

Adjustments Details in *Photos* Edit Mode

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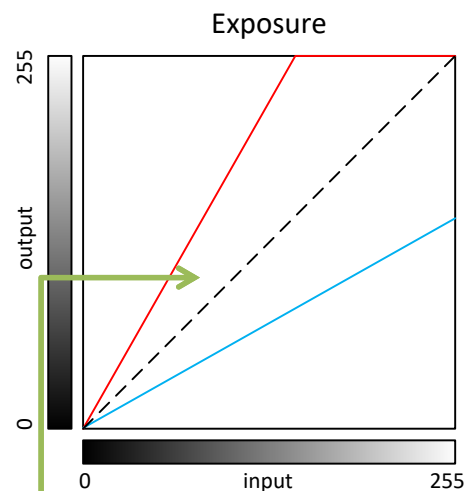
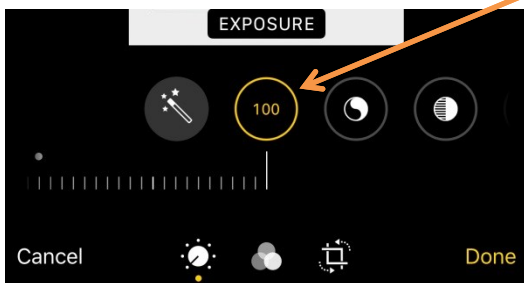
What is an Adjustment, and what does each do?

Adjustments transform the original (input) intensity of each pixel to an adjusted (output) intensity. For **Exposure**, **Brilliance**, **Highlights**, **Shadows**, **Contrast**, **Brightness**, and **Black Point**, the intensities of the three primary colors, red, green, and blue (RGB)—the building blocks of all the other colors—are usually adjusted similarly. For **Saturation**, **Vibrance**, **Warmth**, and **Tint**, the intensities are varied between the RGB values to modify the colors.

An image is made up of pixels (picture elements), dots of different colors and intensities. Each pixel is a cluster of three colored dots, RGB. By varying the intensity of each of the three colors, thousands of different hues can be created of varying intensities. Each dot's intensity ranges on a scale from 0 (black) to 255 (white). A medium shade of gray would have intensity 128 for each of the three colors red, green, and blue. For example, pure yellow is displayed as red plus green, but no blue. Pure yellow would be RGB 255, 255, 0. Note that this differs from printing which uses Cyan, Magenta, Yellow, and black or CMYK.

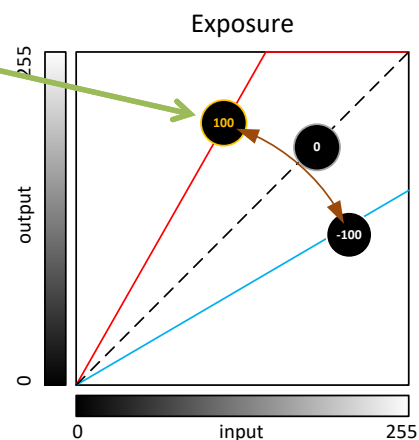
Sharpness, **Definition**, **Noise Reduction**, and **Vignette** involve adjustments of adjacent or nearby pixels, and cannot be depicted on the input-output graphs shown below.

On the graphs shown in this article, the original **input** intensity of the pixels is along the bottom (x-axis) and the transformed **output** intensity is along the left side (y-axis). The **red line** on the graph represents the adjustment curve if you increase the value to 100




in the iPhone Photos Edit mode and the **blue line** if you decrease the value to -100. Adjustment values in between will fall within the red and blue lines. An adjustment of 0 would be the diagonal straight dotted-line shown here. The output intensity would simply be the same as the input; no change would occur.

In this example, increasing the Exposure to 100 would move the transform line from the dotted black line to the red line (the actual value is not necessarily accurate). Notice in the example that any input value in the original image of more than around 140 (in the 0-255 RGB scale) would transform to an output of 255. Any detail in the input range of 140-255 RGB would be lost because every pixel would transform to white. If the exposure were set to -100 (blue line), no pixel in the output could be more than around 140 RGB. Adjustments between -100 and 100 would move the line somewhere between the blue and red lines.



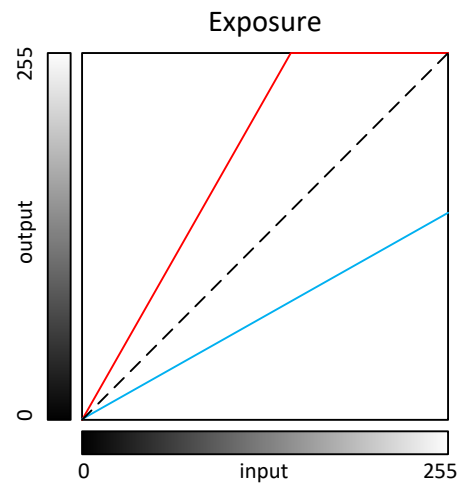
Adjustments in Photos app Edit

In practice, you don't have to understand these input-output graphs. You can try each adjustment, as I often do, and see what improves the image, jumping between adjustment tools to create the best looking image. But some understanding of what each tool does can help you select the right adjustment tool for the image you are editing.

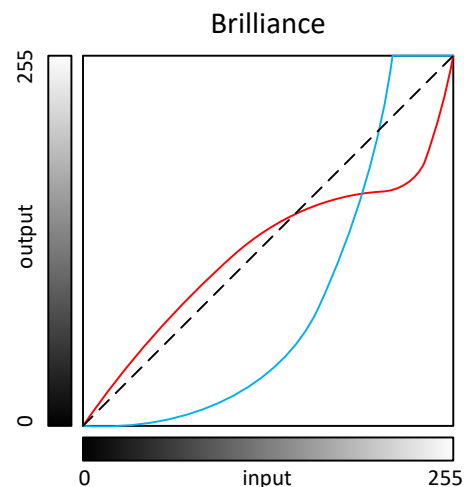
Before you begin editing an image, *Duplicate* it in the Share  menu so you don't modify the original. If you don't *Duplicate*, you can always *Revert* to the original, but you will lose your edits.

Auto will attempt to improve the image by making all the adjustments **automatically**. You can start with Auto and then make further adjustments yourself. However, I like to start from scratch without invoking Auto. Auto can be adjusted by itself, or you can change each individual adjustment separately, deviating from what Auto initially set.

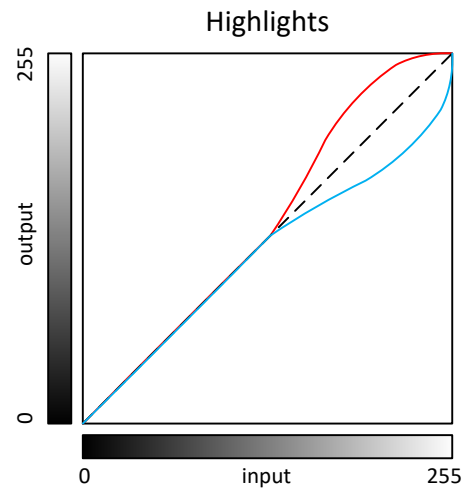
Exposure will make your **overall photo brighter or darker**. (I suggest not using this adjustment. Use Brilliance, Contrast, and Brightness instead.) To be more technical, it scales the settings up and down by a constant multiplying factor. Moving this slider either increases or decreases all of the elements that go into obtaining the correct exposure at once. Shadows get somewhat brighter, but bright areas get even brighter still. Rather than increasing everything equally, Exposure increases values relative to how bright they are to begin with. Exposure can blow out (eliminate detail) from the lightest areas. Decreasing the Exposure will darken the entire image. Exposure adjusts the White Point.



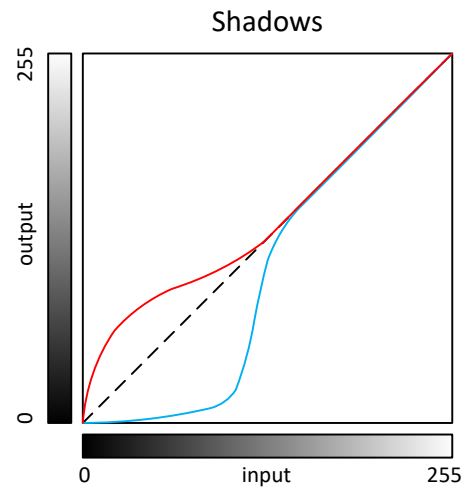
Brilliance allows you to **brighten the shadows, tone down the highlights** a bit, and **adjust the contrast** to bring out more details, all in one step. It applies region-specific adjustments to brighten darkest areas, darken brightest areas, and increases the contrast in shadows and highlights to reveal hidden detail and make your photo look richer and more vibrant. The adjustment is color neutral (no saturation is applied), but there may be a perceived change in color because brighter images with more contrast appear more vibrant. Decreasing the Brilliance will darken the shadows and increase the contrast in the brighter regions.



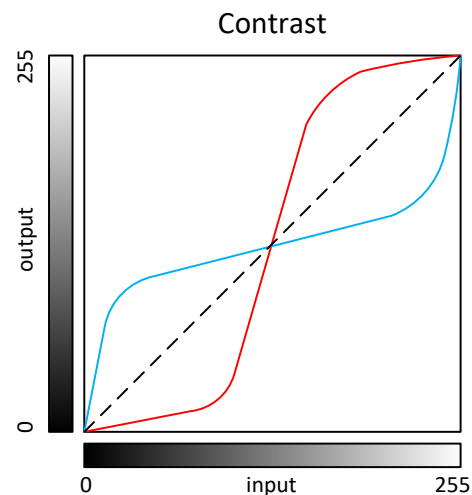
Highlights adjusts **exposure in the bright areas**. This will increase or decrease the exposure in the brightest parts of the image and make them appear brighter or darker than they originally were. Notice that the darker areas are not affected.



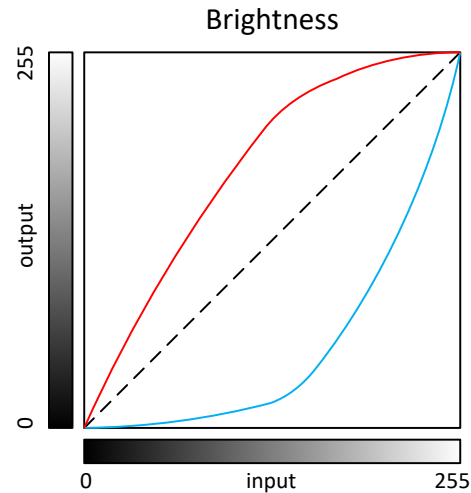
Shadows adjusts the **dark areas**. This will increase or decrease the exposure in the darkest parts of the image and make them appear brighter or darker than they originally were. Notice that the lighter areas are not affected.



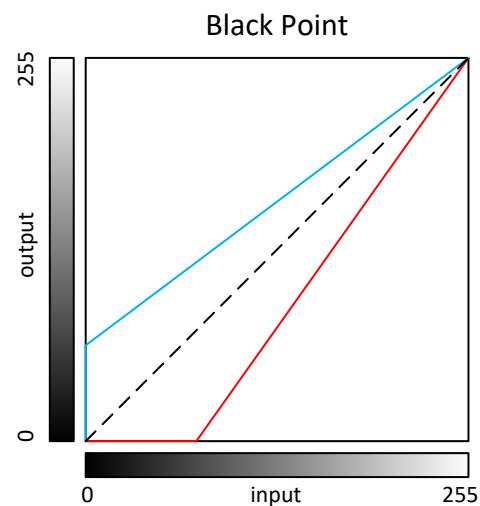
Contrast adjusts the **level of difference between the dark and light areas**. It increases or decreases the tonal range, i.e., range of darkness to brightest areas. It steepens the slope in the midtones—loosely defined as the intensities in the RGB range of 64-192—which exaggerates the intensity changes in this midtone range. Likewise, decreasing the contrast will reduce the slope of the midtones which will cause them to have much reduced contrast. In most cases decreasing the Contrast does not produce good results. Increasing the Contrast a little can make a photo look sharper. However you will get better results with Brilliance.



Brightness makes your photo brighter. All of the intensity levels change when adjusting the Brightness slider, but it preserves the highlights better than simply increasing the Exposure adjustment, which saturates the whites. And it affects the midtones more pleasingly than adjusting the Exposure. The black point and white point of an image remain relatively unchanged when the Brightness is adjusted, with the effect targeted more appropriately to where it is needed in the midtones.



Black Point (I suggest not using this) defines the black tones and **sets the point at which the darkest parts of the image become completely black without any detail**. A black point is a small area of the image that is maximum black. You don't want these areas to be too big or the image will have blocked, muddy, featureless shadows and that's not a good thing (unless that is your intent). Setting the black point can improve the contrast in a washed-out image. A higher Black Point will saturate the blacks and create a high-contrast look. A lower Black Point will add a fade effect to the blacks and create a low-contrast look.



Saturation allows you to increase or decrease overall **color saturation**. Zero saturation creates a monochrome image (for each pixel the RGB values are the equal, producing some level of gray). Too much saturation and the image colors become exaggerated or cartoonish.

Vibrance increases the tones of the more **muted colors** while leaving the already saturated tones alone. Think of it as a **“smart saturation tool.”**

Warmth adjusts **white balance**. Use it to give your photos a **warm, natural, or cold** look. Use it to adjust the image so that a known white object in the image appears to be white.

Tint allows you to adjust towards an overall **reddish or greenish tint**.

Sharpness allows you to increase or decrease the overall sharpness of your photo by making a **steeper or more shallow transition from shadow to highlight** areas.

Definition enhances details in the mid-tones by making **steeper transitions in the mid-tone areas**.

Noise reduction reduces small specks in your photos. However, use it carefully. If you apply too much noise reduction, you'll destroy all the details in your photos. Noise Reduction is a big help for photos taken in low-light conditions, which can produce speckling or other kinds of artifacts across smoother areas of tone. Don't pump it up too much, or your images start to **look ultra-smooth and artificial**. Balance Sharpness and Noise Reduction to improve a picture's clarity.

Vignette allows you to apply a black or white Vignette, areas on the **four corners**.