



PRACTICAL PHOTOSHOP CC 2018 LEVEL 2

PRACTICAL PHOTOSHOP CC 2018, LEVEL 2

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SAMPLE CHAPTERS

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PRACTICAL PHOTOSHOP® CC 2018

LEVEL 2

Donald Laird

Practical Photoshop® CC 2018, Level 2

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Practical Photoshop

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Find us on the Web at <http://www.practicalphotoshop.com>.

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TUTORIAL 1: OVERVIEW & GUIDELINES

Adobe Photoshop® is the industry standard software for image editing. **Practical Photoshop CC 2018, Level 2** is the second book in a series to guide you through the intricacies of digital image creation and editing. In this book you will develop more layer and adjustment skills, differentiate between pixel and vector based image components, and work with layers, channels, and especially masks to build complex Photoshop documents. You will need Photoshop CC 2018 for either Mac or Windows to complete the majority of the tutorials in this book. No support will be given for earlier software versions or for the Photoshop Elements application.

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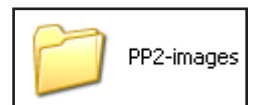
OBJECTIVES

- Download the example and tutorial files for the book.
 - Examine the hardware and software requirements for Photoshop CC 2018 and set up your computer system accordingly.
 - Work with **PSD** and **JPEG** files.
 - Differentiate between **PROPRIETARY** and **GENERIC** or **UNIVERSAL** file formats.
 - Describe the strengths and limitations of both the **PSD** and the **JPEG** file format.
 - Use the **Export As** command with various settings to duplicate **PSD** files as Web-optimized **JPEG** files.
 - Customize the most common Photoshop preferences:
Image Interpolation, **File Handling**, and **Type**.
-

GETTING STARTED

At the beginning of each tutorial you will find an **Objectives** section so you know what you will accomplish by completing the tutorial. All the example and tutorial files used in this book can be downloaded at: <http://www.practical-photoshop.com/pages/CC-2018-level2.html>.

When expanded (unzipped), you will have a folder named **PP2-images**. Inside the folder are individual folders for each tutorial in the book.



At the end of each tutorial you will find an **On Your Own** section where you can continue your study of Photoshop, or further develop skills or concepts introduced in the tutorial itself.

Graphics or computer terminology known as **KEY TERMS** are set off in bolded all caps when they are defined.

Computer menu commands and keystrokes are set off in **boldface** as are panels, bars, buttons, and other workspace elements.

USING THESE TUTORIALS WITH PHOTOSHOP

Photoshop menu commands often involve drilling down from a main menu to one or more submenus. We have used a greater than sign (>) to show you the sequence to follow. For example, **Image > Adjustments > Black & White** directs you to first click the **Image** menu, then the **Adjustments** submenu, and finally the **Black & White** command to turn a color photo into a black and white (grayscale) photo.

All Windows computers and modern Macintosh computers (except older laptops) use computer mice or track pads with (at least) two mouse buttons.

If your mouse has two or more buttons:

- **Click** means to press and release the left mouse button.
- **Right-click** means to press and release the right mouse button.
If your computer only has a one button mouse or a single trackpad button, you will need to **CONTROL-CLICK**: press and hold the **control key** and then click the single button to simulate a right-click.
- **Drag** means to press the (left) mouse button and keep it down as you move the mouse.
- **Press** means to press one of the keys on the keyboard.

Photoshop often uses **MODIFIER KEYS** on the computer keyboard along with mouse clicks to extend the capabilities of those keys.

Windows typically uses the **ctrl**, **alt**, and/or **shift** keys.

Macintosh typically uses the **command** (⌘ or ⌘), **option**, **control**, and/or **shift** keys.

The **plus sign** (+) indicates when a modifier key is required. For example, you might **alt + click (Win)** or **option + click (Mac)** to perform a particular function.

When you use modifier keys, you are supposed to press the key(s) and click the mouse at the same time. Timing can be tricky. You may find it easier to first press the modifier key(s), then click or drag the mouse, and finally release the mouse button before releasing the modifier key(s).

THE PHOTOSHOP APPLICATION

Adobe produces two image-editing applications: **ADOBE PHOTOSHOP ELEMENTS®** and the full **ADOBE PHOTOSHOP®**. **Photoshop Elements** is a less expensive, consumer level graphics-editing application. Elements is terrific for simple image editing, but does not have nearly the range of capabilities as the full Photoshop application. Elements offers a good training ground for moving into the professional application, as both applications use similar working environments and approaches to image production and editing. We do not cover Photoshop Elements in these tutorials.

Adobe first acquired Photoshop in 1990. Since that time, there have been several improvements, or **UPGRADES**. The most current version of Photoshop is **Photoshop CC 2018**, released in January 2018.

You can obtain your Adobe software by monthly or annual subscription to the **Adobe Creative Cloud**. Here are the specifics: <https://creative.adobe.com/plans?plan=edu>.

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HARDWARE AND SOFTWARE REQUIREMENTS

Photoshop works equally well with either Macintosh or Windows computer systems. Image editing requires lots of processing power, and Photoshop works much more swiftly on newer, faster computers. Before purchasing Photoshop, make sure that your computer hardware and software are adequate. To use Photoshop effectively, you will need a fast computer, a modern operating system, and enough RAM and hard disk space to manipulate your images as you edit and save them. And, of course, you will need the Photoshop application itself. Let's look at each of these **minimum** requirements (more is better) in more detail.

1. A fast, powerful computer with a current operating system:

Macintosh

Multicore Intel processor with 64-bit support

Mac OS X v10.11 or higher

4 GB of available hard-disk space for installation; additional free space required during installation (cannot install on a volume that uses a case-sensitive file system or on removable flash storage devices)

Windows

Intel® Core 2® or AMD Athlon® 64 processor (2GHz or faster)

2.6 GB of available hard-disk space for installation; additional free space required during installation (cannot install on removable flash storage devices)

Microsoft® Windows 7 with Service Pack 1 or higher, Windows® 8.1, or Windows® 10

2. Enough RAM (random access memory) and hard disk space to manipulate your images as you edit and save them.

2GB of RAM is what Adobe says. In our experience, 4 GB of RAM should be the minimum, and 8 is better.

3. Additional requirements:

1024x768 display (1280x800 recommended) with OpenGL 2.0, 16-bit color, and 512MB of VRAM (video random access memory)

This software will not operate without activation. Broadband Internet connection and registration are required for software activation, validation of subscriptions, and access to online services. *Phone activation is not available.*

ADOBE CREATIVE CLOUD REQUIREMENTS

If you are installing additional Creative Cloud applications, not just Photoshop and Bridge, the hardware requirements are somewhat greater. For either platform, you will need at least 3 GB of RAM (8 desired) and more than 7 GB of free, contiguous hard disk space.

SETTING UP YOUR MONITOR FOR PHOTOSHOP

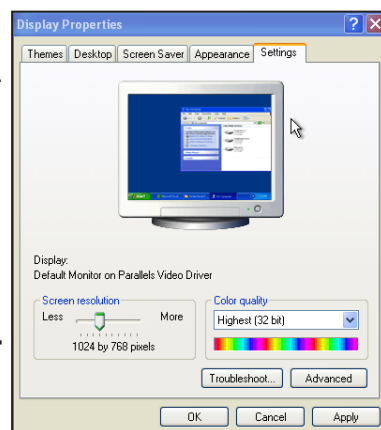
Computer monitors display patterns of colored square dots called **PIXELS**. Because those pixels are very small, we don't see them individually, but instead see the bigger "picture."

MONITOR RESOLUTION measures how many pixels fill the screen horizontally and vertically. **640 x 480** means that the monitor shows a grid of **640 pixels** across and **480 pixels** down. When you increase the monitor resolution, everything on the screen becomes smaller so you can fit more things on it. Photoshop uses many items to help you edit images, and you will need to set your monitor resolution to at least **1024 x 768** pixels to see and use all those items.

COLOR DEPTH sets how many different colors your monitor can display. For most Photoshop images, your monitor should be set to **millions of colors** (also known as **24-bit color**) so that color images look like true photographs on your screen. Here is how to check your monitor resolution and change it if needed:

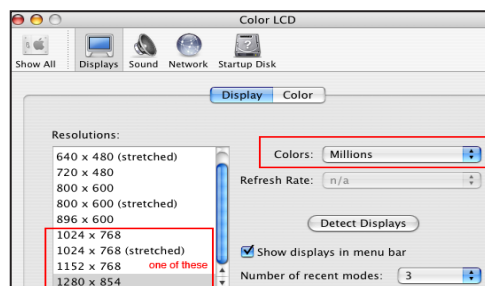
Windows

1. Close or minimize any open applications so that you can see your computer desktop.
2. **Right-click** a blank area on the desktop to reveal its context menu.
3. Choose **Properties** from that context menu to view the **Display Properties** dialog box.
4. Click the **Settings** tab and check your resolution and color settings. **Color quality** should be **Highest (32 Bit)**, and **Screen resolution** should be **1024 x 768 pixels** or higher.
5. Click **OK** if settings were changed, otherwise click **Close**.



Macintosh

1. Choose **Apple () > System Preferences**.
2. In the **Hardware** group, click **Displays**.
3. Check your resolution and color settings, and change if necessary. Set **Colors** to **Millions**, and **Resolution** to **1024 x 768 pixels** or higher (1280 x 800 is recommended).
4. Choose **System Preferences > Quit System Preferences**.



ADOBE PHOTOSHOP CC 2018 INSTALLATION

Whether you install just **Photoshop CC 2018** and **Bridge CC**, or additional **Creative Cloud** applications, you will need to download the software from the Adobe Web site and follow the on-screen prompts to install the software.

Photoshop CC 2018 for Macintosh is a **64-bit** only application. In Windows there are two versions, **32-bit** and **64-bit**. When you install **Photoshop CC 2018 for Windows**, the installer will choose the appropriate version for your particular operating system. The **64-bit** version will run more quickly and use as much RAM as allotted to it. The **32-bit** version can only use 3.2 GB of RAM.

A FEW TIPS BEFORE YOU BEGIN

- If you are upgrading from a previous version of Photoshop, keep your serial number handy as you may need it to complete the software installation.
- No Adobe applications or Web browsers should be open on your computer as you install.
- If desired, uninstall and remove earlier versions of Photoshop and Bridge before you install CC 2018. You do not have to remove older versions, however. You can run Photoshop CC 2018 on the same computer as earlier versions of Photoshop, Bridge, or Elements.

ACTIVATION & DEACTIVATION

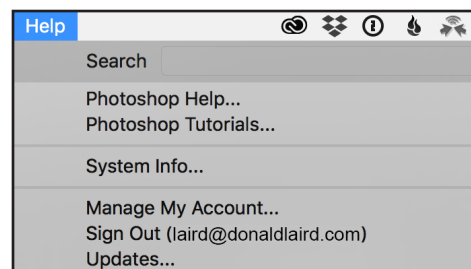
Single-user licenses of Photoshop CC 2018 require that you activate the software online before using it for more than 30 days after its first use. According to Adobe, this is a “simple, anonymous process.” A single-user license allows you to place Photoshop CC 2018 onto two computers —such as work and home, or a desktop and a laptop—with the assumption that you will use Photoshop on only one machine at a time. If you want to install the software on an additional computer, you must first deactivate it on one of the original computers.

CHECKING FOR FREE UPDATES

The Creative Cloud applications are quite complicated, and although Adobe works hard to make them perfect, problems sometimes arise. When Adobe fixes these problems, or adds features that were not included in the shipped software, **UPDATES** become available for download and installation.

1. Open any of the Creative Cloud applications.
2. Choose **Help > Updates** to go online to the **Adobe Updater** to check your computer and see if any updates are available.
3. If any updates are available, you will be instructed to download and install them.

You probably will not be able to update software if you are working in a computer lab or network.



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ADOBE ID

An **Adobe ID**, plus your password, gives you access to special membership benefits on Adobe.com. It is required to complete your software installation and essential for viewing special training and help features for Creative Cloud applications.

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UNINSTALLING ADOBE PHOTOSHOP CC 2018

When you install your software, uninstallers are placed in your system. In Windows, the **Add or Remove Programs** control panel should allow you to uninstall Photoshop or other Creative Suite applications. On the Mac, by default, the uninstallers are placed inside the **Applications > Utilities > Adobe Installers** folder.

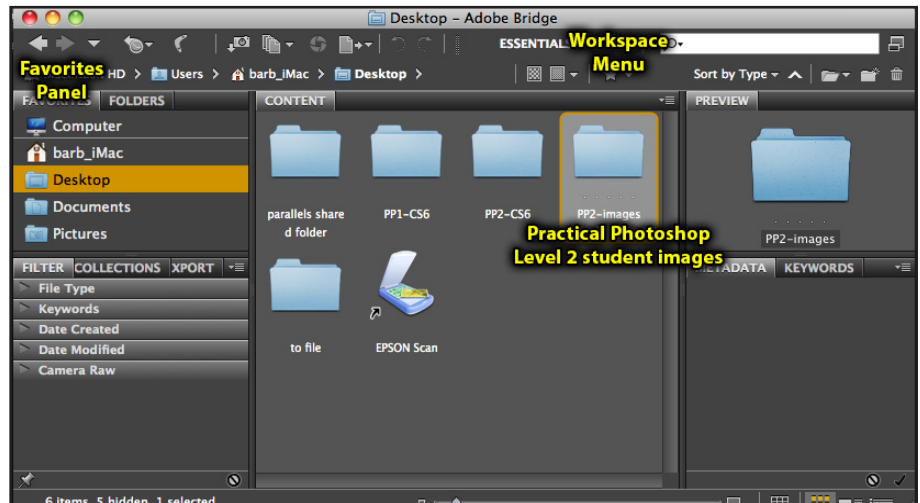
.....
THE PHOTOSHOP NATIVE FILE FORMAT, PSD

As you work in Photoshop, you typically use Photoshop's **NATIVE** or **PROPRIETARY** file format, **PSD**. **PSD** files are capable of using all of Photoshop's tools and commands.

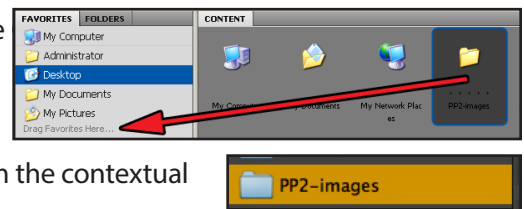
.....
GUIDED EXERCISE 1.1: EXAMINE A PSD FILE

In this guided exercise you will examine a **PSD** document first in Adobe Bridge and then in Photoshop itself to see some of the special Photoshop capabilities you will explore later in the course.

1. Place the **PP2-images** folder you downloaded onto the **Desktop** so that its location matches ours. (Place it where you want once you complete this exercise.)
2. Open Adobe Bridge.
3. Choose **Window > Workspaces > Reset Standard Workspaces**.
4. Choose the **Essentials** workspace, click the **Favorites** panel if it is not active, click the **Desktop**, and finally click the **PP2-images** folder in the **Content** panel.
5. Add the **PP2-images** folder to the **Favorites** panel:

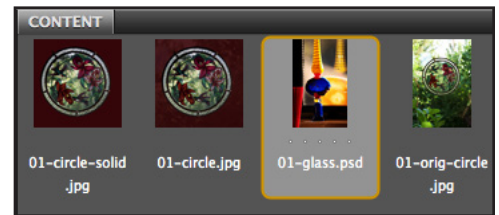


- In Windows, drag the icon of the **PP2-images** folder from the **Content** panel where it says **Drag Favorites Here**.
- In either Mac or Windows you can right-click the **PP2-images** folder in the **Content** panel and choose **Add to Favorites** from the contextual menu that appears.



6. Click the **PP2-images** folder in the **Favorites** panel to reveal its contents in the **Content** panel. Note the individual folders for each book tutorial.
7. Double-click **tut-01** to view its contents and click **01-glass.psd** to view its **File Properties** in the **Metadata** panel. You may need to scroll down to see the **File Properties**.

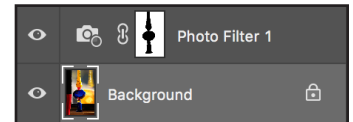
Before using an image, it is helpful to check it in the **File Properties** panel in **Bridge** to see its size and resolution. **01-glass.psd** has print dimensions of **5" x 8"** and a resolution of **300 ppi**, which means it should print well. But with pixel dimensions of **1500 x 2400** and a file size of **17.93 MB**, this file is way too large to email to someone or to include in a Web page.



Filename	01-glass.psd
Document Type	Photoshop document
Application	Adobe Photoshop CS6 (Macintosh)
Date Created	11/12/11, 7:01:17 AM
Date File Modified	Today, 4:02:03 PM
File Size	17.93 MB
Dimensions	1500 x 2400
Dimensions (in inches)	5.0" x 8.0"
Resolution	300 ppi

8. Open **01-glass.psd** in Photoshop and examine some of the special **PSD** features you will learn to use in this course:
 - a. Double-click the **01-glass.psd** icon in the **Content** panel in Bridge to open the image in Photoshop.
 - b. Either restore Photoshop's default settings or reset its tools, colors, and the **Essentials** workspace.
 - c. Examine the **Layers** panel.

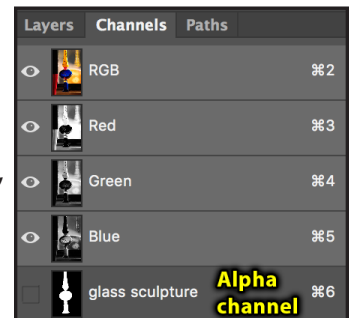
01-glass.psd has two layers, the **Background** and a **Photo Filter 1** adjustment layer.



The adjustment layer has a layer mask to hide the glass sculpture itself so that the warming **Photo Filter** adjustment layer affects only other parts of the image.

- d. Show and hide the **Photo Filter 1 adjustment** layer to see how it affects the image; it is a subtle adjustment.
- e. With the **Background** layer active, examine the **Channels** panel.

The bottom of the **Channels** panel contains the **glass sculpture alpha channel**, a stored selection that is saved with the document. Once created, alpha channels can be used to quickly reselect areas of an image, and can be terrific time savers.



9. In the **Status** bar, look at the document size. Both the layer mask and the alpha channel add to the size of the layered document on the right compared with its **FLATTENED** or unlayered size on the left.

Doc: 10.3M/15.9M

10. Leave **01-glass.psd** open for the next guided exercise.

GENERIC FILE FORMATS

GENERIC or **UNIVERSAL** file formats are not linked to specific software applications. These formats can be written or used by many programs but typically do not have all the editing capabilities of proprietary format files. For example, you cannot preserve separate layers in Photoshop files that are saved in **JPEG** or **GIF** format.

THE JPEG (JOINT PHOTOGRAPHIC EXPERTS GROUP) FILE FORMAT

JPEG, pronounced *jay-peg*, is a file format that was initially developed for printing photographic images. Used now for both screen and print purposes, the **JPEG** format was originally developed before graphical Web browsers were invented. **JPEG's** initial purpose was to allow photographers and digital artists to make compact files to transmit to their service bureaus for printing.

Many consumer-level digital cameras and nearly all camera phones save their pictures in **JPEG** format to write the images more quickly and to make more images fit on memory cards.

The **JPEG** format has become the predominant Web format for displaying photographs and other continuous tone images. Saving **JPEGs** for Web and email increases the file compression, making small files which are appropriate for screen viewing but not for high quality printing because of **JPEG ARTIFACTING**, a pattern of large, square blocks sprinkled through the picture, that can occur when the **JPEG Quality** is lowered to decrease file size. This image, magnified to 400%, shows the difference between the top **100% Quality**, with minimal artifacts, and the bottom **0% Quality** where gray squares are sprinkled throughout the black type.

JPEG artifacting is **CUMULATIVE** meaning that the loss in image quality *becomes more severe* if you save and resave a **JPEG** image. For that reason, if you need to make changes to your image after saving in **JPEG** format, you should edit the source **PSD** file and then resave the **JPEG**.

TIP: Use **File > Save As** to change **JPEG** images into **PSD** format to avoid additional **JPEG** artifacting as you edit those images.



JPEG PROPERTIES

JPEG is an excellent file format for the Web because it permits **24-bit** or 16.7+ million colors in images but still produce files that are small enough to load quickly on Web pages. **RGB** and **CMYK** image modes are supported. Not all of these **JPEG** properties are covered in this course but we are listing them here for completeness.

- **JPEGs** cannot have layers except for the **Background** layer.
- **JPEGs** cannot store alpha channels.
- **JPEGs** do not support transparency or animations.
- **JPEGs** can contain embedded vector paths and can be used for color separations for **CMYK** printing.

- **JPEG** is a **LOSSY** compression method, meaning that when you save in **JPEG** format, your image permanently loses some data and its quality diminishes. The higher the **JPEG** compression, the smaller the file size, but the worse the quality. The lower the compression, the larger the file size and better the quality. For print, use maximum **Quality** (100%).

SAVE AS VS. EXPORT

Within Photoshop there are two primary ways to convert file formats:

- **File > Save As** lets you initially save a document, replace that document with new **Save** settings, or save a copy of the document with a different file format. You use **File > Save As** whenever you need to convert a file for printing or to be placed into a printed document, such as an **InDesign** file.

You can also use **File > Save As** going the other direction, to save a **JPEG** original in **PSD** format for Photoshop editing.

File > Export > Export As is specifically used to optimize the conversion of images to generic formats for display on the Web or on handheld devices such as smart phones.

The older **Save for Web** command is now found at **File > Export > Save for Web (Legacy)**.

Let's compare these two file saving commands:

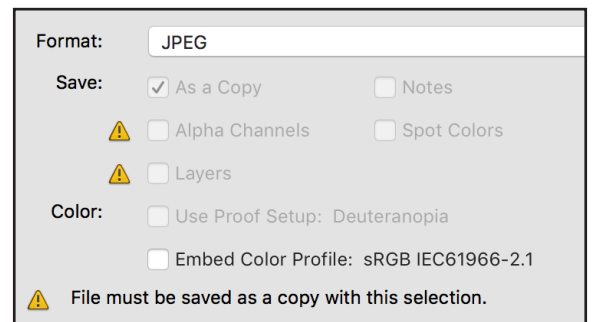
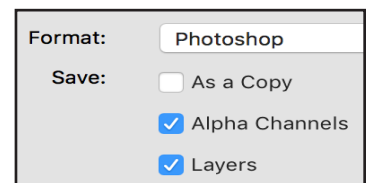
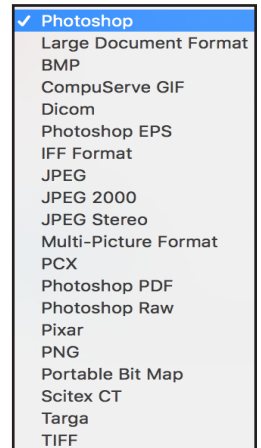
GUIDED EXERCISE 1.2: USE THE SAVE AS COMMAND TO SAVE A JPEG FILE

In this guided exercise you will use **File > Save As** to make a **JPEG** copy of **01-glass.psd**.

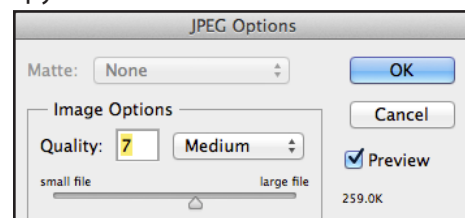
1. Begin with **01-glass.psd** open in Photoshop.
2. Choose **File > Save As** and examine the **Save** settings. Since this **01-glass.psd** contains both layers and an alpha channel, both of those are checked to be included in the **Save As** file.
3. Choose **JPEG** from the pop-up **Format** menu to change the file format from the default **Photoshop** to **JPEG** and examine the **Save** settings.

Notice that the **Save** settings are grayed out because those settings are not available in the **JPEG** format.

The warning triangle exclamation points emphasize that Photoshop will make a copy of the original image, and that copy will lose the alpha channel and layers from the original.



- Rename the file **01-glass-print.jpg** and click **Save** to save the **JPEG** copy in the **tut01** folder.
- When the **JPEG Options** dialog box appears, set the **Quality** to **Maximum (12)** to minimize **JPEG** artifacting.



THE EXPORT AS COMMAND

File > Export > Export As is designed to create smaller copies of big, complex images without diminishing the quality of the original source file. This copy is known as an **OPTIMIZED** version of the file.

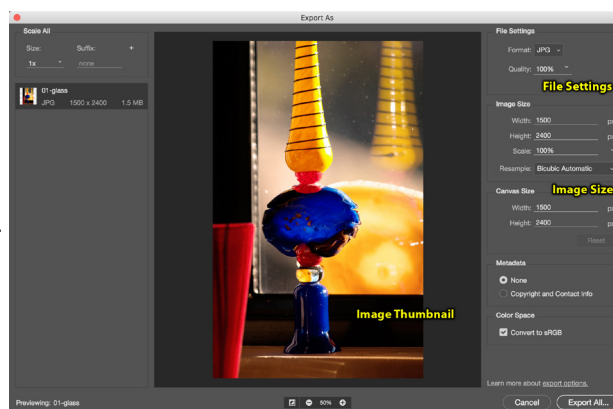
The **Export As** command is useful to:

- Optimize files for transmission via the Internet, for use on the Web, or to send through email.
- Strip unneeded file information to decrease overall file size.
- Temporarily adjust the pixel dimensions of an image without changing the original file.
- Compare the effects of file compression on image quality.
- Export multiple versions of the same file at once.

GUIDED EXERCISE 1.3: USE THE EXPORT AS COMMAND TO SAVE A JPEG FILE

In this guided exercise you will use **File > Export > Export As** to optimize **01-glass.psd** in **JPEG** format. In a later tutorial you will save **01-glass.psd** in other Web formats for comparison in appearance, transparency, and file size.

- Begin with **01-glass.psd** open in Photoshop.
- Choose **File > Export > Export As**. This will open a huge dialog box with your image in the center.
- Identify the major regions of the **Export As** dialog box:
 - The central pane of the dialog contains the large image Thumbnail.
 - The **File Settings** section is used to choose the file format for the exported image.
 - The **Image Size** section lets you change the number of pixels in the exported image.
 - The Canvas Size section will not be addressed at this point in the course.



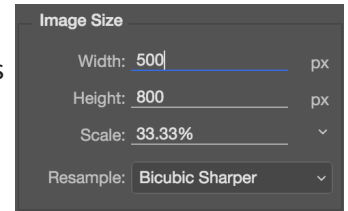
4. Change the file format of the exported image from **PNG** to **JPG**:

- a. In the **File Settings** region change **PNG** to **JPG**.
- b. Check the file size in the left-hand panel.

The **JPEG** is much smaller than the **PNG**. With the default quality of 100, the JPG file will be 1.5 MB, instead of the 4.4 MB PNG.

5. Reduce the number of pixels in the exported image to reduce its file size:

- a. Locate the **Image Size** section in the right side of the dialog box.
- b. **01-glass.psd** has a height of 2400 (pixels). That is way too large for Web viewing, especially on a laptop where the screen height might be 900 pixels or less. Change whichever dimension is larger, **Height** here, to **800 pixels** and then press the **Tab** key to move the cursor to the next box.



When you type in the new height and press **Tab**, the **Width** recalculates to keep the image proportional, and the preview changes on screen. Alternately, you can choose a Scale percentage from the pop-up menu in the Image Size section.

The JPG file would now be 318.6 KB when saved. If you are required to keep the overall file size below a certain point, lower the **Quality** setting in the **File Settings** area until the file size is at the desired value. For example, if you need this image to be no larger than 200 KB, lowering the quality to 90% bring the file size down to 195.1 KB.

6. Set the **Resample** option Photoshop should use to change the **Image Size** to **Bicubic Sharper**.

7. Save the file:

- a. Click **Export All** to save the copy of your image using your chosen settings.

In the **Export** dialog box that pops up next, notice that the file name is already appended with **.jpg**, the three character extension for **JPEG** files. Name the file **01-glass-small.jpg**.

- b. Click **Export**.

The web-sized copy, in **JPEG** format, will be saved to the place you designated with the original, unchanged, document still open. Close the original if desired.

THE ADOBE PHOTOSHOP SETTINGS FILE

Application **PREFERENCES** are settings for window and panel locations, tools, dialog boxes, and color settings. Each time a tool, panel, or command setting is changed, Photoshop saves the new configurations in the **Adobe Photoshop Settings File** on the computer's hard disk.

Application **DEFAULTS** are the original settings created when the program was first installed. As you learn Photoshop, you may want to restore these defaults each time you launch the program so that your working environment is consistent, and it matches the environment described in this book. Occasionally, the **Adobe Photoshop Settings File** becomes corrupted, and Photoshop works very slowly or otherwise misbehaves. Restoring the **Adobe Photoshop Settings File** can often solve these problems.

TO RESTORE THE DEFAULT ADOBE PHOTOSHOP SETTINGS FILE:

1. Check to be sure that Photoshop is not already open. Exit or quit the application if necessary.

If Photoshop is open, you will see its name on the Windows Taskbar, or its icon in the Mac OS X Dock with a symbol underneath it.

2. Locate the Photoshop application icon in the Start menu (Windows) or the Applications folder (Mac) on your hard drive.
3. Position your fingers just over the modifier keys, but do not press the keys. Capitalization matches the keyboards.

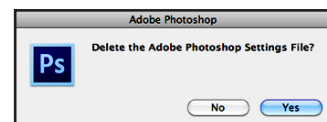
Windows : Ctrl+ Alt + Shift

Macintosh : command + option + shift

The **Command** key, lower right here, is the one with the Apple logo and the cloverleaf.

The **fn** key shown here is only found on laptops and some Mac keyboards.

4. Start Photoshop and then immediately press the modifier keys and keep them pressed until you see this confirmation dialog box. If you don't see it, your keystroke timing was off. **Quit** or **Exit** Photoshop and try again.
5. Click **Yes** to delete the (old) **Adobe Photoshop Settings File** and replace it with the default settings file.
6. If you see a dialog box asking to configure your color settings, click **No** to retain the current color settings. You will not see the additional dialog box unless your color settings have been previously specified.



HOW DOES PHOTOSHOP TELL YOU WHEN IT IS OUT OF WORKING SPACE?

Not Enough Memory is an error message that says there is not enough memory to do something. This means that the computer has run out of true RAM. So, what should you do? In this order:

1. Quit any open applications other than Photoshop.
2. Close any open Photoshop documents that you are not using.
3. Save your document (if you can).
4. Clear your History from RAM by pressing the **History** panel popup menu and choosing **Clear History**. This will clear the history for just the current document. If you need to clear the history from all open documents, choose **Edit > Purge > Histories**. You cannot undo the **Purge** command but you can undo the **Clear History** command.
5. Choose **Edit > Purge > Clipboard** to remove anything that is kept in the Clipboard's RAM.
6. Quit and relaunch Photoshop. This will clean up the memory Photoshop is using.
7. Reboot the computer. RAM fragments just like disks, and restarting the computer defragments the RAM.
8. Install more RAM.

Your Scratch Disk is Full really means that your hard disk, or combination of scratch disks, does not have enough room for additional, virtual RAM. It is important not to use up most of your hard disk space for storing your files. Back up to removable media on a regular basis and then delete files to free up space.

To avoid getting in to this mess again, back up and clean out your hard drive, or add an additional fast hard drive to your system.

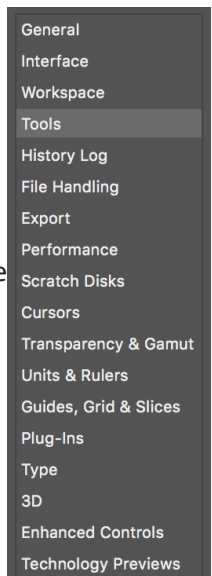
CUSTOMIZING PHOTOSHOP PREFERENCES

PREFERENCES are application settings that allow you to customize the appearance of your Photoshop application, and change the way some features work. They can be set under the Photoshop menu in Mac OS X or in the Edit menu in Windows, organized by category.

Each preference setting has a tool tip to briefly explain its function. Each time you change a tool, a panel, or a command setting, Photoshop saves the new configurations in its **Preferences** file on the computer's hard disk. All but the **Plug-ins** and **Scratch Disk** settings and a few **General** settings such as **Export Clipboard** can be changed without closing and reopening Photoshop.

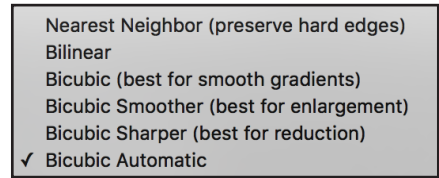
Photoshop Preferences are organized into the topical categories shown in the **Preferences** submenu.

This book will not discuss all of the preferences, but instead focus on the ones that are important for the topics covered in this book.



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IMAGE INTERPOLATION

IMAGE INTERPOLATION, found in the General settings group, describes the method used when scaling, resizing, rotating, or otherwise transforming images and selections. It is the method Photoshop uses to mathematically determine how to fill in the “missing” pixels when upsampling, or precisely how to remove the excess pixels when downsampling an image. Since interpolation can degrade image quality, it is important to pick the method that will do the best job.



Of the six choices of **interpolation**, these four will give you the best results:

- **Bicubic** gives reasonably precise resampling, resulting in fairly smooth tonal gradations.
- **Bicubic Smoother** is designed for minimizing artifacts when **UPSAMPLING** (enlarging) images.
- **Bicubic Sharper** is used to minimize softening of images when **DOWNSAMPLING**. This is the interpolation method used for almost all the screen images in these notes. Occasionally **Bicubic Sharper** will over-sharpen image areas. If that happens, undo and use plain **Bicubic** instead.
- **Bicubic Automatic** will automatically choose between **Bicubic Smoother** or **Bicubic Sharper**, depending on whether you are upsampling or downsampling.

FILE HANDLING PREFERENCES

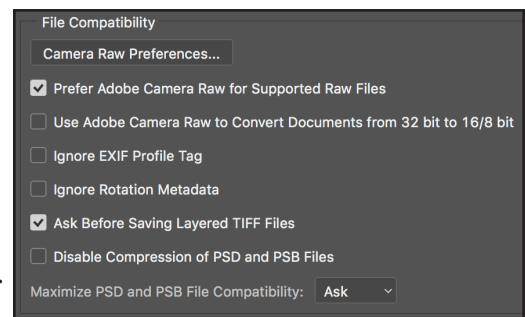
File Handling Preferences tell Photoshop how to save all or specific kinds of files. These preferences are divided into two parts: **File Saving Options** and **File Compatibility** (Options).

File Saving Options let you include **Image Preview** data such as icons or Windows thumbnails when you save your documents. It makes the files a little larger, but they are also faster to preview when opening an image. We typically use the default settings.

Images are automatically saved (by default) in the background every 10 minutes. This can be very helpful if Photoshop crashes while you are editing a large file (and forgot to **save often**).

Next are **File Compatibility** options. The important preference to change here is the bottom one, **Maximize**

PSD and PSB File Compatibility from **Ask** to **Always**. The native **Photoshop** format, **PSD**, was limited to 30,000 by 30,000 pixels per image. **Large document format, PSB**, supports documents up to 300,000 pixels in any dimension, and up to 6 GB in size. Originally designed for huge, high resolution printed documents, like billboards, the **PSB** format is also used to edit layers that contain **Smart Object** layers. You will use **PSB** documents later in the course. **Maximize PSD and PSB File Compatibility** lets you save **.psd** files that can be opened in earlier versions of Photoshop as well as in **.psb** format.

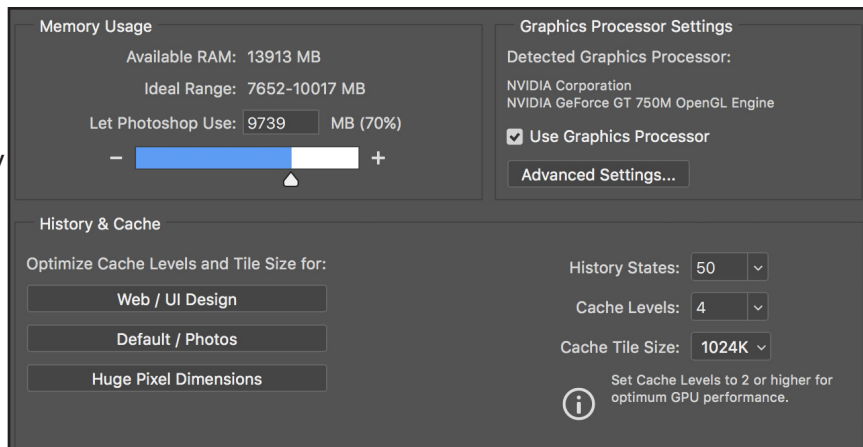


PERFORMANCE PREFERENCES

Performance Preferences can both diagnose system hardware or setup issues, and let you tweak them. You may need to exit and reopen Photoshop for changes to take effect.

Memory Usage

Memory usage examines how much RAM is theoretically available to Photoshop, specifies the ideal range for your system, and then gives you a slider to adjust the RAM. The computer in the screen shot above has 16 GB of RAM installed, but after system usage, only 13+ GB are available, and Photoshop uses 9 GB, leaving some RAM for other programs. That is why Adobe recommends setting no more than 70% of your available RAM to Photoshop.



History States

By default, Photoshop saves 50 automatic **History States** in the **History** panel as you work on a document. If the RAM in your system is marginal, and you work on documents bigger than, say 10 MB, you may want to lower the number to 10 History States and see if performance improves.

SCRATCH DISKS PREFERENCES

If Photoshop runs out of RAM while processing a command, it can use free, contiguous hard disk space for additional processing. This space is called a **SCRATCH DISK**.

If your computer system has more than one disk drive attached to it, additional drives can become extra scratch disks. This system has one internal hard drive and one flash drive mounted. The flash drive is nearly full, so only the internal drive (MacintoshHD) is assigned as a scratch disk (checked).

Scratch Disks			
	Active?	Drive	Free Space
1	☒	Macintosh HD	10.97GB
2	☐	Extra Storage	463.69MB

The **Scratch Disk** region can be used to diagnose another system problem. Photoshop requires 1-2 GB of free disk space to install the software, but you realistically need at least 15-20 GB of free contiguous space, and more if you edit files with lots of layers, like you will do for this course.

If you find Photoshop crashes a lot, you may need to clean off your hard disk, or add an additional one. Adobe recommends that if your computer has more than one hard disk, you set your primary scratch disk to a drive other than the one that contains the Photoshop application. (We have not done that here.)

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UNITS AND RULERS

We will examine **Units and Rulers** preferences in the vector tutorial along with rulers, grids, and guides.

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ON YOUR OWN

The **tut01** folder contains three related images that we developed for the exercises you will use in Tutorial 3.

01-orig-circle.jpg is the original file taken with a digital camera. In **01-circle-solid.jpg**, the image was cropped into a square and the area outside the glass circle was covered with a deep red color fill layer. In **01-circle.jpg** the opacity of the color fill layer was reduced from **100%** to **88%** to let some of the foliage outside the circle show through. Experiment with **Save for Web** settings to make a Web-optimized version of each. Notice how the square vs. rectangular file dimensions affects your optimization settings. Also notice that with the entire image filled with detail, not solid color, the file sizes are quite a bit larger than the one with the solid background. That's the nature of **JPEG** compression.

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RESOURCES

<http://www.practical-photoshop.com/pages/CC-2018-level2-resources.html#01>

PRACTICAL PHOTOSHOP CC 2018, LEVEL 2

.....
SAMPLE CHAPTERS

.....
THIS DOCUMENT IS A SAMPLE OF THE BOOK "PRACTICAL PHOTOSHOP CC 2018 LEVEL 2".
.....

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.....

PRACTICAL PHOTOSHOP CC 2018, LEVEL 2

TUTORIAL 2: LIBRARIES & CAMERA RAW

OVERVIEW

Knowing what to include in the first tutorial of an intermediate Photoshop book is a tough challenge. Photoshop is such a huge application that it is very easy to forget basic skills. But this being Photoshop, we know you want to do fun things right away. So, what we have decided to do here is to intersperse review with two new topics:

- How to use **LIBRARIES** to store commonly-used elements
- The **RAW** file format and the **Camera Raw** plug in

OBJECTIVES

LIBRARIES

- Identify the image elements that can be stored in the Libraries panel.
 - Colors
 - Layer Styles
 - Text Styles
 - Text snippets
 - Graphics
- Create, rename, and delete libraries.
- Locate Adobe Stock Images for your projects.

CAMERA RAW

- Evaluate the pros and cons of the **Raw** format and **DNG**.
- Identify the major sections of the **Camera Raw** dialog box.
- Improve image tonality and color with the **Basic** tab settings:
 - Observe how the **Histogram**, especially with **Highlights** and **Shadows Clipping** turned on, can help diagnose problems with image tonality as you adjust an image.
 - Experiment with the **White Balance** settings in the Basic tab, including the **Temperature** and **Tint** sliders.

- Selectively lighten and/or darken parts of images with the **Exposure, Highlights, Shadows, Whites,** and **Blacks** sliders.
 - Adjust image tonality with the **Contrast** slider.
 - Differentiate among the **Clarity, Vibrance,** and **Saturation** sliders, and observe the effects of each slider.
- Identify and use these tools in the **Camera Raw Tools panel:**
 - **Zoom and Hand Tools**
 - **White Balance Tool**
 - **Crop and Straighten Tools**
 - **Adjustment Brush Tool**
 - Explore the various ways to finish your adjustment: **Save Image, Open Image, Cancel,** or **Done.**

LIBRARIES

The Libraries panel allows you to store frequently-used image elements for easy retrieval. Moreover, you can create as many different libraries as you want, so you can easily keep track of the elements unique to specific projects, clients, or type of work. In addition, you can sync these libraries with the Creative Cloud app so that you can log in to the cloud and access the libraries from anywhere.

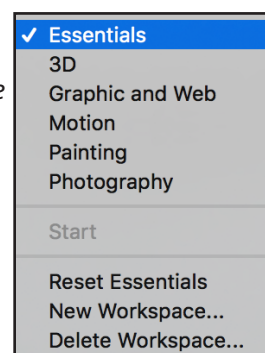
GUIDED EXERCISE 2.1: WORK WITH LIBRARIES

We are now going to create a new library and place a content into it.

1. Open the **Photoshop** application.
2. Set up your workspace so it is consistent with ours:

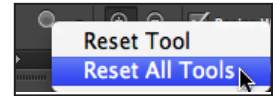
We recommend you follow this procedure at the beginning of each new Guided Exercise sequence as you work through the tutorials. We will not repeat these instructions.

- a. Choose the **Essentials** workspace from the **Workspace Switcher** menu in the upper right corner of the **Options** bar (if **Essentials** is not already chosen).
- b. Then choose **Reset Essentials** from the **Workspace Switcher** menu.
- c. To **reset colors**, locate the **Color Controls** towards the bottom of the **Tools** panel and click the black and white boxes to reset your foreground and background colors to the default **black** and **white**.



- d. While you are here, review the other components of the **Color Controls**. The upper left color swatch is the **foreground color** and the lower color swatch is the **background color**. The double arrow swaps the foreground and background colors.
- e. Reset your tools:
 - 1) Activate the **Zoom Tool**. (You can do this with any tool, but the **Zoom Tool** is a good choice because zooming does not change document contents.)

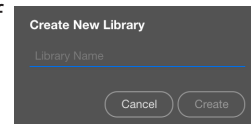
- 2) In the upper left corner of the **Options** bar, **right-click** the icon of the active tool and choose **Reset All Tools** from the context menu that appears.



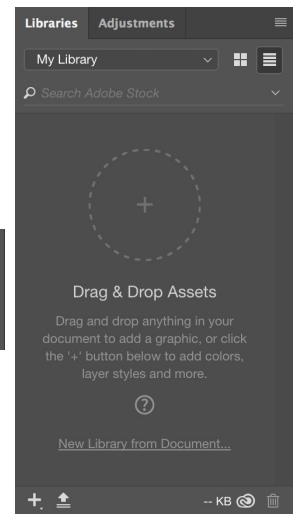
3. Locate and activate the **Libraries** panel.

By default, the Libraries panel should be visible after resetting the Essentials workspace. It will be grouped with the Adjustments panel. If the Libraries panel is not already visible, choose **Window > Libraries** to display the panel. If you've not used Libraries before, you should see the empty default library named **My Library**.

4. To create a new library, click the triangle directly to the right of **My Library** and choose **Create New Library** and enter a name for the new library, then click the **Create** button..

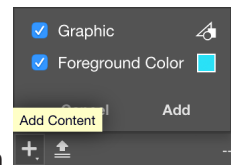


5. Create a new document. Use the **Default Photoshop Size** preset from the Photo presets section of the **File > New** dialog box.

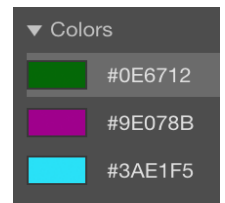


6. Add color swatches to your library:

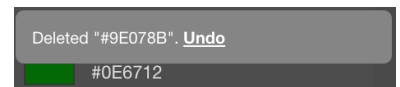
- a. Choose a foreground color of your liking.
- b. Click on the **Add Content** button at the bottom of the Libraries panel—the plus sign. Uncheck the **Graphic** checkbox to add only the chosen foreground color to the library, then click **Add**. This adds your color to the library and shows its color value (in hexadecimal notation).



- c. Add two more colors to the library. Notice that the new colors are added to the top of the list of colors. You can not rearrange the colors - the newest is always at the top.

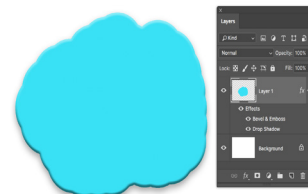


- d. If you add a color you don't want, highlight it in the Libraries panel and click on the Trash icon at the bottom-right of the Libraries panel. You may also drag the swatch to the Trash icon. Either way, you are given a brief chance to undo the deletion.

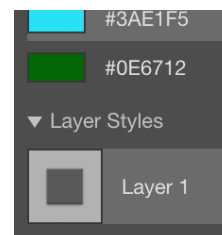


7. Add a layer style to your library:

- Create a new layer. Use the Pencil tool to paint a large blob in the center of the layer.
- Use the fx button at the bottom of the Layers panel to add two or more effects to the layer. Here, we added Bevel & Emboss and a Drop Shadow to an orange blob.

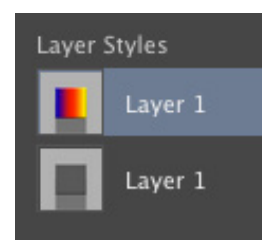


- Click the **Add Content** button at the bottom of the Libraries panel. Be sure **Layer Style** is checked. This adds the effects applied to the current layer to the Libraries panel in the **Layer Styles** section. It is automatically given the same name as the active layer.



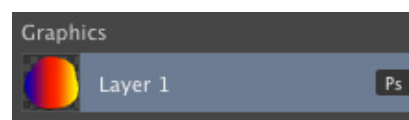
- Change the name of the style by double-clicking on it, like you would change the name of a layer.

- Replace the layer effects on the current layer with two others, then save the new style in the Libraries panel. Here we added a gradient overlay. Notice that the thumbnail in the Libraries panel shows a miniature version of the effects that make up the style.



8. Let's say that this particular colorful blob is something that you might want to use again. Time to add it to your library:

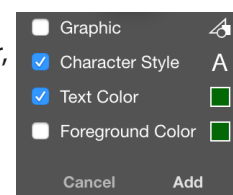
- Click on the **Add Content** button on the bottom of the Libraries panel with **Graphic** checked. You'll see that there's now a new section in the panel for Graphics. In addition, see the small Ps logo to the right of the name? This shows you that this graphic was created in Photoshop. This matters because you can also add items created in other Adobe CC applications to your library.



- Double-click on the Ps logo. This opens the graphic in its own document window, where you can make any desired changes to it. Once you save it, the library will be updated with the edits you made.

9. Type can be added to the Libraries panel in two different sections:

- Create a type layer. Here we placed the word "Blob" right on top of the shape we created earlier.
- Now choose what part of the type you want to add to the Libraries panel — the Character Style or the Text Color. If you choose Character Style, the formatting applied to the type layer (font, size, and color) will be saved. If you choose Text Color, the color of the type layer will be saved in the Colors section of the Libraries panel.

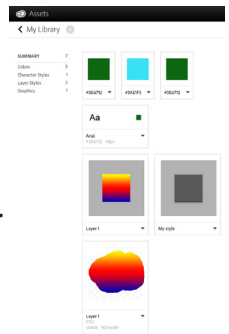


10. Apply your saved library items to a new document:

- Create a new document, or open an existing image.
- Drag the blob graphic from your library into the document window. Notice that Photoshop automatically creates a new layer to contain the blob shape.
- Add some type to your image, using any font. With the type layer active, click on the Character Style in the Libraries panel. You'll see it formats the type layer for you.
- Click on one of the color swatches in the Libraries panel. The text will take on that color.
- Click on one of the Layer Styles to apply it to the type layer.



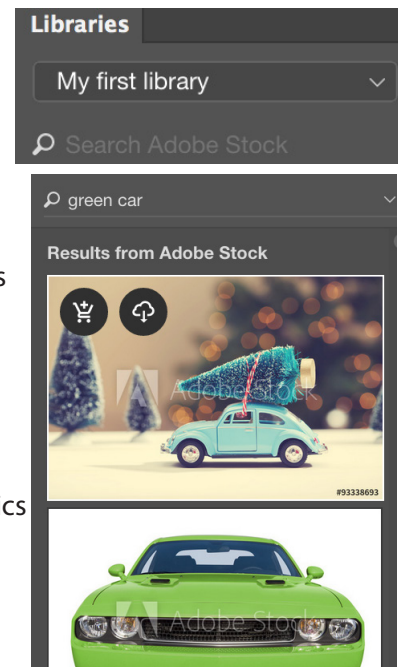
11. If you are logged into your Creative Cloud account, every item you add to the Libraries panel is automatically synchronized to the Cloud. To see a Web page that lists all of your library items, choose the View on Website command from the Libraries panel pop-up menu. This will take you to the page where you can see, rename, or delete your library items. You can also collaborate with others by inviting them to have access to your library.



ADOBE STOCK

The Libraries panel also allows you to search the Adobe Stock image collection in order to find stock photos to use in your projects. To access Adobe Stock:

- Type your search term(s) in the Search Adobe Stock area of the Libraries panel. As you type, results will appear below the search field.
- When you find an image you like, move your cursor over the image. You'll see two icons appear - one to purchase the image, and the other to download a low-resolution watermarked preview version of the image. This preview, or comp, image is useful for determining if the image will work in your project. The idea is that you can use comp images to design your project, then purchase the final version when you are ready to publish the project.
- Once you've downloaded the preview image, it will be added to the Graphics section of your active library. From there, you can place it into any image project. To purchase the final non-watermarked version, right-click on the image in the library and choose **License Image**. This will take you to the Adobe Stock Web site where you can complete the purchase.



THE RAW FORMAT

Professional and many consumer-level digital cameras allow you to save your images in **RAW** or unprocessed format, to provide considerable control over how each image is processed, or to process the same image in multiple ways for varying effects. Here is an excellent description from Adobe Evangelists Julianne Kost & Daniel Brown. It was written quite a while ago, but the content is still current.

<http://www.jkost.com/pdf/photoshop/cs2/AdobeCameraRaw.pdf>

ADVANTAGES OF THE RAW FORMAT

- Far greater control of image processing than other formats such as **TIFF** or **JPEG**.
- **Raw** files are typically smaller than uncompressed **TIFFs**.
- **Raw** files avoid the artifacts found in compressed **JPEGs**.
- Camera settings such as **White Balance** can be adjusted after the image is taken.
- Creation of high bit images, for greater detail and for more subtle editing and color correction.
- Restoration of overexposed areas of an image using Adobe's **Camera Raw**.

DISADVANTAGES OF THE RAW FORMAT

- **Raw** images must be processed before they can be viewed or edited, adding an extra step to using these images.
- Many cameras require that **Raw** images be shot at the camera's maximum resolution, making larger files than may be needed. And without **JPEG** compression, these files are really large. From a typical 16-megapixel camera, a **Raw** file takes **16 MB** of storage, and a maximum-quality **JPEG** only **6 MB**.
- Not only do the large **Raw** files gobble card space, but they also take longer to write to the camera card which can cause a slight delay from one shot to another (on a slower camera).
- The **Raw** format is not standardized. Each camera maker has defined its own proprietary **Raw** format, and sometimes there are even different formats between cameras made by the same manufacturer.

ADOBE'S DIGITAL NEGATIVE SPECIFICATION (DNG)

Without a standardized **Raw** format, you can have trouble converting images if you change cameras.

If you cannot open your camera's **Raw** files into Photoshop, Adobe's **Digital Negative Converter** or **DNG** will let you convert those files to the **DNG** format, an open format for anyone to use.

You can read more about **Camera Raw** and download the converter for free from Adobe at: <http://www.adobe.com/products/photoshop/extend.html>. Here is what Adobe lists as the key benefits of the **DNG** format for photographers:

- The **DNG** format helps promote archival confidence, since digital imaging software solutions will be able to open your **Raw** files more easily in the future.
- A single **Raw** processing solution enables a more efficient workflow when handling **Raw** files from multiple camera models and manufacturers.
- A publicly documented and readily available specification can be easily adopted by camera manufacturers and updated to accommodate future technological changes.

THE CAMERA RAW PLUG-IN

The **Camera Raw** plug-in that ships with Photoshop can be used non-destructively to edit not only **Raw** but also **JPEG** and **TIFF** images, which greatly expands its versatility.

- When you open a **Raw** image in one of the Adobe applications, the **Camera Raw Plug-in** takes over, and displays the **Camera Raw** dialog box so that you can control how the image should appear when it opens in that application, such as in Photoshop.
- The image that opens is a duplicate, so that you can keep the original, or archival version, untouched.
- Adobe has been constantly updating the **Camera Raw** plug-in since its inception.

OPEN A FILE IN CAMERA RAW

If you double-click the thumbnail of a **Raw** image in Bridge, it automatically launches the **Camera Raw** plug-in with its huge dialog box where you can manipulate the data that the camera captured along with its associated metadata.

You can also open **JPEG** and **TIFF** files, the other common formats that digital cameras save in, with **Camera Raw**. However, you cannot open **PSD** or **PDF** files in **Camera Raw** because **Raw** does not support layers.

JPEG and **TIFF** files open directly into Photoshop unless you “divert” them into **Camera Raw** first. You can use **Bridge** to open **JPEG** and **TIFF** files.

- In **Bridge**, highlight any **JPEG** preview in the **Content** pane, and then choose **File > Open in Camera Raw**.

If you want to open all your **JPEG** and/or **TIFF** images in **Camera Raw** first, you can do so by changing your **Camera Raw** preferences in **Bridge**. You may want to do this temporarily when you have a lot of camera JPEGs to import, and then change the preference back when you are done. *We are also showing the process here in case you don’t want to routinely open all JPEGs and or TIFFs in Camera Raw, but Photoshop insists on doing it.*

1. Launch **Bridge**, if it is not already open.
2. Choose one of the following to open **Camera Raw Preferences**:

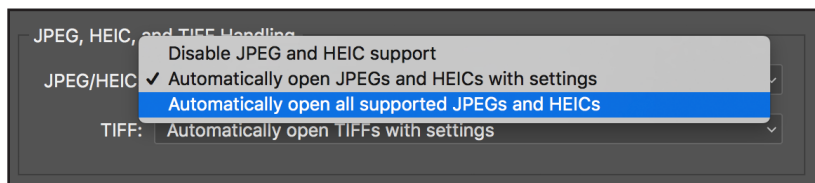
Mac: **Adobe Bridge CC > Camera Raw Preferences...**

Windows: **Edit > Camera Raw Preferences...**

3. Locate the **JPEG, HEIC, and TIFF Handling** preferences at the bottom of the dialog box.
4. Change the preference to **Automatically open all supported JPEGs**.

If instead you want **JPEGs** and/or **TIFFs** to skip the **Camera Raw** step, restore this setting to the default **Automatically open JPEGs with settings**. Now only **JPEG** or **TIFF** files

that have already been processed in **Camera Raw** will open directly into the **Camera Raw** dialog box.



CAMERA RAW DIALOG BOX LANDMARKS

Image Preview



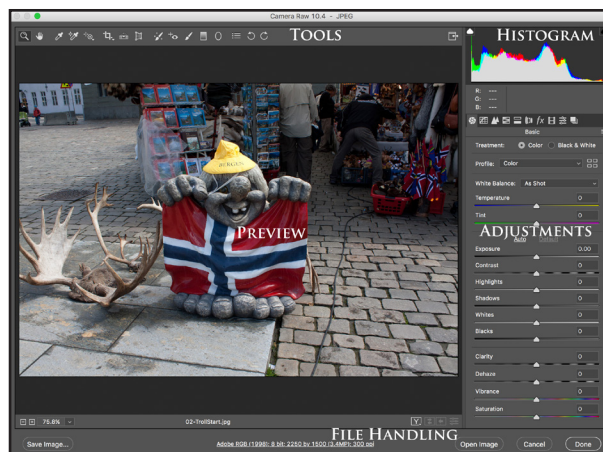
When **Camera Raw** first opens, you may see a yellow exclamation symbol in the upper right corner of the image preview. Because **Raw** files are so large, this caution symbol informs you that **Camera Raw** is still loading the preview, and to wait until it goes away so that your preview will be accurate.

THE CAMERA RAW TOOLS PANEL

The **Camera Raw Tools** panel is at the top left corner of the **Camera Raw** dialog box, above the image preview.

The **Full Screen** button to the right of the tools panel will expand the **Camera Raw** dialog box to cover the entire screen, and give a bigger area for the image preview. The actual size depends on your screen resolution.

Lets look at some of the other tools, from left to right. Here we will only describe what they do, but you will get to use them shortly.



Zoom and Hand Tools



The **Zoom Tool** and the **Hand Tool** work similarly to their Photoshop counterparts, and they use the same keystrokes to increase their functionality:

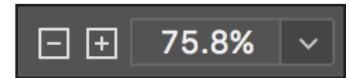
- Activate the **Zoom Tool** and then click on the image preview to zoom in. **Alt/Option + Click** the **Zoom Tool** to zoom out.
- Double click the **Zoom Tool** to view at 100%.
- Activate and drag the **Hand Tool** to pan the image preview within its pane.
- Double click the **Hand Tool** to **Fit in View**.

- When another tool is active, you can press the space bar and drag the preview to temporarily use the **Hand Tool**.

You can also press and drag the **Zoom Tool** over a particular part of an image to enlarge the region to fill the **Image Preview** pane.

Just below the left corner of the Image preview are more **Zoom** controls.

The center box displays the current zoom level, 75.8% here. The minus and plus buttons zoom out or in set increments. Alternately, you can click in the zoom level box and choose your zoom level from the **Zoom** menu.



The White Balance Tool

A **COLOR CAST** is a non-neutral tint of a particular color, usually unwanted, which affects an entire photographic image evenly.

WHITE BALANCE adjustments remove unrealistic color casts so that objects which appear white in nature are rendered white in the photo.

The **White Balance Tool** lets you click on a neutral area (light, gray, or dark) in your image to set it as the **Custom** white point. All the other colors in the image are then based on this value. The **White Balance Tool** provides a precise way to eliminate the color cast in an image.



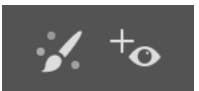
The Crop and Straighten Tools

When you choose the **Straighten Tool** and drag across an area of the image that should be a straight horizontal or vertical line, the image will rotate to straighten when you release the mouse. Then the **Crop Tool** will become active so that you can crop off any missing regions of the image. The **Crop Tool** works like in Photoshop, but it does not actually trim off the cropped areas until the image is opened or saved.



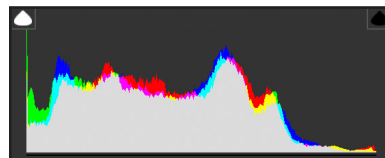
Spot Removal and Red Eye Removal Tools

The **Spot Removal Tool** is kind of a blend between the **Clone Stamp** and **Healing Brush** tools in Photoshop. Although originally designed specifically to remove dust specks that are found on many SLR sensors, the **Spot Removal Tool** can be used to do other kinds of retouching, non-destructively of course. The **Red Eye Tool** is similar to the **Red Eye Tool** in Photoshop, except that it is nondestructive.

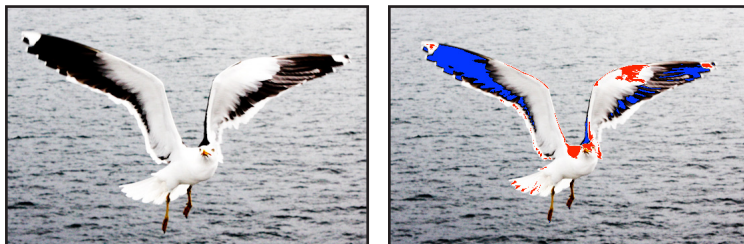


THE HISTOGRAM AND THE ADJUSTMENTS PANEL

A **HISTOGRAM** is a graphical representation of the colors and tones in your image. When you adjust an image, the graph changes. A color image, straight from a digital camera, has its colors arranged into red, green, and blue **COLOR CHANNELS**. The colorful **Camera Raw** histogram superimposes the red, green, and blue channel graphs. When pixels contain all three color channels, the histogram is white. **Cyan** is the combination of blue and green pixels. **Yellow** is the combination of red and green pixels. **Magenta** is the combination of red and blue pixels.



CLIPPED COLORS are so close to either pure black or pure white that they won't print with any detail. The **Shadow clipping warning**, activated by clicking the small triangle in the top-left of the histogram, covers those image areas that are clipped to pure black with a bright blue overlay, as you can see in this over-adjusted gull.



The **Highlight clipping warning** (small triangle in the top-right of the histogram) covers areas that are getting close to white with a red overlay. With clipping on, you can decide if losing the detail in the affected areas will adversely affect your image. Plus, as you make adjustments, you can see how those adjustments affect clipping.

THE ADJUSTMENTS PANE: BASIC TAB

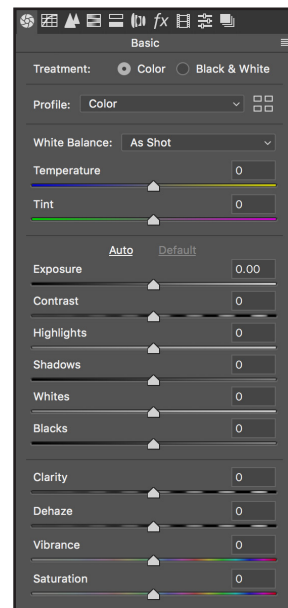
The **Adjustments** pane is where you will make most of your **Camera Raw** adjustments. It has ten tabs at its top, and each has a great many settings. In this course we will only work with the **Basic** tab settings now, and the **Detail** settings later in the course. The **Basic** tab is where you will do most of your image adjustments.

The Auto & Default Buttons

In the second section down in the Basic tab, there are two buttons, **Auto** and **Default**. They look like text links, but are actually buttons.

Click **Auto** to perform an automatic correction. Sometimes **Auto** provides a fine starting point and at other times **Auto** does not.

Try it and if **Auto** does not improve the image, click **Default** to return to the **White Balance** of the unadjusted image. **Default** can be very helpful if your corrections get out of control.



White Balance

You already saw the **White Balance Tool**, which gives very precise control over which pixel sets the **White Balance**. In the **Basic** tab, the **White Balance** dropdown menu lets you choose from **White Balance** presets.

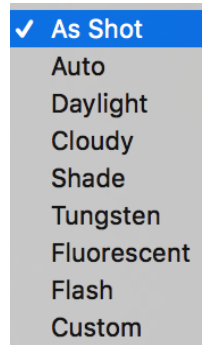
Here you set the neutral point of the image, to hopefully remove any inappropriate color cast. You can also change the overall feel of the image, to make it feel warmer, cooler, or neutral.

As Shot sets the **White Balance** to what the camera used when the image was captured.

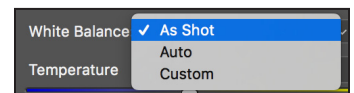
Auto lets **Camera Raw** use pixel math to calculate the **White Balance** to give the best image, based on the overall image pixels. Note that the **White Balance Auto** setting does not give the same results as the **Auto** button we looked at earlier.

Daylight, **Cloudy**, and **Shade** adjust **White Balance** based on those exposure conditions. If you know you took the image on a cloudy day, for example, you might choose **Cloudy**.

Tungsten, **Fluorescent**, and **Flash** adjust based on those secondary light sources.



NOTE: JPEG and TIFF images opened in **Camera Raw** will only have three presets: **As Shot**, **Auto**, and **Custom**.

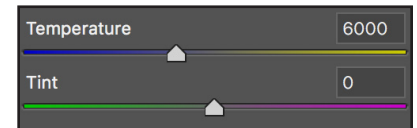


Temperature and Tint

Each **White Balance** setting changes the position of the **Temperature** and **Tint** sliders.

Temperature adjusts from cooler blue to warmer yellow.

Tint adjusts from green to magenta.



If you begin with one of the built-in **White Balance** settings, and then fine tune it with the **Tint** and/or **Temperature** sliders, the **White Balance** menu setting will become **Custom**. Using the **White Balance Tool** will also produce a **Custom (White Balance)** setting.

You can also drag the sliders manually to adjust overall image color. If you drag both the **White Balance** sliders to the left, you shift the image towards both blue and green, making the image appear more cyan. If you drag both sliders to the right, you increase both yellow and magenta, making the image more red.

Tonal Adjustments

After you set your **White Balance**, you can use these additional sliders to enhance the tonality of your image.

Exposure adjusts the overall image brightness.

Contrast applies an S curve to lighten the highlights and darken the shadows without clipping the image's extreme lights and darks. Slide to the left to darken; slide to the right to lighten.

Highlights adjusts the brightest areas of the image. Dragging to the left darkens the highlights and can often restore highlight details that are missing: **CLIPPED** or **BLOWN OUT**. Dragging to the right lightens highlights.

Shadows adjusts the darkest areas of the image. Dragging to the left to darken shadows while minimizing pure black, or **CLIPPED** details. Dragging to the right brightens shadows and reveals shadow detail.

Whites adjusts which values are mapped to white, similar to the highlights slider in the **Levels** dialog box. Dragging to the left reduces highlight clipping, dragging to the right increases it to produce special effects like specular highlights on metallic surfaces.

Blacks adjusts which values are mapped to black, similar to the shadow slider in the **Levels** dialog box. Dragging to the left increases shadow clipping, dragging to the right reduces it.

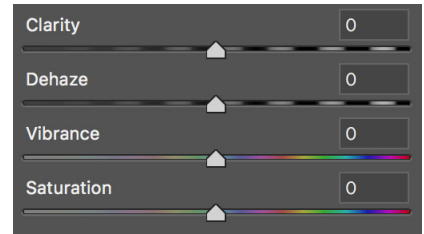
Color Adjustments

Clarity adds depth to an image by increasing local contrast, especially in the midtones. Zoom in to at least **100%** to see its effect. Increase **Clarity** until edge halos start to appear in transition areas, and then reduce it slightly.

Dehaze increases or decreases the amount of haze or fog in an image.

Vibrance adjusts the saturation, with minimal clipping. It has less effect in higher-saturated colors, and prevents skin tones from becoming oversaturated.

Saturation works like the **Hue/Saturation** adjustment within Photoshop, adjusting all colors equally. **-100** will completely desaturate the image; **+100** will double its saturation.



..... OTHER TABS

Although we will only discuss the **Detail** tab later in the course, here is a quick rundown of the other **Adjustment** tabs:

The **Tone Curve** tab allows you to apply a **Curves** command to the overall image tonality.

The **Detail** tab contains sections for sharpening and noise reduction.

The **HSL Adjustments** tab is for making color adjustments, as well as converting to grayscale.

The **Split Toning** tab is used for adding color to grayscale images.

The **Lens Corrections** tab contains options for reducing chromatic aberration and lens vignetting.

The **Effects** tab is used for adding grain and vignetting to an image.

The **Calibration** tab can be used for adjusting the color primaries. It also lets you choose which **Process** to use.

The **Presets** tab is where you can store your favorite settings.

The **Snapshots** tab allows you to store snapshots of your settings, like in the History panel.

.....
RESET THE IMAGE

As you experiment with all the **Camera Raw** settings, it is easy for your adjustments to get out of control. To revert to the image as opened (more powerful than the **Default** button for white point) press and hold **alt** or **option** to temporarily change the **Cancel** button to the **Reset** button. With **alt** or **option** still pressed, click **Reset** to revert to the original settings without closing the **Camera Raw** dialog box.

.....
RECOGNIZING AN ADJUSTED IMAGE

If you view an image that has been adjusted in **Camera Raw** inside of the **Bridge Content** pane, it will show one or more symbols in the upper right corner of its preview. Here the crop symbol on the left shows that the image was cropped, and the right symbol shows that it was adjusted.

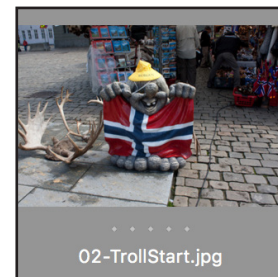


One of the tremendous strengths of **Camera Raw** manipulations is that they are **NON-DESTRUCTIVE**, or reversible. To restore an image to its original state, highlight it within the **Bridge Content** pane, and then choose **Edit > Develop Settings > Clear Settings**.

.....
GUIDED EXERCISE 2.2: MANIPULATE AN IMAGE IN CAMERA RAW

In this guided exercise, you will open a **JPEG** file into Camera Raw, manipulate it to improve it, and open it in Photoshop, and save an adjusted copy in **PSD** format.

1. Launch Bridge if necessary.
2. Navigate to **02-TrollStart.jpg**, **right click** on its thumbnail and choose **Open with > Camera Raw** from the context menu that appears.
3. Wait until the yellow exclamation triangle disappears to be sure you can view all your image pixels.
4. Identify the following regions of the **Camera Raw** dialog box:
 - **Tools** panel
 - **Image Preview** pane
 - **Histogram** with **Clipping Warning** triangles
 - **Basic** tab
 - **File handling** buttons (**Save Image**, **Open**, etc.)
5. Click the **Full Screen** button in the **Camera Raw** window to enlarge your preview. The more of the image you can see as you zoom in, the more precisely you can make your adjustments.
6. Turn the **Highlights** and **Shadows Clipping Warnings** on and see if you have clipping in any areas of your image where detail loss will be detrimental.



7. Click the **Auto** button just above the **Exposure** slider. Your image gets lighter, and the white in the flag is less blue.
8. Toggle the **Highlights Clipping Warning** off and on, examining both the preview and its histogram in each state.

With the **Auto** adjustment, the clipped area of the hat increases. With the clipping warning turned off, it becomes harder to read *Bergen* on the hat. The shadow clipping is in insignificant shadow areas of the background, that you will soon crop off. No problem there. But the troll's hat has a large clipped area of pretty solid light yellow. You will need to keep an eye on that area as you adjust the image.



9. Click the **Default** button to restore the original **White Balance**.
10. In the **Basic** tab, change the **White Balance** from **As Shot** to **Auto** (this is a different **Auto** from step 7):
 - a. Use the **Undo** command to compare the image preview and the histogram. Use **Undo** again to restore the adjustment.
 - b. Turn the **Highlights** and **Shadows Clipping Warnings** on and off to see if you have clipping in any areas of your image where detail loss will be detrimental.

If this was a **Raw** image rather than a **JPEG**, there would have been more **White Balance** presets. See **Resources** at the end of the tutorial for more information on the additional **White Balance** presets.

11. When you are done, go back to **As Shot**.
12. Crop the image so that it focuses on the troll:
 - a. Choose the **Crop Tool**.
 - b. Press the lower right corner of the **Crop Tool** icon to view the **Crop Tool** menu, and choose 1 to 1 at the top of the menu. Since the troll is about as wide as he is tall, a 1 to 1 ratio will work fine here.
 - c. Drag in the **Preview** area to make a cropping rectangle, and drag the corners of the rectangle until you are pleased with your results. To focus on the troll and not his distracting background, you will remove quite a bit of the image as you crop it.

The area you will crop off is now **SHIELDED** or partially obscured. The shielded area will be cropped off once the image is opened in Photoshop, but it is not removed within **Camera Raw**. Non destructive cropping is a plus in case you accidentally remove more of an image than you intended to, but it does keep the file sizes large.



NOTE: we are cheating a bit here. The Canon Digital Rebel that shot the picture shot it at full 12 megapixel resolution. We downsampled the image to make a smaller file to speed its download time.

- d. Hit the Enter or Return key to commit the crop.

13. Adjust the image tones:

- a. Choose the **White Balance Tool**.

With the **White Balance Tool**, click on different areas of the troll that might be neutral, such as the white in the flag, the grayish troll himself, or one of the dark shadow areas. As you do keep an eye on the highlight clipping. We got our best results by clicking on a light area in his big tooth.



- b. Everything looks good except that hat, so let's fix it with a tool you haven't seen yet, the **Adjustment Brush Tool**.

14. Click the **Done** button to save the changes you made so far, and exit the **Camera Raw** dialog box.

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THE ADJUSTMENT BRUSH TOOL

The **Adjustment Brush Tool** lets you paint an adjustment selectively onto an image with one or more of the sliders in the **Basics** tab. When you choose the **Adjustment Brush Tool**, the **Basic** tab changes so that you can configure your adjustment brushes. There is a lot of power in the **Adjustment Brush Tool**. You will do just a simple adjustment, to lower the exposure of the troll's yellow hat.



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IMAGE ADJUSTMENT WORKFLOW

Once you see how easy it is to use the **Adjustment Brush Tool**, you may be tempted to use it as your first step to fix problem areas in images. That is not the most efficient way to work. Before proceeding, let's review the image adjustment workflow followed by most Photoshop professionals:

1. Obtain a digital image by either transferring it from your camera or scanning it from film or from a printed photograph.
2. Open the digital image within Photoshop, and choose **File > Save As** to save a working copy of the image with a slightly different name, preferably in .psd format. Do not alter the original, known as the **ARCHIVAL VERSION**, to preserve the original in its pristine state.
3. Crop the working copy to reduce unwanted pixels from its perimeter, and straighten it if necessary.
4. Improve overall image tone and color as appropriate.
5. Fix localized problems.
6. Make "artistic" changes as desired.
7. Sharpen the image as appropriate.
8. Save and print.
9. Make a Web version if desired.

The **Camera Raw** workflow is a bit different.

- If you shoot in **Camera Raw**, that version is by its nature the archival version of your image because the edits you make within the **Raw** dialog box are nondestructive. If you are going to process a **JPEG**, however, consider making and saving a copy, to keep the original untouched in a different folder than your edited images.
- You can crop, improve color and tone, and fix localized problems non-destructively from within the **Camera Raw** dialog box.
- Since you can only process single-layer images in **Camera Raw**, upon completion of your adjustments phase, you should click **Save** and make a working .psd version of your image which you can then open in Photoshop proper to add layers, apply filters, etc.

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GUIDED EXERCISE 2.3: USE THE ADJUSTMENT BRUSH TOOL

In this tutorial you will use the **Adjustment** brush to fix the exposure of the Troll's hat.

1. Reopen **02-TrollStart.jpg**.

Since it has already been processed using Camera Raw, opening it using the **Open** command will open it in **Camera Raw**.

2. Make sure that **Highlights Clipping** is turned on.
3. Choose the **Adjustment Brush Tool**.
4. Click the **minus** button to the left of the **Exposure** slider on the **Adjustment Brush** tab.

Your **Exposure** changes to **-0.50**. Painting with this brush will lower your exposure slightly.



5. Move the **Adjustment Brush** over the yellow hat.

You will see two concentric circles to show the brush size and the amount of feathering (gradual reduction of its effect) on the outside. After you click the mouse, there will be a pin to show the center point of your adjustment.

The clipped hat detail is restored, and the hat itself looks less washed out.



6. Click the **Done** button to update the changes you just made, and exit Camera Raw.



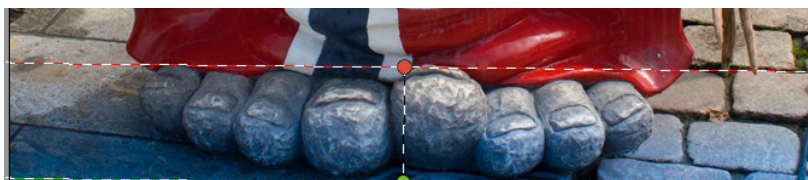
..... GUIDED EXERCISE 2.4: PROCESS YOUR CAMERA RAW IMAGE 1

The Graduated and Radial Filter tools allow you to apply the same adjustments as with the Adjustment Brush, but have the adjustments fade out in linear or radial gradients.



Here you will practice applying Graduated and Radial Filters.

1. Reopen **02-TrollStart.jpg**.
2. Choose the Graduated Filter tool from the set of Camera Raw tools.
3. Let's change the troll's toes and ground below it to nice bright blue. Move the Temperature slider all the way to the blue side, to -100.
4. Click just below its middle toe and drag upward to to top of the toe. This changes the ground below the troll to a blue color, which fades as it approaches the tops of the toes. If you have difficulty keeping the lines straight, hold down the Shift key while dragging upward.
5. Experiment by moving the red and green dots placed by the Graduated Filter tool to expand, contract, or change direction of the color transition.
6. Next, let's lighten up the face of the troll. Reset the Temperature slider to zero, then click the plus sign to the right of the Exposure slider to set Exposure to +0.50. Choose the Radial Filter tool and click on the troll's nose, dragging to just outside of its head. This lightens the head slightly.
7. Drag the Exposure slider to the right, to about +1.30. This will lighten up the area within the Radial Filter even more.
8. Experiment with dragging the handles along the red and white circle outlining the Radial Gradient area.
9. Click Cancel to discard these changes.



..... FINISHING UP

After you manipulate your image, you have four file handling choices along the bottom edge of the dialog box:

Save Image saves the image in one of four file formats: **DNG**

(digital negative), **JPEG**, **TIFF**, or **PSD**, without closing the **Camera Raw** dialog box.

Open Image saves the settings, like **Done**, and then processes the image and opens it in Photoshop.



Cancel closes the **Camera Raw** dialog box without making any changes to the original image.

Done saves the image settings as an associated file without processing the file. This is convenient for batch processing

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GUIDED EXERCISE 2.5: PROCESS YOUR CAMERA RAW IMAGE 2

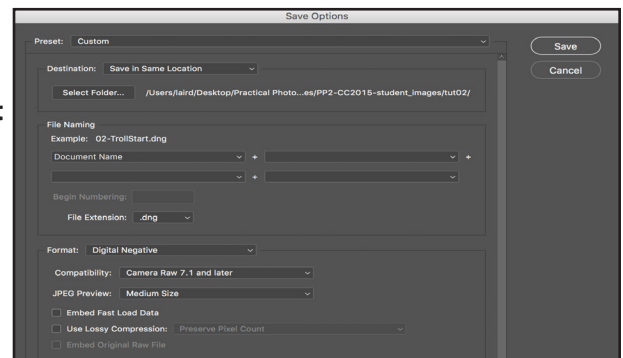
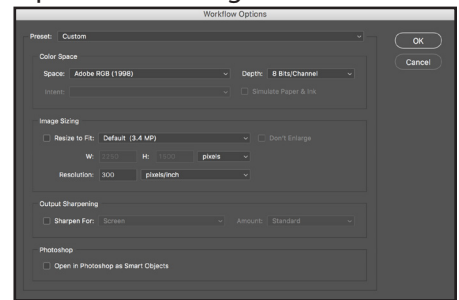
Here you will experiment with the processing choices for your image, and end up with a **PSD** working copy of your adjusted image.

1. Reopen **02-TrollStart.jpg**.
2. Examine the **Workflow Options**, at the bottom of the **Camera Raw** dialog box, and adjust if needed.

Adobe RGB (1998); 8 bit; 2250 by 1500 (3.4MP); 300 ppi

The **Workflow Options** specify the settings that **Camera Raw** will use to process the image when it **Saves** or **Opens** it:

- a. Click the **Workflow Options** to display the **Workflow Options** dialog box.
 - b. Check the **Resize to Fit** box and set the width and height to the desired size.
 - c. Confirm that the resolution is appropriate for your printer. It is set to **300 ppi** here, which is a good resolution for printing photographs on ink jet or laser printers.
 - d. Click **OK** to accept these settings.
3. Follow these steps to save a **PSD** copy of your image:
 - a. Click the **Save Image...** button to view the options to convert and save a copy of your image.
 - b. Begin by choosing your destination. It should be **Save in New Location** unless you want your original and copy images to be in the same folder. The **Select Folder** button will let you navigate to the desired location.
 - c. Name your file. Most digital cameras give sequence names to their images, like **image2956.jpg**. You will probably want to change this to a more meaningful name.
 - d. Choose your format at the bottom of the dialog box. Your choices are **PSD**, **JPEG**, **TIFF**, and **DNG**. Choose .psd here.



- e. If you are worried that your crop may be too severe, check **Preserve Cropped Pixels**. (It will make a larger image than the cropped version.)
 - f. Click **Save**. Although you saved a copy of your file, the source still stays open in **Camera Raw** for you to adjust a second version in a different way, and save it, if desired.
4. Open your adjusted image in Photoshop by clicking the **Open Image** button.
It may take a while, because **Camera Raw** needs to save your adjustments to the source image, close the **Camera Raw** dialog box, and then open a copy of your adjusted image in Photoshop.
 5. Choose **File > Save As** and save the working copy in **PSD** format in the location of your choice.
 6. Think about the function of the two buttons we did not use:

Done processes your original image and closes the **Camera Raw** dialog box.

Cancel discards all the processing made in the current **Camera Raw** session, and closes both the image and the **Camera Raw** dialog box.

CAMERA RAW AS A FILTER

You may also apply Camera Raw as a filter to any image. You have essentially the same options as when using it as a plug-in, except that you do not have access to the Workflow Options or File Handling options.

Camera Raw can also be applied as a Smart Filter. You will learn about Smart Objects and Smart Filters in the next tutorial.

ON YOUR OWN

- Open **02-gull.jpg** in **Camera Raw**. With **Highlights** and **Shadows** clipping turned on, **Zoom** in on the gull and then play with the **Basic** tab to clip image highlights and shadows. Turn clipping on and off, so you can see the loss of detail that clipping causes.
- Open **02-bird.jpg** in **Camera Raw** and improve it by changing its white point and making other adjustments with the **Adjustment Brush Tool** as desired. When you are done, save a **PSD** version.
- Open a **Raw** or **JPG** image of your own in **Camera Raw** and improve it by changing its white point if needed, and other adjustments in the **Basic** tab as desired. When you are done, save a **PSD** version.

RESOURCES

<http://www.practical-photoshop.com/pages/CC-2018-level2-resources.html#02>

PRACTICAL PHOTOSHOP CC 2018, LEVEL 2

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SAMPLE CHAPTERS

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