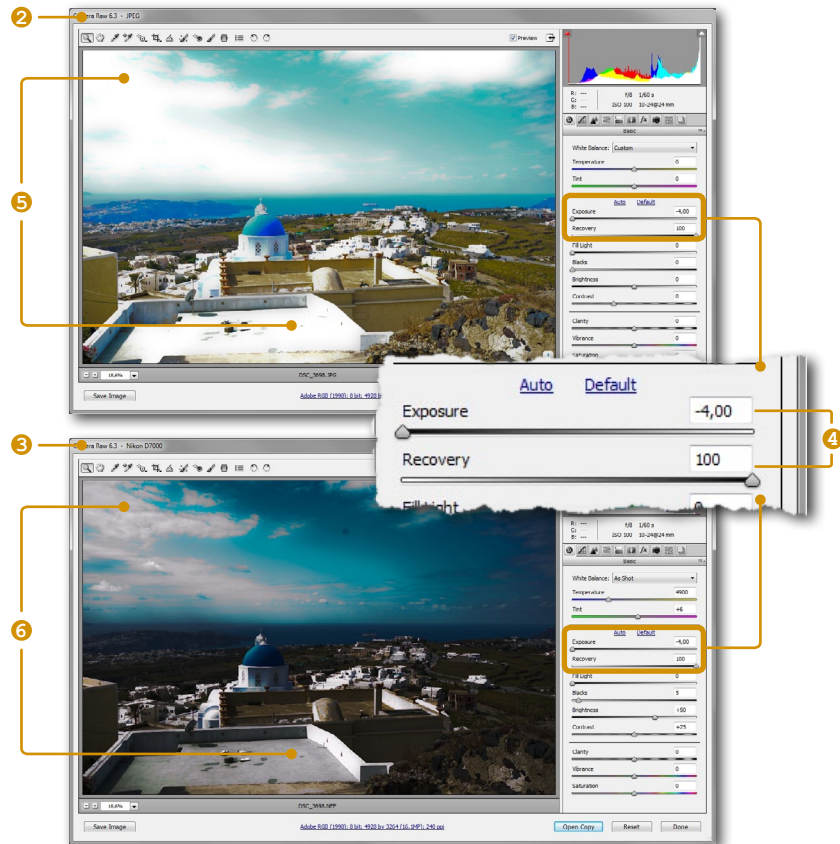
RAW images contain the uncompressed data that the camera sensor captured. They contain more dynamic range and more details than any JPEG can. JPEGs, on the other hand, contain compressed image data, and the compression algorithm is lossy. This means that you lose some of that valuable data that your lens and your sensor work so hard to gather.



Figure 4 Activating RAW images on a Nikon camera. Activate them in the menu (1) and verify the correct setting on the display (2).



Figure 5 The difference between the tonal range contained in a RAW and in a JPEG image: An overexposed image (1) is processed in Adobe Camera Raw. The JPEG file (2) and the RAW file (3) are opened and processed with the same exposure settings (4) for maximum recovery of highlight details. While the JPEG version suffers from an unrecoverable loss of details in the highlights (5), most of the details can be recovered in the RAW image (6). This shows how much more data a RAW images contains. Don't lose that data – shoot RAW.



4. Fix chromatic aberration

Before you start your tone-mapping, you should prepare your images in order to deal with some fundamental issues that almost every photo has. One of these issues is *chromatic aberration*. Chromatic aberration (in short: »CA« – sometimes also referred to as »color fringing«) is an effect caused by most lenses – in particular cheaper models and wide-angle lenses. It is caused by the failure of a lens to focus all colors to the same convergence point. The effects are color fringes particularly at high-contrast edges and generally more blurry images. The fringes tend to get worse towards the edges of the image.

Photomatrix and other HDR software is not very good at removing these artifacts and the usual HDR workflow tends to amplify the effect, creating visible, strange-looking color fringes and blur in the final image.

Therefore, you need to remove the CA as a part of preparing your source photos *before* you put them into your HDR software. Open your RAW images in

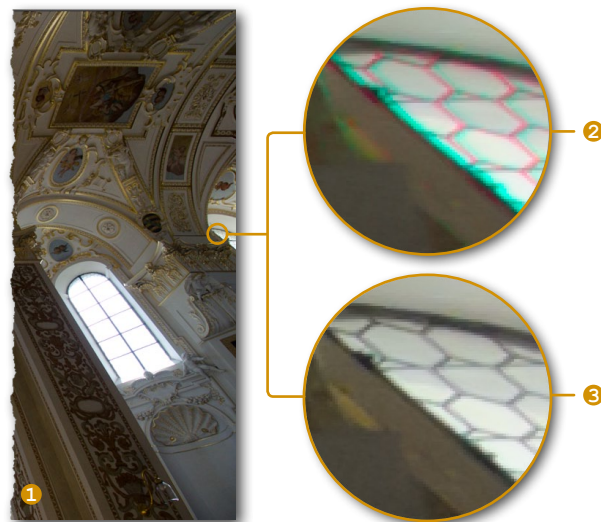


Figure 6 Severe chromatic aberration at the edges of a wide-angle photograph (1). If you do not remove it, the color fringes (2) will get worse through the HDR processing. Use your RAW converter to remove CA (3).

a RAW converter software (e.g. Adobe Camera RAW which comes with Photoshop) and correct the CA. Most RAW converters have lens correction controls to do this. The Adobe converter in Camera RAW and Lightroom can even fix CA automatically for you. This will lead to a much better image quality to begin your work with.

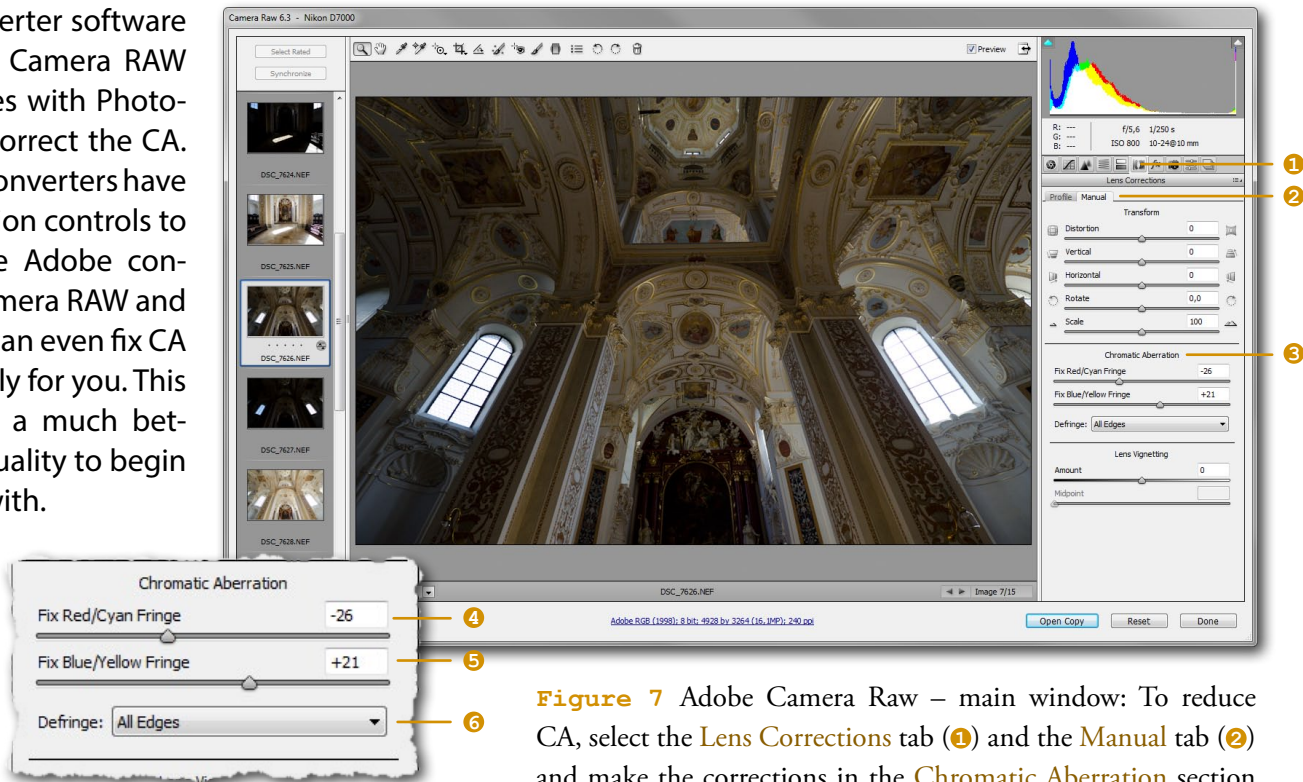


Figure 7 Adobe Camera Raw – main window: To reduce CA, select the **Lens Corrections** tab (1) and the **Manual** tab (2) and make the corrections in the **Chromatic Aberration** section (3). The chromatic aberration controls provide sliders for reducing the **Red/Cyan** shift (4) and the **Blue/Yellow** shift (5) as well as the general **Defringe** option (6).



Read the full article »[Correcting Chromatic Aberration](#)« for further information.

5. Optimize the dynamic range

You should really think that HDR software gets every bit of dynamic range out of your source photos. But in reality, it doesn't. Most HDR software falls short of achieving that. The reason is that every HDR software product has a built-in RAW converter software that interprets your source images. It may actually convert your RAWs to JPEGs internally before it starts merging them. This is an automated process that cannot look at the images the way you can. Therefore, it is advisable to convert your RAW images manually before you put them into your HDR software. This allows you to squeeze every bit of dynamic range out of your source photos.

To do this, you can create additional exposures from your brightest and from your darkest RAW source images by changing the exposure setting manually and saving additional copies of these images. For example, if you have three exposures with +2 EV, 0 EV, and -2 EV, open the +2 EV RAW photo and set the exposure slider in your RAW converter to +2. That will make the photo even brighter and give you an arti-

ficial +4 EV image. Similarly, you can lower the exposure of your -2 EV photo by another 2 EVs to get an artificial -4 EV image.

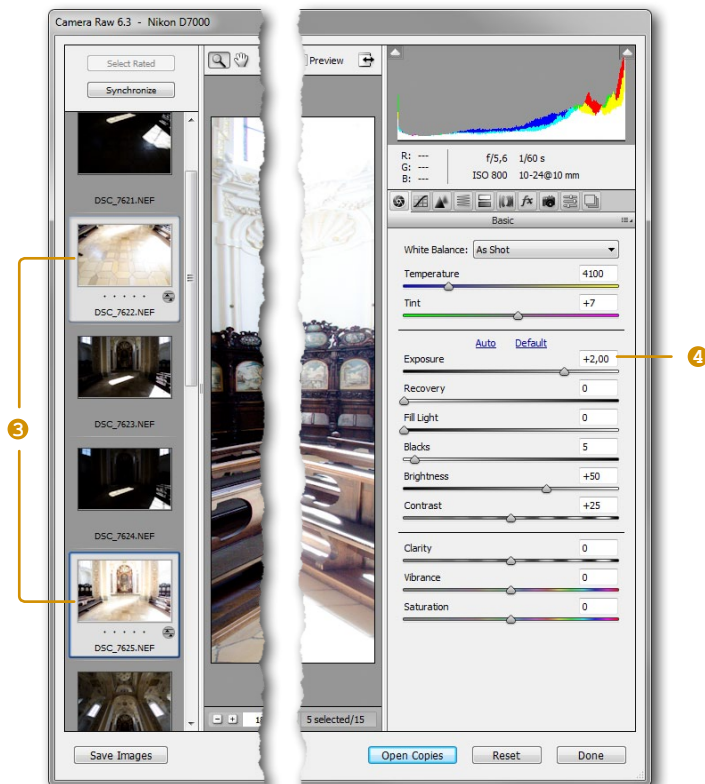
Note that, by doing this, you do *not* increase the dynamic range of what your camera actually captured. You only enable your HDR software to make use of it.



Read the full article *»Creating HDR Images the Right Way«* at farbspiel-photo.com. It contains detailed explanations of the process and extensive sample images to show the effect of creating additional exposures.



Figure 8 The result of different approaches to merging your source photos into an HDR image: If you simply give your HDR software the original RAW files (1) you will lose details, especially in the highlights. To preserve those details (2), optimize the dynamic range by selecting only the +2EV images (3) and setting their Exposure to +4EV by adding another +2EV (4). Proceed analogously with the -2EV images. Save these extra exposures and provide them to your HDR software in addition to the original photos when you create the HDR image.



6. Don't go to extremes

If you are into digital photography, you are used to software with a lot of sliders that let you adjust different aspects of an image. Would you agree that setting all of them to their maximum values results in the best images? Certainly not! When you tone-map an HDR image, it is very easy to overdo the effects since the changes caused by moving the sliders around seem very interesting or even fascinating at first. However, as with everything in life, the secret of getting great results is often moderation. Of course, the question of what looks great and what is extreme or moderate is totally in the eye of the beholder, and if you love extreme HDR, do it! But if you would like your work to appeal to a wider audience, going to extremes may not be the best choice. My personal experience tells me that people are often most fascinated by photos that only slightly cross the border between the normal every-day visual experience and the extraordinary. Images that are completely outside that border are hard to relate



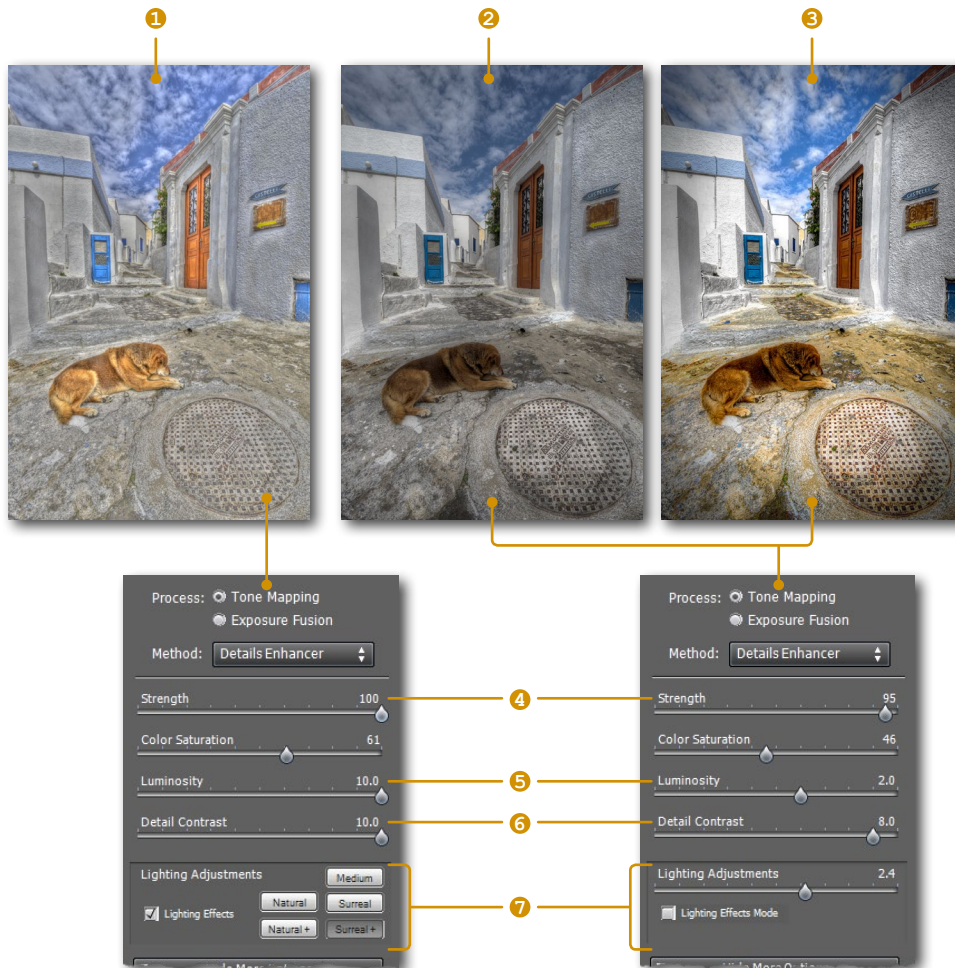
Figure 9 Typical example of an overdone version (Photomatix preset Enhancer – Grunge) and a moderately tone-mapped version of the same HDR image. Guess which is which!

to, images that are complete within that border are nothing special. The art of any image processing is to find that border and just slightly step outside.



[View a larger version of the image »Yo! Taxi!« with complete processing information.](#)

Figure 10 Parameter comparison between an extreme (1) and a moderate (2) tone-mapped HDR image and the fully post-processed version of the moderate image (3). The Photomatix tone-mapping parameters of the first image are set to extreme values. Images react particularly sensitive to high settings of the **Strength** (4), **Luminosity** (5) and **Detail Contrast** (6) settings. Most damage is done, however, by activating the **Lighting Effects** in the **Lighting Adjustments** (7) section and choosing **Surreal+**. The result is flat, without contrast and exhibits strange contrast inversion effects.



View a larger version of the image »A Dog's Life« with complete processing information.

7. Watch your white point

Another important tip concerning the tone-mapping process is to be careful with the *white point* setting. In particular, if you do all your adjustments in your HDR software (without taking the image into a proper image editing software for subsequent enhancements), setting the white point right can be tricky. If you set it very low, your image will have nice details in the highlights but the other areas will look dark and flat. If you increase the white point such that the overall appearance of the image is pleasing, you lose details in the highlights due to clipping.

Obviously, the last thing you want to do is to lose the details that you tried to capture with HDR in the first place. I set the white point (and also the black point) to zero in most of my images right before I apply the tone-mapping settings to the image. This lets me preserve all the details in the highlights and in the shadows. The resulting image looks dull. But since you should continue by working on it in your preferred image editing software anyway, you can fix that easily without losing any details.



Figure 11 Getting the overall contrast right in the highlights (1) and in the shadow areas (2) without losing details is almost impossible in your HDR software. Don't try to fix the contrast by setting the white and black points in your HDR software. This is what image editing software (like Photoshop) is made for.

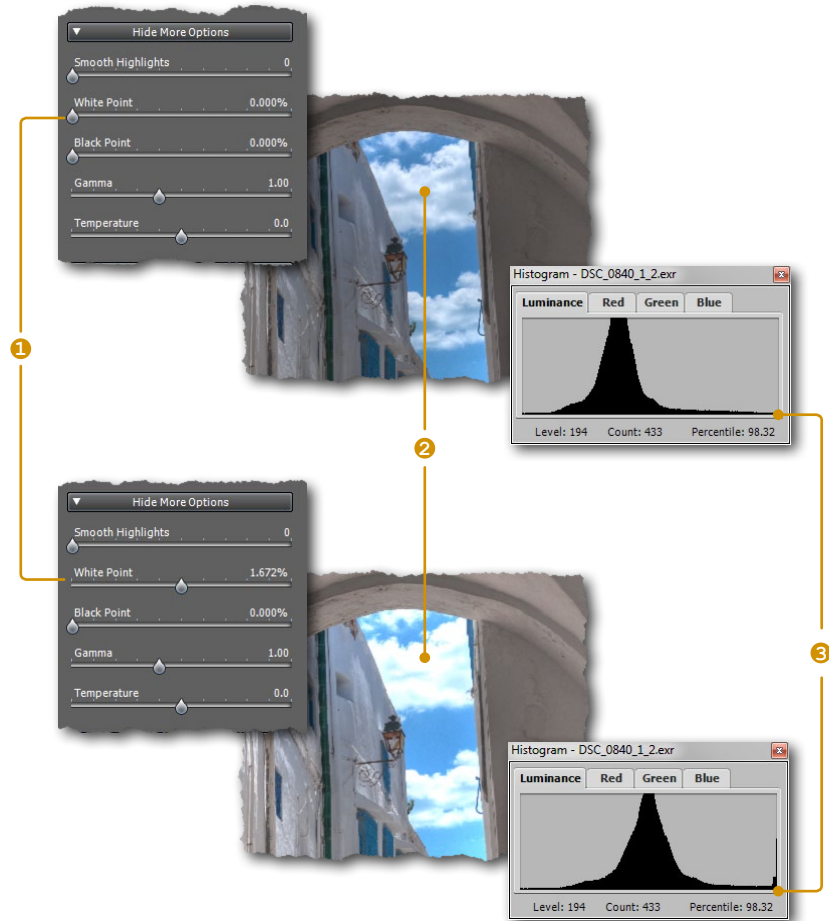


View a larger version of the image »*Blue and White*« with processing information.

Figure 12 If you increase the **White Point** (1) in your HDR software to improve the overall contrast of your image, you have to be very careful not to lose those valuable details in the highlights (2). You can verify that visibly by looking for blown-out areas (2). But you can also observe the histogram and watch for pixels piling up at the far right end of the spectrum (3). Set the **White Point** such that all the details are preserved and fix the contrast selectively in your image editing software.



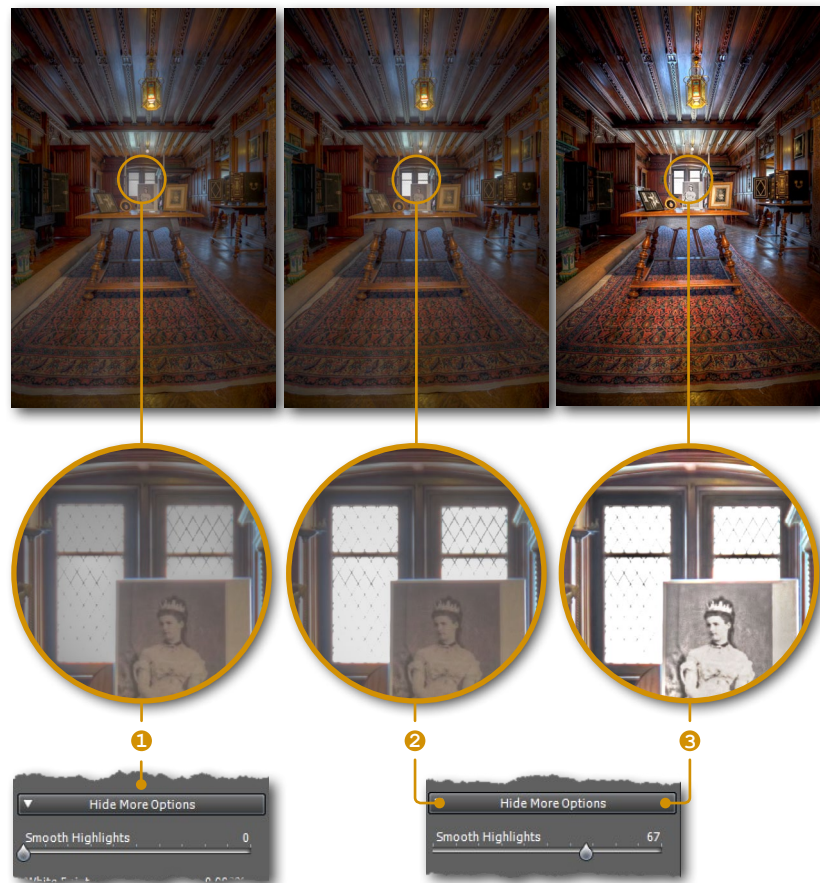
Read the full article about »*Creating Clarity in Your Images*« at farbspiegel-photo.com to learn more about selective editing. Being able to edit your images selectively allows you to work on the highlights separately. Thus, you can improve the overall contrast without losing highlight details.



8. Clean up your highlights

Often you see HDR images that have grayish highlights. They look kind of dirty and strange. This is a result of compressing the tonal range too much: The brightness of those highlight areas is reduced making them look gray instead of (nearly) white. In Photomatix, there is a simple trick that lets you avoid this. Increase the value of the *Smooth Highlights* slider incrementally. You will notice that the grayish look disappears slowly. Find the value at which the highlights look clean and natural. Don't set it too high though as this removes details in the highlights again.

Figure 13 Two tone-mapped versions of the same image (1 and 2) and the final post-processed version (3). The windows in the first version (1) have an uneven grayish look. Increasing the *Smooth Highlights* setting in Photomatix reduces this (2 and 3).



View »Family Portraits (HDR)« larger.

9. Watch your contrast

One may easily confuse the dynamic range of a scene and the contrast of an image. Dynamic range is basically the difference in brightness between the darkest and the brightest parts of a scene you are trying to photograph. Contrast, on the other hand, is the difference in brightness between the darkest and the brightest areas of the image (also sometimes referred to as tonal range). Got the difference? Dynamic range is a property of the scene while contrast is a property of the image. The purpose of HDR is to squeeze the large dynamic range of the scene into the range of tones available in an 8-bit image. If you squeeze too much, you end up with dark highlights and bright shadows in your images. The results are images that have neither whites nor blacks in them. All the tones are shoved to the middle of the spectrum, resulting in the flat and dull-looking images you see all over the Internet. Even if you are producing an HDR image, you should not be afraid of blacks and whites. More contrast usually translates to more appealing and vivid images.

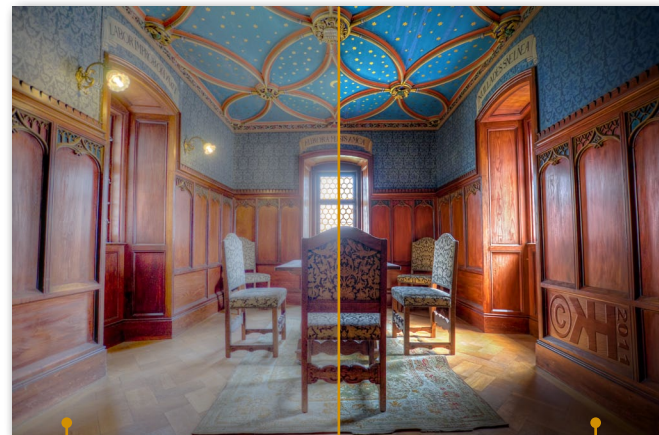


Figure 14 Two tone-mapped versions of the same image blended together: One that was tone-mapped trying to avoid any black and white spots (1) and another one with a better contrast that was optimized in Photoshop (2).



[View a larger version of the image »The Blue Room« with detailed processing information.](#)

10. Be careful with presets

Today, just about any image editing or enhancement software out there has presets – sets of parameter setting that are shipped with the software and that you can apply to an image with a single click. Presets can

help you achieve a certain look without having to fiddle with all the sliders. Of course, it is very tempting to use them on your images. After all, those presets are plenty and created by experts, right?

Well, as tempting as this may seem, there are a few problems with using presets extensively: First of all, not one size fits all. A preset may look appealing on one image but appalling on another one. Moreover, guess who else is using those very same presets. Right! Everybody else! And you don't want your images to look like everybody else's, do you? Finally, since using presets is so simple, many people don't

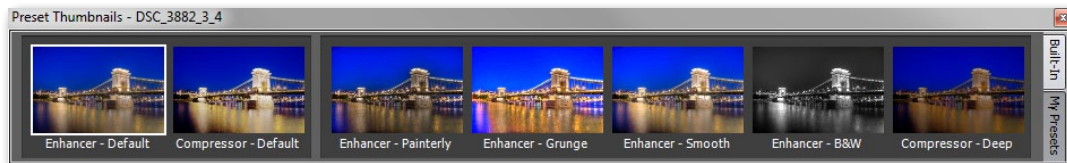


Figure 15 Presets – you find them in any imaging software. Don't just apply a preset and think you're done. Your images would look like everybody else's. A preset may be a starting point in your journey, but it should never be the destination.

invest any time in learning how individual sliders and combinations of particular settings affect an image. Essentially, they don't know what they are doing, and they don't know what the software that they bought is doing.

It is far better to learn how the sliders affect the image one by one and then start from a »neutral« position and develop the look of every image step by step by manually setting each slider. Yes, that will definitely take more time. But you will learn an awful lot this way, and chances are that you will discover your own personal style.

11. Post-process your images

You thought that this was it? Come on, you know me better. Of course, there is a bonus tip. In fact, the term *bonus tip* does not do this tip any justice. You could say that this is the most important of all the tips in this book. Are you ready? Ok, here it comes: *Take your images to an image editing software and make them pretty.*

That sounds simple and obvious, but there are still a lot of people out there that believe that Photomatix and a click on some funky preset will do it. That is not the case. 99% of all stunning HDR images you see out there have gone through a more or less complex post-processing workflow. Adjusting the colors and the contrast is the very least you need to do. But to really get the type of images you want, you need to dig a bit deeper. Here is a short list of tips that may guide you on your way:

- Learn how to develop a artistic vision for your images and how to select the right photos for processing. Your vision tells you how an image

should look, and it gives you a clear goal for your post-processing work. If you don't have that, the result of your hard work will be more or less random.

- Learn how to edit your images selectively. If you are able to isolate the different areas of an image that need different treatment, and if you learn how to work on them separately, you are almost there. Mastering different masking techniques and the concept of layers is essential here.



Read the article »*Why you need an artistic workflow*« on farbspiel-photo.com. It will help you develop your own artistic vision and select the right images to invest your time in.



Read the article »*Creating Clarity in Your Images*« on farbspiel-photo.com. It contains vital tips for selective editing.

- Get the right filters and learn how to use them effectively. You can achieve any effect using just Photoshop (or any other image editing software), but it could take a long time. Modern image enhancement software like the Topaz Labs or Nik Software filters can be very powerful tools that help you in getting the look you want (your vision) if... and that is a big »if«... if you know how to use them correctly and effectively. Forget about the presets and learn what those sliders do for different images. Then use those effects deliberately in your work.



Read the article »*Using Topaz Adjust to Improve Your Images*« on farbspiel-photo.com. You will learn an easy three-step process that will improve your images drastically without overdoing them.

Conclusions and Pointers

High Dynamic Range photography may be more complex than other photographic techniques and disciplines. But if you keep some basic tips in mind, you can master it. Use the tips in this book as a set of tools to improve your own HDR photographs.

If you need more information on HDR photography and on effective post-processing techniques, go to farbspiel-photo.com and check out the following free resources:

- [My free HDR Cookbook](#). Check out this growing set of in-depth tutorials to improve your skills.
- [My image galleries](#) with step-by-step post-processing information for each image.
- [My Before-and-After comparisons](#) that give a concise overview of the major stages in the post-processing workflow of different images.

- [My Making-of videos](#) that show the entire post-processing workflow in time-lapse. Get an overview, pause at any point and inspect individual steps in these high-definition videos.
- [My Pics to play with features](#) that provide the full-resolution source images of my HDR images. Download them, test your processing skills, and compare your results online with other enthusiasts.
- [My HDR Resource Index](#). Find out which HDR photographers and communities to follow. Discover the best tutorials, books and websites on HDR. I did the research for you, so that you can just lean back and browse the best resources.

For more in-depth information on various photographic topics (including HDR) stay tuned to [The Photo Cookbook Series](#). There is great content coming your way.



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