

Adobe Lightroom and Photoshop for Photographers

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CLASSROOM IN A BOOK°

The official training workbook from Adobe

Jan Kabili



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Adobe® Lightroom® and Photoshop® for Photographers Classroom in a Book®

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Printed and bound in the United States of America

ISBN-13: 978-0-133-81671-6 ISBN-10: 0-133-81671-0

 $9\,8\,7\,6\,5\,4\,3\,2\,1$

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GETTING STARTED

Adobe Photoshop and Adobe Lightroom are natural partners in any photographer's workflow. The question for photographers is not which of these powerful programs to use, but how best to use them together. That is the question this book is designed to answer.

This section is important to read before diving into the rest of the book. It includes instructions for a few things you'll have to do to work along with the lessons in this book:

- Downloading and storing the lesson files for this book
- Creating a new Lightroom catalog for use with this book

This section also covers topics that are critical to understanding when to use Lightroom and Photoshop together, including:

- How Lightroom and Photoshop differ
- Where Lightroom excels in a photographer's workflow
- Where Photoshop excels in a photographer's workflow

If you need additional help with Lightroom and Photoshop, you'll also find useful resources in this section.

Why to use both Lightroom and Photoshop

There are solid reasons to use both Lightroom and Photoshop in your photo workflow. The two programs differ in significant ways, and each program excels at particular tasks.

How Lightroom and Photoshop differ

At first glance, you might think that Lightroom and Photoshop do the same thing, which is to provide tools for enhancing your photographs. Of course, there is some overlap in that sense, but a closer look reveals that Lightroom and Photoshop differ in two important ways: what they do and how they do it.

When it comes to what the two programs do, Lightroom is broader and Photoshop is deeper. Lightroom was designed to cover a photographer's entire post-capture workflow. So Lightroom includes features for doing all the following to photographs and video clips: offloading from camera to computer, organizing, finding, editing, sharing, and outputting in various ways. Photoshop is focused on a single task: editing.

When it comes to how the two programs operate, Photoshop and Lightroom are quite different under the hood. Photoshop is a pixel editor. It works by altering pixels. Workarounds (like adjustment layers and Smart Objects) have been developed for editing nondestructively inside Photoshop. But ultimately, Photoshop operates by changing pixels.

Lightroom's Develop module works in a very different way. It is a parametric editor, which means that it operates by recording instructions rather than by altering pixels. When you change any parameter in Lightroom, that change is recorded as an instruction in a database (the Lightroom catalog) and is reflected in the image preview in Lightroom. But that change is not actually applied to a photograph unless and until you output a copy of the photograph. Even then, the master photograph remains unchanged. So Lightroom, unlike Photoshop, is a truly nondestructive editor. You'll learn more about how Lightroom's Develop module works in Lesson 4, "Processing Photos in Lightroom's Develop Module."

Understanding these underlying ways in which Photoshop and Lightroom differ leads to a more practical issue—which of the two programs you should use for which tasks. That subject, which is addressed throughout this book, is summarized in the next two sections.

Where Lightroom excels

Lightroom shines at performing many essential tasks in a photographer's workflow, including the following:

Photo management

Lightroom's Library module is a sophisticated data asset manager. It is a database that contains a record of every photograph and video clip you import into Lightroom. That record includes metadata from the camera, information you add in Lightroom (like copyright, ratings, and keywords), and your Develop adjustments. Lightroom's Library module has many features to help you import, organize, and find photographs and video clips, as detailed in Lesson 3, "Managing Photos in Lightroom's Library Module."

Photoshop does not include an asset manager. You can use Photoshop with another application, Adobe Bridge, but Bridge is just a file browser. It is not a database like Lightroom and does not have all the photo organizing capabilities that Lightroom offers. Raw processing

Lightroom excels at processing raw files (although you can edit TIFFs, PSDs, JPEGs, and PNGs in Lightroom's Develop module too). Lightroom's built-in raw converter translates the raw data captured by your camera into a form that you can view and work with onscreen.

Lightroom maintains the high bit depth captured in a raw file and applies its edits to your raw files nondestructively. Therefore, it makes sense to do as much processing to a raw file in Lightroom as you can. Then, if there is something to add that you can do only in Photoshop (like compositing) or that you can do better in Photoshop (like high-level portrait retouching), hand off the file to Photoshop for those purposes.

Photoshop has a plug-in, Adobe Camera Raw, that also processes raw files, using the same underlying engine as Lightroom. You'll learn how Camera Raw integrates with Lightroom in Lesson 2, "Lightroom–Photoshop Roundtrip Workflow."

Simplified photo adjusting

Common photo adjustments (to color, tone, noise, sharpness, and lens distortions) are relatively simple to perform in Lightroom. That's because the controls in Lightroom's Develop module are discoverable, fairly easy to operate, and logically arranged so as to suggest a workflow. You'll learn more about the ease of use of these controls in Lesson 4.

Photoshop is a more mature application. It has many more features and options than Lightroom, and it requires knowledge of techniques that are not necessarily obvious on the surface.

• Processing multiple photographs

Lightroom is designed to minimize time and effort for high-volume photographers. The Lightroom workflow accommodates processing a lot of photographs relatively quickly, and Lightroom includes synchronizing features that simplify applying the same adjustments to multiple photographs. Batchprocessing multiple photographs in Photoshop is more complex.

Sharing and outputting

Lightroom includes many features for sharing photographs (like Publish Services, in the Library module) and for outputting photographs (including the Book, Slideshow, Print, and Web modules). These features are outside the scope of this book, but you can learn more about some of them in *Adobe Lightroom 5 Classroom in a Book*.

Where Photoshop excels

Photoshop is unmatched when it comes to creative editing and precise corrections. There is no need to bring every photograph you manage in Lightroom into Photoshop, but a round-trip from Lightroom to Photoshop and back will pay off in the situations covered in detail in Lessons 5 through 8 of this book.

Combining photographs

Techniques that involve combining multiple photographs cannot be performed in Lightroom. Making layered composites, merging bracketed exposures into a single high dynamic range (HDR) photograph, blending photographs into a panorama, and using linked Smart Objects are all done in Photoshop. Lesson 5, "Lightroom to Photoshop for Combining Photos," includes compositing projects like these.

• Making precisely targeted adjustments

Lightroom offers some useful local adjustment tools: the Adjustment Brush, Graduated Filter, Radial Filter, and Spot Removal tools, all covered in Lesson 4. But when you want to get precise about local adjustments, you'll pass images to Photoshop to take advantage of selections, masks, and adjustment layers. Lesson 6, "Lightroom to Photoshop for Selecting and Masking," covers common situations in which you'll use these Photoshop features, including replacing a dull sky, isolating a complex object using a channel mask, and selecting hair.

• Photo retouching

Photoshop is the place to go to alter pixels, whether your goal is to remove an item from a photograph or to perform intricate portrait retouching. Photoshop offers a variety of content-aware tools, tool options, layers, and other features for casual as well as professional photo retouching. You'll practice using these features in Lesson 7, "Lightroom to Photoshop for Retouching."

• Adding non-photographic elements

Embellishing photographs with non-photographic elements is a task for Photoshop. In Photoshop you can add text effects, graphics, filters, layer styles, and other non-photographic elements. You'll work with some of these capabilities in Lesson 8, "Lightroom to Photoshop for Special Effects."

Accessing the Classroom in a Book files

In order to work through the exercises in this book, you'll need to download the sample image files from your Account page at peachpit.com. You can either download the entire Lessons folder before you begin, or download the files for individual lessons as you need them.

Your Account page is also where you'll find any updates to the lesson files or to the book content. Look on the Lesson & Update Files tab to access the most current content.

Downloading the lesson files

- 1 Go to www.peachpit.com/redeem, and enter the code found at the back of this book. If you don't yet have a Peachpit.com account, follow the prompts to create one.
- 2 Click the Lesson & Update Files tab on your Account page to see a list of downloadable files. Click the links to download either the entire Lessons folder or the work folders for individual lessons to your computer.
- **3** Create a new folder inside the Users/*username*/Documents folder on your computer. Name the new folder **LPCIB**.
- **4** If you download the entire Lessons folder, drag that Lessons folder into the LPCIB folder you created in step 3.

Alternatively, if you download work folders for one or more individual lessons, first create a Lessons folder inside your LPCIB folder; then drag the individual lesson folder[s] into your LPCIB/Lessons folder.

5 Keep the lesson files on your computer until you've completed all the exercises.

The downloadable sample images are practice files, provided for your personal use in these lessons. You are not authorized to use these files commercially, or to publish or distribute them in any form without written permission from Adobe Systems Inc. and the individual photographers who took the pictures, or other copyright holders.

Creating a Lightroom catalog for use with this book

A Lightroom catalog is a database that stores information about the photographs and video clips you import into a Lightroom library. Many photographers use a single catalog for all their Lightroom photographs, but you can make a separate catalog for a special purpose, like managing the lesson files for this book.

1 Launch Lightroom.

When you first launch Lightroom, a default Lightroom catalog is created in Users/*username*/Pictures/Lightroom. If you're using Lightroom 5, the name of the default catalog file is Lightroom 5 Catalog.lrcat. If you want to see the name of the current catalog at the top of Lightroom, press Shift-F several times to cycle to Normal screen mode.

- 2 Choose File > New Catalog in the menu bar at the top of the Library module.
- 3 In the Create Folder with New Catalog dialog that opens, navigate into the LPCIB folder in your Documents folder (Users/*username*/Documents/LPCIB) and enter LPCIB Catalog as the name of the new catalog.

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	Save As: LPCIB Catalog	
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FAVORITES SHARED DEVICES	Name Caracteristic Constraints of the second secon	
New Folder		Cancel Create

4 Click Create. If you see a Back Up Catalog message, click the button labeled Skip this time.

This opens your new, empty LPCIB catalog.



Under the hood, you've created an LPCIB Catalog folder inside your Documents/ LPCIB folder that contains the catalog files for your new LPCIB catalog.

000	LPCIB
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FAVORITES	Name
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You will import the lesson files into this LPCIB catalog lesson by lesson, starting in Lesson 1, "Getting Ready to Use Lightroom with Photoshop," in the section "Importing from a drive." That section contains a detailed explanation of the import process you'll use throughout the book and when you're working with your own photographs. It walks you through the process of importing any files from a computer drive into Lightroom, using the Lesson 1 files as an example.

In each subsequent chapter (Lessons 2 through 8) you'll import the lesson files for that particular lesson by following the short instructions in the section "Preparing for this lesson," which you'll find at the beginning of Lessons 2 through 8. If at any time you want more information about how to import any lesson files, review the section "Importing from a drive" in Lesson 1.

About Classroom in a Book

Adobe Lightroom and Photoshop for Photographers Classroom in a Book* is part of the official training series for Adobe graphics and publishing software, developed with the support of Adobe product experts. The lessons are designed to let you learn at your own pace. If you're new to Adobe Lightroom or Adobe Photoshop, you'll learn the fundamental concepts and features you'll need to work with these programs together. If you've been using Lightroom or Photoshop for a while, you'll find that Classroom in a Book teaches advanced features too, focusing on tips and techniques for using the latest versions of the applications together.

Although each lesson provides step-by-step instructions for creating a specific project, there's room for exploration and experimentation. You can follow the book from start to finish, or do only the lessons that match your interests and needs. Each lesson concludes with review questions highlighting important concepts from that lesson.

Prerequisites

Note: Throughout this book, if an instruction differs for a Windows or Mac operating system, you'll see both commands separated by a forward slash (/): Windows command/Mac OS command.

• Note: If you've downloaded the Help PDFs, you don't need to be connected to the Internet to view Help in Lightroom or Photoshop. However, with an active Internet connection you can access the most up-todate information. Before starting on the lessons in this book, make sure you have a working knowledge of your computer and its operating system. Also make sure that your system is set up correctly and that you've installed the required software and hardware. You must purchase the software separately from this book.

To complete the lessons in this book, you'll need to have installed Adobe Lightroom, Adobe Photoshop, and the latest update to Adobe Camera Raw for your version of Photoshop. At the time of this writing, Lightroom 5.4 and Photoshop CC 14.2.1 are the current versions of the applications. You are welcome to follow along with versions of the programs as far back as Lightroom 4 and Adobe Photoshop CS6, but in that case some exercises in the book may not work for you exactly as written.

For system requirements and complete instructions for downloading, installing, and setting up the software, see the topics listed under the "Up and running" section of helpx.adobe.com/photoshop.html and helpx.adobe.com/lightroom.html.

Getting help

Help is available from several sources, each one useful to you in different circumstances:

Help in the applications

The complete user documentation for Adobe Lightroom and Adobe Photoshop is available from the Help menu in each program. This content will display in your default web browser. This documentation provides quick access to summarized information on common tasks and concepts, and can be especially useful if you are new to Lightroom or if you are not connected to the Internet.

The first time you enter any of the Lightroom modules, you'll see module-specific tips that will help you get started by identifying the components of the Lightroom workspace and stepping you through the workflow. You can dismiss the tips if you wish by clicking the Close button (x) in the upper-right corner of the float-ing tips window. Click the Turn Off Tips check box at the lower left to disable the tips for all of the Lightroom modules. You can call up the module tips at any time by choosing Help > *Module name* Tips. In the Lightroom Help menu you can also access a list of keyboard shortcuts applicable to the current module.

Help on the web

You can also access the most comprehensive and up-to-date documentation on Lightroom and Photoshop via your default web browser. Point your browser to helpx.adobe.com/lightroom.html or helpx.adobe.com/photoshop.html.

Help PDFs

Download PDF help documents, optimized for printing, at helpx.adobe.com/pdf/ lightroom_reference.pdf or helpx.adobe.com/pdf/photoshop_reference.pdf.

Additional resources

Adobe Lightroom and Photoshop for Photographers Classroom in a Book is not meant to replace documentation that comes with either program or to be a comprehensive reference for every feature. Only the commands and options used in the lessons are explained in this book. For comprehensive information about program features and tutorials, please refer to these resources:

Adobe Lightroom 5 Help and Support: You can search and browse Lightroom Help and Support content from Adobe at helpx.adobe.com/lightroom.html.

Adobe Photoshop CC Help and Support: You can search and browse Photoshop Help and Support content from Adobe at helpx.adobe.com/photoshop.html.

Adobe Forums: forums.adobe.com lets you tap into peer-to-peer discussions, questions, and answers on Adobe products.

Adobe Creative Cloud Learn: helpx.adobe.com/creative-cloud/learn/tutorials.html provides inspiration, key techniques, cross-product workflows, and updates on new features.

Adobe TV: tv.adobe.com is an online video resource for expert instruction and inspiration about Adobe products, including a How To channel to get you started with your product.

Resources for educators: www.adobe.com/education and edex.adobe.com offer a treasure trove of information for instructors who teach classes on Adobe software. Find solutions for education at all levels, including free curricula that use an integrated approach to teaching Adobe software and that can be used to prepare for the Adobe Certified Associate exams.

Also check out these useful links:

Adobe Photoshop Lightroom 5 product home page: www.adobe.com/products/photoshop-lightroom.html

Adobe Photoshop CC product home page: www.adobe.com/products/photoshop.html

Adobe Authorized Training Centers

Adobe Authorized Training Centers offer instructor-led courses and training on Adobe products, employing only Adobe Certified Instructors. A directory of AATCs is available at partners.adobe.com.

PROCESSING PHOTOS IN LIGHTROOM'S DEVELOP MODULE

Lesson overview

The Develop module offers controls you can use to correct and enhance your photographs. This lesson covers the most essential adjustments in Lightroom's Develop module. Topics in this lesson include:

- Global editing in the Basic panel
- Working with local adjustment tools
- Using the Tone Curve panel to fine-tune contrast
- Using the HSL panel to fine-tune color
- Making lens corrections
- Reducing noise
- Sharpening



You'll probably need from 2 to 2 1/2 hours to complete this lesson.



Photograph © John M. Lorenz 2012

Use the intuitive controls in Lightroom's Develop module to adjust color, tone, and composition without changing the pixels in your photographs.

Preparing for this lesson

Do the following to prepare for this lesson:

- 1 Make sure you've followed the instructions in the Getting Started lesson at the beginning of this book for setting up an LPCIB folder on your computer, downloading the lesson files to that LPCIB folder, and creating an LPCIB catalog in Lightroom.
- 2 If the Lesson 4 files are not already on your computer, download the Lesson 4 folder from your account page at www.peachpit.com to *username*/Documents/ LPCIB/Lessons.
- 3 Open the LPCIB catalog you created in the Getting Started lesson by doing the following: Hold the Alt/Option key as you start Lightroom; then in the Select Catalog dialog, select the LPCIB Catalog.lrcat file and click the Open button.

00	Adobe Photoshop Lightroom	- Select Catalog
Select a recent catalog t	to open	
🔡 LPCIB Catalog.ire	cat /Users/tdm/Docur	nents/LPCIB/LPCIB Catalog
Always load this cata	alog on startup	Test integrity of this catalog
	Note: Lightroom Catalogs cannot be on network	volumes or in read-only folders.

- **4** Import the Lesson 4 files into the open LPCIB catalog following the bullet steps below. This is similar to the process for importing any photographs that are already on a drive (see "Importing from a drive" in Lesson 1 for more details):
 - Click the Import button in the Library module.
 - In the Import window's Source panel, navigate to *username*/Documents/ LPCIB/Lessons, and select the Lesson 4 folder. Make sure the Include Subfolders check box at the top of the Source panel and to the right of the Files label is checked.
 - In the Import window's workflow bar, choose Add as the import method.
 - Leave all the thumbnails in the Import window checked.
 - In the File Handling panel on the right side of the Import window, choose Build Previews > Standard. Leave the other File Handling options unchecked.
 - In the Apply During Import panel on the right side of the Import window, enter **Lesson 4** in the Keywords field.
 - Click the Import button at the bottom right of the Import window.
- 5 In the Library module, select the Lesson 4 subfolder in the Folders panel.

Photo editing in Lightroom

Understanding how Lightroom's editor works and planning your Lightroom– Photoshop editing workflow will help you make the best use of Lightroom's Develop module.

How Lightroom's editor works

Lightroom uses a parametric editing system, which means that when you adjust a photograph in Lightroom you simply are creating a set of parameters or instructions for how to interpret the image data. You are not changing image pixels, as you do in a pixel editor like Photoshop. This makes Lightroom a truly nondestructive editor and one that is flexible to use.

How does this parametric editing system work? When you make adjustments in the Develop module, the adjustments are recorded as instructions in the Lightroom catalog. These instructions control the appearance of the image previews you see and work with in Lightroom. To help other programs see your Lightroom adjustments, you can choose to save the instructions back to the photographs too, without altering the actual image data in the photographs, as explained later in this lesson in "Saving metadata to files." If you output photographs from Lightroom, the instructions will be applied to the derivative copies that are generated, but your originals will remain unchanged.

The important point is that none of the adjustments you make in Lightroom will alter the image data in your original photographs.

This system makes editing in Lightroom not only nondestructive, but very flexible too. For example, a Develop adjustment made to a raw file in Lightroom can be changed or deleted at any time, since all you're doing is tweaking an instruction. Batch processing in Lightroom is as simple as copying and pasting instructions among multiple photographs. You can even experiment with different sets of instructions on a single photograph without making actual copies of that photograph, using a feature called virtual copies, as you'll do later in this lesson in "Working with virtual copies."

Photo editing workflow

If you shoot raw files, a recommended workflow is to do the bulk of your photo editing in Lightroom's Develop module first—correcting tone and color, removing spots, reducing noise, performing initial sharpening, fixing perspective and other lens-related issues, and sometimes making local adjustments. It's best to perform these fundamental corrections on photographs in their raw state (DNGs or proprietary raw files), because raw files offer the most editing latitude. Then, if particular photographs call for specific edits that are best done in Photoshop (like detailed retouching, compositing, or the other Photoshop techniques covered in this book), pass those photographs from Lightroom to Photoshop, which creates RGB derivatives of the original raw files, as covered in more detail in Lesson 2.

Although Lightroom's Develop controls are tailor-made for raw files, you can use them to adjust JPEGs, TIFFs, PSDs, and PNGs too. However, you may experience less editing flexibility than with raw files, and some of the Develop features will behave differently on RGB images than on raw files, as you'll see in the section "White balancing" in this lesson.

The Develop module workspace

This section introduces the Develop module workspace and offers some tips for working efficiently in this module. The Develop module looks and behaves a lot like the Library module. Some of the Develop module features mentioned here are covered in more depth in the context of the Library module in the Lesson 3 section "The Library module workspace."

Interface overview

The Develop module interface is similar to the Library module interface. The main elements of the Develop module interface are:

- A The center work area with a live preview of the photograph you're adjusting.
- **B** A column of adjustment panels and tools on the right side of the module.

You'll spend a lot of time working in the right panel column. This column contains a live histogram that updates as you adjust a photograph, a tool strip of local adjustment tools, the important Basic panel, and other panels with adjustment controls for correcting and enhancing photographs.

C A column of panels on the left side of the module.

The left panel column contains the Navigator panel for zooming and panning, the Presets panel for applying pre-built sets of adjustments, the Snapshots panel for saving adjustments at a particular point in time, the History panel for stepping forward and backward through adjustments over time, and the Collections panel for accessing photographs in collections without jumping back to the Library module. **D** The Filmstrip at the bottom of the module, which displays thumbnails of photographs in the current source.

The Filmstrip plays an important role in the Develop module. It allows you to select a different image to work on from the current source without jumping back to the Library module.

E The bar at the top of the Filmstrip, which offers access to filename and folder information, other image sources, and some filters, so you don't have to switch to the Library module for those items.

Tip: To access sources of other photographs without switching to the Library module, click the down-facing arrow on the bar at the top of the Filmstrip. From the pop-up menu, choose Recent Sources, All Photographs, Quick Collection, Previous Import, or sources you've marked as favorites.

- **F** The toolbar above the Filmstrip, in which the features change depending on whether you're making global adjustments or working with particular local adjustment tools.
- **G** The menu bar at the top of the screen.
- **H** The Module Picker bar at the top of the module (which is closed in the following illustration).

Tip: If the toolbar goes missing from the Develop module, press T to bring it back into view.



Customizing the Develop module

You can customize the layout and panel behavior of the Develop module to your taste. Try these tips to make your workspace more user-friendly.

1 In the Library module, with the Lesson 4 subfolder selected in the Folders panel, select DSC0149.dng (a photograph of rooftops in Paris).



2 In the Library module, press D on the keyboard (or click Develop in the Module Picker) to switch to the Develop module.

The Develop module opens with the selected image in the center work area.



3 If the left panel column, the Filmstrip, or the Module Picker bar is open, click the thin black border outside each of those open items.

This is a useful setup for working in the Develop module. If you need to access the left column, click its outer border again to bring it back into view. If you need to access the Filmstrip, click its outer border again (or press F6 or fn-F6).



4 Right-click/Control-click the header of any panel in the column on the right, and choose Solo Mode from the panel list pop-up menu. (Or Alt/Option-click the header of any panel in that column.)

This puts all the panels in the column in Solo mode, which means that only one panel will stay open at a time. This reduces the amount of scrolling you'll do to access the many panels and controls in this column, particularly if you're working on a small screen.



Tip: If a panel that you expect to see in a Develop module column is missing, right-click/Controlclick the header of any panel in that column to open the panel list pop-up menu. Select the missing panel name in that menu.

Develop module shortcuts

In the Develop module, you can hide and show interface elements and change views by using some of the same shortcuts as in the Library module. The following shortcuts are among those you'll use most as you work in the Develop module. To view an overlay of module-specific shortcuts in the Develop module, choose Help > Develop Module Shortcuts. Click the overlay to close it.

- To hide or show all the columns and bars (the Filmstrip on the bottom, the Module Picker bar on the top, and the columns of panels on the left and right), press Shift-Tab on the keyboard.
- To hide or show the left and right panel columns together, press Tab on the keyboard.
- To hide or show a bar or column individually, press F5 or fn-F5 for the Module Picker bar, press F6 (or fn-F6) for the Filmstrip, or click the thin black border outside any bar or column.

If a bar or column is set to Auto Hide & Show, causing it to pop in and out of view, you may prefer changing its hide and show behavior to Manual, as described in the Lesson 3 section "Customizing the Library module."

- To cycle through screen modes, press Shift-F on the keyboard.
- To toggle Full Screen mode on and off, press F on the keyboard.
- To cycle through useful displays of image information on the photograph, press I on the keyboard.
- To hide or show the toolbar, press T on the keyboard.

Zooming and panning in the Develop module

Zooming and panning in the Develop module is similar to zooming and panning in the Library module.

1 With DSC0149.dng still open in the Develop module, click the thin black border on the far left to open the left panel column, and click the Navigator header at the top of that column to open the Navigator panel.

Zoom-level options are listed along the top of the Navigator panel and in a pop-up menu at the top right of that panel.

2 Make sure the zoom level in the Navigator panel is set to its default option, Fit.

The Fit zoom level automatically zooms to a ratio that displays the entire photograph in the center work area.



3 Click the photograph in the center work area (or press the spacebar). This magnifies the photograph to the 1:1 zoom level by default.



The 1:1 zoom level displays one image pixel in one screen pixel, which is critical for evaluating sharpness and noise.

When the photograph is zoomed in so close that you can't see all of it in the work area, the cursor automatically changes to the Hand tool.

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and white Develop preset is applied to the photograph.

The Presets panel contains Develop presets, which are groups of saved

settings. Presets are a quick way to apply adjustments, so you'll use them to set up these exercises about undoing adjustments.

2 In the Presets panel, click the triangle to the left of the Lightroom B&W Filter Presets folder to expand that folder. Click the Yellow Filter preset. This black

Develop module, in the panel column on the left, click the header of the Presets panel to open that panel.

1 With DSC0149.dng still open in the

click the 1:1 icon at the top of the Navigator panel. Switch to Fit view for the next section.

7 To reinstate the default behavior (toggling between the Fit and 1:1 zoom levels),

Undoing adjustments

As you adjust a photograph in the Develop module, you'll often want to undo an adjustment or reinstate a previously made adjustment. The Develop module is very flexible in this regard. It offers the History panel, the Snapshots panel, and multiple

ways to undo and reset.

(or press the spacebar) the zoom level will toggle between Fit and 1:1 until you change one or both of these zoom levels.

in the center work area is to drag the edge of the frame overlay inside the Navigator panel. Each time you click the photograph

4 With the Hand tool, drag the photograph around in the center work area so you can view different parts of it. This is

Another way to pan the photograph

known as *panning*.

5 Click the triangle icons at the top right of the Navigator panel to open a menu of additional zoom levels. Choose 3:1 from that menu. The photograph zooms in to a 3:1 ratio of screen pixels to image pixels.

6 Click the photograph again, and it zooms out to Fit view. Now each time you click the photograph (or press the spacebar) the zoom level will toggle between Fit and 3:1.









3 Choose Edit > Undo (or press Ctrl-Z/Command-Z) to remove the Yellow Filter preset from the photograph.

The Undo command undoes your last action. Each time you apply the Undo command it moves back one more step. Undo is most useful when you want to roll back no more than a few steps.



4 Choose Edit > Redo (Shift-Ctrl-Z/Shift-Command-Z). The black and white Yellow Filter preset is re-applied.

The Redo command reinstates steps you've undone, one step at a time.

5 In the Presets panel, click the triangle to the left of the Lightroom B&W Toned Presets folder to expand that folder. Click the Sepia Tone preset. That preset is applied to the photograph.



6 Click the Reset button at the bottom right of the Develop module. This takes the photograph all the way back to its default settings, removing all the Develop adjustments you've applied.

The Reset command is useful for those times when you want to start over from the beginning.

Reset



- **7** In the Presets folder, click the triangle to the left of the Lightroom Color Presets folder to expand that folder. Click the Aged Photo preset.
- 8 In the Presets folder, click the triangle to the left of the Lightroom Effect Presets folder to expand that folder. Click the Grain–Heavy preset. Click the header of the Presets panel to close the Presets panel.

The Grain–Heavy preset and the Aged Photo preset display cumulative effects on the photograph. They do not cancel each other out, like multiple presets sometimes do, because they are composed of different adjustments.



- 9 Go to the Snapshots panel in the left panel column. Click the Create Snapshot (+) button on the right side of the Snapshots panel to capture a snapshot of the current edited state of the photograph.
- 10 In the New Snapshot dialog, you can accept the default name (the date and time of the snapshot) or type over it with a more meaningful name, like Aged Photo + Grain Heavy.
- 11 Click Create in the New Snapshot dialog. The snapshot appears by name in the Snapshots panel.

Snapshot Name:	Aged Photo + Grain Heavy
	Cancel
	Cancel Create

▼	Snapshots	-	+
	Aged Photo + Grain Heavy		

Tip: A snapshot is useful if you want to hold onto an edit that you like but experiment with other adjustments too. You can quickly reapply a state you captured in a snapshot by opening the same photograph in the Develop module at any time and clicking the snapshot name in the Snapshots panel. All the snapshots you retain in the Snapshots panel will be available in the future, even after you close and reopen Lightroom.

Tip: If you no longer need a snapshot, select it in the Snapshots panel and click the Minus icon at the top right of the Snapshots panel to delete it from the panel.

12 Click the triangle to the left of the History panel in the left panel column to open that panel.

The History panel keeps track of all Develop adjustments you make to a photograph—including individual settings—as chronological states in editing history. You can go backward or forward in the editing history of a photograph, re-applying any of its history states.

• Note: The History panel in Lightroom, unlike the History panel in Photoshop, is persistent. All existing history states for this photograph will be available in the History panel whenever this photograph is open in the Develop module even after you close and reopen Lightroom.



13 In the History panel, click the history state labeled Preset: Sepia Tone. This applies that history state to the photograph in the work area.



In the History panel, there are more states above the one that is currently selected. If you make any other adjustment at this point, those states will disappear from the History panel, which keeps track only of linear history. To retain all the history to date, click the topmost history state before continuing to develop a photograph. Or to retain a particular state, take a snapshot of it.

► **Tip:** Hover over history states one by one in the History panel to see them previewed on the photograph in the Navigator panel.

If you ever want to remove all history states from the History panel, click the Clear All (x) icon at the top right of the History panel.

Comparing Before and After views

The best way to evaluate adjustments you've made to a photograph is often to compare the adjusted photograph to the photograph you started with. There are several ways to do that in the Develop module.

- With DSC0149.dng still open in the Develop module, click the Reset button at the bottom right of the Develop module to reset the photograph to its default appearance before you applied any adjustments.
- 2 In the Presets panel in the left panel column, click the arrow to the left of the Lightroom Color Presets folder to open that folder. Click the Old Polar preset to apply it to the photograph.

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	Ligh	troom B&W Presets
	Ligh	troom B&W Toned Presets
	Ligh	troom Color Presets
		Aged Photo
		Bleach Bypass
		Cold Tone
		Cross Process 1
		Cross Process 2
		Cross Process 3
		Direct Positive
		Old Polar
		Yesteryear
	Ligh	troom Effect Presets
	Ligh	troom General Presets
	Ligh	troom Video Presets
		Presets



3 Press the Backslash key (\) on your keyboard to switch to Before view—a view of the photograph as it looked just after importing, before develop adjustments were applied.



The Backslash key is a shortcut for View > Before/After > Before Only.

4 Press the Backslash key (\) again to return to After view—a view with the current adjustments (the Old Polar preset) applied.

Toggling between Before and After views can help you evaluate adjustments you've made. Another way to compare Before and After views is to see them together on the screen, as you'll do in the next steps.

- **5** If your toolbar isn't showing at the bottom of the module, press T on the keyboard.
- **6** The default view in the Develop module is Loupe view, a single After view that updates as you apply adjustments. To switch from Loupe view to Before and After views of the open photograph, click the Before and After Views button (the button with the YY icon) in the toolbar (or press Y on the keyboard).



When a Before and After view is active, the toolbar displays additional Before & After buttons for copying and swapping settings between Before and After versions.

- 7 There are four Before and After views to choose from: Left/Right, Left/Right Split, Top/Bottom, and Top/Bottom Split. Click the Before and After Views button in the toolbar several times to cycle through the Before and After views. Or click the triangle to the right of the Before and After Views button and choose a view option from the pop-up menu.
 - Before/After Left/Right
- Before/After Top/Bottom





• Before/After Left/Right Split



Before/After Top/Bottom Split



8 To return to Loupe view from any of the Before and After views, click the Loupe view button in the toolbar (or press D on the keyboard).

You can also access Before and After views of all the adjustments made in a panel, all the adjustments made in a panel section, and individual adjustments, as covered in "Working with the sliders" in this lesson.

Developing photographs

Lightroom, as a raw converter, does its best to interpret the raw data captured by your camera to render an image that you can view and work with onscreen. However, that rendering is only an initial interpretation of the raw data. The controls in the Develop module give you the opportunity to fine-tune that interpretation. If you're not satisfied with the initial appearance of a raw image in Lightroom, don't be too quick to reject the photograph. You'll be surprised at the latitude you have to correct color, recover highlight detail, and otherwise enhance the appearance of images rendered from raw files.

In this section, you'll apply Develop module controls to raw photographs. You can work with RGB images in the Develop module too.

• Note: As you work through this lesson and the book, you do not have to use the exact value for each adjustment that you see in the illustrations. Choose values that look good to you on your monitor. The values in the illustrations indicate the general direction of adjustments and approximate values only.

Adjusting color and tone in the Basic panel

The Develop module's Basic panel contains controls for making fundamental global corrections to color and tone. Global corrections are those that affect the entire photograph, as opposed to local corrections, which affect just part of an image. You'll apply Basic panel adjustments to most photographs you process in the Develop module, so it's important to have a thorough understanding of the Basic panel controls.

Working with the sliders

The Basic panel contains sliders divided into three main sections:

- The WB (White Balance) section controls color balance.
- The Tone section controls exposure, contrast, and specific tonal values.
- The Presence section controls intensity of tone and color.

There's also a narrow Treatment section at the top of the Basic panel where you can click between Color and Black & White labels (or press V on the keyboard) to quickly see how a color photograph will look converted to black and white.

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Before digging in to apply Basic panel sliders, here are some tips that will help you use the sliders efficiently.

- 1 With DSC0419.dng still open in the Develop module, click the header of the Basic panel in the right panel column to open the Basic panel.
- **2** Drag the Exposure slider in the Basic panel to the right to lighten the photograph. (The value you choose doesn't matter for this step.) Then double-click the slider control (or double-click the slider label) to return the slider to its default value of 0.

To return any slider in the Basic panel to its default value, double-click the slider control or the slider label.

The Exposure slider and the other sliders in the Tone and Presence sections of the Basic panel default to 0, in the middle of each slider. The sliders in the White Balance section default to the white balance settings captured by the camera.

3 An alternative to dragging a slider is to move it in increments for more control. Click the Exposure slider's label to activate that slider; then use the Plus (+) and Minus (-) keys on the keyboard to move the slider by preset increments. Double-click the slider control or label to reset the slider.



► Tip: To compare Before and After views of a single slider adjustment, doubleclick the slider control (or the slider label) to return the slider to its default value (the Before view); then press Ctrl-Z/Command-Z to undo, which returns the slider to its last adjusted value (the After view). Holding the Shift key during this process moves a slider in larger increments. Holding the Alt/Option key moves it in smaller increments.

Another way to move a slider in increments is to hover over the slider and press the Up Arrow or Down Arrow key on your keyboard to move that slider in increments. The same modifier keys apply to this method: Shift for larger increments, and Alt/Option for smaller increments.

4 Adjust a few sliders in the Tone section of the Basic panel. (The values you choose don't matter for this step.) To return all the sliders in this section to their default values of 0, doubleclick (or Alt-click/Option-click) the Tone label at the top of the section.

To return all sliders in the Presence section to their defaults, double-click (or Alt-click/Optionclick) the Presence label at the top of that section. To return all sliders in the White Balance section of the Basic panel to their defaults, double-click the WB label in that section.

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▶ **Tip:** To set a slider to a particular value, click in the field to the right of the slider, type a value, and press Enter/ Return. For example, if you know you want to increase exposure the equivalent of one stop, type 1 in the Exposure field to change the Exposure value to +1.00.

● Note: To compare Before and After views of all adjustments made in the Basic panel, in the History panel click the state just beneath the first Basic panel adjustment (the Before view). Then press Ctrl-Z/Command-Z (the After view). Each of the other panels in the right panel column has a panel switch ■ in its header for toggling Before and After views of all adjustments made in that panel. The Basic panel has no such panel switch.

- **5** If the Histogram panel at the top of the Develop module's right panel column is not open, click its header to open it.
- 6 Hover over the Highlights slider in the Basic panel and notice the light gray overlay that appears in the histogram. Repeat this with each of the other sliders in the Tone section.

The overlay in the histogram indicates the part of the tonal range that will be most affected by adjusting a particular slider. Each slider in the Tone section has its primary effect on a different area of the histogram (although other areas are tangentially affected too).



The significance of process version

The instructions in this book, particularly instructions that concern the Basic panel, are for the current Lightroom process version—PV 2012, which was introduced in Lightroom 4. Process version means Lightroom's underlying image processing technology, which changed significantly with PV 2012. Some of the Basic panel sliders look and behave differently in PV 2012 than they do in previous process versions.

How does the current process version affect photographs that you adjusted in a previous process version? If you like the way a photograph looks with its older processing, it's fine to leave that photograph as is. If you want to re-adjust the photograph to take advantage of improvements in PV 2012, open it in the Develop module. At first, the Basic panel sliders will look different than the current PV 2012 sliders. Click the lightning icon at the bottom right of the Histogram panel \checkmark . Then click Update in the Update Process Version dialog. This replaces the older Basic panel controls with the PV 2012 sliders, and you can use them to re-adjust the photograph.

	Update Process Version
Lr	New processing technology is available for this image. If you choose to update, please note that moderate to significant visual changes may occur. It is recommended that you update only one image at a time until you are familiar with the new processing technology. You may elect to preserve the original settings by selecting Cancel.
	Review Changes via Before/After
	Don't show again
	Update All Filmstrip Photos Cancel Update

Updating a photograph you adjusted in an earlier process version can affect the appearance of the photograph, as the dialog warns. So although this dialog gives you the option to Update All Filmstrip Photos, it's usually preferable to update one photograph at a time.

Evaluating the photograph

Take the time to evaluate a photograph before making adjustments. Ask yourself whether the photograph is too bright or dark. Is it overly contrasty or flat? Is there detail missing from highlight or shadow areas? Is the color off?

The Histogram panel in the Develop module can help with this evaluation. The histogram displays the location of a photograph's tones across a range, from black on the far left to white on the far right. For example, with DSC0149.dng open in the Develop module, the histogram looks like



the following illustration. The lack of bars on the right and left sides of the histogram indicates that there are no completely white tones and very few rich black tones in this photograph. This suggests that the photograph could be improved by setting a white point with the Whites slider and a black point with the Blacks slider.
Leave the Histogram panel open. As you make adjustments to the photograph, check this live histogram to confirm the effects that your adjustments are having on tonal values.

Order of adjustments

There is no hard and fast technical requirement to make develop adjustments in a particular order. A common approach is to begin with the Basic panel, work your way down through the panels in the right panel column, and make most global adjustments before local adjustments.

There are a few workflow exceptions to this approach. If you decide to jump to the Camera Calibration panel to change the camera profile that Lightroom uses to render raw files, it's logical to do that at the beginning of your Develop workflow, even though the Camera Calibration panel is at the bottom of the right panel column. And although most local adjustments are made after global adjustments, try to do local retouching with the Spot Removal tool before Lens Correction panel adjustments to enhance accuracy and rendering performance.

When you're working in the Basic panel, a top-down approach is common; but don't be afraid to stray from that order as necessary. For example, if a photograph is so dark that you can't evaluate its color balance, increase the Exposure slider before tackling the White Balance controls at the top of the Basic panel. Or if you need to re-adjust a Basic slider that you've already set, feel free to go back and do that.

White balancing

The overall color of a photograph reflects the color of the light illuminating the scene, which is measured as color temperature. Strictly speaking, the purpose of Lightroom's white balance controls is to neutralize the color of light in order to remove unwanted color casts. However, there is no requirement to remove a color cast. In your subjective judgment you might elect to retain or even emphasize a color cast, like the warm gold in a sunset scene. In that sense, Lightroom's white balance controls are color correction tools that you can use to convey a mood that meets your subjective photographic vision.

There are three kinds of controls in the WB (White Balance) section of the Basic panel:

- The Temperature and Tint sliders give you control over two axes of color. The Temperature slider ranges from cool blue to warm gold; the Tint slider ranges from green to magenta. You can use the sliders on their own or to fine-tune results from the other white balance controls.
- The white balance presets menu offers preset combinations of Temperature and Tint slider values.
- The White Balance Selector tool is useful for neutralizing color.

You'll apply all three white balance controls in this exercise.

- 1 With DSC0149.dng (the photograph of the Paris rooftops) still open in the Develop module, click the Reset button at the bottom right of the module to reset any adjustments you've made so far.
- 2 In the Basic panel, click the drop-down menu of white balance presets on the right side of the White Balance section and choose Daylight. This option shifts the Temperature slider to the right toward gold and the Tint slider to the right toward magenta on this photograph, warming the overall color.



The options in this drop-down menu are preset values for the Temperature and Tint sliders. The As Shot option reflects the white balance captured by the camera. (As Shot may not be available, depending on the camera settings.) The Auto option is Lightroom's best guess from the image data about how to set the Temperature and Tint sliders. Each of the other presets is a different combination of these sliders.

- **3** Use the Temperature and Tint sliders to tweak the preset color balance to your taste. In the following illustration, the Tint slider was decreased slightly.
- 4 Press the Y key on the keyboard to compare Before and After views.

The After view, on the right side of this illustration, is warmer in color than the Before version, on the left.



- **5** Press the Y key again (or the D key) to toggle back to Loupe view.
- 6 Click the Plus icon (+) on the right side of the Snapshots panel. In the New Snapshot dialog, name this snapshot **White Balance**, and click Create.

You'll come back to this photograph in this state to make further adjustments later in this lesson. In the meantime, you'll switch files for the next example, in which you'll neutralize color using the White Balance Selector tool.

Tip: Another way to set both the **Temperature and Tint** sliders to their Auto values is to Shiftdouble-click the WB label in the White Balance section. If you want to set just the Temperature slider or just the Tint slider to its default value, Shift-double-click the control or label on that slider. To undo an auto adjustment, press Ctrl-Z/Command-Z.

7 Open the Filmstrip by pressing F6 (or fn-F6) on the keyboard. In the Filmstrip, select 7073846.dng (a photograph of a Paris subway station), which has a strong, warm color cast.



8 Click the White Balance Selector tool (the eyedropper icon) in the White Balance section of the Basic panel.

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This tool is most useful when there is an area in the photograph that you think should be

neutral in color—like the tiles on the right side of the subway platform floor, which were light gray in the actual scene.

9 If the toolbar isn't showing, press the T key on your keyboard. The toolbar now displays options specific to the White Balance Selector tool. In the toolbar, make sure the Auto Dismiss check box is unchecked and the Show Loupe check box is checked.

Unchecking Auto Dismiss will allow you to apply the White Balance



Selector tool multiple times to get the

result you want, without having to reselect the tool in the Basic panel each time. Checking Show Loupe will display a magnified view of the area under your cursor to help you pick a color to neutralize.

10 Hover the White Balance Selector tool over something that should be neutral in this photograph, like the floor tiles on the right side of the subway platform.

The Loupe confirms that the color under the cursor is not neutral. If it were, the three RGB values at the bottom of the Loupe would be more similar.

The Navigation panel on the left offers a live preview of the effect of the White Balance Selector tool. As you move the cursor in the image, you can see how the color would change if you were to click that spot with the White Balance Selector tool.



11 Click the floor tiles on the subway platform with the White Balance Selector tool to shift them from gold to neutral gray.

The rest of the colors in the image shift relative to that neutralized color, significantly reducing the warm color cast in this photograph.



If you don't like the result, you can continue to click with the White Balance Selector tool on other objects that were gray or white in the actual scene. Depending on where you click, you'll get very different results, potentially introducing another unwanted color cast elsewhere in the image. This makes the White Balance Selector tool relatively unpredictable as compared to the other white balance controls.

12 To deactivate the White Balance Selector tool, click the empty circle on the left side of the White Balance section of the Basic Panel.

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White balancing JPEGs

If you shoot JPEGs, you have less flexibility to set white balance in Lightroom than you do with raw files. That's because white balance is already baked into JPEGs by your camera at the time of capture, which is not the case with raw files.

Lightroom's white balance controls are different for JPEGs than for raw files. When you're working with a JPEG, you'll see different values on the Temperature and Tint sliders and fewer options in the white balance presets menu.



Trying out Auto adjust

The six sliders in the Tone section of the Basic panel control the tonal values in a photograph. The default for all these sliders is 0. The Auto button at the top right of the Tone section sets all the sliders in the Tone section to automatically calculated values. Some photographers shy away from the

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Auto button, but you might give it a try if you're short on time or want a quick read of how a photograph will look with tone adjustments. To return all the sliders in the Tone section back to their defaults, double-click the Tone label at the top left of the Tone section. ► Tip: To set an individual tone slider to its Auto value, Shiftdouble-click the control or label on that slider. Double-click the control or label on that slider again to return it to its default value.

Adjusting exposure and contrast

The first sliders at the top of the Tone section in the Basic panel are Exposure and Contrast. The Exposure slider controls the overall brightness of a photograph. The Contrast slider affects the overall contrast.

1 If the Filmstrip is not open at the bottom of the Develop module, press F6 (or fn-F6) on the keyboard. In the Filmstrip, select DSC0149.dng (the photograph of the Paris rooftops you last worked with in the section "White balancing").



2 Make sure the white balance controls are as you set them for this photograph in the "White balancing" section. If you created a snapshot to record your white balance settings, as suggested in that section, click that snapshot in your Snapshots panel now. **3** Hover over the Exposure slider in the Basic panel.

A light gray overlay appears in the center of the histogram in the Histogram panel. This represents the tonal range on which the Exposure slider has its primary effect the midtones.

4 Drag the Exposure slider to the right from its default of 0.

Dragging the Exposure slider to the right

increases the overall brightness of a photograph. The tones—particularly the midtones—move to the right on the histogram. Dragging the Exposure slider to the left would decrease overall brightness.

5 Click the label on the Contrast slider to activate that slider. Then press the Plus (+) key on your keyboard to increase contrast in this photograph slightly.

When you're making small moves to a slider, this and the other incremental methods of setting a slider, covered earlier in "Working with the sliders," offer finer control than dragging.

Contrast refers to the range of tones in an image. When you increase the Contrast slider, tones are pushed apart across the tonal range, with light tones getting lighter and dark tones darker except at the extreme light and dark ends of the tonal range. This is similar to the effect of an s-shaped tone curve, which has a steep slope in the middle, where contrast is high, and a relatively flat top and bottom, where contrast is lower.

You don't have to apply the Contrast slider to every image, but increasing contrast with this slider can benefit photographs that are lacking in contrast to varying degrees. On the other hand, if a photograph is too contrasty, moving the Contrast slider to the left will compress tones along the tonal range and reduce contrast.

• Note: The Exposure, Highlights, Shadows, Whites, and Blacks sliders in the Basic panel each have a primary effect on a different area of the tonal range, with secondary effects on other parts of the tonal range.

• Note: Exposure slider values simulate stops on a camera. Setting Exposure to +1.00 is like exposing one stop over the metered exposure in camera.

Note: Increasing contrast may also increase color saturation. In that case, you can use global or local saturation controls, addressed later in this lesson, to tame the increased saturation.









- **6** Toggle the Backslash key (\) on the keyboard to compare Before and After views of your adjustments to this point.
- 7 Leave the photograph open for the next section.

Adjusting highlights and shadows

The Highlights and Shadows sliders fine-tune contrast in light and dark areas of a photograph, respectively. The Highlights slider is very useful for recovering highlight detail. The Shadows slider is useful for revealing detail in dark areas.

 With DSC0149.dng (the photograph of the Paris rooftops) still open in the Develop module, hover over the Highlights slider in the Basic panel. A light gray overlay appears over the 1/4-tone highlights in the Histogram panel, representing the tonal range on which the Highlights slider has its primary effect. Notice that this is not the brightest area of the histogram, which is on the far right.



2 Drag the Highlights slider to the left of its default of 0.



Dragging the Highlights slider to the left darkens and separates the lighter tones in a

photograph, with minimal impact on darker tones. The effect is to emphasize detail and edge definition in highlight areas, like the clouds in this photograph. The Highlights slider is most often used for this purpose, although it can also be dragged to the right to brighten highlights without clipping them.



3 Hover over the Shadows slider in the Basic panel. A light gray overlay appears over the 3/4-tone shadows in the Histogram panel, representing the tonal range on which the Shadows slider has its primary effect. These tones are dark, but they are not the very darkest part of the tonal range.



4 Drag the Shadows slider to the right of its default of 0.

Dragging the Shadows slider to the right lightens and separates relatively dark tones in



the photograph. The effect is to reveal detail in darker areas, like the shadows under the balconies in this photograph. The Shadows slider is most often used for this purpose, although it can also be dragged to the left to darken shadows without clipping them.

Dragging the Shadows slider to the right flattens contrast. To compensate, when you drag the Shadows slider to the right it's often a good idea to drag the Blacks slider to the left, as you'll do in the next section. This re-introduces contrast in dark areas.



5 Leave the photograph open for the next section.

Setting white and black points

The Whites and Blacks sliders set the white and black points, respectively, at each end of the tonal range. Setting these points appropriately maximizes contrast while avoiding excessive clipping of image detail, which is particularly important in the highlights.

- With DSC0149.dng (the photograph of the Paris rooftops) still open in the Develop module, hover over the Whites slider in the Basic panel. In the Histogram panel, a light gray overlay appears on the far right of the histogram, representing the tonal range on which the Whites slider has its primary effect.
- 2 Click the highlight clipping indicator (the triangle at the top right of the Histogram panel) to activate it.





This indicator will add a red overlay to the image to show you the highlights that will be clipped as you drag the Whites slider to the right.

Highlight clipping turns the brightest parts of a photograph to pure white with no image detail. Highlight clipping is usually best to avoid, except in specular highlights (like highlights in shiny chrome).

3 Drag the Whites slider to the right until there is a red overlay over the brightest areas of the photograph.

The red overlay is the highlight clipping indicator's way of telling you which highlights will be clipped.



Note: Another way to see which highlights will be clipped is to hold the Alt/Option key as you drag the Whites slider to the right. Areas clipped in all channels are white, areas clipped in one or two channels are in color, and unclipped areas are black. **4** Drag the Whites slider back to the left until there are just a few specks of red overlay in the photograph.

The red overlay indicates where highlight clipping will occur. The brightest tones in the image are clipped by pushing them off the right side of the histogram.



- 5 Click the highlight clipping indicator in the Histogram panel again to deactivate it.
- 6 Hover over the Blacks slider in the Basic panel. In the Histogram panel, a light gray overlay appears on the far left side of the histogram, representing the tonal range on which the Blacks slider has its primary effect.
- 7 Click the shadow clipping indicator (the triangle at the top left of the Histogram panel) to activate it.

This indicator will add a blue overlay to the image to show you the shadows that will be clipped as you drag the Blacks slider to the left.





8 Drag the Blacks slider to the left until there is a blue overlay over the darkest parts of the photograph in which you don't mind losing detail.



The blue overlay indicates where shadow clipping will occur.

Shadow clipping pushes the darkest tones off the left side of the histogram, introducing rich blacks into the image. Some shadow clipping is often desirable, particularly after you've dragged the Shadows slider to the right to open up 3/4-tone shadow areas. You usually don't have to be as careful about clipping blacks as you do about clipping whites, because in many photographs dark areas do not contain important details.

- **9** Click the shadow clipping indicator in the Histogram panel again to deactivate it.
- **10** Toggle the Backslash key (\) on the keyboard to compare Before and After views of your adjustments to this point.
- **11** Leave the photograph open for the next section.

Note: Another way to see which dark areas will be clipped is to hold the Alt/Option key as you drag the Blacks slider to the left. Areas that are clipped in all channels are black, areas clipped in one or two channels are in color, and unclipped areas are white.

Adding positive or negative clarity

The Clarity slider in the Presence section of the Basic panel can have a big impact on a photograph. Dragging Clarity to the right adds punch to a photograph. Dragging Clarity to the left adds a soft glow.

1 Drag the Clarity slider to the left of its default of 0 to add negative clarity.



Negative Clarity adds a diffused glow that is a

great way to soften a portrait or give a scene a dreamlike quality.



2 Drag the Clarity slider to the right of 0 to add positive clarity.

Positive clarity adds a special combination of midtone contrast and edge definition that



brings out detail and adds punch to an image. In this photograph, for example, it emphasizes detail in the buildings and the edges of the clouds. To avoid the risk of visible halos at image edges, don't be too aggressive with positive clarity.



3 Leave the photograph open for the next section.

Controlling color saturation

The last two sliders in the Basic panel—Vibrance and Saturation—control color intensity. These sliders work in slightly different ways, so try them both on a photograph before deciding which to apply.

 Drag the Vibrance slider to the right of its default of 0 to increase the intensity of colors.

Dragging the Vibrance slider to the right increases color saturation in an intelligent way, by adding the most saturation to colors that need it most. Dragging this slider to the left would decrease saturation.



The Vibrance slider is almost always a good choice for adding saturation to photographs of people, because it protects skin tone colors (including yellow and orange) from oversaturation. But in this case, dragging the Vibrance slider far enough to the right to saturate the yellows and oranges in the buildings causes the blue sky to become oversaturated.



- **2** Double-click the label or control on the Vibrance slider to return it to its default of 0.
- **3** Drag the Saturation slider to the right of its default of 0.



Increasing the Saturation slider saturates all colors in a photograph equally. This sometimes

causes too strong an effect, but in this case increasing the Saturation slider adds intensity to the warm colors of the buildings without making the sky exceedingly oversaturated. You'll use controls in the HSL panel to fine-tune the color of the sky in the section "Fine-tuning color in the HSL panel."



4 Press the Y key on the keyboard to compare the Before view on the left, which has no adjustments, with the After view on the right, which has all the adjustments you added in the Basic panel.



- **5** Press Y again to return to Loupe view.
- 6 Click the Plus icon (+) on the right side of the Snapshots panel to capture a snapshot of the photograph with all the Basic panel adjustments you made. Name the snapshot Basics and click Create.
- **7** Leave the photograph open for the next section.

Fine-tuning contrast in the Tone Curve panel

After you've made global adjustments in the Basic panel, if you need to make more targeted adjustments to contrast and brightness, you can do so in the Tone Curve panel.

- 1 DSC0149.dng (the photograph of the rooftops in Paris) should be open in the Develop module with all the Basic panel adjustments you added to it in preceding sections. If you made a snapshot you named Basics, as suggested at the end of the last section, click that snapshot in the Snapshots panel.
- 2 Click the header on the Tone Curve panel to open that panel to its default parametric tone curve view.

The parametric Tone Curve panel offers four sliders that you can use to adjust the four regions of the curve: Highlights, Lights, Darks, and Shadows. If your Tone Curve panel doesn't look like this, click the Point Curve icon **a** at the bottom right of the Tone Curve panel.



Click the Targeted Adjustment tool (the TAT)
 at the top left of the tone curve panel to activate the TAT

The TAT allows you to make adjustments to targeted tones by dragging directly on the photograph.

4 With the TAT activated, go to the photograph in the work area and drag a dark part of the building down slightly.

Dragging down with the TAT moves the corresponding part of the curve down, darkening those tones throughout the image.

The light gray overlay on either side of the curve indicates the tonal region that is most affected by this move.



5 With the TAT, drag a bright part of the building up slightly.

Dragging up with the TAT moves the corresponding region of the curve up, lightening those tones throughout the image.



6 Double-click the Region label above the sliders to return all the sliders in the parametric Tone Curve panel to their defaults of 0.

To return an individual region slider to its default, double-click the label or control on that slider.

7 Drag the Shadows slider in the Tone Curve panel to the left to make the darkest tones in the photograph darker. The effect is similar to that of dragging the Blacks slider in the Basic panel to the left.

Dragging any of the four region sliders is another way to make a targeted adjustment in the parametric Tone Curve panel.

Hovering over a slider displays a gray overlay on the curve that tells you which part of the curve is most affected by that slider.

8 Click the Point Curve icon at the bottom right of the parametric Tone Curve panel to switch to another view of this panel—the point curve view.

In point curve view, you can zero in more closely on particular tones by clicking directly on the curve to add and drag points. This makes point curve view more focused, but also more complex to use.





• Note: All the curves you create in either view of the Tone Curve panel are cumulative.

- **9** Click the Channel menu beneath the point curve and choose Blue to access the Blue channel.
- **10** In the Blue channel, click the center of the curve and drag up to make the photograph more blue overall, or drag down to make the photograph more gold.



One advantage of point curve view is that it gives you access to curves for individual Red, Green, and Blue color channels. You can use these color curves as color correction tools, as you did here. The color channels are also handy for making custom split-tones, by dragging the shadow area of a color curve in one direction and the highlight area in the opposite direction.

- 11 Choose RGB in the Channel menu to return that menu to its default.
- **12** Double-click the Point Curve label at the bottom left of the panel to return all curves you made in point curve view to their defaults.
- **13** Click the Point Curve icon at the bottom right of the panel to return the Tone Curve panel to parametric view.
- **14** Toggle the panel switch on the left side of the Tone Curve panel header to compare the Before view (with no Tone Curve panel adjustments) with the After view (with your current Tone Curve panel adjustment).

If there were multiple parametric curves and point curves still in effect, the panel switch would toggle all of them together.

- 15 Click the Plus icon (+) on the right side of the Snapshots panel to capture a snapshot of the photograph with your Basic panel adjustments and your tone curve adjustment. Name the snapshot Tone Curve and click Create.
- **16** Leave the photograph open for the next section.

Fine-tuning color in the HSL panel

The Develop module panel labeled HSL/Color/B&W (the HSL panel) offers controls for adjusting ranges of colors wherever those colors occur in an image. You can use these controls to adjust the hue, saturation, and lightness of particular color ranges.

- 1 DSC0149.dng (the photograph of the rooftops in Paris) should be open with all the adjustments you've made to it to this point. If you made a snapshot you named Tone Curve, as suggested at the end of the last section, click that snapshot in the Snapshots panel now.
- **2** Click the HSL label (not the Color or B&W label) on the header of the HSL panel. Then click the Saturation tab at the top of the panel.
- **3** Click the Targeted Adjustment tool (the TAT) at the top left of the HSL panel to activate the tool **o**.

The TAT allows you to make adjustments to targeted colors by dragging directly on the image.

4 With the TAT, drag down in a saturated blue area of the sky in the photograph.

Dragging down with the TAT decreases saturation in the range of colors that corresponds to the color under your cursor. Dragging up would increase saturation in those colors.

The Blue slider in the Saturation tab of the HSL panel moves to the left and the blues across the photograph become less saturated.



- 5 Click the Luminance tab, which offers the same color range sliders as the Saturation tab, except that these sliders affect the brightness of colors.
- **6** With the TAT still active, drag down slightly in the blue sky in the photograph to darken the blues.

Dragging up would lighten the blues.

• Note: The HSL panel is useful for converting photographs from color to black and white too. Click the B&W label in the panel header. Then use the color range sliders to fine-tune the conversion of individual colors to black and white brightness values. 7 Drag down in a light orange area of the buildings in the photograph to darken the corresponding colors across the photograph.

Notice that the Orange and Yellow sliders moved to the left in the illustration. That indicates that there was more than one color under the TAT cursor when this move was made. One advantage of using the TAT to

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Orange	-11
Yellow	→ → → → → → → → → → → → → → → → → → →
	-5
Magenta	0

make adjustments directly on the image, rather than dragging sliders in the HSL panel, is that the TAT knows exactly which color ranges are involved and can drag more than one slider to correspond to the colors under your cursor.

Tip: Using the TAT and dragging sliders are not the only ways to set controls in the HSL panel. You can type a value into the field to the right of a slider. Or you can click a slider label and use the Plus (+) and Minus (-) keys on your keyboard (along with modifier keys described earlier in "Working with the sliders") to change a slider value in increments.

- 8 Click the Hue tab in the HSL panel, which you can use to change the hue of colors in a photograph.
- **9** Drag the Orange slider to the left, toward red. This makes orange hues across the photograph (including those in the buildings, the chimneys, and the smokestacks) more red-orange as opposed to yellow-orange.



The Hue tab of the HSL panel has a TAT too. You might use this TAT to make a blue sky more purple or aqua in hue.

- **10** Toggle the panel switch on the left side of the HSL/Color/B&W panel header to compare the Before view (without HSL adjustments) with the After view (with all the current HSL adjustments).
- 11 To compare the photograph with all adjustments you've made to this point to the original uncorrected photograph, press the Backslash (\) key on your keyboard, or toggle the Y key to see Before and After views. Some of the adjustments applied so far have been subtle, but their cumulative effect is significant.



12 Click the Plus icon (+) on the right side of the Snapshots panel to capture a snapshot of the photograph with your Basic, Tone Curve, and HSL panel adjustments. Name the snapshot **HSL** and click Create.

You'll come back to this photograph in this state to make further adjustments later in this lesson. In the meantime, you'll switch files for the next example, in which you'll reduce digital noise and perform initial sharpening on a photograph.

Reducing noise in the Detail panel

The Develop module has powerful controls for reducing the noise that is inherent in a digital capture. Digital noise is most apparent in photographs shot with a high ISO and in shadow areas of a photograph.

1 If the Filmstrip is not open in the Develop module, press F6 (or fn-F6) on the keyboard. In the Filmstrip, select P1050905.dng (a photograph of garden rakes), which was shot at ISO 400.



• Note: If you do not zoom to 1:1 view before opening the Detail panel, when you do open that panel, it will display a warning icon (!) to the left of the Sharpening label cautioning you to zoom to 100% or larger. Clicking that warning icon will zoom the photograph to 1:1 view. **2** Click the photograph to zoom in to 1:1 view. Then drag to pan to an area of the photograph that displays some grainy digital noise.



The 1:1 view is the only zoom level at which you can accurately evaluate digital noise and sharpening. However, some of the illustrations in this lesson are zoomed to 2:1 view to ensure that the effects of noise and sharpening are visible in this book.

- 3 Click the header of the Detail panel in the Develop module to open that panel.
- 4 If your Detail panel does not display a preview area, click the triangle to the right of the Sharpening label at the top of the Detail panel to reveal a small 1:1 preview.
- 5 In the Detail panel's 1:1 preview, drag to an area of the photograph that displays some grainy noise.



Alternatively, click the square icon to the left of the 1:1 preview in the Detail panel; then click a grainy area in the photograph to direct the 1:1 preview to that spot.

6 In the Noise Reduction section of the Detail panel, drag the Color slider to the left to 0.

This disables color noise reduction, revealing a significant amount of color noise in the photograph.

7 Double-click the Color label to return the Color slider to its default of 25.

This hides the color noise in the image, although there is still some grayscale luminance noise.

Three of the sliders in the Noise Reduction section address color noise. Dragging the Color slider to the right increases the amount of color noise reduction, but also can cause a loss of edge detail. In some images, dragging the color Detail slider to the right preserves some of that detail, but the effect of this slider may not be noticeable



unless there is a lot of color noise in the photograph. If you have larger areas of mottled color too, dragging the Smoothness slider to the right sometimes reduces those artifacts. For this exercise, leave the color Detail and Smoothness sliders at their default values of 50.

8 In the Noise Reduction section, drag the Luminance slider to the right to reduce luminance noise, the grainy grayscale noise that is visible in shadow areas of this photograph.

Increasing the Luminance slider reduces noise by blurring the image slightly. Too much luminance noise reduction can give a photograph an artificially smooth look. Your goal when setting the Luminance slider is to reduce noise to an acceptable level without blurring the image so much that it looks artificial.



The purpose of the Detail and Contrast sliders under the Luminance slider is to compensate for the softening effects of reducing luminance noise. The luminance Detail slider acts as a threshold. The lower the value for this slider, the more details are softened. In some images, increasing the Detail slider can bring back some detail, and increasing the Contrast slider can bring back some edge contrast lost by reducing luminance noise. Leave these sliders at their defaults of 50 and 0, respectively, for this exercise.

- **9** Still at 1:1 view, toggle the panel switch on the left side of the Detail panel header to compare the Before view (with default noise reduction) with the After view (with your noise reduction adjustments).
- **10** Leave the photograph open for the next section.

Capture sharpening in the Detail panel

The purpose of sharpening in the Develop module's Detail panel is to compensate for the softness that is inherent in digital capture. This initial sharpening is sometimes called capture sharpening. You'll probably sharpen again to prepare a photograph for output—either in Lightroom's Export dialog, Lightroom's output modules, or Photoshop. And you may do some creative sharpening along the way too. So be careful not to oversharpen now in the Detail panel.

- 1 P1050905.dng (the photograph of garden rakes) should still be open with the noise reduction adjustments you applied in the previous section, and the image should still be zoomed to 1:1 view, which is critical when sharpening.
- 2 Pan to an area of the image that displays detail.



3 Drag the Amount slider to the right of its default of 25 to increase the amount of sharpening.

The Amount slider determines the strength of the sharpening effect. Sharpening is

accomplished by increasing contrast at image edges. The higher the amount, the more edge contrast is introduced.

4 Drag the Radius slider to the left of its default of 1.0 to decrease the size of the sharpening halos.

Radius determines the width of the sharpening

effect at image edges (the halos). If a photograph has lots of detail, the ideal setting for the Radius slider is usually lower than it would be for a portrait or other photograph that has less detail you want to sharpen.







5 Leave the Detail slider at its default of 25 to control detail sharpening.

Alt/Option-click the control on the Detail slider to display a grayscale version of the image that shows you which image edges are being sharpened (the light gray edges). Dragging the Detail slider further to the right would sharpen digital noise in this image, which is usually something to avoid.



6 Hold the Alt/Option key as you drag the Masking slider to the right to protect parts of the photograph from sharpening.

This displays a mask in which the areas protected from sharpening appear in black as you drag the Masking slider. The Masking function is useful to protect non-edges from sharpening—like a model's skin in a portrait, a clear sky in a landscape, or digital noise.



7 For Before and After views of your sharpening settings, double-click the Sharpening label in the Detail panel to see the Before view, with default sharpening settings; then press Ctrl-Z/Command-Z to undo and see the After view, with the sharpening settings you chose.

This comparison leaves your noise reduction settings in place in both the before and after states.

Next, you'll apply what you've learned about noise reduction and sharpening to the photograph of the Paris rooftops you last worked with in the section "Fine-tuning color in the HSL panel."

- **8** If the Filmstrip is not open at the bottom of the Develop module, press F6 (or fn-F6) on the keyboard. In the Filmstrip, select DSC0149.dng (the photograph of the Paris rooftops).
- **9** Make sure the adjustments for DSC0149.dng are as they were at the end of the section "Fine-tuning color in the HSL panel." If you created an HSL snapshot to record your last adjustments to this image, as suggested at the end of that HSL section, click that snapshot in your Snapshots panel now.
- 10 Try setting the controls in the Detail panel on your own for this photograph, using what you learned in this lesson about sharpening and noise reduction. The following illustration suggests some sharpening and noise reduction settings to try.



Tip: Lightroom comes with some sharpening presets that you can use as a starting place for capture sharpening. When you're sharpening an image that has lots of detail, in the Presets panel choose Lightroom General Presets > Sharpen – Scenic. When you're sharpening a portrait or some other low-frequency image, choose Lightroom General Presets > Sharpen – Faces. Then fine-tune the resulting sharpening values in the Detail panel.

- 11 Click the Plus icon (+) on the right side of the Snapshots panel to capture a snapshot of DSC0149.dng with your Basic, Tone Curve, HSL, and Detail panel adjustments. Name the snapshot **Detail** and click Create.
- **12** Leave this photograph open for the next section.

Retouching with the Spot Removal tool

The Spot Removal tool is useful for hiding circular spots, like dust spots or blemishes, and also for removing some non-circular content from a scene.

- 1 DSC0149.dng (the photograph of the rooftops in Paris) should be open with all the adjustments you've made to it to this point. In the Snapshots panel, click the Detail snapshot you made at the end of the previous section.
- 2 Select the Spot Removal tool in the tool strip, which is beneath the Histogram panel in the column on the right side of the Develop module.

A panel of Spot Removal controls (the Spot Removal tool panel) drops down beneath the tool strip.

	Clone Heal
Size Feather Opacity	
8	Reset Close

3 If the Develop module toolbar isn't showing at the bottom of your screen, press T on your keyboard.

Tool Overlay : Auto 🗧 🗌 Visualize Spots 🦾 🖒

4 In the toolbar at the bottom of the Develop module, check the Visualize Spots check box. This displays a mask on the photograph in which spots appear as white or gray dots.

The Visualize Spots feature is useful for revealing spots caused by dust on a lens, sensor, or scanner that you might not have noticed in the photograph.

You can control the sensitivity of the Visualize Spots feature by dragging the Visualize Spots slider in the toolbar to the right or left.



5 To zoom in to the photograph, hold the spacebar on the keyboard and click the photograph. Release the spacebar and drag to move to a spot you want to remove.

• Note: Zooming in or out when you're working with a local adjustment tool requires that you hold the spacebar as you click the photograph. When a local adjustment tool is not selected, simply clicking the photograph zooms in and out.

► Tip: If you have lots of spots to remove that are close together, you may find it more efficient to accomplish that in Photoshop, using Photoshop's Spot Healing Brush tool or Healing Brush tool.

► Tip: To page through a photograph to inspect it for spots, press the Home key on your keyboard to start at the upper-left corner of the photograph. Press the Page Down button on the keyboard to page through the photograph from top to bottom in a column-like pattern.

- **6** Move the cursor over a dust spot in the photograph. Size the cursor so that it is slightly bigger than the dust spot by pressing the Left Bracket key ([) to decrease cursor size or the Right Bracket key (]) to increase cursor size.
- 7 Click the dust spot to remove it from view.

The Spot Removal tool samples content from a nearby source area in the photograph to create a patch to hide the dust spot. Two circles appear in the image. The circle with the Plus icon (the



destination circle) represents the patch that is hiding the spot; the empty circle (the source circle) represents the area from which the patch was sampled.

8 Uncheck the Visualize Spots check box in the toolbar to return to regular view, where you'll no longer see this dust spot.

You can remove spots in either the regular view or the Visualize Spots view. One approach is to switch back and forth between views as you work, by checking and unchecking the Visualize Spots check box.

In either view, when you move your cursor off the photograph in the center work area, the circles disappear from view, because by default the Tool Overlay menu in the toolbar is set to Auto. You can change that behavior to Always, Never, or Selected (to view just a selected patch).

- **9** If you don't like the appearance of a patch, click its destination circle to select that patch. Then try one or more of these options:
 - To sample from a different location, hover over the source circle to change the cursor to a Hand tool, and drag the source circle to a different location.
 - To resize the patch, hover over either circle to change the cursor to a doublepointed arrow, and drag out to increase or drag in to decrease the size of the circles. Or drag the Size slider in the Spot Removal panel.
 - To blend the patch with the surroundings, make sure the Heal option, rather than the Clone option, is selected in the Spot Removal tool panel.
 - To soften the edge of the patch, drag the Feather slider in the Spot Removal tool panel to the right. You can reset this slider and any of the sliders in the Spot Removal tool panel to its default value by double-clicking the slider label or control.
 - To make the patch less opaque, drag the Opacity slider in the Spot Removal tool panel to the left.
 - To remove the selected patch, press the Delete/Backspace key on the keyboard. (If you want to remove all Spot Removal tool patches, click the Reset label at the bottom right of the Spot Removal tool panel.)

Syncing spot removal

If a spot of dust on your camera lens or sensor appears in multiple photographs, you can quickly remove it from multiple photographs at once using Lightroom's Sync feature.

- 1 Use the Spot Removal tool to hide the dust spot on one photograph.
- 2 With that photograph selected, in the Develop module Filmstrip Ctrl-click/ Command-click thumbnails of other photographs with the same dust spot. Make sure that the photograph you corrected is the most selected thumbnail (the one with the lightest thumbnail frame in the Filmstrip).
- 3 Click the Sync button at the bottom of the right panel column in the Develop module. If that button reads AutoSync, click the panel switch just to the left of the button to change it to read Sync.
- 4 In the Synchronize Settings dialog, click Uncheck All. Then check the Spot Removal and Process Version check boxes. Click Synchronize to automatically hide the spot on all selected photographs.
- 5 If the result needs fine-tuning on any of the affected photographs, open that photograph in the Develop module for further editing.
- **10** Lightroom's Spot Removal tool can also hide non-circular content. Zoom and pan to locate content you want to hide—like one of the railings at the top right of this photograph.
- 11 Size the cursor so it is just a bit larger than the height of the railing, select the Clone option in the Spot Removal panel (to avoid the risk that the blending behavior of the Heal option will smudge the ends of the patch), and drag across the railing in the photograph.



► Tip: If you have more complex content to remove, remember that you can hand off a photograph from Lightroom to Photoshop to take advantage of Photoshop's fullfeatured retouching tools.

12 Toggle the panel switch for the Spot Removal tool, which is at the bottom left of the Spot Removal panel.

Toggling the panel switch gives you Before and After views of all the circular and non-circular corrections you made with the Spot Removal tool.

13 To close the Spot Removal panel, click the Close label at the bottom right of that panel.

- 14 Click the Plus icon (+) on the right side of the Snapshots panel to capture a snapshot of DSC0149.dng with all your global adjustments and your Spot Removal corrections. Name the snapshot Spot Removal and click Create.
- **15** Leave this photograph open for the next section.

Making lens corrections

In the Develop module's Lens Corrections panel you can adjust for a variety of issues related to your camera lens, including lens distortion, lens vignetting, chromatic aberration, and perspective problems.

Applying a lens profile

Lightroom uses profiles of camera lenses to correct for lens-related geometric distortions and vignetting.

- 1 DSC0149.dng (the photograph of the rooftops in Paris) should be open with all the adjustments you've made to it to this point. In the Snapshots panel, click the Spot Removal snapshot you made at the end of the previous section.
- 2 Click the header on the Lens Corrections panel to open that panel, and click the Basic tab in the Lens Corrections panel, if that tab is not already open.
- 3 Check the Enable Profile Corrections check box. In many cases, this automatically applies a lens profile for the lens with which the photograph was shot and automatically corrects geometric distortion (pincushioning or barrel distortion) and vignetting (dark corners) in the photograph.

If checking Enable Profile Corrections does not alter the photograph, it could be that Lightroom did not find the lens profile automatically. In that case, click the Profile tab in the Lens Corrections panel and use the Lens Profile menus there to choose the make, model, and profile manually for the lens with which the photograph was captured.



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Adobe has created lens profiles for many popular lenses, but if you have a new or unusual lens it's possible Adobe has not yet profiled that lens. In that case, you could look into making a lens profile yourself, but the simpler approach is to use the sliders in the Manual tab of the Lens Corrections panel to fix geometric distortion and vignetting manually.

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Basic	Profile Color Manual
Distortion	
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Horizontal	<u> </u>
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Scale	<u> </u>
Aspect	<u> </u>
Amount	0
Midpoint	<u> </u>

If you shoot with a mirrorless camera

(sometimes called a Micro Four Thirds camera), the camera may have compensated for lens issues by embedding lens correction instructions into the metadata of your raw files. Those corrections may be applied when Lightroom initially converts the raw files, rather than through a lens profile invoked in the Lens Corrections panel.

4 Leave this photograph open for the next section.

Removing chromatic aberration

Chromatic aberration is a lens-related anomaly that can cause unwanted color to appear along image edges. Lightroom can remove some chromatic aberration automatically.

- With DSC0149.dng open, zoom to 1:1 view and pan to an edge with visible color fringing. Notice the magenta color along the edge of the chimney and the green color along the shadows on the window structure.
- **2** Click the Basic tab in the Lens Corrections panel if the Basic tab is not already open.
- 3 In the Basic tab, check the Remove Chromatic Aberration check box.



 Lens Corrections
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 Basic
 Profile
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 Manual

 ✓
 Enable Profile Corrections

 ✓
 Remove Chromatic Aberration

 □
 Constrain Crop

The magenta and green lines in the preceding illustration are now barely visible in the photograph.

4 Leave this photograph open for the next section.



• Note: If you see purple or green fringing at high-contrast edges after checking the Remove Chromatic Aberration check box, try using the Defringe controls in the Color tab of the Lens Corrections panel to remove the fringing.

Correcting perspective with Upright

The Upright feature in the Lens Corrections panel offers automatic corrections for some perspective problems related to the angle at which a photograph was shot, including leveling a crooked image and reducing keystoning (vertical distortion) in shots of buildings. The Upright feature was introduced in Lightroom 5.

- 1 With DSC0149.dng open, click the Basic tab in the Lens Corrections panel if it is not already open.
- 2 With the Enable Profile Corrections check box checked in the Basic tab, click each of the four Upright buttons—Level, Vertical, Full, and Auto—in turn to try them out on the photograph. This is usually the best way to approach applying Upright, because results can vary from image to image.
 - The Level option tries to straighten or level a photograph that is crooked on the horizontal or vertical axis.



• The Vertical option not only levels a photograph but also tries to correct for converging vertical lines—like those that make buildings shot from street level appear to be leaning back (keystoning).



In this case, the Vertical option makes such an extreme correction that white areas of the canvas are left showing on two sides of the adjusted image.

When an Upright correction reveals canvas around an image, you have several options: You can try checking the Constrain Crop check box in the Basic tab, although this option may eliminate more content than you would like in some photographs. If applying the Upright correction pushed some of the photograph off the canvas, you can use the Scale slider in the Manual tab of the Lens Corrections panel to reduce scale until all the photograph is back in view; then crop the image manually using Lightroom's Crop Overlay tool with the lock icon unlocked for maximum flexibility. Or hand the image off to Photoshop, where you can crop the image with Photoshop's Crop tool or try to fill the white edges using Photoshop's Content-Aware Fill feature. • The Full option tries to fix leveling, vertical perspective, and horizontal perspective. This option often delivers the most extreme results, as is the case with this photograph.


• The Auto option is often the best choice, as it is in this case. This option attempts to level an image and fix perspective problems, while maintaining a natural look. Leave this photograph with the Auto option applied.



- **3** Toggle the panel switch on the left side of the Lens Corrections panel header to compare the Before view (with no lens correction adjustments) with the After view (with the current lens correction adjustments).
- 4 Click the Plus icon (+) on the right side of the Snapshots panel to capture a snapshot of DSC0149.dng with all your global adjustments, your Spot Removal corrections, and your lens corrections. Name the snapshot Lens and click Create.
- **5** Leave this photograph open for the next section.

Making local adjustments

Most of the adjustments you've made so far are global adjustments—adjustments that affect the entire photograph. Often you'll want to make local adjustments too—adjustments that affect just part of a photograph. Photoshop has lots of features for making local adjustments, like dodge and burn tools, selections, and masks. Lightroom has only a few local adjustment tools, but they are often quite useful. Before you hand a file off to Photoshop for local adjustments, consider what ▶ **Tip:** After you make an Upright correction, you can fine-tune the results using the sliders in the Manual tab of the Lens Corrections panel. you can accomplish in Lightroom with the Graduated Filter tool, the Radial Filter tool, and the Adjustment Brush tool.

These three Lightroom local adjustment tools have a lot in common. They all work by creating a mask that limits the area affected by adjustments. They all offer the same list of adjustments, which you can apply individually or in combination. That list of adjustments includes adjustments that are also in the Basic panel— Temperature, Tint, Exposure, Contrast, Highlights, Shadows, Clarity, Saturation plus Sharpness, Noise, Moire, Defringe, and Color tint.

Working with the Graduated Filter tool

With the Graduated Filter tool you can apply adjustments to part of a photograph in a gradient pattern. In this exercise you'll apply two gradient filters with different combinations of adjustments to get different effects on the sky and the buildings.

 With DSC0149.dng still open in the Develop module, select the Graduated Filter tool in the tool strip beneath the Histogram panel.

The Graduated Filter panel drops down from the tool strip.

2 In the Graduated Filter panel, double-click the Effect label at the top left of the sliders to set all the sliders to their defaults of 0.

The sliders for all the local adjustment tools are sticky, so it's important to reset them. Doing that all at once is most efficient. To reset an individual slider to its default, double-click the slider label or control.



3 Drag the Exposure slider all the way to the left.

Setting one or more sliders before you create a graduated filter loads the Graduated Filter tool with those settings so that they will be applied as you create the next graduated filter. This negative exposure setting is just a way to help you see the gradient you'll create in the next step.

4 Click the upper-left corner of the photograph and drag toward the lower-right corner, stopping near center of the photograph so that this graduated filter covers just the sky.

This creates a mask in a gradient pattern over the sky. The gradient mask defines where the Exposure value and any additional parameters you set in the future will be applied.

You can create multiple graduated filters. Each filter will be represented by a separate pin in the photograph. To select a graduated filter, click its pin. When a particular graduated filter is selected, its pin turns black. All the pins will disappear from view when you move your cursor off the photograph in the center work area, because by default the Show Edit Pins menu in the toolbar is set to Auto.



5 To reposition this graduated filter, drag its black pin. To rotate the graduated filter, drag its center line clockwise or counterclockwise slightly.

The three white lines on a graduated filter represent the strength of the parameters it applies: 100%, fading through 50%, and then down to 0%. You can contract or extend the filter's gradient by dragging either of the outside white lines toward or away from the center line.

6 With the filter's pin selected in the photograph, change the settings for this filter in the Graduated Filter panel. Drag the Exposure slider so it is slightly to the left of its default of 0, drag the Temperature slider to the left of its default of 0, and drag the Saturation slider slightly to the left of its default of 0.

These changes are applied to the selected graduated filter, making the sky slightly darker and more blue.



Tip: You can save this combination of local adjustment settings as a preset to apply to other photographs. Click the Effect menu at the top of the drop-down panel, and choose Save Current Settings as New Preset. Name the preset and click Create. When you want to access these settings for future use with the Graduated Filter tool, the Radial Filter tool, or the Adjustment Brush tool, select this preset from the Effect menu in the drop-down panel for that tool.

7 To add another graduated filter, click the New label at the top right of the Graduated Filter panel.

This deselects the first pin, which changes to white.

- 8 Double-click the Effect label in the panel to reset all the sliders in the Graduated Filter panel to their defaults of 0.
- **9** Drag a new graduated filter from the lowerright corner up toward the upper-left corner, stopping near the top of the buildings, so that this filter covers most of the buildings. The two graduated filters can overlap.

This time the graduated filter was not preloaded with settings, to demonstrate that you have the option to wait to set parameters until after you create a graduated filter. The same is true of the

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other local adjustment tools-the Radial Filter tool and the Adjustment Brush tool.

10 With the pin for the second graduated filter selected in the photograph, go to the Graduated Filter panel and drag the Temperature slider to the right to warm up the color of the building, drag the Shadows slider to the right to open up shadow areas in the building, and drag the Clarity slider to the right to emphasize the details on the building facade.



11 Toggle the panel switch for the Graduated Filter tool, which is at the bottom left of the Graduated Filter panel.

Toggling the panel switch gives you Before and After views of all the graduated filters you added. To see Before and After views of just one graduated filter, select its pin in the photograph and double-click the Effect label in the Graduated Filter panel (the Before view). Then press Ctrl-Z/Command-Z to undo (the After view).

- **12** To close the Graduated Filter panel, click the Close label at the bottom right of the Graduated Filter panel or click the Graduated Filter icon in the tool strip.
- 13 Click the Plus icon (+) on the right side of the Snapshots panel to capture a snapshot of DSC0149.dng with all your global adjustments, your Spot Removal corrections, your lens corrections, and your graduated filters. Name the snapshot Graduated and click Create.
- **14** Leave this photograph open for the next section.

▶ Tip: To remove an individual graduated filter, select its pin and press the Delete/ Backspace key on the keyboard. To remove all graduated filters, click the Reset label at the bottom of the Graduated Filter panel.

Using the Adjustment Brush tool

The Adjustment Brush tool works much like the Graduated Filter tool. The two tools apply the same adjustments, individually or in combination, to local areas of a photograph that are defined by masks behind the scene. The difference is that with the Adjustment Brush tool you paint the adjustments where you want them. Many of the mechanics of working with the Graduated Filter tool apply to the Adjustment Brush tool also, so refer to the preceding section "Working with the Graduated Filter tool" for more details.

 With DSC0149.dng (the photograph of Paris rooftops) still open in the Develop module, select the Adjustment Brush tool in the tool strip beneath the Histogram panel.

The Adjustment Brush panel drops down from the tool strip. The Effect section of the panel offers the same adjustments as the Graduated Filter panel. The Brush section contains brush options for the Adjustment Brush tool.

- **2** Double-click the Effect label near the top left of the Adjustment Brush panel to reset all the Effect sliders to their defaults of 0.
- 3 Choose brush options in the Brush section of the Adjustment Brush panel:
 - Use the Size slider to set the size of the brush.

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Alternatively, after you've created an adjustment brush, size the selected brush by pressing the Right Bracket (]) and Left Bracket ([) keys on the keyboard.

• Use the Feather slider to set the softness of the brush.

Alternatively, after you've created an adjustment brush, set the feather value of the selected brush by pressing the Shift-Left Bracket ([) to decrease feathering or Shift-Right Bracket (]) to increase feathering.

The default value of the Feather slider is 100 (maximum softness). To reset this slider to its default, double-click the slider label or control.

• Use the Flow slider to set the rate at which adjustments are applied.

When the Flow slider is decreased, the brush acts like an airbrush, building up the opacity of adjustments over multiple strokes.

• Use the Density slider to set the maximum opacity of adjustments.

If you're not getting the full effect you expect from a brush stroke, it may be because the value of the Density slider, the Flow slider, or both is less than 100. To reset each of those sliders to its default of 100, double-click the slider label or control.

• If you want to adjust a defined area (like an object against a solid background), check the Auto Mask check box. With this box checked, Lightroom will do its best to confine the adjustment brush mask to areas that match the tone and color under your



cursor. It does this by continuously sampling as you paint with the adjustment brush.

4 If the toolbar is not showing at the bottom of the screen, press T on your keyboard. In the toolbar, check the Show Selected Mask Overlay check box.

Show Edit Pins : Auto 🗢 📃 Show Selected Mask Overlay

5 Paint over part of the cloud in the photograph.

The red overlay is the mask that defines where the adjustments associated with this brush will be applied.



If you paint too far and want to erase part of the mask, hold the Alt/Option key as you paint.

- ► Tip: There are many practical uses for local adjustment brush corrections, like burning and dodging (selective darkening and lightening), creative sharpening, removing noise from shadows, balancing color, and removing color fringe.
- **6** Uncheck the Selected Mask Overlay check box in the toolbar to turn off the red overlay in the image.
- 7 With the pin that represents this adjustment brush selected in the image, go to the Adjustment Brush panel to set the values of the adjustments for this brush. Drag the Clarity slider to the right of its default of 0 and the Highlights slider to the left of its default of 0 until you like the result in the image.

These adjustments are applied to the area affected by this adjustment brush, emphasizing cloud detail.



8 To extend the area affected by these adjustments, with the pin for this adjustment brush selected, paint over another part of the clouds.

To see where you've painted, check and then uncheck the Show Selected Mask Overlay check box in the toolbar.



9 To make a change to the adjustments applied by this brush, with the pin for this brush selected, go to the Adjustment Brush panel and drag the Exposure slider slightly to the left.

You can change or add a setting to an adjustment brush at any time by selecting its pin in the image and setting controls in the Adjustment Brush panel.



• Note: You can add multiple adjustment brushes to an image, each with its own settings and pin. To add a new brush, click the New label at the top of the Adjustment Brush panel and click the image.

10 Toggle the panel switch for the Adjustment Brush tool, which is at the bottom left of the Adjustment Brush panel.

If you've created multiple adjustment brushes, this gives you Before and After views of all of them. To see Before and After views of just one adjustment brush, select its pin in the photograph and double-click the Effect label in the Adjustment Brush panel (the Before view). Then press Ctrl-Z/Command-Z to undo (the After view).

- **11** To close the Adjustment Brush panel, click the Close label at the bottom right of the Adjustment Brush panel or click the Adjustment Brush icon in the tool strip.
- **12** Click the Plus icon (+) on the right side of the Snapshots panel to capture a snapshot of DSC0149.dng with all your adjustments to this point, including adjustment brushes. Name the snapshot **Brush** and click Create.
- **13** Leave this photograph open for the next section.

Applying the Radial Filter tool

The Radial Filter tool applies the same adjustments as the Gradient Filter tool and Adjustment Brush tool, but in a circular pattern. The Radial Filter tool is useful for spotlighting elements in a photograph and for vignetting to draw attention to an off-center element.

 With DSC0149.dng still open, select the Radial Filter tool in the tool strip beneath the Histogram panel.

The Radial Filter panel drops down from the tool strip.

- **2** Double-click the Effect label near the top left of the Radial Filter panel to reset all the Effect sliders to their defaults of 0.
- **3** Drag the Feather slider in the Radial filter panel to 100, if it is not already there.

This ensures a gradual, soft transition at the outside edge of a radial filter. After you create a radial filter with a particular Feather value, you can still adjust the amount of feather on that filter using the Feather slider.

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4 Make sure the Invert Mask check box is not checked, which is the default.

This ensures that adjustments assigned to a radial filter affect the area outside, not inside, the radial filter.

- 5 Drag the Exposure slider to the left in the Radial Filter panel.
- **6** In the photograph, position your cursor slightly off-center (over the clouds) and drag to the right to create a large radial filter.

The decrease in exposure affects the area outside the radial filter by default, creating a subtle vignette effect.

The purpose of a vignette is to direct the viewer's attention away from the edges of the photograph and toward important content. The advantages of creating a vignette with the Radial Filter tool are that a radial filter vignette can be offcenter and it can incorporate any of the adjustments in the Radial Filter panel. For example, you could adjust the color temperature or the saturation of the vignette instead of just the exposure. (The Post-Crop Vignette feature in the Develop module's Effects panel doesn't offer these advantages.)

Tip: To add a radial filter that fills the image and is centered, Ctrl-Alt-double-click/ Command-Option-double-click in the photograph.



- 7 With the pin that represents this radial filter selected in the photograph, go to the Radial Filter panel and tweak the value of the Exposure slider to your taste, making the vignetted corners darker or lighter than they were initially.
- **8** Reposition and resize the filter to your liking using these techniques:
 - Drag from inside the radial filter to move it to a different location on the image.
 - Hover over a square anchor point on the border of the radial filter. When the cursor changes to a double-pointed arrow, drag toward or away from the center of the filter to resize the filter.
 - Hover outside the border of the radial filter. When the cursor changes to a curved arrow, drag to rotate the filter.
- **9** Click the New button at the top right of the Radial Filter panel to start creating another radial filter.

- 10 Position your cursor over the bird in the photograph and drag outward to create another, smaller radial filter around the bird. Reposition and resize this filter to your liking.
- 11 With the pin that represents the radial filter around the bird selected in the photograph, check the Invert Mask check box near the bottom of the Radial Filter panel.







12 In the Radial Filter panel, drag the Exposure and Contrast sliders to the right of their defaults of 0.

This increases exposure and contrast inside this radial filter to draw attention to the bird.



13 Create one more radial filter using the same techniques. With Invert Mask still checked, create another radial filter over a part of the building to which you'd like to add some light. For this radial filter, move the Temperature and Tint sliders to the right to warm up the color, set Exposure to the right of its default of 0 for brightness, and set Highlights to the left of its default of 0 to retain detail in the highlights.



This filter gives the impression of sunlight shining like a subtle spotlight on part of the building.

14 Right-click/Control-click the pin of the sunlight radial filter and choose Duplicate from the pop-up menu.

The duplicate filter is directly on top of the original filter, so at first the adjustments appear at double strength.



- 15 Drag the selected pin (which is the pin for the duplicate filter) to another part of the building to add a spot of sunlight there.
- 16 Reshape the duplicate filter in its new location to fit the content there, using the techniques covered earlier in this section. With the duplicate filter selected, you can also tweak its settings in the Radial Filter panel separately from the original filter.



17 Toggle the panel switch for the Radial Filter tool, which is at the bottom left of the Radial Filter panel.

If you've created multiple radial filters, this gives you Before and After views of all of them. To see Before and After views of just one radial filter, select its pin in the photograph and double-click the Effect label in the Radial Filter panel (the Before view). Then press Ctrl-Z/Command-Z to undo (the After view).

- **18** To close the Radial Filter panel, click the Close label at the bottom right of the Radial Filter panel or click the Radial Filter icon in the tool strip.
- **19** Toggle the Backslash key (\) to compare the current version of the photograph (with all the global and local adjustments you made in Lightroom's Develop module) to the original (with no adjustments).
- **20** Click the Plus icon (+) on the right side of the Snapshots panel to capture a snapshot of DSC0149.dng with all your global and local adjustments, including radial filters. Name the snapshot **Radial** and click Create.



21 Leave this photograph open for the next section.

Saving metadata to files

One way to save metadata to files is to do so manually.

• With DSC0149.dng still open in the Develop module with all the adjustments you added to it during this lesson, choose Photo > Save Metadata to File (or press Ctrl-S/Command-S).

Why save metadata to the file?

Develop adjustments and other metadata changes are recorded in the Lightroom catalog by default. Saving metadata to the file saves your changes back to the photograph too. This ensures that other applications, like Adobe Bridge and Camera Raw, will be able to view the changes you've made to the photograph. Saving metadata to a file also acts as an insurance policy. It protects you from losing your changes if a photograph and its metadata are inadvertently removed from the Lightroom catalog.

When you save metadata to a DNG file, the metadata is stored in a special area inside the DNG without affecting the image pixels. The same is true when you save metadata to a JPEG, TIFF, PSD, or PNG. However, when you save metadata to a camera manufacturer's proprietary raw file, the metadata is stored in a separate XMP sidecar file that you must keep with the corresponding raw file.

When you're working with a DNG file you have an alternative to the Save Metadata to File command. You can choose to select the file in the Library module and choose Metadata > Update DNG Previews & Metadata. This saves the metadata to the file just like the Save Metadata to File command and also ensures that the JPEG preview in the DNG file is updated so other applications can see your changes.

Another way to save metadata to files is to do so automatically to all your photographs.

• To enable the automatic option, choose Lightroom/Edit > Catalog Settings, click the Metadata tab, and check the Automatically Write Changes into XMP check box. Close the Catalog Settings dialog.

The upside of the automatic option is that whenever you make an adjustment it is saved automatically to the photograph, without you having to do anything else to make that happen. The major downside is that continuous, automatic saving could possibly interfere with Lightroom's performance.

Working with virtual copies

When you want to experiment with different adjustments, or when you need different versions of a photograph (like a color version and a black and white), virtual copies come in handy.

- 1 If the Filmstrip is not showing in the Develop module, press F6 (or fn-F6) on your keyboard. Select DSC0149.dng in the Filmstrip if it is not already selected there.
- 2 Choose Photo > Create Virtual Copy, or press the keyboard shortcut Ctrl-' (apostrophe)/Command-' (apostrophe).

This creates a virtual copy of the photograph that appears in the Filmstrip along with the original. The virtual copy is identified by the turned-up page icon at its bottom left corner.

A virtual copy is not an actual pixel-based copy that takes up valuable space on your computer drive. It is just an alternative set of processing instructions stored in the Lightroom catalog. This means you can create and experiment with multiple virtual copies of a photograph, each with different adjustments, without a lot of overhead.



- **3** In the Filmstrip, select the virtual copy you just made.
- 4 Press V on the keyboard to quickly convert the virtual copy to black and white.



Notice that this adjustment does not affect the original of the photograph. You are free to make additional virtual copies and try out different adjustments on each of them without affecting the original or filling up your drive.

► **Tip:** You can also make virtual copies of one or more photographs in the Library module.

Review questions

- 1 When you adjust a photograph in Lightroom's Develop module, do your adjustments change image pixels in the photograph?
- **2** If you close Lightroom after making adjustments to a photograph and reopen Lightroom a week later, when you open that photograph in the Develop module will your previous adjustments be listed in the History panel?
- **3** Lightroom has many controls for making global adjustments to a photograph. When you want to make targeted, local adjustments, do you always have to pass a photograph off to Photoshop for that purpose?
- 4 What does the Exposure slider do in the current Lightroom process version?
- 5 Is there one right way to white balance a photograph?

Review answers

- No. Adjustments you make to a photograph in Lightroom do not change image pixels. Adjustments are recorded as instructions in the Lightroom catalog.
- **2** Yes. The History panel keeps track of all the adjustments you make to a photograph forever, unless you delete history states.
- 3 No. You can make some local adjustments in Lightroom, using tools like the Graduated Filter tool, the Radial Filter tool, and the Adjustment Brush tool. If you need to make a more complex local correction, such as one that requires a precise selection, then pass the file off to Photoshop, usually after making fundamental global corrections in Lightroom.
- **4** Increasing or decreasing the Exposure slider affects the overall brightness of a photograph. The Exposure slider has its primary effect on the midtones in a photograph.
- **5** No. White balancing is subjective. Lightroom's White Balance controls can neutralize a color cast in a photograph, but there are times when a color cast is desirable as a way to communicate the mood and message that you, as the photographer, choose to convey.

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