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Understand color adjustments

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 ▾

Before making color and tonal adjustments

The powerful tools in Photoshop can enhance, repair, and correct the color and tonality (lightness, darkness, and contrast) in an image. Here are some items to consider before making color and tonal adjustments.

- Work with a monitor that's calibrated and profiled. For critical image editing, calibration and profiling are essential. Otherwise, the image you see on your monitor looks different on other monitors or when printed.
- Plan to use adjustment layers to adjust the tonal range and color balance of your image. Adjustment layers let you go back and make successive tonal adjustments without discarding or permanently modifying data from the image layer. Keep in mind that using adjustment layers adds to the file size of the image and demands more RAM from your computer. Accessing the color and tonal commands in the Adjustments panel automatically creates adjustment layers.
- If you don't want to use adjustment layers, you can apply adjustments directly to an image layer. Remember that some image information is discarded, when making a color or tonal adjustment directly to an image layer.
- For critical work and maximum preservation of image data, it's best if the image you work with is 16 bits per channel (16-bit image) rather than 8 bits per channel (8-bit image). Data is discarded when you make tonal and color adjustments. The loss of image information is more critical in an 8-bit image than a 16-bit image. Generally, 16-bit images have a larger file size than 8-bit images.
- Duplicate or make a copy of the image file. Working on a copy of your image preserves the original in the event you want to use the image in its original state.

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- Remove any flaws such as dust spots, blemishes, and scratches from the image before making color and tonal adjustments.
- Open the Info or Histogram panel in Expanded view. As you evaluate and correct the image, both panels display invaluable feedback on your adjustments.
- You can make a selection or use a mask to confine your color and tonal adjustments to part of an image. Another way to apply color and tonal adjustments selectively is to set up your document with image components on different layers. Color and tonal adjustments are applied to only one layer at a time. Only the image components on the targeted layer are affected.

Correcting images

Here is the general workflow you follow when you correct the tonality and color of an image:

- 1 Use the histogram to check the quality and tonal range of the image.
- 2 Make sure that the Adjustments panel is open to access color and tonal adjustments. Click an icon to access the adjustments described in the following steps. Applying corrections from the Adjustments panel creates an adjustment layer, which gives you more flexibility and doesn't discard image information. See [Adjustments panel overview](#) and [About adjustment layers and fill layers](#).
- 3 Adjust the color balance to remove unwanted color casts or to correct oversaturated or undersaturated colors. See [Color adjustment commands](#).

- 4 Adjust the tonal range, using either the Levels or Curves adjustments.

Begin tonal corrections by adjusting the values of the extreme highlight and shadow pixels in the image, setting an overall tonal range for the image. This process is known as *setting the highlights and shadows* or *setting the white and black points*. Setting the highlights and shadows typically redistributes the midtone pixels appropriately. However, you might need to adjust your midtones manually.

To adjust the tonality in just shadow and highlight areas, use the Shadow/Highlight command. See [Improve shadow and highlight detail](#).

- 5 (Optional) Make other color adjustments.

After you correct the overall color balance of your image, you can make optional adjustments to enhance colors or produce special effects.

- 6 Sharpen the edges in the image.

As one of the final steps, use the Unsharp Mask or the Smart Sharpen filter to sharpen the clarity of edges in the image. The amount of sharpening required for an image varies according to the image quality produced by the digital camera or scanner you use. See [Sharpen images](#).

- 7 (Optional) Target the image for printer or press characteristics.

You can use options in the Levels or Curves adjustments to import highlight and shadow information into the gamut of an output device, like a desktop printer. This procedure can also be done if you are sending your image to a printing press, and

know the characteristics of the press.

Because sharpening increases the contrast of neighboring pixels, it's possible that some pixels in critical areas might become unprintable on the printer or press that you're using. For this reason, it's best to fine-tune the output settings after sharpening. For more information on adjusting the output settings, see [Setting highlight and shadow target values](#).

Adjustments panel overview




The tools for making color and tonal adjustments can be found in the Adjustments panel. Clicking a tool icon both selects an adjustment and automatically creates an adjustment layer. The adjustments you make using the controls and options in the Adjustments panel create nondestructive adjustment layers. See [About adjustment layers and fill layers](#).

The Properties panel has a Presets menu with the adjustment presets. Presets are available for Levels, Curves, Exposure, Hue/Saturation, Black & White, Channel Mixer, and Selective Color. Clicking a preset applies it to the image using an adjustment layer. You can always save adjustment settings as a preset, which is added to the presets list.


Clicking an adjustment icon or a preset displays the settings options for the specific adjustment.

For a video, see [Control which layers are affected by an adjustment layer](#).

Apply a correction using the Adjustments panel

- 1 In the Adjustments panel, click an adjustment icon or choose an adjustment from the panel menu.
- 2 Use the controls and options in the Properties panel to apply the settings you want.
- 3 (Optional) Do any of the following:
 - To toggle the visibility of the adjustment, click the Toggle Layer Visibility button .
 - To return the adjustment to its original settings, click the Reset button .
 - To discard an adjustment, click the Delete This Adjustment Layer button .
 - To expand the width of the Adjustment panel, drag a bottom corner of the panel.

Apply a correction to only the layer below

- 1 In the Adjustments panel, click an adjustment icon or choose an adjustment from the panel menu.
- 2 In the Adjustments, click the Clip to Layer button . Click the icon again to make the adjustment apply to all layers below it in the Layers panel.

Save and apply adjustment presets

The Properties panel has a Preset menu with the adjustment presets for the tool that you clicked in the Adjustments panel. Additionally, you can save and apply presets for

Levels, Curves, Exposure, Hue/Saturation, Black & White, Channel Mixer, and Selective Color. When you save a preset, it's added to the presets list.

- To save adjustment settings as a preset, choose the Save Preset option from the Properties panel menu.
- To apply an adjustment preset, choose a preset from the Preset menu in the Properties panel.

Automatically select text fields or the targeted adjustment tool

If you often change adjustment parameters using text fields or the targeted adjustment tool, maximize your efficiency by automatically selecting these items.

- 1 From the Properties panel menu, select Auto-Select Parameter or Auto-Select **Targeted Adjustment Tool**.

Note:

If you prefer to select text fields as needed, press Shift-Enter (Windows) or Shift-Return (Mac OS).

Color adjustment commands

You can choose from the following color adjustment commands:

Adjust Levels Auto Quickly corrects the color balance in an image. Although its name implies an automatic adjustment, you can fine-tune how the Auto Color command behaves. See [Remove a color cast using Auto Color](#).

Levels command Adjusts color balance by setting the pixel distribution for individual color channels. See [Adjust color using Levels](#).

Curves command Provides up to 14 control points for highlight, midtone, and shadow adjustments for individual channels. See [Curves overview](#).

Exposure command Adjusts tonality by performing calculations in a linear color space. Exposure is primarily for use in HDR images. See [Adjust Exposure for HDR images](#).

Vibrance command Adjusts color saturation so clipping is minimized. See [Adjust color saturation using Vibrance](#).

Photo Filter command Makes color adjustments by simulating the effects of using a Kodak Wratten or Fuji filter in front of a camera lens.

Color Balance command Changes the overall mixture of colors in an image. See [Apply the Color Balance adjustment](#).

Hue/Saturation command Adjusts the hue, saturation, and lightness values of the entire image or of individual color components. See [Adjust hue and saturation](#).

Match Color command Matches the color: from one photo to another photo, from one layer to another layer, and from a selection in an image to another selection in the same image or a different image. This command also adjusts the luminance and color range and neutralizes color casts in an image. See [Match the color in different images](#).

Replace Color command Replaces specified colors in an image with new color values. See [Replace the color of objects in an image](#).

Selective Color command Adjusts the amount of process colors in individual color components. See [Make selective color adjustments](#).

Channel Mixer command Modifies a color channel and makes color adjustments not easily done with other color adjustment tools. See [Mix color channels](#).

Make a color adjustment

All Photoshop color adjustment tools work essentially the same way; they map an existing range of pixel values to a new range of values. The difference between the tools is the amount of control they provide. Color adjustment tools and their option settings are accessed in the Adjustments panel. For an overview of the color adjustment tools, see [Color adjustment commands](#).

You can adjust the color in an image in different ways. The most flexible method is to use an adjustment layer. When you select a color adjustment tool in the Adjustments panel, Photoshop automatically creates an adjustment layer. Adjustment layers let you experiment with color and tonal adjustments without permanently modifying the pixels in the image. The color and tonal changes reside within the adjustment layer, which acts as a veil through which the underlying image layers appear.


- 1 If you want to make adjustments to a portion of your image, select that portion. If you make no selection, the adjustment is applied to the entire image.
- 2 Do one of the following:
 - Click an adjustment icon in the Adjustments panel.

- Create an adjustment layer. See [Create and confine adjustment and fill layers](#).
- Double-click the thumbnail of an existing adjustment layer in the Layers panel.

Note:

You can also choose Image > Adjustments, and choose a command from the submenu to apply adjustments directly to the image layer. Keep in mind that this method discards image information.

A new adjustment layer includes a layer mask, which by default is empty (or white), meaning that your adjustment is applied to the entire image. (If you have an active selection on the image when you add an adjustment layer, the initial layer mask masks out the unselected area in black.) Using the Brush tool, you can paint black areas on the mask where you don't want the adjustment to affect the image. See [Edit a layer mask](#).

- 3 To toggle the view of your image with and without adjustments, click the Toggle Layer Visibility icon  in the Properties.

Note:

To cancel changes, click the Reset button .

Save adjustment settings

You can save your color adjustment settings and apply them to other images. Once a setting is saved, it can be accessed in the Preset menu in the Properties panel. You can also choose the Load Preset option from an adjustment dialog box menu. If you are saving color adjustment settings using the Match Color command, see [Match the color in different images](#).

- To save a setting in the Preset menu, choose the Save Preset option from the panel menu. This option is only available for Levels, Curves, Exposure, Hue/Saturation, Black & White, Channel Mixer, and Selective Color.
- To save a setting in the Shadows/Highlights or Replace Color image adjustment dialog box, click Save. In the Levels, Curves, Exposure, Hue/Saturation, Black & White, Channel Mixer, or Selective Color image adjustment dialog box, choose Save Preset from the panel menu. Enter a name for the setting, then click Save.

Reapply adjustment settings

Once an adjustment setting is saved, it's stored as a preset and can be reapplied.

- Choose an adjustment preset from the Preset menu in the Properties panel.
- In an adjustment dialog box, click Load. Locate and load the saved adjustment file. In the Curves, Black & White, Exposure, Hue/Saturation, Selective Color, Levels, or Channel Mixer dialog boxes, saved presets appear in the Presets menu. Choose Load Preset from the Preset option to load a preset not shown on the Preset pop-up menu from a different location.

To remove default presets, navigate to the following folders, move the presets out of the folders, and restart Photoshop.

- Windows: [startup drive]/Program Files/Adobe/**Adobe**

Photoshop [version_number]/Presets/[adjustment type]/[preset name]

- Mac OS: [startup drive]/Applications/**Adobe Photoshop** [version_number]/Presets/[adjustment type]/[preset name]

Correcting colors in CMYK and RGB

Although you can perform all color and tonal corrections in RGB mode and most adjustments in CMYK mode, choose a mode carefully. Avoid multiple conversions between modes, because color values are rounded and lost with each conversion. Don't convert RGB images to CMYK mode if they are meant for on-screen display. For CMYK images that are separated and printed, do not make color corrections in RGB mode.

If you must convert your image from one mode to another, perform most of your tonal and color corrections in RGB mode. You can then use CMYK mode for fine-tuning. The advantages of working in RGB mode are:

- RGB has fewer channels. As a result, your computer uses less memory.
- RGB has a wider range of colors than CMYK, and more colors are likely to be preserved after adjustments.

You can soft proof colors to see an on-screen preview of how your document's colors will look when reproduced on a particular output device. See [About soft-proofing colors](#).

Note:


You can edit an image in RGB mode in one window and view the same image in CMYK colors in another window. Choose Window > Arrange > New Window For (Filename) to open a second window. Select the Working CMYK option for **Proof**

Setup, then choose the Proof Color command to turn on the CMYK preview in one of the windows.

Identify out-of-gamut colors

A *gamut* is the range of colors that a color system can display or print. A color that can be displayed in RGB could be *out of gamut*, and therefore unprintable, for your CMYK setting.

In RGB mode, you can tell whether a color is out of gamut in the following ways:

- In the Info panel, an exclamation point appears next to the CMYK values whenever you move the pointer over an out-of-gamut color.
- In both the Color Picker and the Color panel, an alert triangle  appears. When you select an out-of-gamut color, the closest CMYK equivalent is displayed. To select the CMYK equivalent, click the triangle or the color patch.

Photoshop automatically brings all colors into gamut when you convert an RGB image to CMYK. Note that some detail in the image may be lost, depending on your conversion options. You can identify the out-of-gamut colors in an image or correct them manually before converting to CMYK. You can use the Gamut Warning command to highlight out-of-gamut colors.

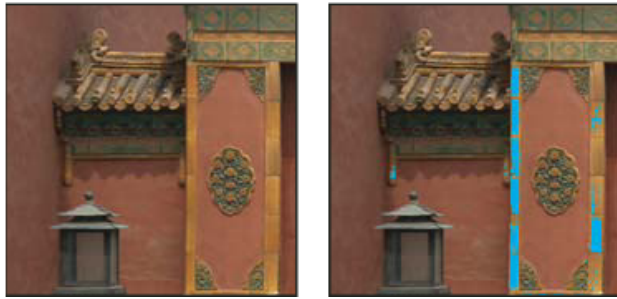
Find out-of-gamut colors

- 1 Choose View > **Proof Setup**, then choose the proof profile on which you want to base the gamut warning.
- 2 Choose View > Gamut Warning.

All pixels outside the gamut of the current proof profile space are highlighted in gray.

Change the gamut warning color

- 1 Do one of the following:
 - (Windows) Choose Edit > Preferences > Transparency & Gamut.
 - (Mac OS) Choose Photoshop > Preferences > Transparency & Gamut.
- 2 Under Gamut Warning, click the color box to display the Color Picker. Then choose a new warning color, and click OK.
For best results, use a color that is not already present in the image.
- 3 Enter a value in the Opacity box, then click OK.
Use this option to reveal more or less of the underlying image through the warning color. Values can range from 1 % to 100%.



Original image, and out-of-gamut colors preview with blue selected for gamut warning color



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