

UNDERSTANDING

# CAMERA RAW

A Basic manual for Beginners



PHOTOGRAPHY

KARTHIK PASUPATHY R

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**RAW**

A BASIC MANUAL FOR BEGINNERS

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**Dedicated to**

*Mom, Dad, friends*

*And*

*Chennai Weekend Clickers*

# Preface

It is my longtime dream to write a book and publish it for free. But I was so confused on what to write. When I started photography 2010, I came to know that post processing of images play an important role in digital photography. Later in 2011, when I got my first DSLR, I was opened to the world of Adobe camera RAW which is a powerful tool for processing RAW files. A person who's interested in photography should learn basics of camera as well as post processing as they both go hand in hand in the process of getting a neat image.

I have seen many amateur photographers and beginners use Camera RAW. They move the sliders to and fro without knowing what is been done to the image. I was no exception either. Later when I came to know the true purpose of each slider I thought that I should tell it to others too, so that they can do post processing with much better understanding. This is the reason I started writing the book.

This book is basically addressed for Beginners and amateurs who are new to digital photography or Camera RAW. This will give them a basic idea about different properties of a Digital Image and how it can be tweaked in order to get the best outcome.

When I said book, you would be expecting a voluminous publication. But on the contrary, this book is limited to not more than fifty pages. I don't want to go on and on about camera RAW as I know most people won't even be reading it when an e-book is that large. I wanted to cover some basic concepts that should give you an idea when you are post processing your image.

A lot of people have helped me to shape up this idea. I should definitely thank them here. First credit goes to Ashok saravanan (Ay ashok), Arun Kumar (Arun titan) and Mahesh B for teaching me all about Adobe camera RAW. They encouraged my effort when I told them about this idea. I should also thank Chennai Weekend Clickers and my friends without which I am nothing. Special thanks go to my best friend Malavika Ramesh who has taken all pains find grammar mistakes in the book. She tried her best to make the book readable.

I don't know how far I have succeeded in my venture. I would like to know that from your frank feedbacks. Whatever queries, comments and suggestions you have, please mail me at [karthikpasupathy@outlook.com](mailto:karthikpasupathy@outlook.com) so that I can implement it when I am writing my next book.

Karthik Pasupathy

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# 1 Basics of a Digital Image

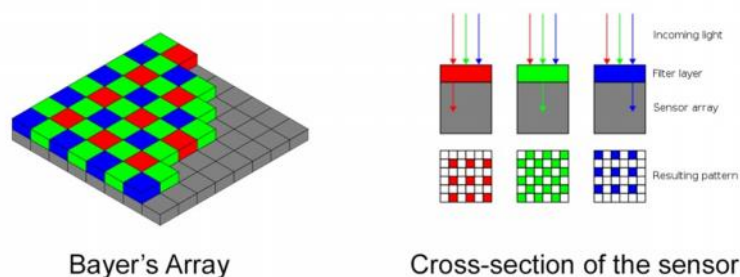
## Introduction:

A digital image is nothing but data or a collection of binary numbers (0's and 1's) which ultimately contains all the information necessary for your image. The camera captures the image directly from the scene, processes the image data and stores it in a memory card. In this chapter we are going to see a little bit about how a digital image is captured on a camera, before you see it getting displayed on your digital screen

## Image capture:

The image captured by any normal Digital camera works under the influence of a series of in built algorithms and programs fed into the hardware as firmware. These sets of programs allows the cameras to process and store the picture in an automated way. To put this in the right sense, the camera doesn't worry about the feel or drama of the shot. It just captures the image and converts into a digital image based on specified algorithms.

Every Digital camera has a sensor, which works on the basis of something called Bayer's array. The sensor will contain a huge array of tiny micro pockets also known as "photosites". The entire array is covered with a color filter with alternating red, green and blue regions. It is designed in such a way that each photosite receives a particular color information. The purpose of the photosites is to receive the light from the outside environment and to store as much photons in each of the pockets. After clicking of the shutter, the sensor quantifies the amount of each red, green and blue photon in each of the photosite and extracts the complete image information for further processing.



### **Before JPEG compression:**

After the capture of the light information and before converting it into a JPEG image in your memory card, there's a lot of computing going on inside the camera, which will take us forever to do it manually. Let's give it a small walkthrough. Before saving a copy of every image in your memory card, a lot of adjustments occur in the camera

- The camera reads the light from the environment and chooses the shutter speed , aperture and ISO based on the available light information
- After that, the camera shows a green light or a “beep” sound telling that it is ready to take the picture.
- The user clicks the shutter and the raw image information is stored into the sensor.
- Every camera has an image processing engine (Digic, Exmor, etc.) built inside in order to process the raw information from the sensor and make it into a balanced image.
- The process involves demosaicing , white balance correction , contrast and saturation adjustment , and lots more
- Finally the image is stored into your memory card and is getting displayed into your LCD screen.

Now you can see how much of work is done by every camera. Next time when you press the shutter, take some time to think about it. You will definitely be amazed.

We have lot of advantages by letting camera do all the processing and give us bright images. But we also have some disadvantages. The major one among them is that camera is just a machine. It performs the same step for every image it takes in order to maintain the quality. It doesn't know or care about the feel or drama involved in the shot. It considers all the images similar due to its program. So sometimes we need an upper hand in playing around with the properties of the image in order to bring that feel. It takes time, but we will be able to do it better than the camera. That is where RAW files come into play.

### **RAW files:**

Just because I have typed it in capitals, doesn't mean it has a full form or something. RAW files are called so because it contains raw unprocessed information from the image sensor. RAW files are uncompressed file format stored directly from the camera's sensor. It is considered as a digital equivalent to film negatives. Before the digital era, negatives were used to make any kind of changes in the image (like dodging, burning and lots more). The same way, RAW files give us a good control over the parameters of the images like exposure, brightness, contrast, sharpness etc. Apart from this, RAW files also offer better dynamic range (luminance range of an image).

Every camera manufacturer own their proprietary RAW formats (canon - .CR2, Nikon - .NEF etc.) and proprietary RAW editing/conversion software like Digital Photo Professional for Canon and View NX for Nikon.



**DNG files:**

Due to the availability of these proprietary formats and editing software, lot of compatibility issues started coming up. In order to avoid these issues, users wished a standard RAW image format which will be same for all the cameras (like how JPEGs are considered as standard image format by all the imaging devices)

This led to the birth of DNG files which was introduced as a standard raw image format for all cameras. Adobe introduced DNG format in 2004 in order to bring uniformity. Adobe also provides free DNG converter for users which allow them to convert any proprietary raw format into DNG. The advantage of DNG is that it takes less space than a usual RAW file, but manages to maintain the same quality and data within it. So it will be of great use in archiving your image data on your external hard disk or a DVD.

In spite of all the advantages RAW files are still not considered as a standard file format.

**Basic Properties of Images:**

Before we go into Adobe Camera RAW (ACR) and its basics, it is very important for every beginner to understand a few basic properties present in a digital image.

**Highlights:**

Highlights are areas in an image, where too much of light is present. Highlighted areas in an image will cover up details present in and around that area. Consider the example of a torch light being flashed right in front of your eyes. You will see a bright light and nothing else around you. Highlight does the same thing to the images. It is a tedious process to remove highlights from an image.

**Midtones:**

Middle tones of an image that lie between highlights and shadows (in a black and white image midtone would be grey)

**Shadows:**

Shadows refer to dark areas of an image. Similar to highlight this also covers up the detail of an image. Instead of being too bright, the shadow regions become too dark to see or grasp any details from the image.

**Brightness:**

This property simply brightens the entire image from the shadows to the highlights equally.

**Contrast:**

Contrast is defined as the separation between the darkest and brightest areas of the image.

**Sharpness:**

Sharpness can be defined as edge contrast, that is, the contrast along edges in a photo.

**Saturation:**

Saturation is a uniform bumping of the intensity of all colors in your image, regardless of the starting point of the colors.

**Vibrance:**

Vibrance is a smart-tool which cleverly increases the intensity of the more muted colors and leaves the already well-saturated colors alone.


# 2 Adobe Camera RAW (ACR)

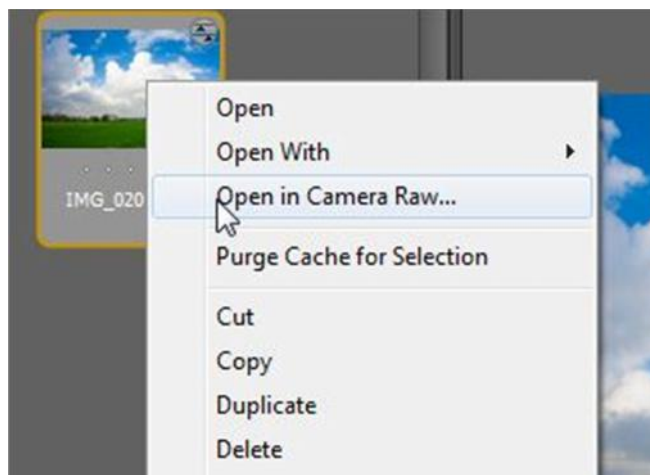
**Adobe Camera RAW (ACR)** is not a standalone software program like Photoshop or Lightroom. It is a plug in introduced for Photoshop. But apart from being just a plug in, ACR does offer more features than professional standalone software. The mechanism behind ACR is that it reads pixel information and sensor data from the RAW image file and allows user to manipulate different properties of the image. The reason for introducing ACR is that Adobe recognized that apart from graphic designers (for whom Photoshop was actually designed) a large number of photographers also started using Photoshop. So in order to support the photographer community, Adobe has introduced ACR.

ACR is designed to read different types of RAW files irrespective of the proprietary image format that's been constantly introduced in the market. Adobe also constantly works to update ACR to give compatibility to all new cameras and RAW formats that floods the markets frequently

## Launching ACR from Adobe Bridge:

Adobe Bridge is another tool for transferring, viewing and organizing your image files. It has a neat GUI and it is linked to ACR and Photoshop for an easy work flow.

ACR can be launched from Adobe Bridge in two ways. One is by clicking the  icon which is present on the menu bar of the software. The second option is by right clicking the image of interest and selecting the option "Open in Camera RAW"



Adobe Bridge showing option to open Image in ACR

## Launching ACR from Photoshop:

ACR can also be opened from Photoshop from the file menu. When you attempt to open a compatible RAW file, Photoshop automatically recognizes it and opens it in Camera RAW.

## Light room Vs. Adobe Camera RAW (LR vs. ACR):

At many instances, I have been asked this question “What's the difference between Lightroom and Camera RAW”. The fact is both are almost similar in their functionality and appearance. The work flow is almost the same (as we are concerned only with the properties of the image that we take into consideration). The reason that makes Lightroom more attractive is that it comes with a set of creative presets that will allow the user to play around by applying different tones and effects to their images. People who don't want to spend too much money in getting a Photoshop license can opt for Lightroom which also has similar features to that of Camera RAW. The fact that I am writing about Camera RAW is that it offers fine control over the images than Lightroom and not many manuals or guides are available on the internet for ACR.

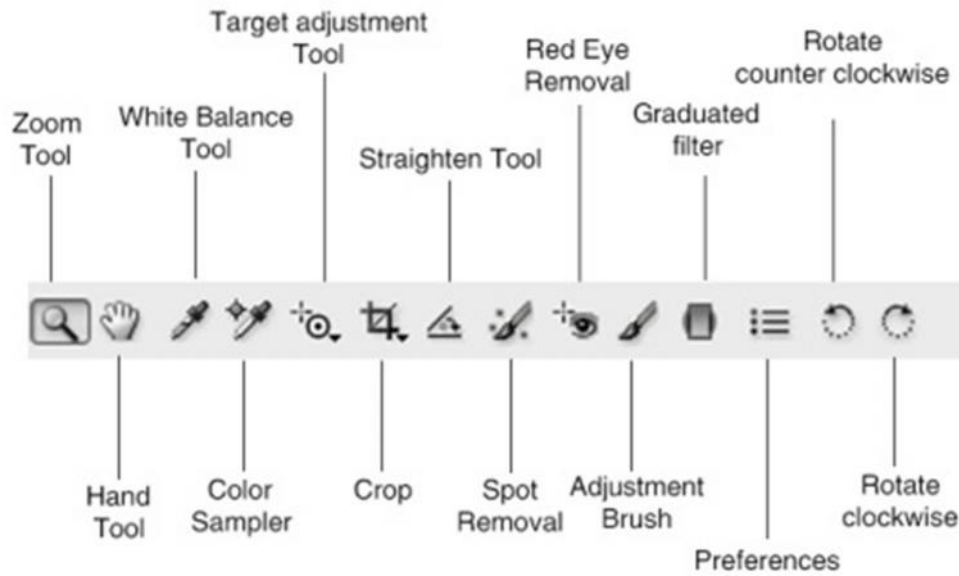
There's still a lot of debate threads on the internet that talks about which is best. But let's not waste much time arguing about the issue as we know both the software tool is a product of Adobe Inc.

## Basic Outline of ACR:



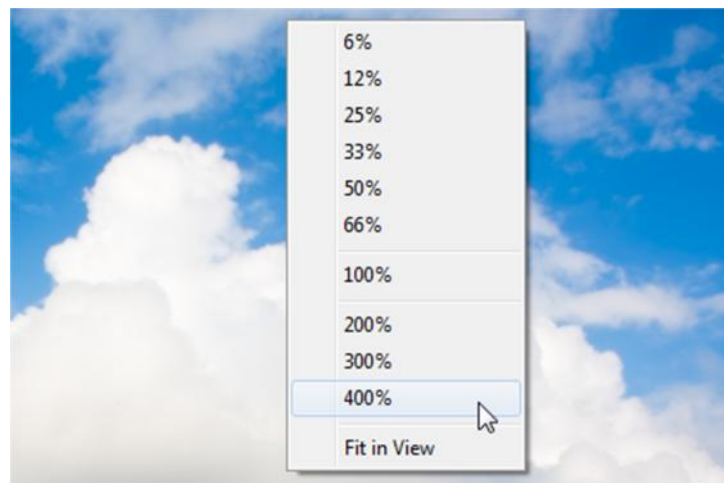
**Graphical User Interface (GUI) of Adobe Camera RAW**

We see the all the options present in ACR one by one. First we'll take a rough look into the set of icons present on the top left corner of the interface.



### Zoom Tool:

Performs zoom function in ACR. The tool is mainly useful in checking the image for noise or chromatic aberrations. It is to be kept in mind that it is always best to check your image under 100% magnification. ACR facilitates magnification up to 400%. Zooming of image can be done either by using (Ctrl + increment key (+) or decrement key (-)) or by right clicking on the image and selecting the necessary magnification. The image can be brought back to its original dimension by selection the “Fit in View” Option



### Hand Tool:

Hand Tool is used to move the image when the image is under magnification

### White Balance Tool:

White Balance is used to perform color correction in an image. The white balance tool should be placed on any point on an image which the user feels as exact white color. Based on the white pixel present in the particular point, the tool will adjust the white balance of the whole image. White balance tool will not only adjust the temperature, but will also adjust the tint accordingly. For example, I have an image which was taken in the white balance “tungsten”.



The image is taken in tungsten white balance, but this is not the actual scene when I was taking the image. The scene was rather warm. So in order to get the correct white balance I am using the white balance tool (shortcut – I).

Now in order to find the correct white balance I am placing the white balance tool on the white region of the image. I feel that the second boy in the image is wearing a white shirt. So I place the WB tool on the shirt region and now my white balance of the image is set accordingly (see image below).






### **Color Sampler:**

Used to sample colors from the image. Always better to use color sampler tool in 100% magnification

### **Target Adjustment Tool:**

Target adjustment tool lets you adjust any parameter of the image at a particular area. For example, if one wants to increase the saturation of blue color in an image, switch to HSL/Gray scale tab and select target adjustment tool. By placing the tool on the blue regions and by moving it to and fro will either increase or decrease the saturation of the blue regions in the image.

In the image below, the wall behind the lady is green in color. But the green is subtle and doesn't pop out much. So I can improve the saturation of green color in the wall area alone with the help of target adjustment tool

As I going to increase the saturation of green I have to select the HSL/Grayscale slider in ACR. I can select the target adjustment tool either from the tool bar on the top  or by using the shortcut key "T".

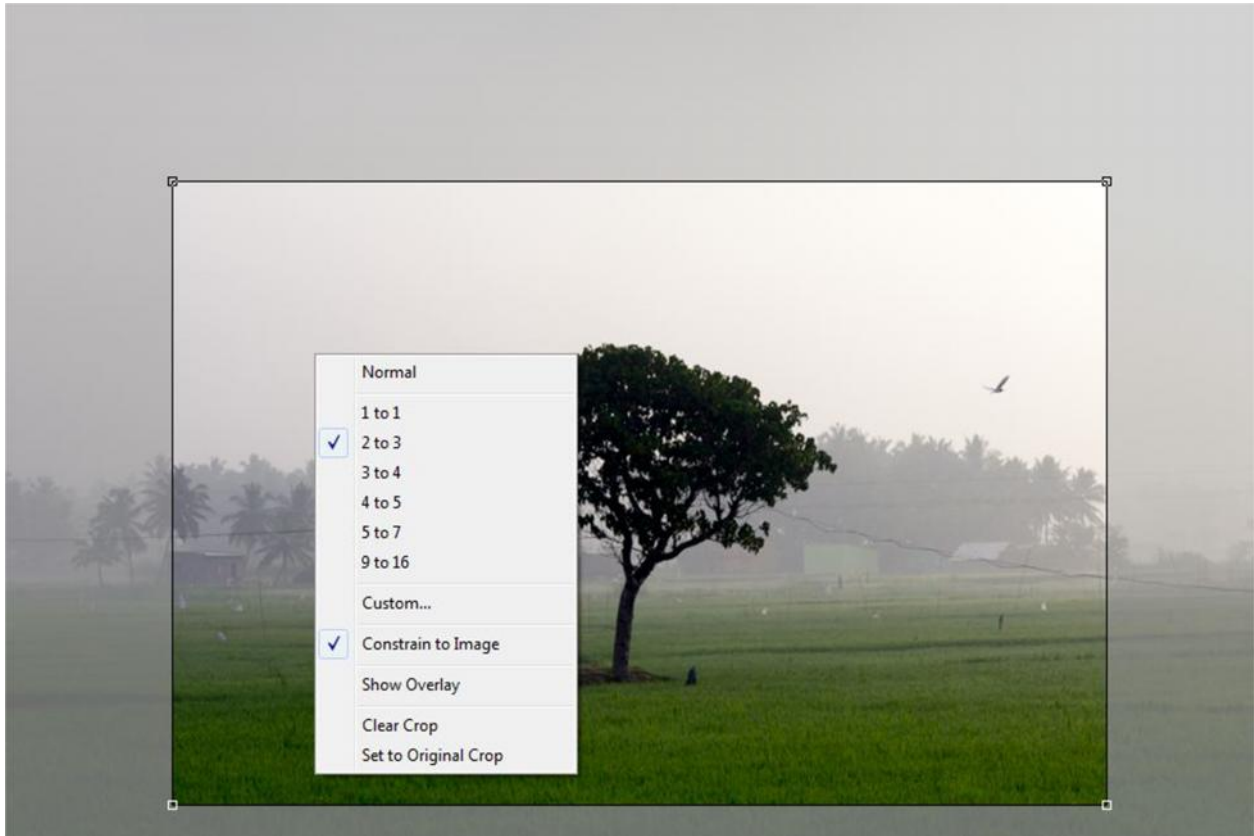
Now, all I have to do is place the tool in the wall area and drag it to and fro in order to see the change in the saturation of green color. The same way u can adjust other parameters like hue, exposure etc.





## Crop:

Crop tool allows you to crop the image for the required dimension. It is always recommended to crop your image in 2:3 ratios (standard 4 x 6 crops).



## Normal Crop

Normal crop doesn't fall under any specific dimensions (1x1 or 4x6). You can crop the image however you want using the normal mode

## Resizing the crop

You can resize the crop in various dimensions given below:

- 1 x 1 (square crop)
- 2 x 3 ( 4 x 6 – standard crop)
- 3 x 4
- 4 x 5
- 5 x 7
- 9 x 16

**Clear crop** – can clear whatever crop you have applied to the image

**Straighten Tool:**

Used for straightening the horizon in an image. It will be of great use while processing landscapes. Just drag the tool across the line which needs to be straightened, and the tool will straighten the horizon by rotating it.



In the above image, you can see the horizon tilted to some angle. This occurs at times when you are shooting in a hurry. In order to fix such problems, select the straighten tool (A) and drag it along the horizon of your image which needs to be straightened (the black line). The tool will straighten the image accordingly.

**Spot Removal Tool:**

Removes unwanted spots in the image. This feature will be of great use while processing portraits and fashion photographs.

**Red Eye Removal Tool:**

Red eye is a common problem when you click images with the built-in flash of your camera. The eye of the subjects will have a small red dot which will make the image a bit annoying. This can be averted by the Red Eye Removal Tool.

### **Adjustment Brush:**

People who are well versed with Lightroom will be very familiar with Adjustment Brush. It helps to increase exposure, contrast, Vibrance etc. at specific areas of an image. By doing this, the other areas of the image won't be affected. The shortcut to access adjustment brush is "K"

NOTE: you can adjust the size of the adjustment brush using brackets ( [ and ] )

### **Graduated Filter:**

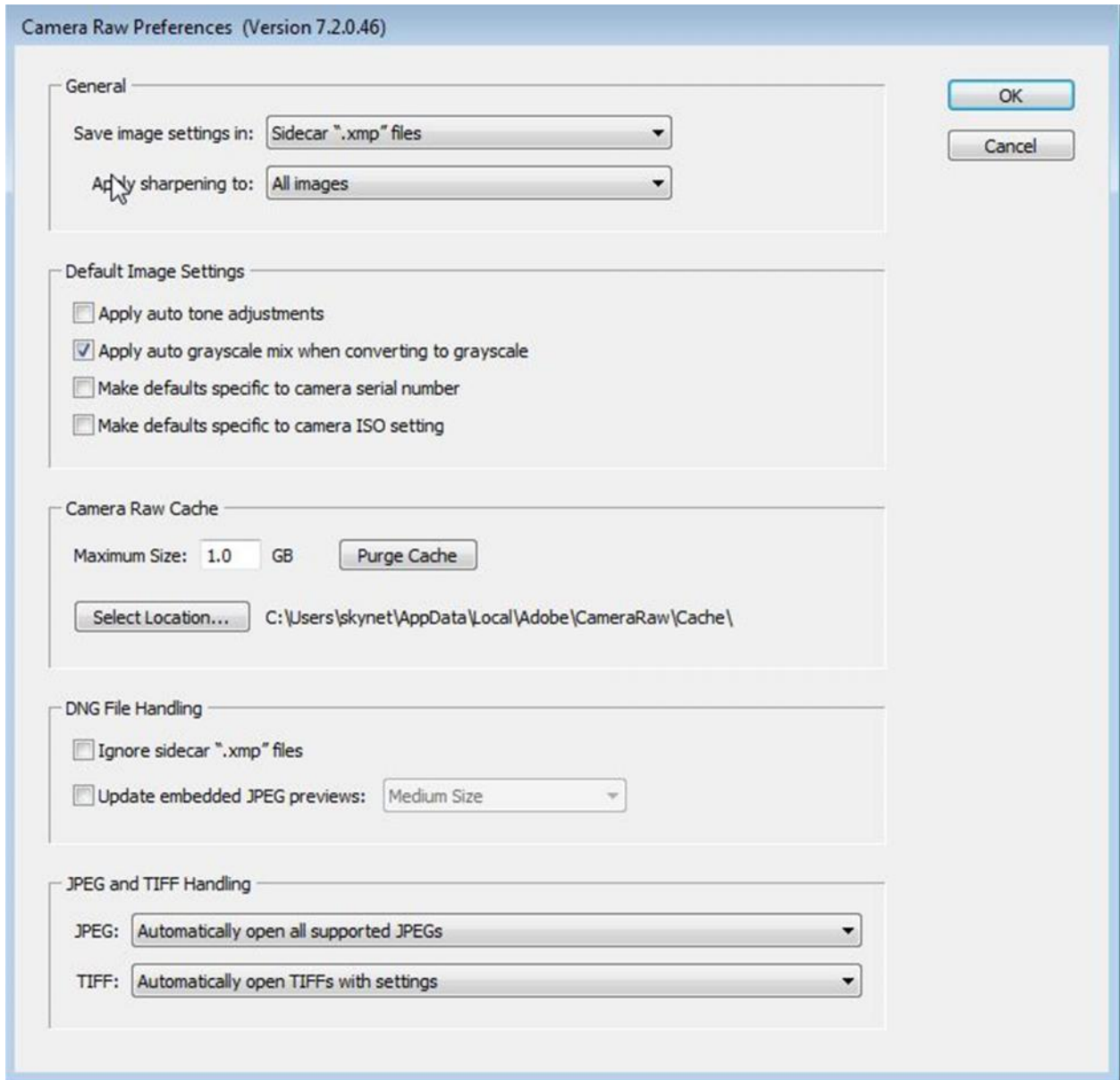
Graduated filter applies all the image properties like exposure, temperature, contrast in a gradient style from the direction it was drawn (effect will be heavier in the beginning and lighter in the end). Graduated filter is very useful for cloud or highlight recovery in either half of the image (the other half won't be affected). Graduated filter can be applied in an image from any direction and any number of times.



In the above image I have added a graduated filter from right side to left side of the image with decreased temperature and increased saturation. You can see that the effect on the right side is heavy and decreases on its way to the left. Graduated filters can be applied with different parameters like sharpness, contrast, brightness, exposure etc.

## Preferences:

This option opens the Preferences dialog box for ACR. If you want to open your JPEGs and TIFFs in ACR or if you want to increase the cache memory for ACR, you can change those settings in here.



## Rotate clockwise and Counter clockwise:

This tool helps you rotate your images in 90 degree increments. This can be applied clockwise or anti clockwise.

# 3 Tools in Adobe Camera RAW

In the previous chapters we have seen the basic layout of ACR and some useful tools that decorate the menu bar. In the coming chapters we're about to see the sliders and controls of ACR which makes up the entire package and also gives a stunning shape to your digital capture. To have an easy workflow and in order to avoid confusion, the sliders and controls are classified under different panels/tabs like exposure, tonal curve, sharpening etc. And this classification of controls really helps us in great ways. In the coming pages we'll see about each and every panel/tab in detailed way.

## Basic Tab

Exposure Tab is a very important one in ACR panel. All your basic adjustments with the image will be done when you exit out of this tab. This tab provides controls for controlling exposure, contrast, shadows, highlights, Vibrance, clarity and lots more. The primary advantage of using this tab is to adjust the exposure (for over and under exposed shots) and for effective shadow recovery. Before ACR 7.0 shadow recovery is possible by two sliders (Fill Light and Recovery). But in the Recent version of ACR (7.0 and above) shadow recovery is much more delicate and refined with four sliders (Highlights, shadows, Blacks and whites). According to adobe, the recent algorithm is better for shadow recovery.

## Switching between Versions

Switching between versions is an important feature of ACR. For example, you've worked on a RAW file in version 6.7 and you have improved the image quality and recovered the shadows using fill light and recovery sliders. A few years later when you open the same in ACR 7.0 where the fill light and recovery sliders were removed, you might think how you could possibly bring the same effect to the image. Well the answer is simple. ACR has all previous versions built in along with the latest release. If you're opening an old file which you've processed in version 6.7, then the image will be opened in ACR 6.7 based on the .xmp data (we'll come to what is xmp data in the coming lines). But the change of version will be denoted by a small exclamatory icon present in the right bottom corner of the image panel. The image can be brought back to the latest version by clicking on the exclamatory icon

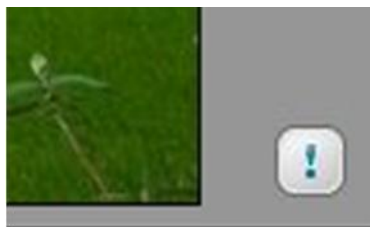
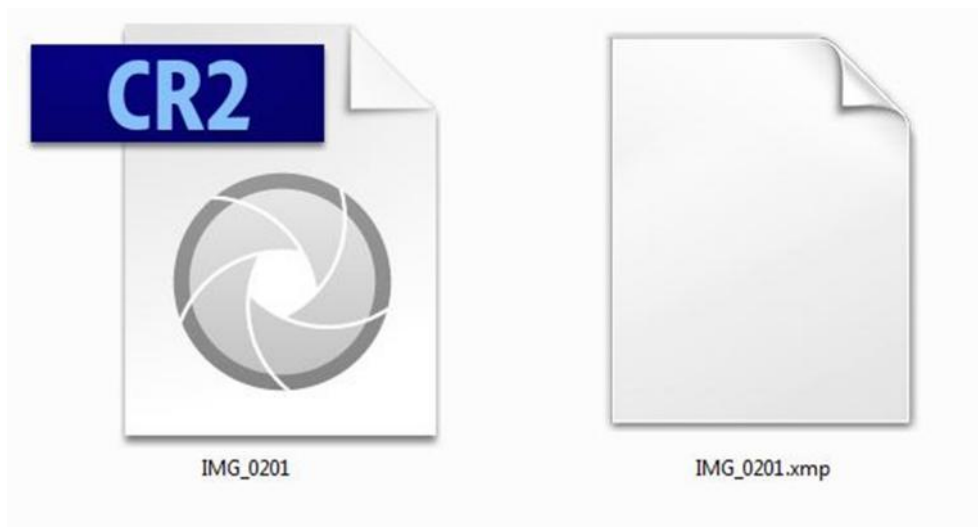




Image showing the Difference between sliders of ACR 6.7(Left) and ACR 7.0(Right)

### .Xmp Data:

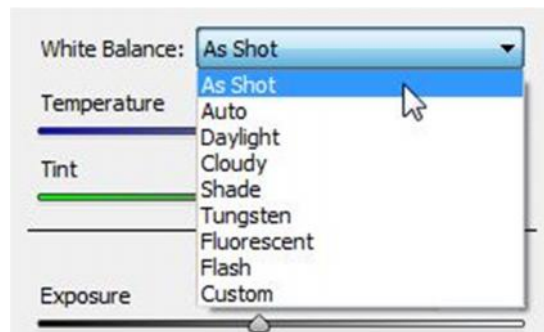
Xmp data is a non - destructive way of storing important information about settings and changes that have been made on the image using ACR. The information often sits on the .xmp side car file along with the original RAW file. So whenever you make changes on to your RAW file, you can also see a sidecar Xmp file with the same file name. Only with the help of this Xmp, your ACR is able to detect the previous settings that you've made and the ACR version that you have worked on.



Now that we have seen about the versions of ACR and the xmp files, we can move onto the controls of camera raw present in the Basic Tab.

## White Balance

White balance is nothing but the temperature of white in an image. The drop down menu contains different temperatures of white balance (Different modes) like Cloudy, shade, tungsten etc. Even though you've taken the image in shade with your camera, you can still change the white balance to a different mode since the image is in RAW format. You can also set your custom white balance using the temperature slider provided below the white balance drop down menu



## Temperature & Tint

Temperature slider is used to make your own custom white balance to the image. Moving the slider to your right will make the image warm (high temperature) and moving it towards your left will make the image cooler (low temperature).

Tint is used to provide an added color tone to the image. The colors available for tint are a gradient between green and magenta

## Auto

The first function that is to be considered is the "Auto" function. The Auto function is present just below the temperature and tint sliders of Basic Tab. This function levels the histogram of the image automatically thereby making the image optimal for further processing. Most of the images will be corrected with this very function. But if you're not satisfied with the image, then you can proceed to further processing.

## Default

Right next to the "Auto" function, default function is present. It brings back the image to its default settings. So when you want to go back and process the image from the scratch, you can go for Default option.



Auto      Default



In the above images, you can see the difference between **Auto** and **Default** modes and the histogram is also provided (inside) to show how ACR is equalizing the histogram based on the light information. This is how you get a balanced image initially.



## **Exposure**

Exposure slider is designed to adjust the exposure of an image, whether it is under exposed or over exposed. The exposure range varies from -4 to +4.

## **Contrast**

We've already seen the definition for contrast in the previous chapters. This slider improves the contrast and gives a depth to the image

## **Recovery Sliders**

The latest version of ACR comes with four sliders which efficiently carries out the shadow recovery process in any image. The four sliders are:

- Highlights
- Shadows
- Whites and
- Blacks

Playing with these four sliders can bring shadow and highlight recovery and make your images look a lot better. Even though most of these corrections will happen by clicking "Auto" function, you can still play around if you want more precise corrections

## **Clarity**

People who've used Photoshop plugins like color Efex Pro will know about filters like Tonal contrast which will give a HDR like pop to your image. This is because of the midtone contrast which is also known as clarity. Playing around with clarity will give you a good details to the images and gives a good effect to the image.

Effective use of clarity slider varies from image to image. For street and environmental portraits I increase clarity in order to bring out skin textures, wall textures, wrinkles etc. On the other hand, when you work on kids/baby portraits or fashion photographs it is better to decrease clarity in order to give a smooth effect.

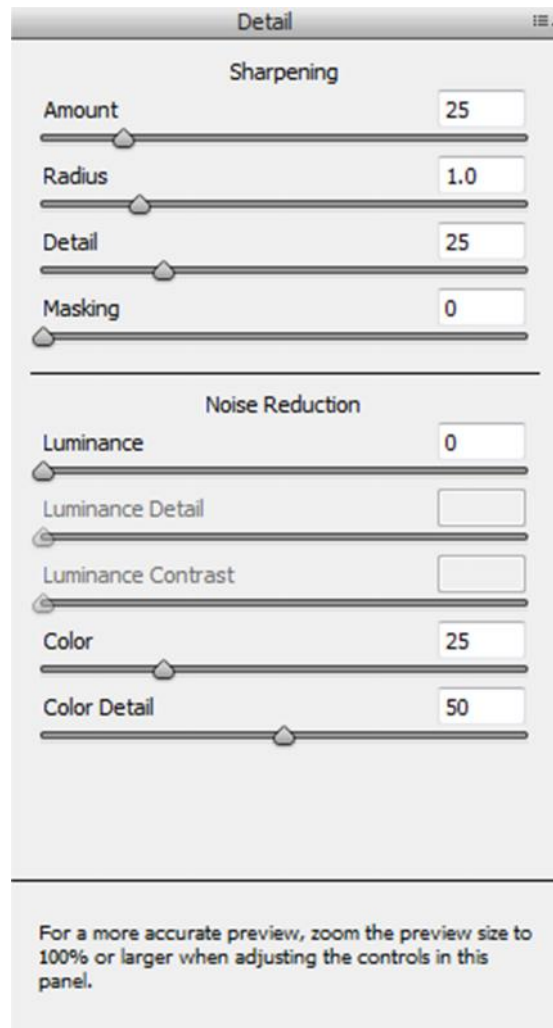
## **Vibrance & Saturation**

These sliders are useful mainly to boost overall color of the images. It is Very useful for processing landscape and wedding photographs.

## Detail

The common problem we face many times while photographing an image is reduced sharpness. This may be due to the little focus shift or due to the error in the lens. There are many factors that contribute to the loss of sharpness. The detail tab is useful in increasing sharpness and decreasing noise. The Detail tab is divided into two sections, sharpening and noise reduction in order to ease the workflow.

**NOTE: Remember ALT key when you come to this Tab**



### Sharpening

Sharpen slider is used to sharpen the image. The sharpening is usually done by making the edges of the image to pop out. In a way it is similar to clarity

### Amount

Amount slider is used to determine the strength of the sharpness that will be applied for the image. If you increase the strength of the sharpness too much, it might spoil the image quality.

## **Radius**

During the sharpening process, a few pixels on either side of the edge pixel need to be used. Radius slider lets you decide how many of those neighboring pixels need to be used. The slider is graduated from 0 to 3. But it is better to keep radius from 0 to 1.

## **Detail**

The detail slider helps you decide how sharpening would affect your image. Keeping the detail slider to a lower value will give a nice and detailed sharpening to the image.

## **Masking**

Masking decides which areas of the image need to be sharpened. When you move the slider to the far left, the entire image will get sharpened. On the other hand, when you move the slider to right side, you can select specific areas of the image and sharpen those areas alone by increasing the amount slider.

**NOTE: It is always advisable to move the masking slider by pressing ALT key so that you can see which areas are being selected.**

## **Noise Reduction**

**NOTE: Always do sharpening and noise reduction under 100% magnifications to observe the changes**

Shooting at high ISO and low light will bring a lot of noise to the image. The noise reduction sliders will help you reduce the noise in the image.

## **Luminance**

Luminance slider is used to reduce noise in the image by smudging the noisy pixels with the surrounding pixels.

## **Luminance Detail**

While reducing noise using luminance slider, the noisy regions gets smudged and this leads to loss of details in the image. Luminance detail is used to recover details from those areas

## **Luminance contrast**

Luminance contrast is used to boost contrast of the image after applying luminance. This is one of the fine adjustments provided by ACR. You won't have the need to use this often

## **Color**

Most of the night shots will have red, magenta and other colored spots on the black areas of the image. This is called as color noise. In order to reduce the color noise you can use the color slider.

## Color Detail

This slider is included to recover details from the areas where color noise is reduced.

## HSL/Gray scale

HSL is the short for Hue-Saturation-Luminance which lets you fine tune the colors present in your image. ACR also includes option for you to convert your image into gray scale.



## Hue

Any color will have different shades of its own based on the color temperature. For example red may have different shades like magenta, orange and so on.

For example, in the hue slider for green we can see the colors ranging from yellow to aqua blue. So when the image has green color, you can change that to any of those shades in the slider.

For example, in the image given below the color of the wall is green. But using the hue slider I can change the color of the wall to either yellow or aqua blue or some shade in between

This slider will be of great use in processing landscapes.



**Saturation**

Saturation increases the intensity of a particular color. If you want to boost the blue color of the sky, just move the slider for the blue color and you can see the boost in the color intensity

**Luminance**

Luminance refers to lightness of a particular color. It lets you decide how dark or how light your color must be.

**Grayscale**

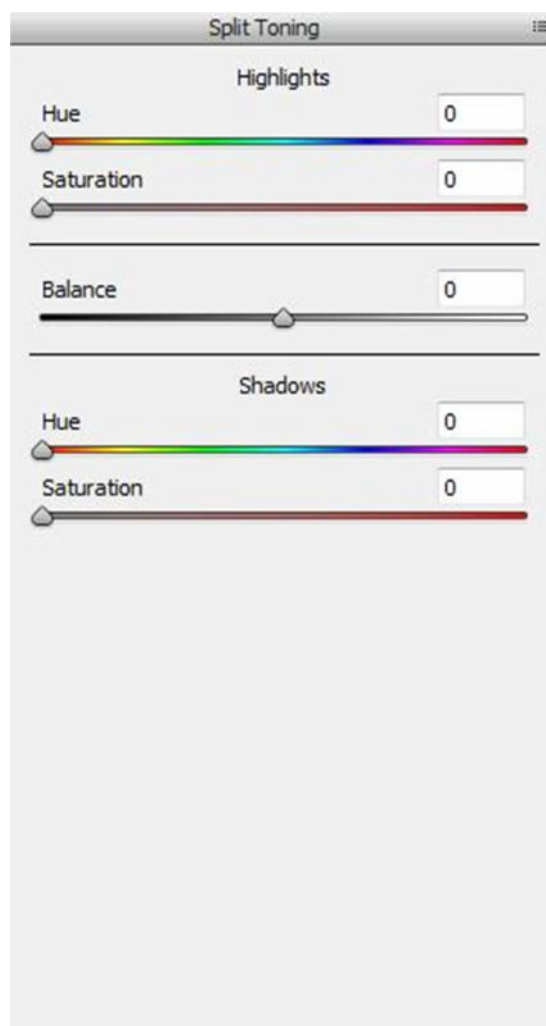
On top of all the HSL sliders, there will be an option to convert your image into Grayscale. When you convert your image to Grayscale you can see only the saturation tab. If you want to lighten or darken the grayness of any color in the image, you can do it using the respective color slider.



## Split Toning

Split toning tab is used to create the conventional chemical split toning or the well-known cross processing effects. The tab contains five sliders (2 for highlights, 2 for shadows and one for balance). All you need to do is give a color for highlights and give a color for shadows and adjust the saturation of the chosen colors. This will give a blend between those two colors in the regions of shadows and highlights and will result in a good vintage cross processing effect

This technique can also be applied to Grayscale images after conversion, in order to bring unique tones to your Black and white images





In the below image, let's try to apply the split toning technique



Let's give purple color to the highlight and blue color to shadows.



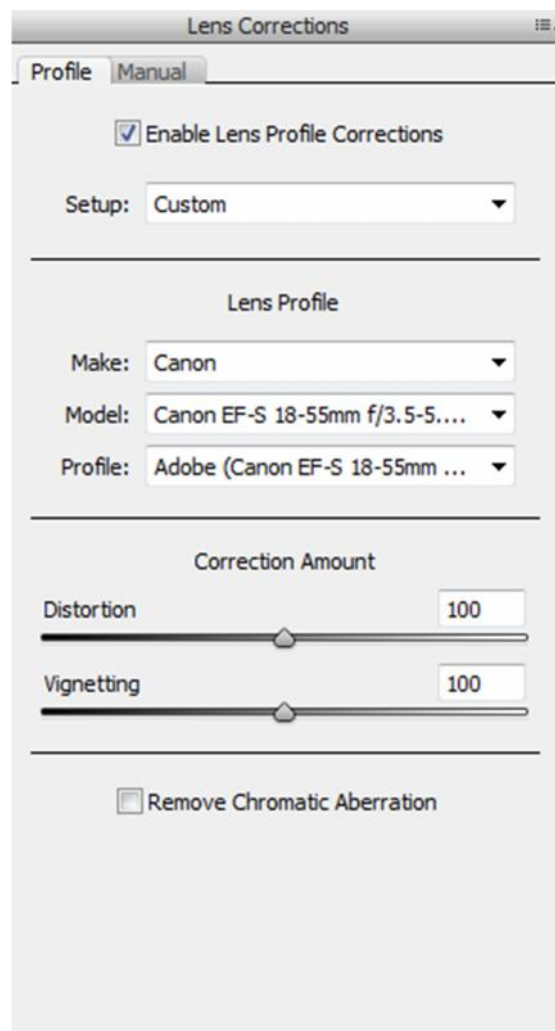
Now if you observe the image, it will get a vintage feel. The best thing about the split toning is that you can apply the effect even to a Grayscale image.

## Lens Correction

The Lens correction panel has two sub panels, one for automatic lens profile corrections and another for manual lens correction and removal of chromatic aberrations

### Profile

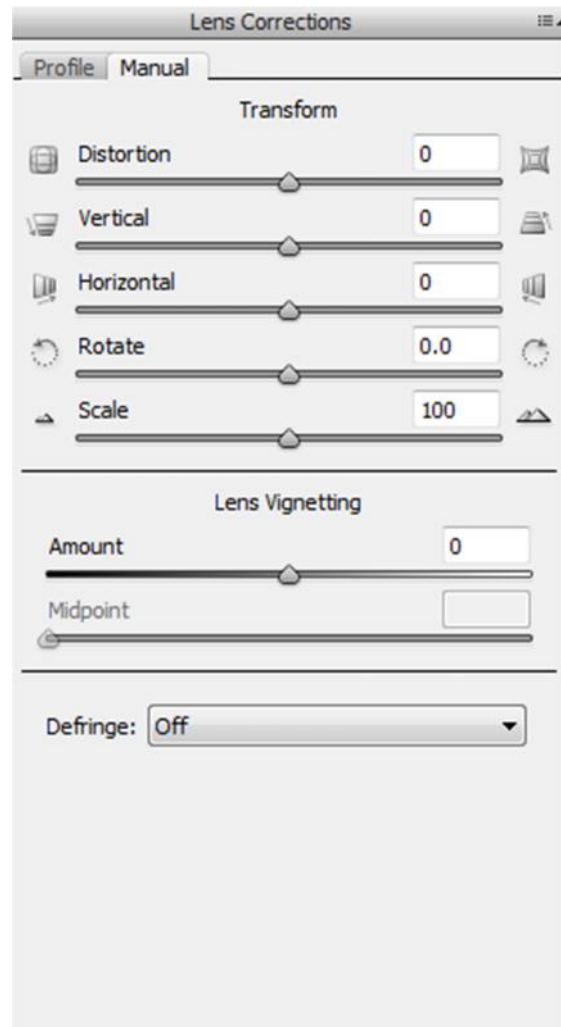
Profile sub panel is an automatic lens correction feature that comes along with ACR. Every lens will have some kind of optical distortion from lens elements. So in order to correct those distortions, adobe has made a complete list of all the available lens types and the corrections that need to be applied to the image. You can just click the check box saying “enable lens profile corrections” and ACR will automatically detect the lens type and other information from metadata and make the necessary corrections.





## Manual

This sub panel allows manual lens correction like straightening of the horizon, adding lens vignette and lots more. There's also option to remove chromatic aberrations from the image, which is nothing but colored spectral lines that occur in the image due to lens error.



## Chromatic Aberrations

According to Wikipedia, the failure of a lens to focus all colors in a scene is known as chromatic aberrations. It occurs due to the minor distortions and errors that are present in the lens. Chromatic aberration produces colored fringes along the edges of the subjects in the photograph. Chromatic aberrations are quite common in entry level DSLR lenses

Let's take a small example to see what chromatic aberration is and how it can be removed from the image.



In this above image, you can't see any chromatic aberrations. But when you magnify the image to 200% then you can see the colored lines like the one shown below



Under 200% magnification you can see a blue colored line along the edge of the fisherman. This is called as the chromatic aberration. But these defects can be cleared using Camera RAW. The lens correction tab gives us an option and a bunch of sliders to remove those color lines. This is how it will look after removing the CA's (Chromatic aberrations) from the image



## Effects

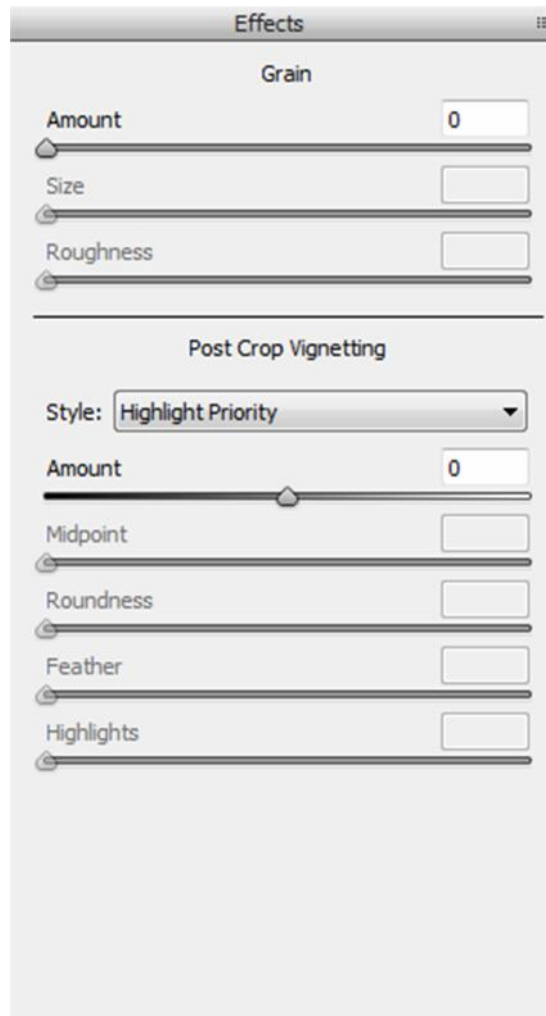
### Grains

Effects panel lets you add grains to the image. It gives a raw and dramatic effect to the images

### Post-Crop Vignetting

Usually vignette won't be applied for cropped images as default vignette will only occur in the edges of the uncropped image. So in order to add vignette to the cropped image you can use post crop Vignetting.

Post crop vignette is very helpful when processing people portraits and environmental portraits



## Camera Calibration

Your camera has a lot of built-in profiles like standard, faithful, mono, vivid, etc. with which you will often capture your images. Camera calibration tools are usually used to calibrate those built-in camera profiles. Also, this panel helps you to choose between different versions of Adobe camera RAW (ACR).

## Presets

The preset panel lets you create custom presets like the ones available in Lightroom. If you're processing an image and you feel that particular settings can define your image and give you an identity, you can store all those settings in the form of a preset (more like a template). The presets are usually stored as .xmp files on your hard disk. You can create many different presets which will be of great help during batch processing of many images.

## Snapshots

If you have the habit of processing your image in many different variants, you can use snapshots to create snapshot of every effect that you've tried on the image. You can compare them and choose the best one before delivering it to the client or uploading it on Flickr or Facebook.

### Difference between Presets and snapshots

The difference between snapshot and presets panel is that snapshot created for one image cannot be used for other images, whereas the presets created from one image can be used for other images also.

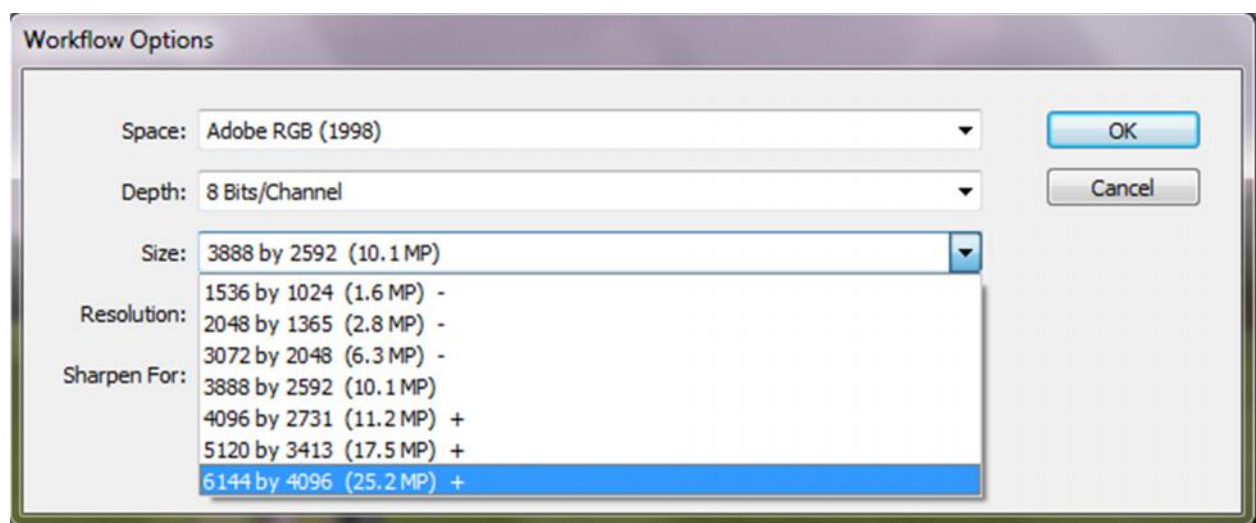
## Other features

### Boosting Megapixels in your RAW file

I found this feature really cool and striking when I started using ACR. Using this feature you can boost the megapixel of your image. ACR makes it possible as it works on the RAW data from the camera's sensor. You can boost your image to a maximum of 25 Megapixels. During this conversion, the pixels per inch value are set to a default of 240 ppi which prevents the image from getting pixelated. You can see the option in the bottom area of ACR's interface, just below the image location

[Adobe RGB \(1998\); 8 bit; 3888 by 2592 \(10.1MP\); 240 ppi](#)

When you click on the link that's mentioned above, you will get a dialog box with a drop down menu showing option to convert your image to a higher dimension.



# 4 Batch Processing in ACR

Sometimes you will come across a situation where you have to handle a large set of images and apply a similar kind of effect in all the images. It is painful job to recreate the effect for each and every image separately. This is where batch processing comes into action.

Batch processing is nothing but applying an effect to a batch or set of images. This saves time and creates uniformity in all the images that are selected for the process

## Creating Presets

Before carrying out the batch processing exercise you need to create the preset which is going to be applied for the selected images later.

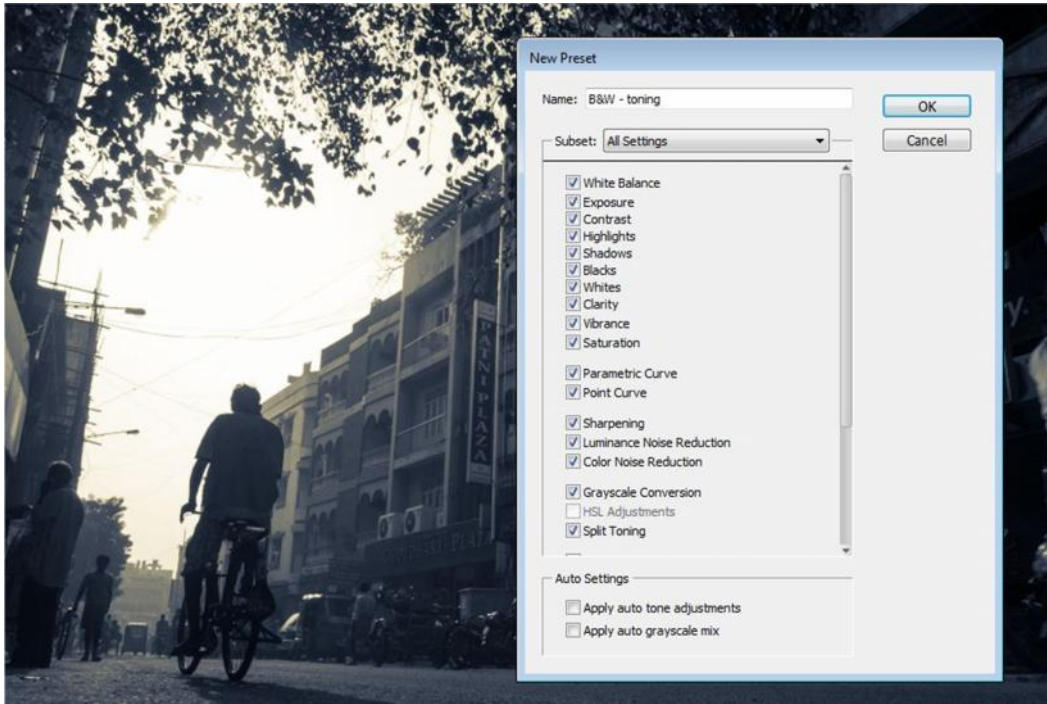
In order to create the preset, select the RAW file from your image pool and make all the necessary adjustments.

Let's take an example where I have processed an image using split toning (examples given in previous chapter) and I want to save the effect as preset





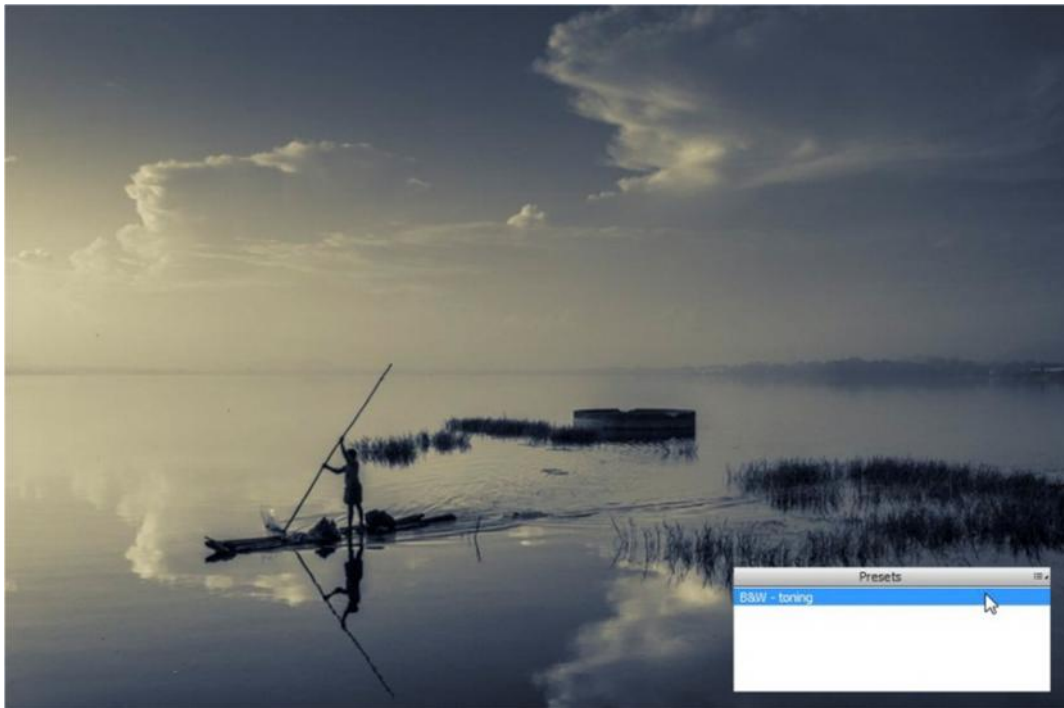
Now let's go to the presets panel and select the new preset option which will be present in the bottom right corner of the panel. A dialog box will be opened showing what parameters to be saved as presets



As you see in the above image, I have named the preset as “B&W – toning”. The preset will be saved in the assigned name on the presets panel. Now I want the same effect to be applied to another image (see below).



Now all I have to do is, go to the presets panel and click on the preset “B&W- toning”. The effect will be applied to the image. The same process can be used for multiple images by selecting and opening them from Adobe Bridge.



You can also click the settings menu in the right top corner of the panels tab (right above the white balance drop down menu) and click on **save settings** option. The presets can be applied later by selecting the **Load Settings** option.

### **How to perform Batch Processing**

After creating the preset for the required effect you need to select the set of images that need to batch processed. You should use Adobe Bridge for this purpose.

After selecting the images pressing Ctrl key, you can open them in ACR by right clicking on any one of the selected images and by selecting **Open in Camera Raw** option

Now all the selected images will be opened in the camera raw with first image getting displayed on the main image panel and the other images displayed in a row on the left side of the image panel

You can either select one image and apply the required preset and then click on Synchronize all option which will synchronize the same effect to all the selected images.

One more option is to select all the images, and click on the preset so that the effect will apply to all the images.



A year back I thought that batch processing is a very hard task. But it is not hard. When you saved the preset beforehand, everything's a cake walk from then.

### “Previous Conversion” option

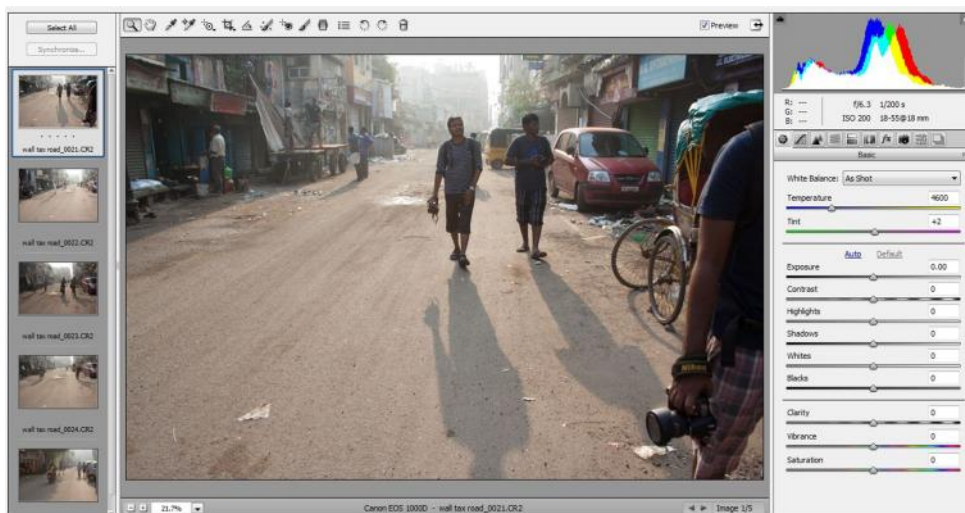
You can also use another simple option called the previous conversion option that is present in the panel of ACR. When you process an image and if you want the settings of the previous image to be applied to your new image, you can just select the previous conversion option to accomplish your task. This might work for a small number of images. But when you are working on a large set of images, only presets can save you from all the pain.

If you feel the above mentioned techniques are hard to understand or difficult we can look into an easy approach.

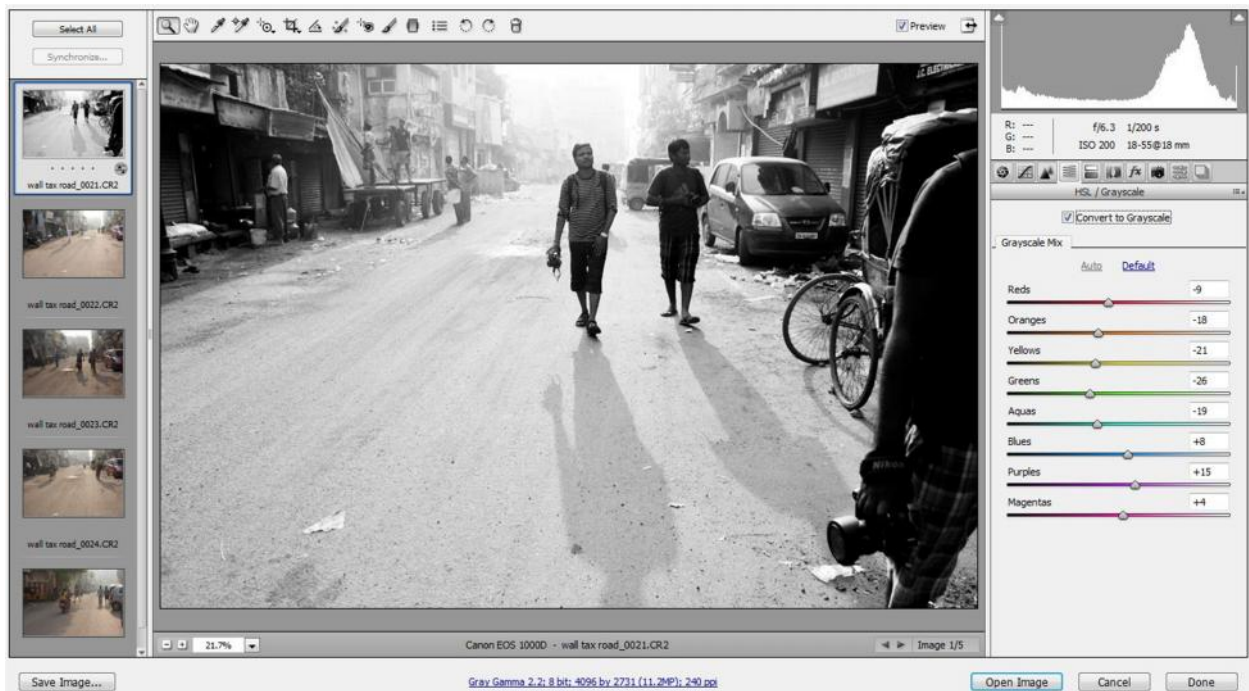
Many people think after processing a RAW image, one should always open the image inside Photoshop and then save it as a high quality JPEG. I don't know about others, but I used to do it this way when I started using camera RAW. Once I got two hundred pictures to process and I did the same job for each and every image. (Process in camera RAW -> open in Photoshop -> save as -> jpeg format). Later I refined the process by learning simple ways through my friends. We can see one simple way to process and save images without much pain.

Let's take an example where I have some five photos in hand. We shall see how do we process it and save it

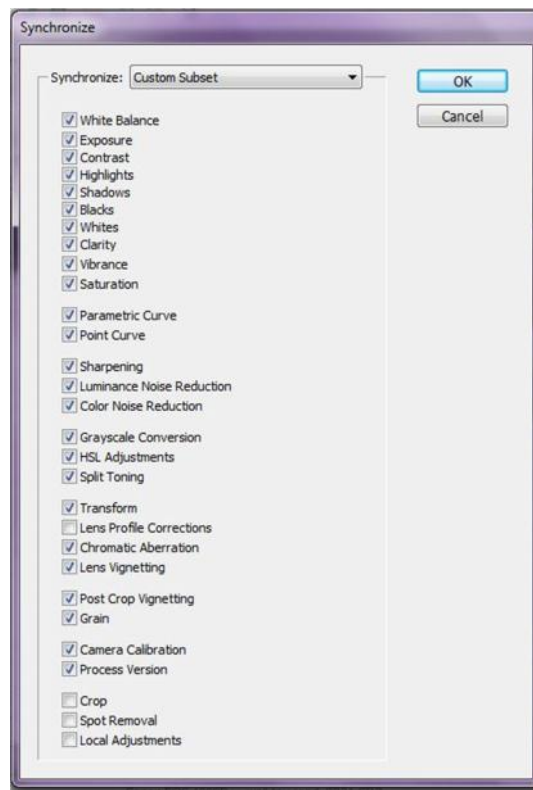
First I have selected the five photos using Adobe Bridge (by pressing the Ctrl key) and opened it in camera RAW. Now your ACR interface will show first image on the image window and other selected images on the left side of the window



Now I want to make changes to the first image and apply its settings to other four images present in the window. In order to do that, I make all the changes to the first image

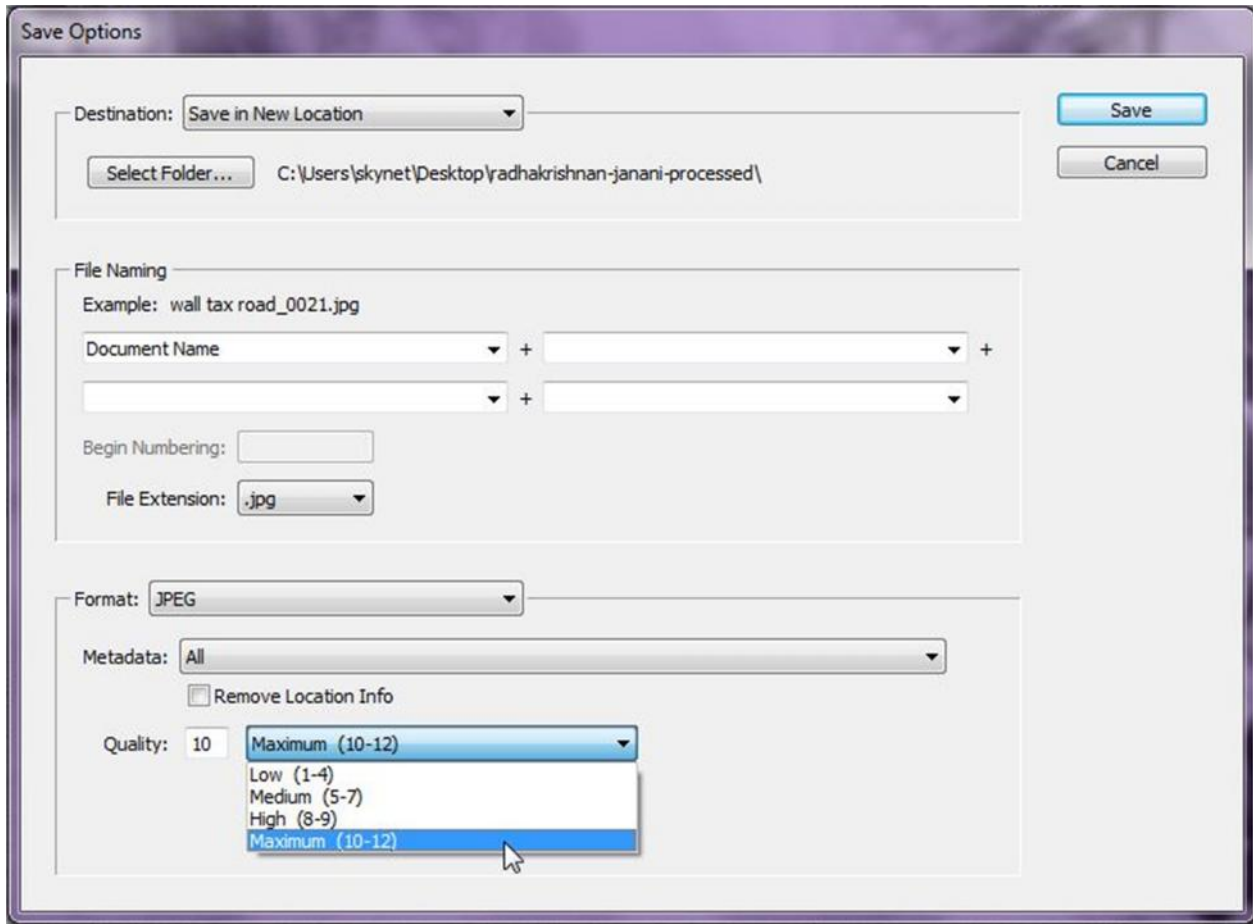


Now on the top left corner of the window, there is an option called “Select All” and “synchronize”. I press “Select All” option to select all the five images. Now when I press “synchronize” option, ACR will ask parameters of the first image which needs to be applied to the other four images.



After selecting your known parameters, the settings will be applied to all the images. Now that we have processed all the five images in a single stretch, we need to save them in a desired location.

When you observe the camera RAW interface, you can see an option called “Save image” on the left bottom corner of the window. When you click that, you will get a dialog box asking for the location to save your files. You can also customize your file names, image format in which you want to save and image quality.



# 5 workflows

When you come across interviews of many photographers on the internet you would've come across the question **"What is your workflow?"** Workflow is how you carry out your processing with an image. It's about knowing where to start and what steps to follow in order to get the final output.

Many photographers follow different workflows, but what I follow is what I learnt from Mr. Mahesh Balasubramaniam, my mentor and good friend who is known for his portraits in the international arena.

## **Step 1: Lens correction**

The first step of your workflow is to correct the lens distortions. Because doing lens correction in the last won't give you a correct perspective of how the image looks.

## **Step 2: Color Correction**

It is very important to do color correction before making the basic changes in the image. Color correction can be done using the white balance tool in the image. Refer how to use white balance tool in the previous chapters

## **Step 3: Basic Corrections**

After doing lens corrections, go to basic panel and do all the necessary changes with basic properties like contrast, Vibrance, saturation, etc. Also perform other necessary actions like correcting the horizon, crop, graduated filter etc.

## **Step 4: Tonal Curve**

After doing the basic corrections, your histogram will be equalized. Now adjust the highlights and shadows of your image to give it a good shape

## **Step 5: Color Enhancement**

Do all necessary color enhancements using the HSL/Grayscale tab. If you feel Grayscale would give a good feel to your image then use the Grayscale panel to enhance grayness of different colors in the image.

### **Step 6: Adding Vignette (optional)**

After making all the changes, try to add a vignette you feel it is necessary for the image. If you want to add vignette for your image which has been cropped during the workflow, you can go for post crop Vignetting option under the effects tab.

### **Step 7: Noise reduction**

The reason for carrying out noise reduction step in the last is that all the previous steps might add some noise to the image. So it is better to reduce the noise in the final step. It is always better to do noise reduction under magnification of 100%

### **Step 8: sharpness (optional)**

Add sharpness to your image only if you feel your image needs it. Adding sharpness to an already sharp image will spoil the clarity of the image. So analyze the image before you increase the sharpness

All the above mentioned steps are to just give an idea of how to go about processing your RAW file. You need not follow the same order. After some years of practice you will have your own workflow for producing some mind blowing results. Like I said before, it's all trial and error.

In order to get a clearer picture, we can see how to process an image based on the workflow discussed above.

### **Step 9: Saving the image**

After processing your RAW file in ACR and subsequently in Photoshop, you need to save your final output file. There are a lot of methods to save your output file for further editing and future reference. Always save your image as a PSD file (if it has too many layers – for advanced users), a TIFF file and two versions of JPEG files (800 x 600 pixels and 1920 x 1280 pixels). Saving a copy of TIFF file will have a lot of image data than JPEG (which is highly compressed format) and allows enhancements of the image in future.

All the above mentioned steps are to just give an idea of how to go about processing your RAW file. You need not follow the same order. After some years of practice you will have your own workflow for producing some mind blowing results. Like I said before, it's all trial and error.

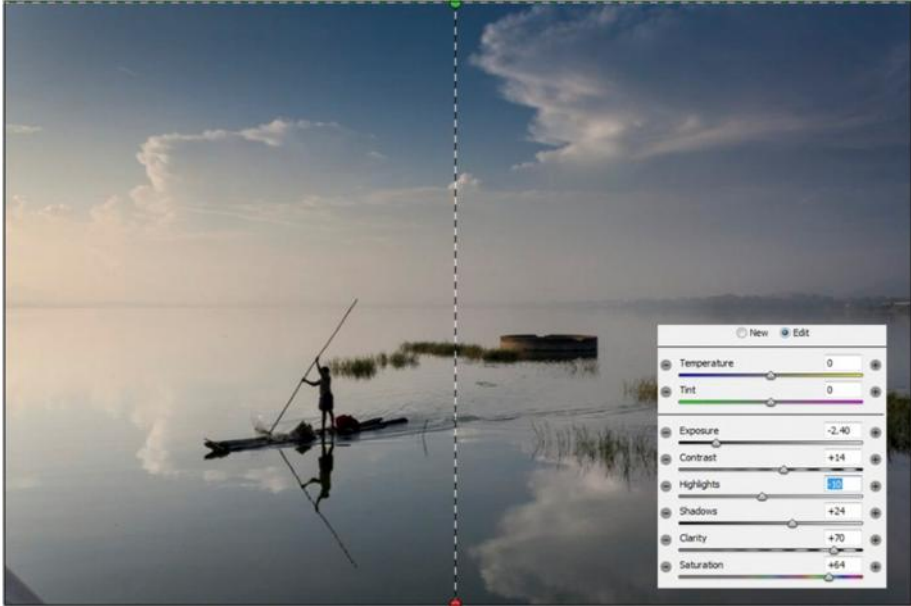
In order to get a clearer picture, we can see how to process an image based on the workflow discussed above.



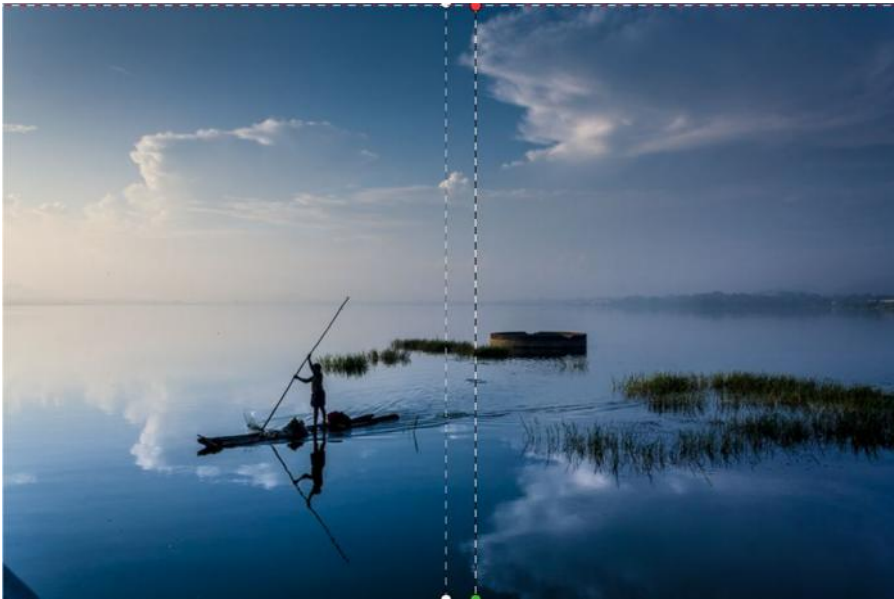
The above has got beautiful reflections, clouds, a large water body and colors hidden in sky and water. In the following steps we will try to recover as much as possible. As a first step I have done the lens corrections under profile mode. After that I have made auto adjustments in the basic panel.



Now i can use a graduated filter to create an exposure gradient. This will reduce the exposure and highlights in the upper portion of the image leaving the lower portion undisturbed. In this particular image I have also played around with contrast, temperature and saturation in the graduated filter. The adjustment made to the graduated filter is also embedded along with the image.



Now you can see that graduated filter has brought some details in the clouds and reduces the exposure in the lower part of the image. But we are missing the blue tone in the image which is prominent in the skies and the reflection. In order to achieve that we can add another graduated filter from the opposite direction.

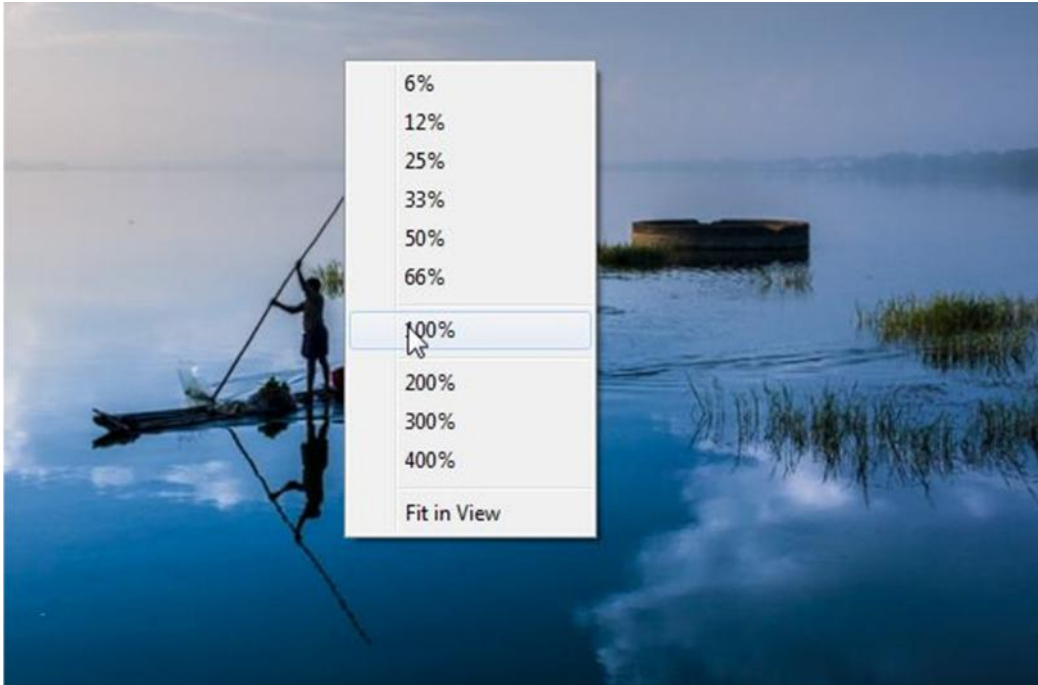




This will give a good blue tone and make the reflections look prominent on the image. Now we can go for some basic corrections in the image like tonal adjustments, contrast, highlight recovery in order to balance the image.



After making the basic adjustment we have to examine the image in 100 or 200% magnification. This will help us to see the chromatic aberrations or presence of grains or color noise in the image.



Under 200% magnification, the image shows chromatic aberrations. So we can use the lens corrections tab to remove chromatic aberrations. I have improved the blue and green colors in the HSL panel. But if you don't like too much saturation, you can underplay with colors. Now that we have done most of the adjustments with the image, we can stop the processing right here. I have included the before/after comparison below



The above mentioned example is just to give you an idea of what can be done with ACR. There are numerous possibilities and methods by which you can work on a picture. Like I said earlier, this comes in many attempts of trial and error. When you work continuously on it, you will evolve during the course of time to find your own style

# 6 Shortcuts

In this chapter, we will take a look at some keyboard shortcuts used in Adobe Camera RAW. This will help you save time when you are working with your RAW files.

A – Straighten tool

C – Crop Tool

H – Hand tool

I – White Balance Tool

O – Highlight clipping on/off

P – Preview adjustments on/off

S – Sample Tool

U – Shadow clipping on/off

Ctrl + Alt + 1 – Basic Tab

Ctrl + Alt + 2 – Tonal curve

Ctrl + Alt + 3 – Detail Tab

Ctrl + Alt + 4 – HSL/Grayscale

Ctrl + Alt + 5 – Split toning Tab

Ctrl + Alt + 6 – Lens corrections

Ctrl + Alt + 7 – Effects

Ctrl + Alt + 8 – Camera calibration

Ctrl + Alt + 9 – Presets

Ctrl + Alt + Z – Multiple Undo

Ctrl + Z – Undo

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## About the Author

Karthik Pasupathy is a graduate in biotechnology and is currently doing his masters degree at SRM University, Chennai. For the past two years he's interested in photography and associated himself with chennai based photography group called chennai weekend clickers.

He has traveled to many places inside and outside tamilnadu to take photographs. He has made published three photo series online titled "Eyes", "Life outside the city" and "Soap".

His photographs got published in many online and print magazines. His photographs have been exhibited on the 3rd year exhibition of chennai weekend clickers titled "Third eye"

Apart from photography he also took several seminars on post processing and Adobe camera RAW.



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