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Julie Adair King

*Author of Digital Photography
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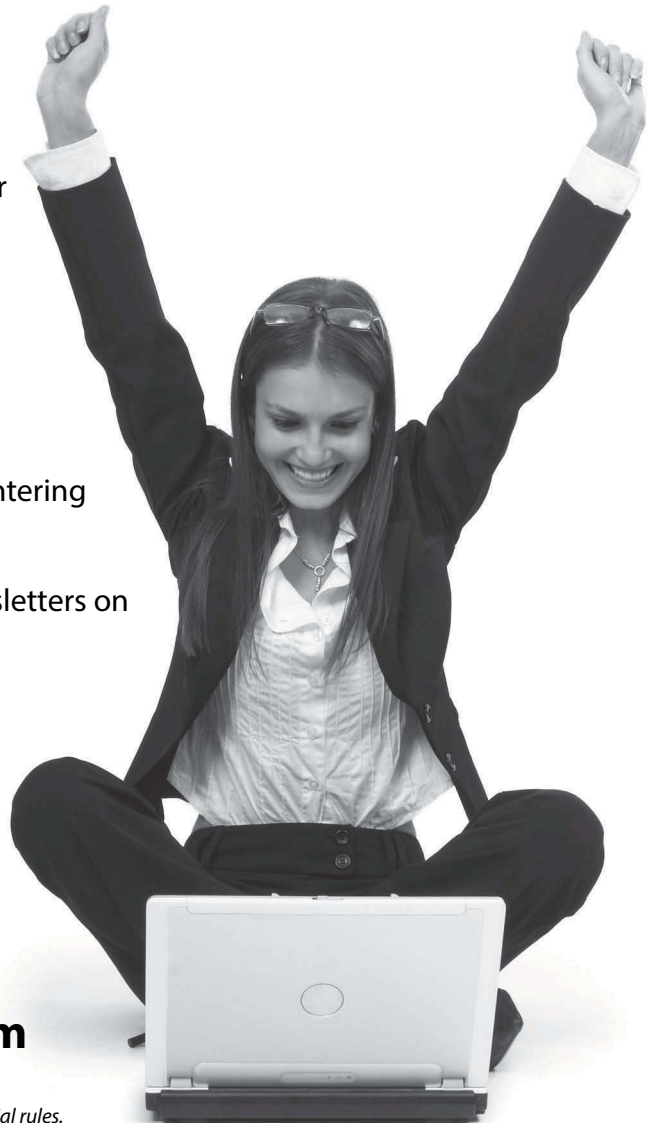
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by Julie Adair King and Robert Correll

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Contents at a Glance

<i>Introduction</i>	1
<i>Part I: Fast Track to Super Snaps</i>	5
Chapter 1: Getting Up and Running	7
Chapter 2: Choosing Basic Picture Settings	35
Chapter 3: Taking Great Pictures, Automatically	63
<i>Part II: Taking Creative Control</i>	83
Chapter 4: Taking Charge of Exposure	85
Chapter 5: Controlling Focus and Depth of Field	123
Chapter 6: Mastering Color Controls	141
Chapter 7: Putting It All Together	157
Chapter 8: Shooting and Viewing Movies	175
<i>Part III: After the Shot</i>	189
Chapter 9: Picture Playback	191
Chapter 10: Working with Picture and Movie Files	211
<i>Part IV: The Part of Tens</i>	233
Chapter 11: Ten More Ways to Customize Your Camera	235
Chapter 12: Ten Features to Explore on a Rainy Day	245
<i>Index</i>	261

Table of Contents

<i>Introduction</i>	1
About This Book	1
Foolish Assumptions	2
Icons Used in This Book	3
Beyond the Book	3
Where to Go from Here	4
<i>Part I: Fast Track to Super Snaps</i>	5
Chapter 1: Getting Up and Running	7
Preparing the Camera for Initial Use	7
Exploring External Camera Features	10
Topside controls	10
Back-of-the-body controls	12
Front-left features	15
Ordering from Camera Menus	16
Using the Monitor as Viewfinder: Live View Shooting	20
Monitoring Critical Picture Settings	22
Changing Settings via the Quick Control Screen	25
Familiarizing Yourself with the Lens	27
Working with Memory Cards	29
Reviewing Basic Setup Options	31
Setup Menu 1	31
Setup Menu 2	33
Setup Menu 3	34
Chapter 2: Choosing Basic Picture Settings	35
Choosing an Exposure Mode	36
Changing the Drive Mode	37
Setting Resolution and File Type (the Image Quality Setting)	40
Adjusting the Image Quality setting	40
Considering resolution: Large, Medium, or Small?	42
Understanding file type (JPEG or Raw)	46
Adding Flash	51
Enabling and disabling flash	53
Using Red-Eye Reduction flash	55
Exploring advanced flash features (P, Tv, Av, and M modes)	56

Chapter 3: Taking Great Pictures, Automatically 63

Shooting in Auto and Flash Off Modes.....	63
Viewfinder photography in Auto and Flash Off modes.....	64
Live View photography in Auto and Flash Off modes.....	67
Taking Advantage of Scene (Image Zone) Modes.....	68
Choosing a scene mode	68
Modifying scene mode results	74
Gaining More Control with Creative Auto	81

Part II: Taking Creative Control..... 83**Chapter 4: Taking Charge of Exposure 85**

Introducing the Exposure Trio: Aperture, Shutter Speed, and ISO.....	86
Aperture affects depth of field	88
Shutter speed affects motion blur	89
ISO affects image noise	91
Doing the exposure balancing act	93
Stepping Up to Advanced Exposure Modes (P, TV, Av, and M).....	94
Monitoring Exposure Settings.....	95
Choosing an Exposure Metering Mode.....	97
Setting ISO, f-stop, and Shutter Speed	100
Controlling ISO	100
Adjusting aperture and shutter speed	104
Sorting through Your Camera's Exposure-Correction Tools.....	105
Overriding autoexposure results with	
Exposure Compensation	105
Improving high-contrast shots with Highlight Tone Priority.....	109
Experimenting with Auto Lighting Optimizer	111
Correcting lens vignetting with Peripheral	
Illumination Correction	114
Locking Autoexposure Settings	116
Bracketing Exposures Automatically.....	118
Turning auto bracketing on and off.....	119
Shooting a bracketed series	121

Chapter 5: Controlling Focus and Depth of Field 123

Setting the Lens Focus Mode	124
Exploring Viewfinder Focusing Options	124
Adjusting autofocus performance	125
AF Point Selection: One focus point or many?.....	126
Changing the AF (autofocus) mode.....	128
Choosing the right autofocus combo.....	129
Focusing During Live View and Movie Shooting	130
Choosing an AF (autofocus) mode	130
Manual focusing in Live View and Movie modes	135
Zooming in for a focus check	135
Manipulating Depth of Field.....	137

Chapter 6: Mastering Color Controls	141
Understanding the White Balance Setting.....	141
Checking and changing the White Balance setting.....	143
Creating a custom White Balance setting.....	145
Using White Balance Correction to fine-tune settings	146
Bracketing shots with White Balance.....	148
Taking a Quick Look at Picture Styles	151
Chapter 7: Putting It All Together	157
Recapping Basic Picture Settings	157
Shooting Still Portraits	159
Capturing Action.....	163
Capturing Scenic Vistas	167
Capturing Dynamic Close-Ups	170
Coping with Special Situations	172
Chapter 8: Shooting and Viewing Movies	175
Recording Your First Movie Using the Default Settings	176
Customizing Movie Recording Settings	178
Movie Menu 1	179
Movie Menu 2	180
Movie Menu 3	185
Playing Movies	187
 <i>Part III: After the Shot</i>	 189
Chapter 9: Picture Playback	191
Disabling and Adjusting Image Review	191
Viewing Pictures in Playback Mode	192
Viewing multiple images at a time	192
Using the Quick Control screen during playback.....	194
Jumping through images.....	195
Rotating pictures	198
Zooming in for a closer view	200
Viewing Picture Data.....	201
Basic Information display data	202
Basic Information plus Image Quality/Playback Number display mode	203
Shooting Information display mode	204
Understanding Histogram display mode	206
Chapter 10: Working with Picture and Movie Files	211
Deleting Files	212
Protecting Photos and Movies.....	213
Rating Photos and Movies.....	216
Installing the Canon Software	217

Sending Pictures to the Computer	220
Downloading via USB.....	220
Downloading from a card reader	223
Converting Raw Images in Digital Photo Professional.....	225
Preparing Pictures for Online Sharing	230

Part IV: The Part of Tens 233

Chapter 11: Ten More Ways to Customize Your Camera. 235

Changing the Function of the Set Button.....	235
Customizing the AE Lock and Shutter Button	236
Disabling the AF-Assist Beam.....	237
Silencing the Camera.....	238
Preventing Shutter Release without a Memory Card.....	238
Reducing the Number of Exposure Stops.....	239
Creating Your Own Camera Menu.....	239
Creating Custom Folders	241
Turning Off the Shooting Settings Screen	242
Changing the Color Space from sRGB to Adobe RGB	243

Chapter 12: Ten Features to Explore on a Rainy Day 245

Adding Cleaning Instructions to Images	245
Tagging Files with Your Copyright Claim.....	247
Exploring Two Special Printing Options.....	248
Adding Special Effects to Your Photos	249
Tagging Pictures for a Photo Book.....	252
Presenting a Slide Show.....	252
Creating Video Snapshots	255
Trimming Movies	257
Viewing Your Photos and Movies on an HDTV.....	258
Getting Free Help and Creative Ideas.....	259

Index 261

Introduction

In 2003, Canon revolutionized the photography world by introducing the first digital SLR camera (dSLR) to sell for less than \$1,000, the EOS Digital Rebel/300D. The camera delivered exceptional performance and picture quality, earning it rave reviews and multiple industry awards. No wonder it quickly became a best seller.

That tradition of excellence and value lives on in the EOS Rebel T5/1200D. Like its ancestors, this baby offers a range of controls for experienced photographers plus an assortment of features and tools designed to help beginners be successful. Adding to the fun, the Rebel T5/1200D also offers the option to record full high-definition video.

About This Book

The T5/1200D is so feature-packed that sorting out everything can be a challenge. For starters, you may not even be sure what SLR means, let alone have a clue about all the other terms you encounter in your camera manual — resolution, aperture, and ISO, for example. And if you're like many people, you may be so overwhelmed by all the controls on your camera that you haven't yet ventured beyond fully automatic picture-taking mode. That's a shame because it's sort of like buying a Porsche Turbo and never pushing it past 50 miles per hour.

Therein lies the point of *Canon EOS Rebel T5/1200D For Dummies*. In this book, you can discover not only what each bell and whistle on your camera does but also when, where, why, and how to put it to best use. Unlike many photography books, this one doesn't require any previous knowledge of photography or digital imaging to make sense of concepts, either. In classic *For Dummies* style, everything is explained in easy-to-understand language, with lots of illustrations to help clear up any confusion.

In short, what you have in your hands is the paperback version of an in-depth photography workshop tailored specifically to your Canon picture-taking powerhouse. Whether your interests lie in taking family photos, exploring nature and travel photography, or snapping product shots for your business, you'll get the information you need to capture the images you envision.

This book is organized into four parts, each devoted to a different aspect of using your camera. Although chapters flow in a sequence that's designed to take you from absolute beginner to experienced user, we also tried to make each chapter as self-standing as possible so that you can explore topics that interest you in any order you please.

Additionally, we need to point out a few other details that will help you use this book:

- ✓ **Margin art:** Replicas of some of your camera's buttons and onscreen graphics appear in the margins and in some tables. We include these images to provide quick reminders of the appearance of the button or option being discussed.
- ✓ **Camera menu and screen options:** In many cases, you can select a camera setting by using the cross keys and then pressing the Set button. To avoid having to spell all that out every time we describe a camera function that can be accessed, we use some verbal shorthand and simply tell you to choose the setting in question.
- ✓ **Software menu commands:** In sections that cover software, a series of words connected by an arrow indicates commands you choose from the program menus. For example, if a step tells you, "Choose File→Export," click the File menu to unfurl it and then click the Export command on the menu.

Foolish Assumptions

Although it's not possible for us to know everything about you — we're not sure whether orange or blue is your favorite color or whether you have a penchant for mocha lattes or prefer herbal tea — we do tailor the content of this book around a few assumptions. Namely, we assume that you have little or no experience in photography, digital photography, or both, so we explain everything in beginner's terms. Our goal is to help you leave Auto mode behind as soon as possible so that you can take best advantage of your camera.

However, if you are a photo pro but new to the T5/1200D, this book is for you, too: It'll help you get up and running with your new gear in no time.

Icons Used in This Book



A Tip icon flags information that will make your life easier. You'll save time, effort, money, or other valuable resources, including your sanity.



This icon highlights important information that's especially worth storing in your brain's long-term memory or to remind you of a fact that may have been displaced from that memory by another pressing fact.



If we present a detail that's useful mainly for impressing your geeky friends (but otherwise not critical for you to retain), we mark it with this icon.



When you see this icon, look alive. It indicates a potential danger zone that can result in much wailing and teeth-gnashing if it's ignored.

Beyond the Book

We have snuck a bit of extra content online you may find helpful as you get to know your Rebel T5/1200D.

✓ **The Cheat Sheet for this book is at**

www.dummies.com/cheatsheet/canoneosrebelt51200d

The Cheat Sheet contains a quick-reference guide to all the buttons, dials, switches, and exposure modes on your camera. Log on, print it out, and tuck it in your camera bag for times when you don't want to carry this book with you.

✓ **You can find online articles covering additional topics at**

www.dummies.com/extras/canoneosrebelt51200d

✓ **Updates to this book, if we have any, are at**

www.dummies.com/extras/canoneosrebelt51200d

Where to Go from Here

To wrap up this preamble, we want to stress that if you initially think that digital photography is too confusing or too technical for you, you're in very good company. *Everyone* finds this stuff a little mind-boggling at first. Take it slowly, experimenting with just one or two new camera settings or techniques at first. Then, every time you go on a photo outing, make it a point to add one or two more shooting skills to your repertoire. With some time, patience, and practice, you'll soon wield your camera like a pro, dialing in the necessary settings to capture your creative vision almost instinctively.

So without further ado, we invite you to grab your camera and a cup of whatever it is you prefer to sip while you read and then start exploring the rest of this book. Your Rebel T5/1200D is the perfect partner for your photographic journey, and we thank you for allowing us, in this book, to serve as your tour guides.

Part I

Fast Track to Super Snaps

getting started
with your

Canon T5



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A photograph of two Great Egrets standing in a nest made of sticks and branches. They are facing each other with their long, yellow beaks touching. The birds have white bodies and long, thin necks. The background is a soft-focus green and brown, suggesting a natural habitat.

In this part . . .

- ✔ Familiarize yourself with the basics of using your camera, from attaching lenses to navigating menus.
- ✔ Try out Live View versus traditional viewfinder photography.
- ✔ Find out how to select the exposure mode, Drive mode, and Image Quality (resolution and file type), and monitor important settings while shooting.
- ✔ Discover options available for flash photography.
- ✔ Get step-by-step help with shooting your first pictures in Scene Intelligent Auto mode.
- ✔ Take more creative control by using scene modes and Creative Auto mode.

Getting Up and Running

In This Chapter

- ▶ Preparing the camera for its first outing
- ▶ Getting acquainted with camera features
- ▶ Viewing and adjusting camera settings
- ▶ Setting a few basic preferences

If you're like many people, shooting for the first time with an SLR (single-lens reflex) camera produces a blend of excitement and anxiety. On one hand, you can't wait to start using your new equipment, but on the other, you're a little intimidated by all its buttons, dials, and menu options.

Well, fear not: This chapter provides the information you need to start getting comfortable with your Rebel T5/1200D. The first section walks you through initial camera setup; following that, you can get an overview of camera controls, discover how to view and adjust camera settings, work with lenses and memory cards, and get our take on some basic setup options.

Preparing the Camera for Initial Use

After unpacking your camera, you have to assemble a few parts. In addition to the camera body and the supplied battery (be sure to charge it before the first use), you need a lens and a memory card. Later sections in this chapter provide details about lenses and memory cards, but here's what you need to know up front:

- ✓ **Lens:** Your camera accepts Canon EF and EF-S model lenses; the 18–55mm kit lens sold as a bundle with the camera body falls into the EF-S category. If you want to buy a non-Canon lens, check the lens manufacturer's website to find out which lenses work with your camera.



✓ **SD (Secure Digital), SDHC, or SDXC memory card:** The SD stands for *Secure Digital*; the HC and XC for *High Capacity* and *eXtended Capacity*. The different labels just reflect how many gigabytes (GB) of data the card holds. SD cards hold less than 4GB; SDHC, 4GB to 32GB; and SDXC, greater than 32GB.

With camera, lens, battery, and card within reach, take these steps:

1. **Turn the camera off.**
2. **Attach a lens.**

First, remove the caps that cover the front of the camera and the back of the lens. Then locate the proper *lens mounting index* on the camera body. Your camera has two of these markers, one red and one white, as shown in Figure 1-1. Which marker you use to align your lens depends on the lens type:

- *Canon EF-S lens:* The white square is the mounting index.
- *Canon EF lens:* The red dot is the mounting index.

Your lens also has a mounting index; align that mark with the matching one on the camera body, as shown in Figure 1-1. Place the lens on the camera mount and rotate the lens toward the lens-release button, labeled in the figure. You should feel a solid click as the lens locks into place.

3. **Install the battery and memory card into the compartment on the bottom of the camera.**

Hold the battery with the contacts down and slide it into the compartment. The beveled edges of the battery face the front of the camera. Gently push the battery in until the light gray lock clicks in place, as shown in Figure 1-2.

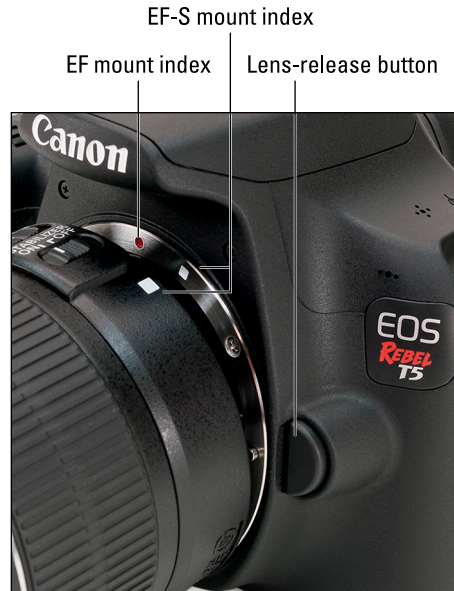


Figure 1-1: Align the mounting index on the lens with the one on the camera body.

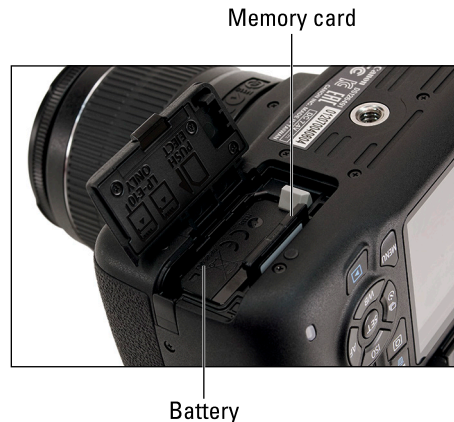


Figure 1-2: Insert the memory card with the label facing the back of the camera.

Orient the memory card as shown in Figure 1-2 (the label faces the back of the camera.) Push the card gently into the slot and close the cover.

4. Turn the camera on and adjust the settings.

When you power up the camera for the first time, the monitor displays a screen asking you to set the date, time, and time zone. To adjust the values on the screen, use the Set button and the four keys surrounding it — known as *cross keys*.

Press the left or right cross keys to highlight an option box; press Set to activate the box. Press the up/down keys to change the value in the box and then press Set again. Lather, rinse, and repeat until you adjust all the settings. Highlight the OK box and press Set.

5. Adjust the viewfinder to your eyesight.

Tucked above the right side of the rubber eyepiece that surrounds the viewfinder is a dial that enables you to adjust the viewfinder focus to accommodate your eyesight. The dial is labeled in Figure 1-3.

This step is critical if you plan to use the viewfinder: If you don't adjust the viewfinder to your eyesight, subjects may appear sharp in the viewfinder when they aren't actually in focus, and vice versa.

Rotate to adjust viewfinder



Figure 1-3: Rotate this dial to set the viewfinder focus for your eyesight.



Decoding Canon lens terminology

When you shop for Canon lenses, you will encounter these lens specifications:

- ✓ **EF and EF-S:** EF stands for *electro focus*; the S stands for *short back focus*. And *that* simply means the rear element of the lens is closer to the sensor than with an EF lens. The good news is that your T5/1200D works with both of these Canon lens types.
- ✓ **IS:** Indicates that the lens offers *image stabilization*, a feature that helps prevent blur

that can result from camera shake when you handhold the camera.

- ✓ **STM:** Refers to *stepping motor technology*, an autofocus system which is designed to provide smoother, quieter autofocus.

The 18–55mm lens sold as part of the T5/1200D kit is an EF-S lens with both image stabilization and stepping motor technology.

Remove the lens cap, look through the viewfinder, and then press the shutter button halfway to display data at the bottom of the viewfinder. (In dim lighting, the flash may pop up; ignore it for now and close the unit after you adjust the viewfinder.) Now rotate the dial until the data appears sharpest. The markings in the center of the viewfinder, which relate to autofocusing, also become more or less sharp.

That's all there is to it — the camera is now ready to go. From here, we recommend that you keep reading the rest of this chapter to familiarize yourself with the main camera features. But if you're anxious to take a picture right away, we won't think any less of you if you skip to Chapter 3, which guides you through the process of using the camera's automatic shooting modes. Just promise that at some point, you'll read the pages in between, because they actually do contain important information.

Exploring External Camera Features

If you're new to dSLR photography, some aspects of using your camera, such as working with the lens, may be unfamiliar. But even if you're a seasoned pro, it pays to spend time before your first shoot with a new camera to get familiar with its controls. To that end, the upcoming pages provide an overview of the T5/1200D's external bells and whistles.

Topside controls

Your virtual tour begins on the top of the camera, shown in Figure 1-4.

The items of note here are

- ✓ **On/Off switch:** We won't insult your intelligence by explaining what this switch does. But note that even when the switch is in the On position, the camera automatically goes to sleep after 30 seconds of inactivity to save battery power. You can adjust this timing via the Auto Power Off option on Setup Menu 1.
- ✓ **Red-eye reduction/Self-timer lamp:** When you set your flash to Red-Eye Reduction mode, this lamp emits a brief burst of light prior to the real flash — the idea being that your subjects' pupils will constrict in response to the light, thus lessening the chances of red-eye. If you use the camera's self-timer feature, the lamp lights during the countdown period before the shutter is released. See Chapter 2 for more details about Red-Eye Reduction flash mode and the self-timer function.
- ✓ **Mode dial:** Rotate this dial to select an *exposure mode*, which determines whether the camera operates in fully automatic, semi-automatic, or manual exposure mode when you take still pictures. To shift to Movie mode, rotate the dial so that it aligns with the movie camera icon, labeled in Figure 1-4. Chapter 2 provides an overview of the still photography exposure modes; Chapter 8 covers movie recording.



Figure 1-4: Here's a guide to controls found on top of the camera.

- ✓ **Viewfinder adjustment dial:** Use this dial (shown close-up in Figure 1-3) to adjust the viewfinder focus to your eyesight.
- ✓ **Main dial:** You use this dial when selecting many camera settings. (Specifics are provided throughout the book.) In fact, this dial plays such an important role that you'd think it might have a more auspicious name, but Main dial it is.



- ✓ **Shutter button:** You no doubt already understand the function of this button, too. But you may not realize that when you use autofocus and autoexposure, you need to use a two-stage process when taking a picture: Press the shutter button halfway, pause to let the camera set focus and exposure, and then press the rest of the way to capture the image. You'd be surprised how many people mess up their pictures because they press that button with one quick jab, denying the camera the time it needs to set focus and exposure. The beep you may hear is the camera telling you it was able to focus and is ready to take the photo.



- ✓ **Flash button:** Press this button to raise the built-in flash in the advanced exposure modes (P, Tv, Av, and M).
- ✓ **Flash hot shoe:** Labeled in Figure 1-4, this is the connection for attaching an external flash and other accessories such as flash adapters, bubble levels, flash brackets, off-camera flash cords, and the GP-E2 GPS Receiver.



- ✓ **Speaker:** When you play a movie that contains audio, the sound comes wafting through these little holes.
- ✓ **Focal plane indicator:** Should you need to know the exact distance between your subject and the camera, the *focal plane indicator* labeled in Figure 1-4 is key. This mark indicates the plane at which light coming through the lens is focused onto the camera's image sensor. Basing your measurement on this mark produces a more accurate camera-to-subject distance than using the end of the lens or some other point on the camera body as your reference point.

Back-of-the-body controls

Traveling over the top of the camera to its back, you encounter the smorgasbord of controls shown in Figure 1-5.



Buttons with a white icon perform shooting mode functions; buttons with blue icons are used in playback. Some buttons sport dual colors, meaning that they come into play for both functions.

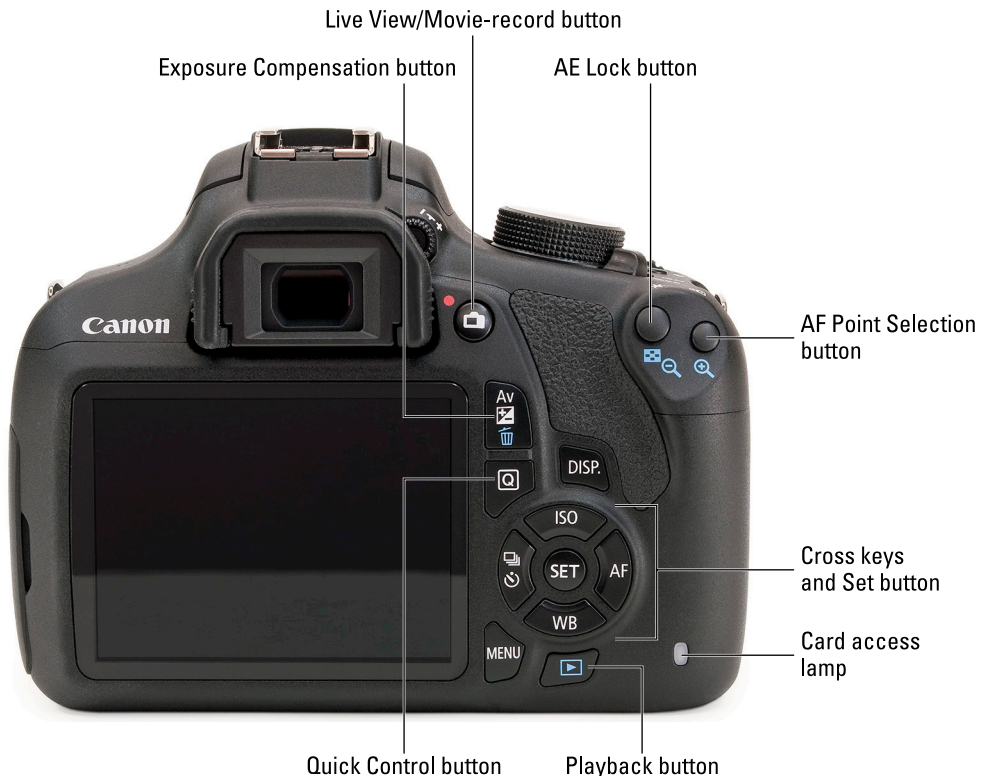


Figure 1-5: Having lots of external buttons makes accessing the camera's functions easier.

REMEMBER



Throughout this book, pictures of some buttons appear in the margins to help you locate the button being discussed. So even though we provide the official names in the following list, don't worry about getting all those straight right now. Note, however, that some buttons have multiple names because they serve multiple purposes depending on whether you're taking pictures, reviewing images, recording a movie, or performing some other function. In this book, we refer to these buttons by the first label you see in the following list (and in Figure 1-5) to simplify things. For example, we refer to the AF Point Selection/Magnify button as the AF Point Selection button. Again, though, the margin icons help you know exactly which button you're to press.

With that preamble out of the way, it's time to explore the camera back, starting at the top-right corner and working westward (well, assuming that your lens is pointing north, anyway):



REMEMBER



✓ **AF Point Selection/Magnify button:** In certain shooting modes, you press this button to specify which autofocus points you want the camera to use when establishing focus. Chapter 5 tells you more. In Playback mode, covered in Chapter 9, you use this button to magnify the image display (thus the plus sign in the button's magnifying glass icon).

✓ **AE Lock/FE Lock/Index/Reduce button:** During shooting, you press this button to lock autoexposure (AE) settings, as covered in Chapter 4, and to lock flash exposure (FE), a topic we discuss in Chapter 2.

This button also serves two image-viewing functions: It switches the display to Index mode, enabling you to see multiple image thumbnails at once, and it reduces the magnification of images when displayed one at a time.

✓ **Live View/Movie-record button:** Press this button to shift to Live View mode, which enables you to compose your pictures using the monitor instead of the viewfinder. When shooting movies, you press the button to start and stop recording. (You must first set the Mode dial to the Movie position.)

After you shift to Live View or Movie mode, certain buttons perform different functions than they do for viewfinder photography. We spell out the differences when showing you how to use Live View and movie features.

✓ **Exposure Compensation/Aperture/Delete button:** When you shoot in the M (manual) exposure mode, press this button and rotate the Main dial to choose the aperture setting, also known as the *f*-stop. In the other advanced exposure modes (P, Tv, and Av), you instead use the button and dial to apply *Exposure Compensation*, a feature that enables you to adjust the exposure. Chapter 4 discusses both issues.

During playback, press this button to erase pictures — thus the blue trash-can symbol, the universal sign for “dump it.”



- ✓ **Q (Quick Control) button:** Press this button to display the Quick Control screen, which gives you one way to adjust picture settings. See “Changing Settings via the Quick Control Screen,” later in this chapter, for help.
- ✓ **Disp button:** In Live View, Movie, and Playback modes, pressing this button changes the picture-display style. When menus are displayed, pressing the button brings up the Camera Settings display.
- ✓ **Set button and cross keys:** Figure 1-5 points out the Set button and the four surrounding buttons, known as *cross keys*. These buttons team up to perform several functions, including choosing options from the camera menus. You use the cross keys to navigate through menus and then press the Set button to select a specific menu setting.



In this book, the instruction “Press the left cross key” means to press the one to the left of the Set button, “press the right cross key” means to press the one to the right of the Set button, and so on.

During viewfinder photography — that is, you’re using the viewfinder and not the monitor to frame your shots — the cross keys also have individual responsibilities, which are indicated by their labels:

- *Press the up cross key to change the ISO setting.* Detailed in Chapter 4, this exposure-related control determines how sensitive the camera is to light. (If nothing happens when you press this cross key or any other buttons, give the shutter button a half-press and release it to wake up the camera.)
- *Press the right cross key to adjust the AF mode.* This option controls one aspect of the camera’s autofocus behavior, as outlined in Chapter 5.
- *Press the left cross key to change the Drive mode.* The Drive mode settings enable you to switch the camera from single-frame shooting to continuous capture or self-timer/remote-control shooting. See Chapter 2 for details.
- *Press the down cross key to change the White Balance setting.* The White Balance control, explained in Chapter 6, enables you to ensure that colors are rendered accurately.

For Live View and Movie shooting, the cross keys perform actions related to autofocusing; we get into those details in Chapter 5.



- ✓ **Playback button:** Press this button to switch the camera into picture-review mode.
- ✓ **Menu button:** Press this button to access the camera menus.
- ✓ **Memory card access light:** Labeled in Figure 1-5, this light glows while the camera is recording data to the memory card. Don’t power off the camera while the light is lit, or you may damage the card or camera.

Front-left features

The front-left side of the camera sports three important features, labeled in Figure 1-6:



Figure 1-6: When recording movies, be careful not to cover the microphone with your finger.

- ✓ **Lens-release button:** Press this button to disengage the lens from the lens mount so that you can remove it from the camera. While pressing the button, rotate the lens toward the shutter-button side of the camera to dismount the lens.
- ✓ **Microphone:** This cluster of holes leads to the camera's microphone. See Chapter 8 for details about choosing microphone settings.
- ✓ **Connection ports:** Hidden under the cover labeled *port access door* in Figure 1-6 are inputs for connecting the camera to various devices. Figure 1-7 labels each connection.
 - **Remote-control terminal:** You can attach the Canon Remote Switch RS-60E3 wired controller here.



The controller currently sells for under \$30 and is a worthwhile investment for long-exposure shooting (such as nighttime shots and fireworks). By using the remote control, you eliminate the chance that the action of your finger on the shutter button moves

the camera enough to blur the shot, which is especially problematic during long exposures.

- Digital terminal (USB and GPS connection terminal):** You use this terminal to connect the camera to a computer via the supplied USB cable for picture downloading. (Chapter 10 offers details.) This terminal is also used for attaching the optional Canon GP-E2 GPS (Global Positioning Satellite) unit, which mounts on the hot shoe and connects here.
- HDMI terminal:** For playback on a high-definition television or screen, you can connect the camera via this terminal, using an optional HDMI male to mini-C cable. You'll pay about \$50 if you buy Canon's version, the HTC-100 cable. Shop around for better deals if you like.



Figure 1-7: Inputs for connecting the camera to other devices are found under the cover on the left side of the camera.

If you turn the camera over, you find a tripod socket, which enables you to mount the camera on a tripod that uses a ¼-inch screw, plus the chamber that holds the battery and memory card. Also found in the chamber is a connection for attaching the optional Canon AC power adapter kit ACK-E10; it sells for about \$65. See the camera manual for specifics on running the camera on AC power.

Ordering from Camera Menus

Only a handful of camera settings can be adjusted by using the external buttons and controls. To access other options, press the Menu button, which displays a menu screen similar to the one shown in Figure 1-8. Here's what you need to know about the menu system:

- ✓ **Understanding the menu layout:** Menus are organized into the categories labeled in Figure 1-8. Notice that the icons that represent the menus are color coded: Shooting menu icons are red; Playback menu icons are



blue; Setup menu icons are a lovely yellow; and the My Menu icon is green. (Chapter 11 explains the My Menu feature, which enables you to create a personalized menu.)

The number of dots above the icon tells you the menu number — one dot for Shooting Menu 1, two dots for Shooting Menu 2, and so on.

The highlighted icon marks the active menu; options on that menu appear automatically on the main part of the screen. In Figure 1-8, Shooting Menu 1 is active, for example.



Figure 1-8: All these still-photography menus appear only when you shoot in an advanced exposure mode.

- ✓ **Accessing all menus:** To display all the menus shown in Figure 1-8, you must set the Mode dial to P, Av, Tv, or M. In other modes, you see only a handful of menus because you have limited control over camera operation in those modes.

Additionally, when you set the camera to Movie mode, three of the four Shooting menus are replaced by Movie menus, which offer movie-recording options, and a limited version of Shooting Menu 1 is bumped over to make room for the Movie menus. The menu icon for the Movie menus changes to a movie-camera symbol to indicate the shift. In addition, Movie mode does not display the My Menu icon.

- ✓ **Selecting menus and menu items:** To cycle through menus, rotate the Main dial or press the left or right cross keys. After landing on a menu, press the up or down cross key to highlight the feature you want to adjust. Then press the Set button to display the available options. Use the cross keys to select a setting and press the Set button again.
- ✓ **Navigating Custom Functions:** When you select Custom Functions from Setup Menu 3 — a menu available only in the P, Tv, Av, and M exposure modes — you delve into submenus containing advanced settings. Initially, you see a screen similar to the one shown on the left in Figure 1-9.

Some explanation may help you make sense of these screens:

- *Custom Functions are grouped into four categories: Exposure, Image, Autofocus/Drive, and Operation/Others.* The category number and name appear in the upper-left corner of the screen.
- *The number of the selected function appears in the upper-right corner.* Custom Function 1 is indicated in Figure 1-9.
- *Settings for the current function appear in the middle of the screen.* The blue text indicates the current setting. The default setting is represented by the number 0.

- *Numbers at the bottom of the screen show you the current setting for all Custom Functions.* The top row of numbers represents the Custom Functions, with the currently selected function indicated with a tiny horizontal bar over the number. The lower row shows the number of the current setting for each Custom Function; again, 0 represents the default. So in the figure, all the Custom Functions are currently using the default settings.

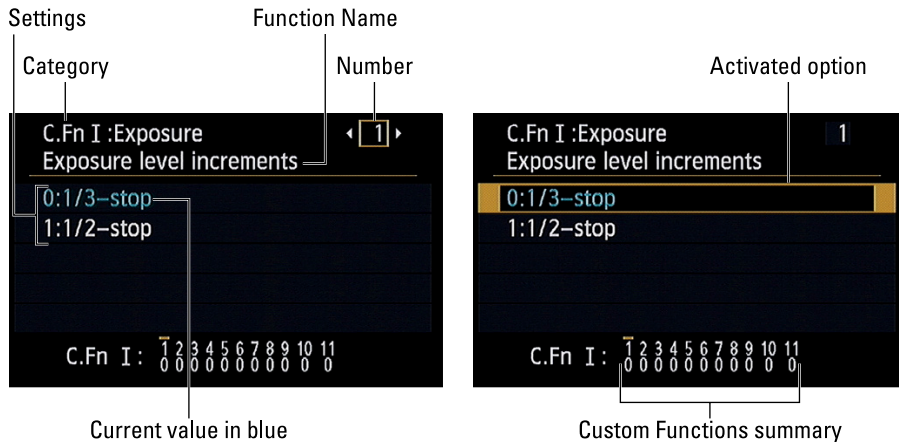


Figure 1-9: The Custom Functions menu screens are divided into several important areas.

To scroll from one Custom Function to the next, press the left or right cross keys. When you reach the setting you want to adjust, press the Set button to activate that option. Use the cross keys to move the highlight box over the setting you want to use and press the Set button again.

- ✓ **Displaying the Camera Settings screen:** See the little box titled DISP, at the far-right end of the row of menu icons? (Refer to Figure 1-8.) That's a reminder that any time the menus are active, you can press the DISP button to bring up the Camera Settings screen, shown in Figure 1-10. Here, you can get a quick summary of certain camera settings. The data displayed varies depending on the setting of the Mode dial; the figure shows you the data that appears in the P, Tv, Av, and M exposure modes. If a setting can't be adjusted in the current exposure mode, it disappears from the screen.



Figure 1-10: Press the DISP button when the menus are active to view this screen.

Moving from top to bottom, here's your decoder ring to the screen:

- *Freespace*: Indicates how much empty storage space is left on your camera memory card.
- *Color Space*: Tells you whether the camera is using the sRGB or Adobe RGB color space, an option we cover in Chapter 11. (Stick with sRGB until you have time to explore that information.)
- *White Balance Shift/Bracketing*: Indicates the amount of White Balance shift or bracketing, an advanced color option covered in Chapter 6.
- *Live View Shooting*: Tells you whether Live View is enabled; skip to the next section to investigate Live View.
- *Auto Power Off and Red-Eye Reduction flash mode*: These two functions share a line in the screen. The first readout tells you the delay time selected for the Auto Power Off option, found on Setup Menu 1; the second symbol indicates whether the flash is set to Red-Eye Reduction mode, which we cover in Chapter 2.
- *Beep and Auto Rotate Display*: The first setting determines whether the camera beeps after certain operations; you can turn the sound on and off via Shooting Menu 1.

The second symbol reflects the setting of the Auto Rotate Display option on Setup Menu 1, which determines whether pictures are rotated to their proper orientation during playback and when you view them on your computer (assuming the software you use can read the rotation data embedded in the image file). The symbol shown in the figure indicates that both rotation features are enabled. See the first part of Chapter 9 for more about this feature.

- *Date/Time*: The last line of the display shows the date and time, which you enter via the Date/Time/Zone option on Setup Menu 2. The sun symbol at the beginning of the line indicates whether you told the camera to adjust the time automatically to account for Daylight Saving Time.

Of course, with the exception of the free-card-space value, you also can simply go to the menu that contains the option in question to check its status. The Camera Settings display just gives you a quick way to monitor some of the critical functions without hunting through menus.

- ✓ **Exiting the menus or Camera Settings screen and returning to shooting:** Press the shutter button halfway and release it or press the Menu button.

Using the Monitor as Viewfinder: Live View Shooting

For your convenience, the T5/1200D offers *Live View*, a feature that enables you to use the monitor instead of the viewfinder to compose photos. You also must rely on the monitor for recording movies; the viewfinder is disabled for movie recording.

How you activate Live View depends on whether you want to shoot still photos or movies:



✓ **Live View for still photography:** First ensure that Live View shooting is enabled in the menus. Where you find the option depends on the setting of the Mode dial: In the P, Tv, Av, and M modes, the Live View option is found on Shooting Menu 4, as shown on the left in Figure 1-11; in all other modes but Movie mode, the option appears on Shooting Menu 2, as shown on the right in the figure.

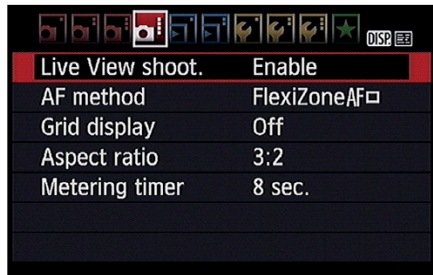


Figure 1-11: If Live View mode doesn't activate, make sure that the Live View Shoot menu option is enabled.

Why disable Live View? Because it's easy to hit the Live View button accidentally and switch to Live View when you don't really want to go there.

After enabling the feature on the menu, press the Live View button. You hear a clicking sound as the internal mirror that normally sends the image from the lens to the viewfinder flips up. Then the scene in front of the lens appears on the monitor, and you can no longer see anything in the viewfinder. Data representing certain camera settings is displayed over the live image, as shown in Figure 1-12. You can press the Disp button to change the type of data that appears.



Figure 1-12: In Live View mode, picture data is superimposed over the live preview.

To exit Live View mode and return to using the viewfinder, press the Live View button again.



When looking at Live View screens in this book, you'll notice that data along the sides and bottom of the screen appears differently on your monitor than it does in the figures. In the figures, most data displays against a black background, but on your screen, it's superimposed over the image. The difference is due to the technology we use to capture the image that the monitor displays; for reasons that we won't bore you with, it's not possible to capture the superimposed data properly. We trust the discrepancy won't throw you off too much.



Live View safety tips

Be aware of the following precautions when you use Live View and Movie modes:

- **Cover the viewfinder to prevent light from seeping into the camera and affecting exposure.** The camera ships with a cover designed just for this purpose. In fact, it's conveniently attached to the camera strap. To install it, first remove the rubber eyecup that surrounds the viewfinder by sliding it up and out of the groove that holds it in place. Then slide the cover down into the groove and over the viewfinder (Orient the cover so that the *Canon* label faces the viewfinder.)
- **Using Live View or Movie mode for an extended period can harm your pictures and the camera.** Using the monitor full-time causes the camera's innards to heat up more than usual, and that extra heat can create the right conditions for *noise*, a defect that looks like speckles of sand. More critically, the increased temperatures can damage the camera. A thermometer symbol appears on the monitor to warn you when the camera is getting too hot. Initially, the symbol is white. If you continue shooting and the temperature continues to increase, the symbol turns red and blinks,
- alerting you that the camera soon will shut off automatically.
- **Aiming the lens at the sun or other bright lights also can damage the camera.** Of course, you can cause problems doing this even during normal shooting, but the possibilities increase when you use Live View and Movie mode.
- **Live View and Movie modes put additional strain on the camera battery.** The extra juice is needed to power the monitor for extended periods of time. If you do a lot of Live View or movie shooting, you may want to invest in a second battery so that you have a spare on hand when the first one runs out of gas.
- **The risk of camera shake during handheld shots is increased.** When you use the viewfinder, you can help steady the camera by bracing it against your face. But when you compose shots using the monitor, you have to hold the camera away from your body to view the screen, making it harder to keep the camera absolutely still. Any camera movement during the exposure can blur the shot, so using a tripod is the best course of action for Live View photography and movie recording.

- **Live View for recording movies:** Rotate the Mode dial to the Movie mode icon. Live View engages automatically, and you then press the Live View button to start and stop recording. (Chapter 8 has details on movie shooting.) To exit Movie mode, rotate the Mode dial to any other exposure mode.

In many ways, shooting photos in Live View mode is the same as for viewfinder photography, but some important aspects, such as autofocusing, work very differently. Chapter 3 shows you how to take a picture in Scene Intelligent Auto exposure mode using Live View; Chapter 5 details Live View autofocusing options; and Chapter 8 covers movie recording.

Monitoring Critical Picture Settings

You can display current picture-taking settings on the monitor. The left side of Figure 1-13 shows the Shooting Settings screen, which appears during viewfinder photography; the right side of the figure shows the data as it appears during Live View shooting. For viewfinder shooting, you can also display some data at the bottom of the viewfinder, as shown in Figure 1-14.

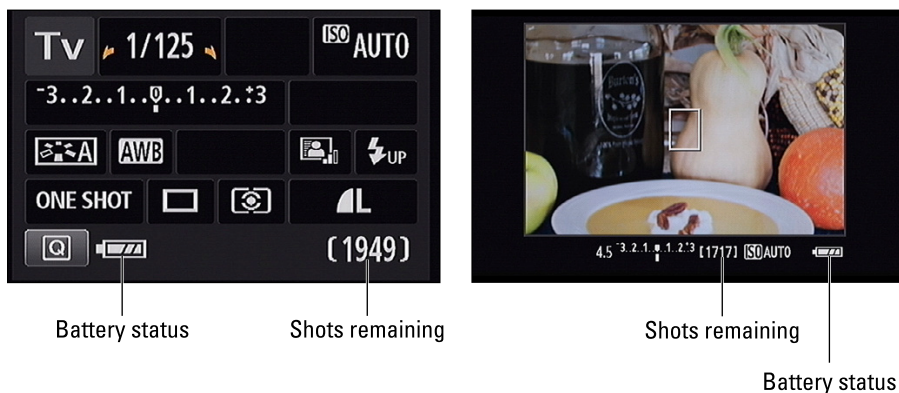


Figure 1-13: The Shooting Settings screen (left) and the Live View display (right) both show critical picture settings on the monitor.

If your screens don't look like what you see in the figures, don't panic: First, as mentioned earlier, on your screen, the Live View data appears directly over the live scene instead of against the black background as shown in Figure 1-13. Second, different data appears depending on your exposure mode and whether or not features such as flash are enabled. Figure 1-13 labels two key points of data that appear in any mode, though: how many more pictures can fit on your memory card at the current settings and the status of the battery. A "full" battery icon like the one in the figures shows that the battery is charged. When the icon appears empty, it's time to find your battery charger.



Maximum burst frames

Figure 1-14: For viewfinder photography, certain settings also appear at the bottom of the viewfinder screen.

Additionally, remember the following tips about these displays:



- **Shooting Settings display:** By default, the display appears when you turn on the camera and then turns off if no camera operations are performed for 30 seconds. You can turn the display on again by pressing the shutter button halfway and then releasing it. To turn off the display before the automatic shutoff occurs, press the Disp button.

Curved arrows bordering a setting mean that you can adjust the setting by rotating the Main dial. For example, in the shutter-priority autoexposure mode (Tv, on the Mode dial), the shutter speed is bordered by the arrows, as shown on the left in Figure 1-13, indicating that the setting is active and that rotating the Main dial changes the setting.

- **Viewfinder:** Data appears at the bottom of the viewfinder when you first turn on the camera and then shuts off after a few seconds to save battery power. To wake up the display, press the shutter button halfway and release it. As for those little markings in the center of the viewfinder, they represent autofocus points. Chapter 5 details autofocus.



One other point about a viewfinder value that's often misunderstood: The value at the far right end of the viewfinder (9, in Figure 1-14) shows you the number of *maximum burst frames*. This number relates to shooting in the Continuous capture mode, where the camera fires off multiple shots in rapid succession as long as you hold down the shutter button. (Chapter 2 has details.) Although the highest number that the viewfinder can display is 9, the actual number of maximum burst frames may be higher. At any rate, you don't really need to pay attention to the number until it starts dropping toward 0, which indicates that the camera's *memory buffer* (its temporary internal data-storage tank) is filling up. If that happens, just give the camera a moment to catch up with your shutter-button finger.

- Live View display:** In Live View mode, press the Disp button to cycle from the default display mode, shown in Figure 1-13, to one of the alternative displays shown in Figure 1-15. In Movie mode, some data changes to show movie-recording options instead of still-photography settings, and the Histogram display shown in the center is not available.

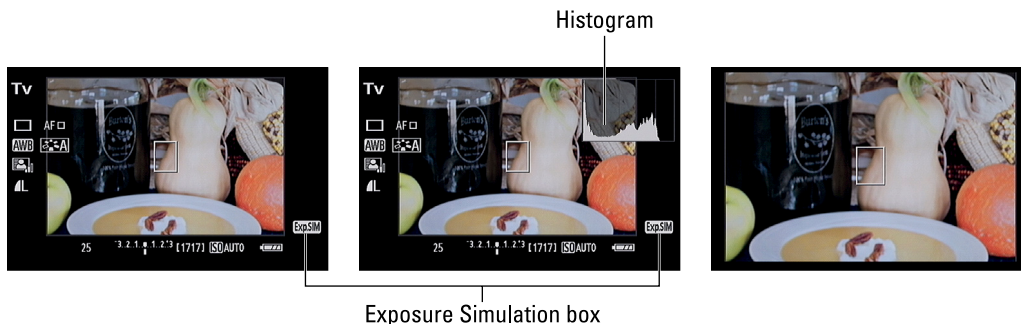


Figure 1-15: Press the Disp button to shift to one of these alternative Live View display modes.



The chart labeled *histogram* in Figure 1-15 is a tool you can use to gauge exposure. See the discussion on interpreting a Brightness histogram in Chapter 9 to find out how to make sense of what you see. But note that when you use flash, the histogram is dimmed; the histogram can't display accurate information because the final exposure will include light from the flash and not just the ambient lighting. In addition, the histogram dims when you use M (Manual) exposure mode and set the shutter speed to Bulb, which keeps the shutter open for as long as you hold down the shutter button. The camera can't predict how long you're going to hold that button down, so it can't create a histogram that will reflect your final exposure.

Also note the little box labeled *Exposure Simulation* in Figure 1-15. This symbol, which appears in the default display mode as well as in the mode that includes the histogram, indicates whether the monitor is simulating the actual exposure that you will record. If the symbol blinks or is dimmed, the camera can't provide an accurate exposure preview, which can occur if the ambient light is either very bright or very dim. Exposure Simulation is also disabled when you use flash in Live View mode.

You can make these additional tweaks to the Live View display:

- Display a grid.** To assist you with composition, the camera can display one of two styles of grids on the monitor. Where you turn the grid on depends on your exposure mode: In P, Tv, Av, or M modes, the option appears on Shooting Menu 4; in other still photography modes, Shooting Menu 2. In Movie mode, look for the option on Movie Menu 2.



- *Adjust the exposure-data shutdown (Metering Timer option).* By default, exposure information such as f-stop and shutter speed disappears from the display after 8 seconds if you don't press any camera buttons. If you want the exposure data to remain visible for a longer period, you can adjust the shutdown time, but only if the Mode dial is set to P, Tv, Av, or M. Make the change via the Metering Timer option, which lives on Shooting Menu 4 for still photography and on Movie Menu 2 for Movie mode. The metering mechanism uses battery power, so the shorter the cutoff time, the better.

Changing Settings via the Quick Control Screen

The Quick Control screen enables you to change certain settings without using the function buttons (ISO button, Exposure Compensation button, and so on) or menus.



You can use this screen to adjust settings in any exposure mode, but the settings that are accessible depend on the mode you select and, for still photography, whether you're using the viewfinder or Live View mode.

To take advantage of the Quick Control screen for viewfinder photography, follow these steps:

1. Display the Shooting Settings screen.

Either press the shutter button halfway and then release it, or press the Disp button.



2. Press the Q button.

The screen shifts into Quick Control mode, and one of the options on the screen becomes highlighted. For example, the White Balance option is highlighted in Figure 1-16. (AWB stands for Auto White Balance.)



Figure 1-16: The active option appears highlighted.

3. Use the cross keys to highlight the setting you want to adjust.

When you first highlight a setting, a text tip appears to remind you of the purpose of the setting. If you find the text tips annoying, you can get rid of them by disabling the Feature Guide option on Setup Menu 2.



4. Select the option you want to use.

You can use these techniques:

- *To scroll through the available settings, rotate the Main dial.* The current setting appears at the bottom of the screen, as shown in

Figure 1-16. Note the little wheel icon at the far-right side of the text bar — it's your reminder to use the Main dial for this function.

- *To display all available settings, press the Set button.* For example, if you're adjusting the White Balance setting and press Set, you see the screen shown in Figure 1-17. Highlight the option you want to use by rotating the Main dial or using the cross keys.

In some cases, the screen contains a brief explanation or note about the option (as shown in the figure, with the Auto White Balance setting selected), regardless of the setting of the Feature Guide option. After selecting your choice, press the Set button to return to the Quick Control screen.

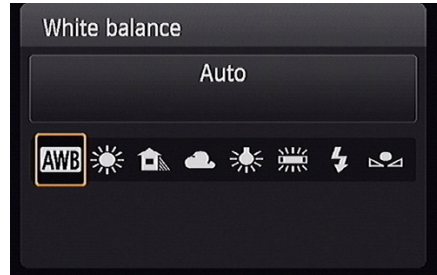


Figure 1-17: From the Quick Control screen, press Set to display all settings available for the currently selected option.

A few controls require a slightly different approach, but don't worry — we spell out all the needed steps throughout the book.

5. To exit Quick Control mode and return to shooting, press the Q button again.

You also can simply press the shutter button halfway and release it. Either way, you're returned to the Shooting Settings display.

Things work pretty much the same way in Live View and Movie modes except that the options appear along with the live preview: When you press the Q button, one setting becomes highlighted, as shown on the left in Figure 1-18. You can then either rotate the Main dial to cycle through the available settings or press Set to view all the possibilities at once, as shown on the right in the figure.

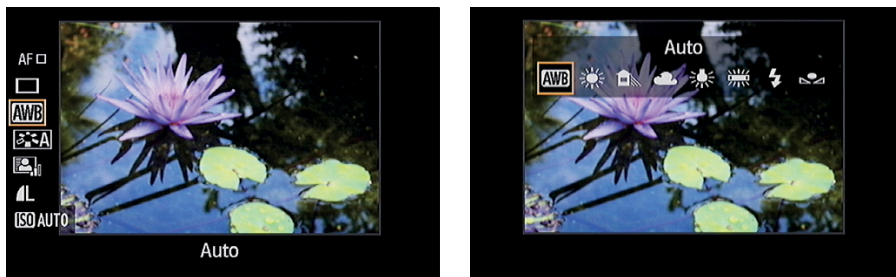


Figure 1-18: You also can use the Quick Control screen in Live View and Movie modes.

Familiarizing Yourself with the Lens

Because we don't know which lens you're using, we can't give you full instructions on its operation. But the following basics apply to most Canon EF-S lenses as well as to certain other lenses that support autofocus — you should explore the lens manual for specifics, of course:

- ✓ **Focusing:** Set the lens to automatic or manual focusing by moving the focus-method switch on the lens. For example, Figure 1-19 shows the switch as it appears on the 18–55mm kit lens. On this lens, set the switch to AF for autofocus and to MF for manual focusing.



Figure 1-19: Here are a few features that may be found on your lens.

- **Autofocusing:** Press and hold the shutter button halfway to rev up the autofocusing system.

- **Manual focusing:** When in MF mode (do not attempt to manually focus when the lens is set to AF; the lens will resist and if you force it you may break it), rotate the focusing ring on the lens barrel. The position of the focusing ring varies depending on the lens; we labeled the one found on the kit lens in Figure 1-19.

See Chapter 5 for more help with both automatic and manual focusing.

- ✓ **Zooming:** If you bought a zoom lens, it has a movable *zoom ring*. The location of the zoom ring on the kit lens is shown in Figure 1-19. To zoom in or out, rotate the ring.



You can determine the focal length of the lens by looking at the number aligned with the bar labeled *focal length indicator* in Figure 1-19. (If you're new to the term *focal length*, the sidebar “Focal length and the crop factor,” elsewhere in this chapter, explains the subject.)

- ✓ **Enabling Image Stabilization:** Many Canon lenses, including the kit lens, offer this feature, which compensates for small amounts of camera shake that can occur when you handhold the camera. Camera movement during the exposure can produce blurry images, so turning on Image Stabilization can help you get sharper handheld shots.



However, when you use a tripod, image stabilization can have detrimental effects because the system may try to adjust for movement that isn't actually occurring. Although this problem shouldn't be an issue with most Canon IS lenses, if you do see blurry images while using a tripod, try turning the feature off. (You also save battery power by turning off image stabilization.) If you use a monopod, leave image stabilization turned on so it can help compensate for any accidental movement of the monopod.

On non-Canon lenses, image stabilization may go by another name: *anti-shake*, *vibration compensation*, and so on. In some cases, the manufacturers recommend that you leave the system turned on or select a special setting when you use a tripod, so check the lens manual for information.

Whatever lens you use, image stabilization isn't meant to eliminate the blur that can occur when your subject moves during the exposure. That problem is related to shutter speed, a topic you can explore in Chapter 4.

- ✓ **Removing a lens:** After turning the camera off, press and hold the lens-release button on the camera (refer to Figure 1-19), and turn the lens toward the shutter button side of the camera until the lens detaches from the lens mount. Put the rear protective cap onto the back of the lens and, if you aren't putting another lens on the camera, cover the lens mount with its cap, too.



Always switch lenses in a clean environment to reduce the risk of getting dust, dirt, and other contaminants inside the camera or lens. Changing lenses on a sandy beach, for example, isn't a good idea. For added safety, point the camera body slightly down when performing this maneuver; doing so helps prevent any flotsam in the air from being drawn into the camera by gravity.

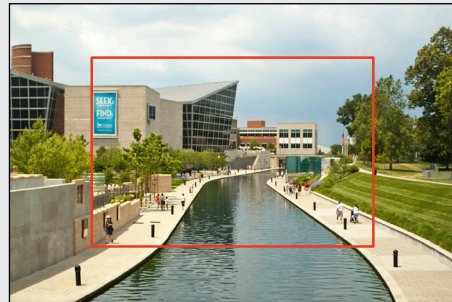


Focal length and the crop factor

Camera lenses come in different *focal lengths*, with the focal length (measured in millimeters) determining the angle of view that a lens can “see.” A lens with a short focal length is called a wide-angle lens because it captures a wide view and has the effect of making objects seem smaller and farther away. At the other end of the spectrum, a lens with a long focal length — referred to as a *telephoto lens* — has a narrow angle of view, and far-away subjects appear closer and larger. Zoom lenses such as the T5 kit lens offer a range of focal lengths (18–55mm, in the case of the kit lens).

However, the angle of view you get from any focal length depends on the size of the recording medium. Lenses are standardized around the dimensions of a 35mm film negative, which means that you get the full angle of view only if you mount the lens on a 35mm-film camera or a digital camera that has a *full-frame sensor* (a sensor that’s the size of a 35mm negative). Your T5 sensor is smaller than that, so it can’t record the entire angle of view that the lens focal length indicates.

To figure out what angle of view you will get from a particular focal length — an important piece of information when you shop for a new lens — multiply the focal length by the camera’s *crop factor*, a value that depends on the size of the image sensor. On the T5, the crop factor is 1.6. So the 18–55mm kit lens produces the angle of view you would get from a focal length of approximately 29–88mm on a full-frame digital camera or 35mm film camera (18–55 times 1.6 equals 29–88). In the figure here, the red line shows you the angle of view you get on your T5 as compared to the image you would get on a full-frame camera.



Working with Memory Cards

As the medium that stores your picture files, the memory card is a critical component of your camera. See the steps at the start of this chapter for help inserting a card into your camera; follow these tips for buying and maintaining cards:

- ✓ **Buying SD cards:** Again, you can use regular SD cards, which offer less than 4GB of storage space; SDHC cards (4GB–32GB); and SDXC cards (more than 32GB). Aside from card capacity, the other specification to note is *SD speed class*, which indicates how quickly data can be moved to and from the card (the *read/write speed*). For best performance, especially for movie recording, we recommend a speed class rating of 6 or 10 (currently the fastest SD speed class rating).



Some cards may also carry another designation, UHS-1 or UHS-2; both labels refer to a new technology designed to boost data transmission speeds above the normal Speed Class 10 rate. Your camera can use UHS-1 cards, but because it doesn't follow the UHS-1 standard, you'll still get Class 10 read/write speeds. In other words, don't pay more for the UHS-1 or UHS-2 functionality.

- ✓ **Formatting a card:** The first time you use a new memory card or insert a card that's been used in other devices, you need to *format* it to prepare it to record your pictures.



Formatting erases everything on your memory card. So before you format a card, be sure that you've copied any data on it to your computer. After doing so, get the formatting job done by selecting Format Card from Setup Menu 1.



When you choose the Format option, you can perform a normal card formatting process or a *low-level* formatting, which gives your memory card a deeper level of cleansing than ordinary formatting and thus takes longer to perform. Normally, a regular formatting will do, although performing a low-level formatting can be helpful if your card seems to be running more slowly than usual. To take advantage of this option, press the Exposure Compensation button, which selects the box next to the Trash Can symbol on the menu screen. Then highlight OK and press the Set button.

- ✓ **Removing a card:** After making sure that the memory card access light (lower-right corner of the camera back) is off, indicating that the camera has finished recording your most recent photo, turn off the camera. Open the battery chamber door, depress the memory card slightly, and then let go. The card pops up a bit, enabling you to grab it by the tail and remove it.

- ✓ **Handling cards:** Don't touch the gold contacts on the back of the card. (See the right card in Figure 1-20.) When cards aren't in use, store them in the protective cases they came in or in a memory card wallet. Keep cards away from extreme heat and cold as well.

- ✓ **Locking cards:** The tiny switch on the side of the card, labeled *Lock switch* in Figure 1-20, enables you to lock your card, which prevents any data from being erased or recorded to the card. If you insert a locked card into the camera, a message on the monitor alerts you to that fact.

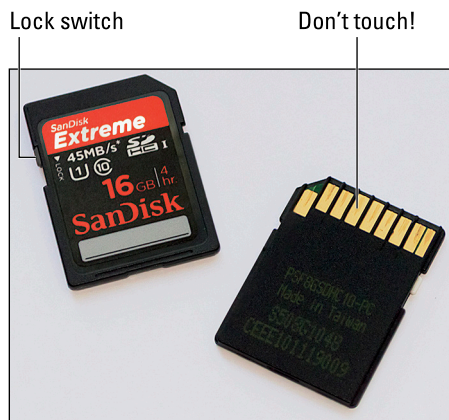


Figure 1-20: Avoid touching the gold contacts on the card.



You can safeguard individual images from accidental erasure by using the Protect Images option on the Playback menu, which we cover in Chapter 10. Note, though, that formatting the card *does* erase even protected pictures; the safety feature prevents erasure only when you use the camera's Delete function.

- ✓ **Using Eye-Fi memory cards:** Your camera works with *Eye-Fi memory cards*, which are special cards that enable you to transmit your files wirelessly to your computer and other devices. That's a cool feature, but unfortunately, the cards themselves are more expensive than regular cards and require some configuring that we don't have room to cover in this book. For more details, visit www.eye.fi.



If you do use Eye-Fi cards, enable and disable wireless transmission via the Eye-Fi Upload option on Setup Menu 1. When no Eye-Fi card is installed in the camera, this menu option disappears.

Reviewing Basic Setup Options

One of the many advantages of investing in the Rebel T5/1200D is that you can customize it to suit the way *you* like to shoot. The following sections talk about a handful of setup options that we suggest you consider from the get-go.

Setup Menu 1

Open Setup Menu 1, shown in Figure 1-21, to access the following options:

- ✓ **Auto Power Off:** To save battery power, the camera automatically goes to sleep after a certain period of inactivity. By default, the shutdown happens after 30 seconds, but you can change the shutdown delay to 1, 2, 4, 8, or 15 minutes. Or you can disable auto shutdown altogether by selecting the Disable setting, although even at that setting, the monitor still turns itself off if you ignore the camera for 30 minutes. Just give the shutter button a quick half-press and release or press the Menu, DISP, Playback, or Live View button to bring the monitor out of hibernation.

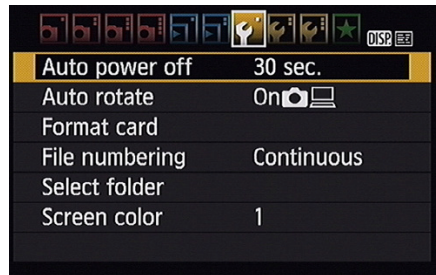


Figure 1-21: The Auto Power Off setting determines how long the camera waits to go to sleep after a period of inactivity.

- ✓ **File Numbering:** This option controls how the camera names your picture files:
 - *Continuous:* This is the default; the camera numbers your files sequentially, from 0001 to 9999, and places all images in the same folder (100Canon, by default) unless you specify otherwise using



the Select Folder option described in the next bullet point. This numbering sequence is retained even if you change memory cards.

When you reach picture 9999, the camera automatically creates a new folder (101Canon, by default) and restarts the file numbering at 0001 — again, the folder issue being dependent on the status of the Select Folder option.

- *Auto Reset:* If you switch to this option, the camera restarts file numbering at 0001 each time you put in a different memory card or create a new folder. We don't recommend this option because it's easy to wind up with multiple photos that have the same file number if you're not careful about storing them in separate folders.

Beware of one gotcha that applies both to the Continuous and Auto Reset options: If you swap memory cards and the new card already contains images, the camera may pick up numbering from the last image on the new card, which throws a monkey wrench into things. To avoid this problem, format the new card before putting it into the camera, as explained earlier in this list.

- *Manual Reset:* Select this setting if you want the camera to begin a new numbering sequence, starting at 0001, for your next shot. A new folder is automatically created to store your new files. The camera then returns to whichever mode you previously used (Continuous or Auto Reset) to number subsequent pictures.

- ✓ **Select Folder:** By default, your camera creates an initial file-storage folder named 100Canon and puts as many as 9,999 images in that folder. When you reach image 9999, the camera creates a new folder, named 101Canon, for your next 9,999 images. The camera also creates a new folder if you perform a manual file-numbering reset.

If your memory card contains multiple folders, you must use the Select Folder option to choose the folder where you want to store the next photos you shoot. But selecting the menu option also leads to another neat feature: You can create your own storage folders at any time. You might create separate folders for each person who uses the camera, for example. Chapter 11 shows you how to create custom folders. Here's how to view which folder is active and choose a different one:

- *See which folder is currently selected.* Choose Select Folder to display a list of all folders, with the current one highlighted and appearing in blue type. The number to the right of the folder name shows you how many pictures are in the folder. You also see a thumbnail view of the first and last pictures in the folder, along with the file numbers of those two photos.
- *Choose a different folder.* Highlight the folder by using the cross keys and then press the Set button.

Setup Menu 2

Setup Menu 2, posing in Figure 1-22, contains these options:

- ✓ **LCD Brightness:** This option enables you to make the camera monitor brighter or darker. But if you take this step, remember that what you see on the display may not be an accurate rendition of exposure. The default setting is 4, which is the position at the midpoint of the brightness scale.
- ✓ **LCD Off/On Btn:** Through this option, you tell the camera what to do with regards to the Shooting Settings display when you press the shutter button halfway. You get three choices:
 - *Shutter Btn:* The display turns off when you press the shutter button halfway and reappears when you release the button. This setting is the default.
 - *Shutter/DISP:* The display turns off when you press the shutter button halfway and remains off even after you release the button. You then press the DISP button to view the Shooting Settings screen.
 - *Remains On:* The display stays on until you press the DISP button. (This setting is a battery-waster because it keeps the monitor on even when your eye is to the viewfinder.)
- ✓ **Date/Time/Zone:** When you turn on your camera for the very first time, it automatically displays this option and asks you to set the date, time, and time zone. You also can specify whether you want the clock to update automatically to accommodate Daylight Saving Time (accomplish this via the little sun symbol).



Figure 1-22: Setup Menu 2 offers more ways to customize basic operations.



Keeping the date/time accurate is important because that information is recorded as part of the image file. In your photo browser, you can then see when you shot an image and, equally handy, search for images by the date they were taken. Chapter 9 shows you where to locate the date/time data when browsing your picture files.

When the Time Zone setting is active, the value displayed in the upper-right corner of the screen is the difference between the Time Zone you select and Coordinated Universal Time, or UTC, which is the standard by which the world sets its clocks. For example, New York City is 5 hours behind UTC. This information is provided so that if your time zone isn't in the list of available options, you can select one that shares the same relationship to the UTC.

- ✓ **Language:** This option determines the language of any text displayed on the camera monitor.
- ✓ **Clean Manually:** This setting, which appears on the menu only when the Mode dial is set to P, Tv, or Av, locks up the camera mirror to allow you to clean the image sensor manually. We don't recommend that you tackle this maintenance job unless you're either experienced at it or willing to risk turning your camera into a paperweight. Instead, take the camera to a local camera store that provides this service.
- ✓ **Feature Guide:** When this option is enabled and you choose certain camera settings, notes appear on the monitor to explain the feature. Although the Feature Guide screens are helpful at first, having them appear all the time is a pain after you get familiar with your camera. So we leave this option set to Disable — and for the sake of expediency in this book, assume that you keep the option turned off as well. (If not, just don't be concerned when our instructions don't mention the screens in the course of showing you how to work the camera.)
- ✓ **GPS Device Settings:** If you attach the optional GP-E2 GPS device, this menu option offers settings related to its operation.

Setup Menu 3

To access this menu, shown in Figure 1-23, you must set the Mode dial to P, Tv, Av, or M. The menu contains the following offerings:

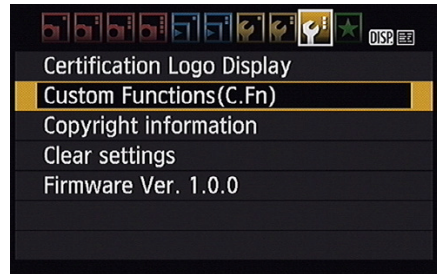


Figure 1-23: Still more customization features await on Setup Menu 3.

- ✓ **Certification Logo Display:** You have our permission to ignore this screen, which simply displays logos that indicate a couple electronics-industry certifications claimed by the camera. You can find additional logos on the bottom of the camera.
- ✓ **Clear Settings:** Via this option, you can restore the default shooting settings. You also can reset all Custom Functions to their defaults.
- ✓ **Firmware Ver:** This screen tells you the version number of the camera firmware (internal operating software). At the time of publication, the current firmware version was 1.0.0.
- ✓ Keeping your camera firmware up to date is important, so visit the Canon website (www.canon.com) regularly to find out whether your camera sports the latest version. Follow the instructions given on the website to download and install updated firmware if needed.



Choosing Basic Picture Settings

In This Chapter

- ▶ Spinning the Mode dial
- ▶ Changing the shutter-release (Drive) mode
- ▶ Understanding the Image Quality setting (resolution and file type)
- ▶ Illuminating with flash

Every camera manufacturer strives to ensure that your first encounter with the camera is a happy one. To that end, the camera's default (initial) settings are selected to make it easy to take a good picture the first time you press the shutter button. At the default settings, your camera works about the same way as any point-and-shoot camera you may have used in the past: You compose the shot, press the shutter button halfway to focus, and then press the button the rest of the way to take the picture.

Although you can get a good photo using the default settings in many cases, they're not designed to give you optimal results in every situation. You may be able to take a decent portrait, for example, but probably need to tweak a few settings to capture action. Adjusting a few options can help turn that decent portrait into a stunning one, too.

So that you can start fine-tuning settings to your subject, this chapter explains the most basic picture-taking options, such as the exposure mode, shutter-release mode (officially called Drive mode), the Image Quality option, and flash settings. They're not the most exciting options (don't think we didn't notice you stifling a yawn), but they make a big difference in how easily you can capture the photo you have in mind.

Note: This chapter relates to still photography; for information about shooting movies, see Chapter 8.



Choosing an Exposure Mode

The first picture-taking setting to consider is the exposure mode, which you select via the Mode dial, shown in Figure 2-1. For now, ignore Movie mode, represented by the symbol labeled in the figure; you select that mode to shoot movies (again, we cover that topic in Chapter 8). For still photography, exposure modes are grouped into two categories, Basic Zone and Creative Zone, also labeled in the figure. Your choice determines how much control you have over two critical exposure settings — aperture and shutter speed — as well as many other options, including those related to color and flash photography.

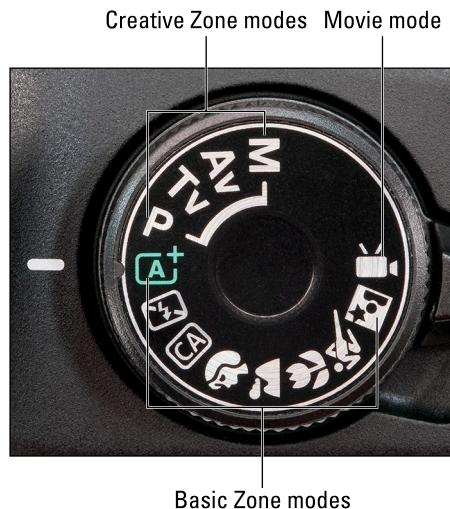


Figure 2-1: Settings on the Mode dial determine the exposure mode.

Here's a look at your options:

- ✓ **Basic Zone:** Includes the following point-and-shoot modes, represented on the Mode dial with the icons shown in the margins:



- *Scene Intelligent Auto:* The most basic mode; the camera analyzes the scene and selects the settings it thinks would best capture the subject.
- *Flash Off:* Works just like Scene Intelligent Auto except that flash is disabled.
- *Creative Auto:* This mode is like Scene Intelligent Auto but with some manual override. You can exercise a little creative control by tweaking some picture qualities, such as how much the background blurs.
- *Image Zone modes:* This subgroup includes modes that are geared to capturing specific types of scenes:
 - Portrait, for taking traditional portraits
 - Landscape, for capturing scenic vistas
 - Close-up, for shooting flowers and other subjects at close range
 - Sports, for capturing moving subjects (whether they happen to be playing a sport or not, and actually works well when *you're* moving, too)
 - Night Portrait, for outdoor photographs of people at night.



Chapter 3 tells you more about these modes, but be forewarned: To remain easy to use, all these modes prevent you from taking advantage of advanced exposure, color, and autofocus features. You can adjust options discussed in this chapter, but the camera controls most everything else.

- ✓ **Creative Zone:** When you're ready to take more control over the camera, step up to one of these modes, which include P (programmed autoexposure), Tv (shutter-priority autoexposure), Av (aperture-priority autoexposure), and M (manual exposure) modes. Chapter 4 provides the basics of using these modes.



One often-misunderstood aspect about exposure modes: Although your choice determines access to exposure and color controls, as well as to some other advanced camera features, it has *no* bearing on your *focusing* choices. You can choose from manual focusing or autofocus in any mode, assuming that your lens offers autofocus. However, access to options that modify how the autofocus system works is limited to P, Tv, Av, and M modes.

Changing the Drive Mode

Setting the Drive mode tells the camera what to do when you press the shutter button: Record a single frame, record a series of frames, or record one or more shots after a short delay. Your camera offers the following Drive mode settings:



- ✓ **Single:** This setting records a single image each time you press the shutter button. It's the default setting for all exposure modes except Portrait and Sports.



- ✓ **Continuous:** Sometimes known as *burst mode*, this mode records a continuous series of images as long as you hold down the shutter button. The camera can capture roughly 3 frames per second, but your mileage may vary, for the following reasons:
 - The number of frames per second depends in part on your shutter speed. At a slow shutter speed, the camera may not be able to reach the maximum frame rate. (See Chapter 4 for an explanation of shutter speed.)
 - Some other functions can slow down the continuous capture rate. For example, when you use flash, the frame rate slows because the flash needs time to recycle between shots. And if you use the AI Servo AF (autofocus) mode, detailed in Chapter 5, the rate may slow because the camera adjusts focus continually between frames in that mode. Finally, the size and quality of the photos, as well as the speed of your memory card, also play a role in how fast the camera can transfer data to the card, which in turn affects the burst rate. In other words, consider 3 shots per second a best-case scenario.

Continuous Drive mode is the default setting for Portrait and Sports modes. Having continuous capture available for portraits may seem odd, but it can actually help you capture the perfect expression on your subject's face — or, at least, a moment between blinks! (But if you use flash for your portrait, keep the previous tip in mind.)



- ✓ **Self-Timer: 10 Second:** Want to put yourself in the picture? Select this mode, depress the shutter button, and run into the frame. You have 10 seconds to get yourself in place before the image is recorded.

You can also use the self-timer function to avoid camera shake that can be caused by the mere motion of pressing the shutter button: Put the camera on a tripod and then activate the self-timer function to enable “hands-free” — and therefore motion-free — picture taking.

- ✓ **Self-Timer: 2 Second:** This mode works just like the regular Self-Timer mode, but the capture happens 2 seconds after you press the shutter button.

- ✓ **Self-Timer: Continuous:** With this option, the camera waits 10 seconds after you press the shutter button and then captures a continuous series of images. You can set the camera to record two to ten images per each shutter release.

A symbol representing the current Drive mode setting appears in the Shooting Settings and Live View displays, as shown in Figures 2-2 and 2-3. The icon representing the Drive mode appears in a different area depending on your exposure mode; the left screens in the figures show you where to look when shooting in Scene Intelligent Auto, for example, and the right screens show where the icon hangs out when you use the advanced exposure modes. Both figures show the icon that represents the Single Drive mode.

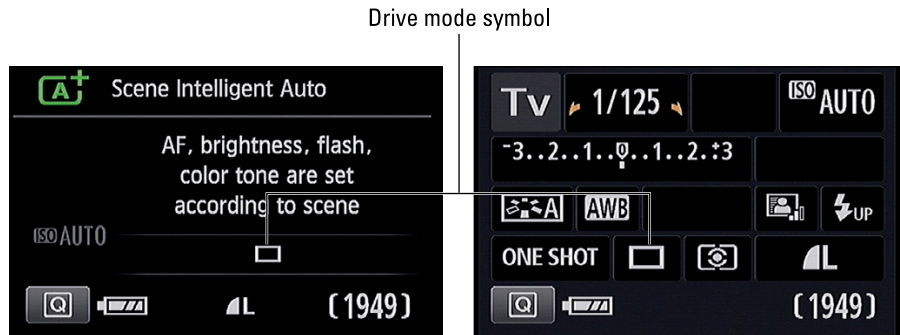


Figure 2-2: The Shooting Settings screen displays an icon indicating the current Drive mode.

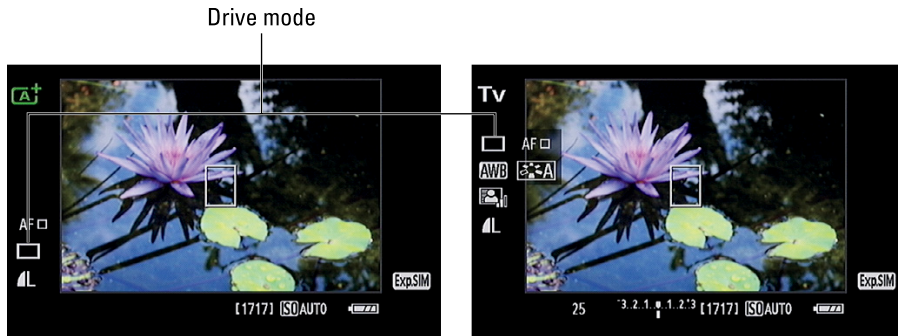


Figure 2-3: In Live View mode, look here for the Drive mode symbol.

How you change the Drive mode depends on whether you're using Live View or the viewfinder to compose the picture:

- **Press the left cross key (not available in Live View mode).**
As shown in Figure 2-4, the key is marked by two of the Drive mode icons to help you remember its function. After you press the cross key, you see the settings screen displayed in the figure.

For the Self-Timer: Continuous mode, selected in the Figure 2-4, press the up or down cross key to set the number of continuous shots you want the camera to capture.



Figure 2-4: For viewfinder photography, the fastest way to get to the Drive mode setting is to press the left cross key.



- **Use the Quick Control screen.**
After pressing the Q button to enter Quick Control mode, select the Drive mode icon, as shown in Figure 2-5. (The left screen in the figure shows you where to look on the Shooting Settings screen; the right screen, the Live View display.) The name of the current setting appears at the bottom of the screen. Rotate the Main dial to cycle through the available settings or press Set to display the selection screen shown in Figure 2-4.

You must use this method for Live View shooting; pressing the left cross key performs a focus-related function when Live View is engaged.



When you use the Self-Timer modes for viewfinder photography or shoot in Live View mode, it's a good idea to use the cover provided on the camera strap to cover the viewfinder. Otherwise, light may seep in through the viewfinder and mess up the camera's exposure calculations.

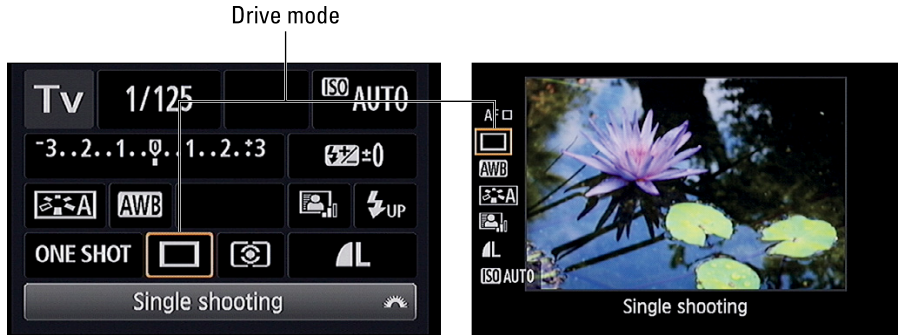


Figure 2-5: But you also can change the setting via the Quick Control screen.

Setting Resolution and File Type (the Image Quality Setting)

The T5/1200D can capture top-notch pictures, but getting the maximum output from your camera depends on choosing the right capture settings. Chief among them is the appropriately named Image Quality setting.



This control determines two important aspects of your pictures: *resolution*, or pixel count; and *file format*, which refers to the type of computer file the camera uses to store your picture data. The next section shows you how to view and adjust the setting; following that, you can get background information to help you select the right resolution and file type.

Adjusting the Image Quality setting

An icon representing the current Image Quality setting appears on the Shooting Settings and Live View displays. Figure 2-6 shows you where to find the symbols when shooting in the P, Tv, Av, and M modes; in other modes, the symbols appear elsewhere on the screen. (Help with decoding the symbols arrives shortly.)

Your options for changing the Image Quality setting depend on your exposure mode, as follows:

- **Shooting Menu 1 (any exposure mode):** After selecting the Image Quality option, as shown on the left in Figure 2-7, press Set to display the available settings, as shown on the right.
- **Quick Control screen (P, Tv, Av, and M modes only):** After highlighting the setting (see Figure 2-6), rotate the Main dial to cycle through the available settings. Or if you prefer, press the Set button to display all the options at once.

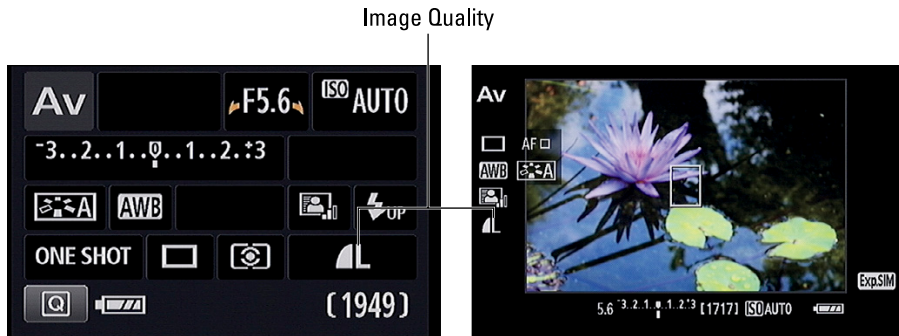


Figure 2-6: These symbols represent the Image Quality setting.

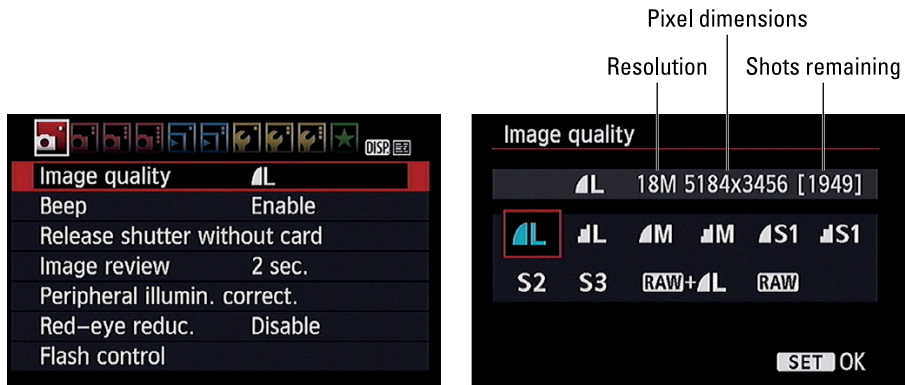


Figure 2-7: You can set the Image Quality option via Shooting Menu 1.

If you're new to digital photography, the Image Quality settings won't make much sense until you read the next few sections, which explain resolution and file type in detail. But even if you're schooled in those topics, you may need some help deciphering the way that the settings are represented on your camera. As you can see from Figures 2-6 and 2-7 the options are presented in rather cryptic fashion, so here's your decoder ring:

- At the top of the Shooting Menu's Image Quality selection screen, you see three bits of information, labeled in Figure 2-7: the *resolution*, or total pixel count (measured in megapixels), the *pixel dimensions* (number of horizontal pixels, followed by the number of vertical pixels), and the number of subsequent shots you can fit on your current memory card at the current Image Quality setting. This same information appears at the bottom of the Quick Control screen when the Image Quality setting is selected. The next two rows of the menu screen contain icons representing the available Image Quality settings.



- ✓ The settings marked with the arc symbols capture images in the JPEG file format, as do the S2 and S3 settings. The arc icons represent the level of JPEG *compression*, which affects picture quality and file size. You get two options: Fine and Normal. The smooth arcs represent the Fine setting; the jagged arcs represent the Normal setting. Both S2 and S3 use the JPEG Fine recording option. And no, we don't know why they don't sport the arc icons — maybe the arc-supplier guy was sick the day that S2 and S3 got added to the mix. At any rate, check out the upcoming section “JPEG: The imaging (and web) standard” for details about all things JPEG.
- ✓ Within the JPEG category, you can choose from five resolution settings, represented by L, M, and S1, S2, and S3 (*large, medium, and small, smaller, smallest*). See the next section for information that helps you select the right resolution.
- ✓ You also can capture images in the Raw format. Raw files are always created at the Large resolution setting, giving you the maximum pixel count. One of the two Raw settings also records a JPEG Fine version of the image, also at the maximum resolution. The upcoming section “Raw (CR2): The purist's choice” explains the Raw format.

Which Image Quality option is best depends on several factors, including how you plan to use your pictures and how much time you care to spend processing images on your computer. The next several sections explain these and other issues related to the Image Quality setting.

Considering resolution: Large, Medium, or Small?

To choose an Image Quality setting, the first decision you need to make is how many pixels you want your image to contain. *Pixels* are the little square tiles from which all digital images are made; *pixel* is short for *picture element*. You can see some pixels close up in the right image in Figure 2-8, which shows a greatly magnified view of the eye area in the left image.

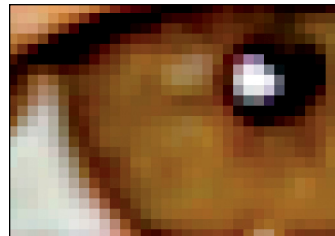


Figure 2-8: Pixels are the building blocks of digital photos.

When describing a digital image, photographers use the term *image resolution* to refer to the number of pixels it contains. Every image starts with a specific number of pixels, which you select on your camera via the Image Quality setting. You can choose from five options: Large, Medium, and Small (1–3), represented on the list of Image Quality settings by the initials L, M, and S (1–3). Table 2-1 shows you the pixel count that results from each option. If you select Raw as your Quality setting, images are always captured at the Large resolution value.

Table 2-1 The Image Resolution Side of the Quality Settings

<i>Symbol</i>	<i>Setting</i>	<i>Pixel Count</i>
L	Large	5184 x 3456 (18MP)
M	Medium	3456 x 2304 (8MP)
S1	Small 1	2592 x 1728 (4.5MP)
S2	Small 2	1920 x 1280 (2.5MP)
S3	Small 3	720 x 480 (0.35MP)



In the table, the first pair of numbers in the Pixel Count column represents the *pixel dimensions* — the number of horizontal pixels and the number of vertical pixels. The values in parentheses indicate the total resolution, which you get by multiplying the horizontal and vertical pixel values. This number is usually stated in *megapixels*, or MP for short. The camera displays the resolution value using only one letter M, however. (Refer to Figure 2-7.) Either way, 1MP equals 1 million pixels.

Resolution affects your pictures in three ways:

✓ **Print size:** Pixel count determines the size at which you can produce a high-quality print. When an image contains too few pixels, details appear muddy, and curved and diagonal lines appear jagged. Such pictures are said to exhibit *pixelation*.

Depending on your photo printer, you typically need anywhere from 200 to 300 pixels per linear inch, or *ppi*, for good print quality. To produce an 8-x-10 print at 200 ppi, for example, you need a pixel count of 1600 x 2000, or about 3.2 megapixels.

Even though many photo-editing programs enable you to add pixels to an existing image — known as *upsampling* — doing so doesn't enable you to successfully enlarge your photo. In fact, upsampling typically makes matters worse.



To give you a better idea of the impact of resolution on print quality, Figures 2-9, 2-10, and 2-11 show you the same image at 300 ppi, at 50 ppi, and then resampled from 50 ppi to 300 ppi (respectively). As you can see, there's no way around the rule: If you want quality prints, you need the right pixel count from the get-go.

- ✓ **Screen display size:** Resolution doesn't affect the quality of images viewed on a monitor or television, or another screen device, the way it does for printed photos. Instead, resolution determines the *size* at which the image appears. This issue is one of the most misunderstood aspects of digital photography, so we explain it thoroughly in Chapter 10. For now, just know that you need *way* fewer pixels for onscreen photos than you do for prints. In fact, even the Small resolution setting creates a picture too big to be viewed in its entirety in many e-mail programs.
- ✓ **File size:** Every additional pixel increases the amount of data required to create a digital picture file. So a higher-resolution image has a larger file size than a low-resolution image.



Large files present several problems:

- You can store fewer images on your memory card, your computer's hard drive, and removable storage media such as a DVD.
- The camera needs more time to process and store the image data, which can hamper fast-action shooting.
- When you share photos online, larger files take longer to upload and download.
- When you edit photos in your photo software, your computer needs more resources to process large files.

300 ppi

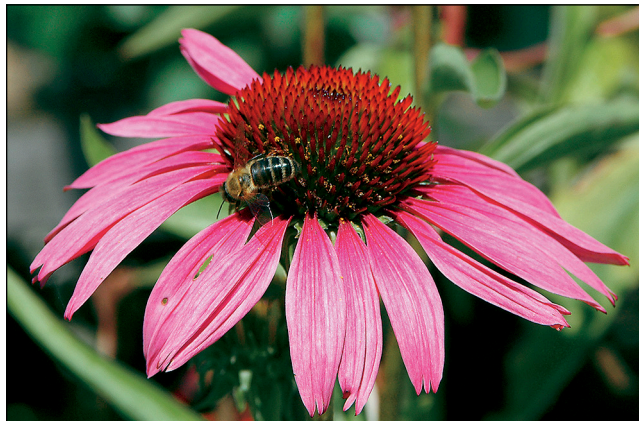


Figure 2-9: A high-quality print depends on a high-resolution original.

50 ppi



Figure 2-10: At 50 ppi, the image has a jagged, pixelated look.

50 ppi resampled to 300 ppi



Figure 2-11: Adding pixels in a photo editor doesn't rescue a low-resolution original.

As you can see, resolution is a bit of a sticky wicket. What if you aren't sure how large you want to print your images? What if you want to print your photos *and* share them online? We take the better-safe-than-sorry route, which leads to the following recommendations:

- ✓ **Shoot at a resolution suitable for print.** You then can create a low-resolution copy of the image for use online. In fact, your camera has a built-in Resize tool that can do the job. Chapter 10 shows you how to use that feature.



- ✓ **For everyday images, Medium is a good choice.** Even at the Medium setting, your pixel count (3456 x 2304) is far more than you need for an 8-x-10" print at 200 ppi, and almost exactly what you need for an 8-x-10" print at 300 ppi.
- ✓ **Choose Large for an image that you plan to crop, print very large, or both.** The benefit of maxing out resolution is that you have the flexibility to crop your photo and still generate a decent-sized print of the remaining image. Figure 2-12 offers an example. Julie wanted to fill the frame with the butterfly, but couldn't do so without getting so close that she risked scaring it away. So she kept her distance and took the picture at the Large setting, resulting in the composition shown on the left in the figure. Because she had oodles of pixels in that photo, she could crop it and still have enough pixels left to produce a great print, as you see in the right image.



Figure 2-12: When you can't get close enough to fill the frame with the subject, capture the image at the Large resolution setting (left) and crop later (right).

Understanding file type (JPEG or Raw)

In addition to establishing the resolution of your photos, the Image Quality setting determines the *file type*, which refers to the kind of data file that the camera produces. Your camera offers two file types — JPEG and Raw (sometimes seen as *raw* or *RAW*), with a couple variations of each. The next sections explain the pros and cons of each setting.

JPEG: The imaging (and web) standard

This format is the default setting on your camera, as it is for most digital cameras. JPEG is popular for two main reasons:

- ✓ **Immediate usability:** JPEG is a longtime standard format for digital photos. All web browsers and e-mail programs can display JPEG files, so you can share them online immediately after you shoot them. You also can get JPEG photos printed at any retail outlet, whether it's an online or a local printer. Additionally, any program that has photo capabilities, from photo-editing programs to word-processing programs, can handle your files.
- ✓ **Small files:** JPEG files are smaller than Raw files. And smaller files mean that your pictures consume less room on your camera memory card and on your computer's hard drive.

The downside (you knew there had to be one) is that JPEG creates smaller files by applying *lossy compression*. This process actually throws away some image data. Too much compression produces a defect called *JPEG artifacting*. Figure 2-13 compares a high-quality original (left photo) with a heavily compressed version that exhibits artifacting (right photo).



Figure 2-13: The reduced quality of the right image is caused by excessive JPEG compression.

On your camera, the amount of compression that's applied depends on whether you choose an Image Quality setting that carries the label Fine or Normal:

- ✓ **Fine:** At this setting, very little compression is applied, so you shouldn't see many compression artifacts, if any. Canon uses the symbol that appears in the margin here to indicate the Fine compression level; however, the S2 and S3 settings both use the Fine level even though they don't sport the symbol.

- ✔ **Normal:** Switch to Normal, and the compression amount rises, as does the chance of seeing some artifacting. Notice the jaggedy-ness of the Normal icon, as shown in the margin? That's your reminder that all may not be "smooth" sailing when you choose a Normal setting.

Note, though, that the Normal setting doesn't result in anywhere near the level of artifacting that you see in the example in Figure 2-13. Again, that example is exaggerated to help you recognize artifacting defects and understand how they differ from other image-quality issues. In fact, if you keep your image print or display size small, you aren't likely to notice a great deal of quality difference between the Fine and Normal compression levels. The differences become apparent only when you greatly enlarge a photo.

Given that the differences between Fine and Normal aren't all that easy to spot until you really enlarge the photo, is it okay to shift to Normal and enjoy the benefits of smaller files? Well, only you can decide what level of quality your pictures demand. For most photographers, the added file sizes produced by the Fine setting aren't a huge concern, given that the prices of memory cards fall all the time. Long-term storage is more of an issue; the larger your files, the faster you fill your computer's hard drive and the more space you need for archiving purposes. But in the end, we prefer to take the storage hit in exchange for the lower compression level of the Fine setting. You never know when a casual snapshot is going to be so great that you want to print or display it large enough that even minor quality loss becomes a concern. And of all the defects that you can correct in a photo editor, artifacting is one of the hardest to remove. So we stick with Fine when shooting in the JPEG format.

If you don't want *any* risk of artifacting, bypass JPEG and change the file type to Raw (CR2). The next section offers details.

Raw (CR2): The purist's choice

The other picture-file type that you can create is *Camera Raw*, or just *Raw* (as in uncooked) for short.



Each manufacturer has its own flavor of Raw files; Canon's are CR2 files (or, on some older cameras, CRW). Because these flavors are always being updated and refined, you must update any third-party software that you plan to use with the T5's Raw files. Otherwise, they won't be able to decode them. Indeed, you should also update old versions of any Canon software you might be using. You'll see that three-letter designation at the end of your picture filenames on your computer.

Raw is popular with many advanced photographers for these reasons:

- ✔ **Greater creative control:** With JPEG, internal camera software tweaks your images, adjusting color, exposure, and sharpness as needed to produce the results that Canon believes its customers prefer (or according to certain camera settings you chose, such as the Picture Style). With Raw, the camera simply records the original, unprocessed image data. The photographer then copies the image file to the computer and uses software known as a *raw converter* to produce the actual image, making decisions about color, exposure, and so on, at that point. The upshot is that “shooting Raw” enables you, not the camera, to have the final say on the visual characteristics of your image.
- ✔ **More flexibility:** Having access to the Raw photo data means that you can re-process the same photo with different settings over and over again without losing any quality.
- ✔ **Higher bit depth:** *Bit depth* is a measure of how many color values an image file can contain. JPEG files restrict you to 8 bits each for the red, blue, and green color components, or *channels*, that make up a digital image, for a total of 24 bits. That translates to roughly 16.7 million possible colors. On your camera, a Raw file delivers a higher bit count, collecting 14 bits per channel.

Although jumping from 8 to 14 bits sounds like a huge difference, you may not ever notice any difference in your photos — that 8-bit palette of 16.7 million values is more than enough for superb images. Where having the extra bits can come in handy is if you really need to adjust exposure, contrast, or color after the shot in your photo-editing program. In cases where you apply extreme adjustments, having the extra original bits sometimes helps avoid a problem known as *banding* or *posterization*, which creates abrupt color breaks where you should see smooth, seamless transitions. (A higher bit depth doesn’t always prevent the problem, however, so don’t expect miracles.)
- ✔ **Best picture quality:** Because Raw doesn’t apply the destructive compression associated with JPEG, you don’t run the risk of the artifacting that can occur with JPEG.

But just like JPEG, Raw isn’t without its disadvantages:

- ✔ **You can’t do much with your pictures until you process them in a Raw converter.** You can’t share them online, for example, or put them into a text document or multimedia presentation. You can print them immediately if you use the Canon-provided software, but most other photo programs require you to convert the Raw files to a standard format first. Ditto for retail photo printing. So when you shoot Raw, you add to the time you spend in front of the computer instead of behind the camera lens. Chapter 10 gets you started processing your Raw files using your Canon software.

- ✓ **Raw files are larger than JPEG files.** Unlike JPEG, Raw doesn't apply lossy compression to shrink files. This means that Raw files are significantly larger than JPEG files, so they take up more room on your memory card and on your computer's hard drive or other file-storage devices.








Whether the upside of Raw outweighs the down is a decision that you need to ponder based on your photographic needs, schedule, and computer-comfort level. If you decide to try Raw shooting, you can select from the following Image Quality options:

How many pictures fit on my memory card?

Image resolution (pixel count) and file format (JPEG or Raw) together contribute to the size of the picture file which, in turn, determines how many photos fit in a given amount of camera memory. The following table shows you the approximate size of the files, in megabytes (MB), that are generated at each of the resolution/

format combinations on your camera. (The actual file size of any image also depends on other factors, such as the subject, ISO setting, and Picture Style setting.) In the Image Capacity column, you see approximately how many pictures you can store at the setting on an 8GB (gigabyte) memory card.

Picture Capacity of an 8GB Memory Card

<i>Symbol</i>	<i>Quality Setting</i>	<i>File Size</i>	<i>Image Capacity</i>
 L	Large/Fine	6.4MB	1,110
 L	Large/Normal	3.2MB	2,190
 M	Medium/Fine	3.4MB	2,100
 M	Medium/Normal	1.7MB	4,100
 S1	Small 1/Fine	2.2MB	3,270
 S1	Small 1/Normal	1.1MB	6,210
S2	Small 2/Fine	1.3MB	5,440
S3	Small 3/Fine	0.3MB	21,060
RAW	Raw	30.9MB	290
 LRAW	Raw+Large/Fine	40MB*	230

* Combined size of the two files produced at this setting.

- ✓ **RAW:** This setting produces a single Raw file at the maximum resolution (18MP).
- ✓ **RAW+Large/Fine:** This setting produces two files: the Raw file plus a JPEG file captured at the Large/Fine setting. The advantage is that you can share the JPEG online or get prints made immediately and then process your Raw files when you have time. The downside, of course, is that creating two files for every image eats up substantially more space on your memory card and your computer's hard drive.

Our take: Choose Fine or Raw

At this point, you may be finding all this technical goop a bit much, so allow us to simplify things until you have time or energy to completely digest all the ramifications of JPEG versus Raw:

- ✓ If you require the absolute best image quality and have the time and interest to do the Raw conversion process, shoot Raw.
- ✓ If great photo quality is good enough for you, you don't have wads of spare time, or you aren't that comfortable with the computer, stick with one of the Fine JPEG settings.
- ✓ If you want to enjoy the best of both worlds, consider Raw+Large/Fine — assuming, of course, that you have an abundance of space on your memory card and your hard drive. Otherwise creating two files for every photo on a regular basis isn't really practical.
- ✓ Select JPEG Normal if you aren't shooting pictures that demand the highest quality level and you aren't printing or displaying the photos at large sizes. The smaller file size also makes JPEG Normal the way to go if you're running low on memory-card space during a shoot.

Adding Flash

The built-in flash on your camera offers an easy, convenient way to add light to a too-dark scene. But whether you can use flash and what flash features are available depend on your exposure mode, as outlined in the next few sections.



Before you digest that information, note these universal tips:

- ✓ **The effective range of the built-in flash depends on the ISO setting.** The ISO setting affects the camera's sensitivity to light; Chapter 4 has details. At the lowest ISO setting, ISO 100, the maximum reach of the flash ranges from about 5 to 8.5 feet, depending on whether you're using a telephoto or wide angle lens, respectively. To illuminate a subject that's farther away, use a higher ISO speed or an auxiliary flash that offers greater power than the built-in flash.
- ✓ **Don't get too close.** Position the lens at a minimum distance of about 3 feet from the subject, or the flash may not illuminate the entire subject.

- ✔ **Watch for shadows cast by the lens or a lens hood.** When you shoot with a long lens, you can wind up with unwanted shadows caused by the flash light hitting the lens. Ditto for a lens hood.
- ✔ **While the flash is recycling, you see a “Busy” signal.** In the viewfinder, a lightning bolt like the one in the lower-left corner of Figure 2-14 tells you that the flash is enabled. The word “Busy” along with the lightning bolt means that the flash needs a few moments to recharge. You also may see the Busy alert on the monitor when shooting in Live View mode.



Figure 2-14: A Busy signal means that the flash is recharging.

- ✔ **For brighter backgrounds in flash photos, use a slower shutter speed.** Explained fully in Chapter 4, *shutter speed* is the setting that determines how long the shutter remains open, allowing light to hit the image sensor and expose the photo.

At a slow shutter speed, the camera has time to soak up ambient light and thus needs less flash power to illuminate the subject. As a result, background objects beyond the reach of the flash are brighter than when you use a fast shutter speed, and the flash light that hits your subject is less harsh. Figure 2-15 offers an example: The left image was taken at a shutter speed of 1/60 second; the right, at 1/8 second.

To control shutter speed, set the Mode dial to Tv (shutter-priority) or M (manual) exposure mode and rotate the Main dial. You can select a shutter speed as slow as 30 seconds. In other exposure modes, the camera determines the shutter speed for you.



Figure 2-15: When you use a slow shutter speed with flash, backgrounds are brighter, and the flash light is softer.



If you're not up to using Tv or M mode yet but want slow-shutter flash results, set the Mode dial to the Night Portrait setting, which automatically uses a slower shutter speed than other modes that permit flash.

Either way, remember that a slow shutter speed can produce blurring if the camera or subject moves during the exposure. So use a tripod and tell your subject to remain as still as possible.

- ✓ **The fastest shutter speed you can use with the built-in flash is 1/200 second.** This limitation is due to the way the camera has to synchronize the flash firing with the opening of the shutter. Because a quickly moving subject may appear blurry even at 1/200 second, flash isn't a good tool for shooting action shots.

Enabling and disabling flash

Whether you can use flash or control its firing depends on the exposure mode. Here's how things shake out:

- ✓ **Scene Intelligent Auto, Portrait, Close-Up, and Night Portrait:** If the camera thinks extra light is needed, it automatically raises and fires the built-in flash. Otherwise the flash remains closed.
- ✓ **Landscape, Sports, and Flash Off modes:** Flash is disabled.



✓ **Creative Auto mode:** You can choose from three flash modes:

- *Auto Flash:* The camera decides when to fire the flash, basing its decision on the lighting conditions.
- *On:* The flash pops up and fires regardless of the lighting conditions. Using a fill flash is an effective way to light people's faces even in bright conditions.
- *Off:* The flash does not fire, no way, no how, even if the flash is raised because you used it on the previous shot.

You can view the current flash setting in the Shooting Settings and Live View displays, which appear in Creative Auto mode as shown in Figure 2-16. Chapter 3 explains the other stuff you see on the screen and provides more details about using Creative Auto mode.

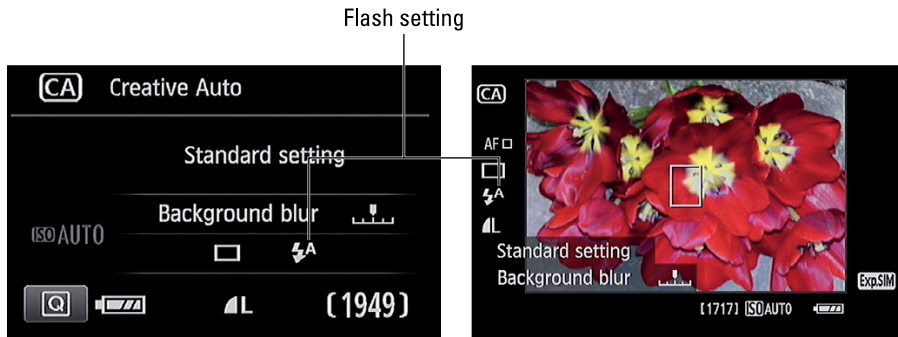


Figure 2-16: Look here to view the current flash setting in Creative Auto mode.



To set the flash mode, press the Q button to activate the Quick Control screen. Use the cross keys to highlight the flash setting and then rotate the Main dial to cycle through the three flash settings. You also can press the Set button to display a selection screen showing all the available flash settings.



✓ **P, Tv, Av, and M modes:** If you want to use the built-in flash, press the Flash button on top of the camera. The flash pops up and fires on your next shot. Don't want flash? Just close the flash unit. There is no such thing as auto flash in these exposure modes — but don't worry, because using flash (or not) is one picture-taking setting you definitely want to control.

As explained in the preceding section, your flash results depend in part on the shutter speed. And the range of available shutter speeds for flash photography depends on which of the four exposure modes you use:



- *P mode*: The camera selects a shutter speed ranging from 1/60 to 1/200 second.
- *Av mode*: By default, the camera selects a shutter speed ranging from 1/200 to 30 seconds when you use flash in Av mode. However, if you want to avoid the potential problems that can arise with a slow shutter — camera shake and blurred moving subjects — you can bump up the slow limit of this range via Custom Function 3, Flash Sync Speed in Av Mode, shown in Figure 2-17.

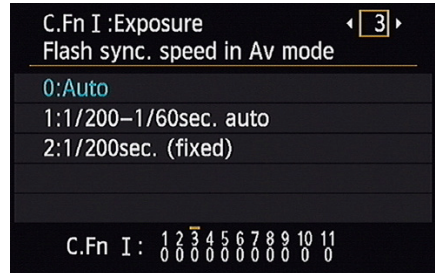


Figure 2-17: You can limit the camera to a fast shutter when using Av mode with flash.

The default setting is Auto, which uses the 1/200-to-30 seconds range. At setting 2, the shutter speed range is 1/200 to 1/60 second; and at setting 3, the camera always sets the shutter speed to 1/200 second.

- *Tv mode*: You can select a shutter speed from 1/200 to 30 seconds. Remember that at slow shutter speeds, you need to use a tripod and tell your subject to remain still to avoid a blurry photo.
- *M mode*: You can access the same range as in Tv mode, but with one additional setting available: Bulb, which keeps the shutter open as long as you keep the shutter button pressed, however. By default, the flash fires at the beginning of the exposure. If you want it to fire at the end of the exposure, make the change via the Shutter Sync setting that we explain in the last section of this chapter.

Using Red-Eye Reduction flash

Red-eye is caused when flash light bounces off a subject's retinas and is reflected back to the camera lens. Red-eye is a human phenomenon, though; with animals, the reflected light usually glows yellow, white, or green.

Man or beast, this issue isn't nearly the problem with the type of pop-up flash found on your T5/1200D as it is on non-SLR cameras. Your camera's flash is positioned above the lens, a position that lessens the chances of red-eye. However, red-eye may still be an issue when you use a lens with a long focal length (a telephoto lens), you shoot subjects from a distance, or the ambient lighting is very dim.

If you notice red-eye, try enabling Red-Eye Reduction flash. When you turn on this feature, the Red-Eye Reduction Lamp on the front of the camera lights up when you press the shutter button halfway and focus is achieved. The purpose

of this light is to shrink the subject's pupils, which helps reduce the amount of light that enters the eye and, thus, the chances of that light reflecting and causing red-eye. The flash itself fires when you press the shutter button the rest of the way. (Warn your subjects to wait for the flash, or they may stop posing after they see the light from the Red-Eye Reduction Lamp.)

You can enable this feature in any exposure mode that permits flash. The control lives on Shooting Menu 1, as shown in Figure 2-18. Note that the camera doesn't display any symbols in the viewfinder or on the Shooting Settings or Live View displays to remind you that Red-Eye Reduction mode is in force.

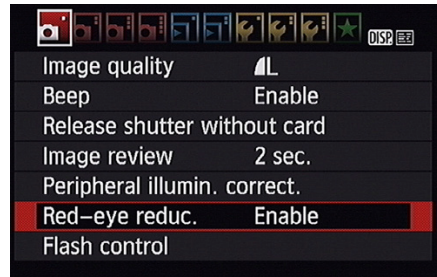


Figure 2-18: Turn Red-Eye Reduction flash mode on and off via Shooting Menu 1.



After you press the shutter button halfway in Red-Eye Reduction flash mode, a row of vertical bars appears in the bottom of the viewfinder display, replacing the exposure index. The bars quickly turn off from the outside and work their way toward the center. For best results, wait until all the bars are off to take the picture. (The delay gives the subject's pupils time to constrict in response to the Red-Eye Reduction Lamp.) This feature isn't available in Live View mode; it only works when you use the viewfinder to compose your photos.

Exploring advanced flash features (P, Tv, Av, and M modes)

When you shoot in the P, Tv, Av, and M exposure modes, you have access to some flash features not available in the automatic or Creative Auto modes. You can adjust the flash power, tell the camera to stick with the same flash output for a series of shots, and tweak a few other aspects of flash performance, as outlined in the rest of this chapter.



Adjusting flash power with Flash Exposure Compensation

On some occasions, you may want a little more or less light than the camera thinks is appropriate. If so, you can adjust the flash output by using *Flash Exposure Compensation*.

Flash Compensation settings are stated in terms of *exposure value (EV)* numbers. A setting of EV 0.0 indicates no flash adjustment; you can increase the flash power to EV +1.0 or decrease it to EV -2.0.

Figure 2-19 shows an example of the benefit of this feature — again, available only when you shoot in the P, Tv, Av, and M modes. The leftmost image shows you a flash-free shot. Clearly, a little more light was needed, but at normal flash power, the flash was too strong, blowing out the highlights in some areas, as shown in the middle image. Reducing the flash power to EV -1.3,

resulted in a softer flash that straddled the line perfectly between no flash and too much flash.



Figure 2-19: When normal flash output is too strong, lower the Flash Exposure Compensation value.

As for boosting the flash output, well, you may find it necessary on some occasions, but don't expect the built-in flash to work miracles even at a Flash Exposure Compensation of +2.0. Any built-in flash has a limited range, so the light simply can't reach faraway objects.

Here are the ways you can adjust flash power:



- **Quick Control screen (not available in Live View mode):** This path is by far the easiest way to travel. After shifting to the Quick Control display, highlight the Flash Exposure Compensation value, as shown on the left in Figure 2-20. (Note that this value does not appear until you activate the Quick Control screen unless you already dialed in Flash Compensation.)

Rotate the Main dial to raise or lower the amount of flash adjustment. Or press Set to display the second screen in the figure, which contains a meter along with a text note that tells you that if you use an external flash, any compensation you dial in via the flash itself overrides the on-camera setting. Press the right/left cross keys to adjust the flash power on this screen. Press Set when you finish.

- **Shooting Menu 1:** On Shooting Menu 1, select Flash Control and press Set to display the left screen in Figure 2-21. Choose Built-in Flash Func Settings to display the right screen. Highlight Flash Exp Comp and press Set to activate the control. Then use the left/right cross keys to adjust the value. Press Set when you finish.

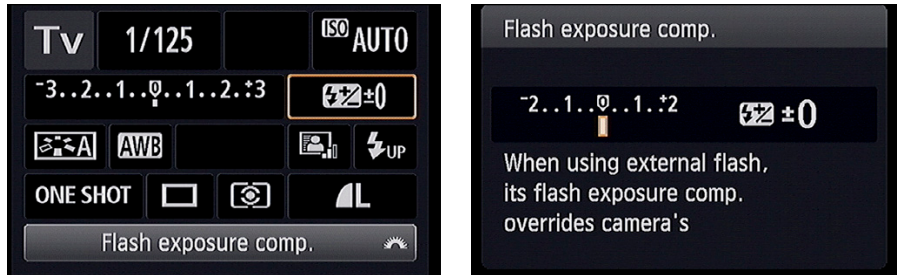


Figure 2-20: The quickest way to adjust flash power is via the Quick Control screen.



Figure 2-21: You can also change flash power by using the menus, but it's a tedious task.



TIP

You also have the option of customizing the Set button to whisk you directly to the Flash Exposure Compensation setting. You make this change via Custom Function 9. (Chapter 11 shows you how.) If you use Live View and flash compensation a lot, this tweak can save you loads of time because you no longer have to wade through Shooting Menu 1 to adjust the flash compensation setting.

When flash compensation is in effect, the value appears in the Shooting Settings screen, in the area occupied by the icon in the left screen in Figure 2-22. In the Live View display, the setting appears in the area labeled on the right in the figure. In the viewfinder, you see a plus/minus flash symbol without the actual Flash Exposure Compensation value. If you change the Flash Exposure Compensation value to zero, the flash-power icon disappears from all the displays.



WARNING!

Any flash-power adjustment you make remains in force until you reset the control, even if you turn off the camera. So be sure to check the setting before using your flash. Additionally, the Auto Lighting Optimizer feature, covered in Chapter 4, can interfere with the effect produced by flash exposure compensation, so you might want to disable it.

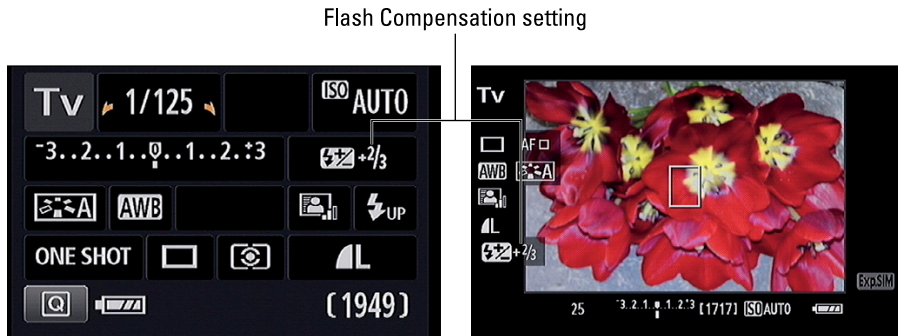


Figure 2-22: When flash compensation is enabled, the value appears onscreen during Live View shooting.

Locking the flash exposure

You might never notice it, but when you press the shutter button to take a picture with flash enabled, the camera emits a brief *preflash* before the actual flash. This preflash is used to determine the proper flash power needed to expose the image.



Occasionally, the information that the camera collects from the preflash can be off-target because of the assumptions the system makes about what area of the frame is likely to contain your subject. To address this problem, your camera has a feature called *Flash Exposure Lock*, or FE Lock. This tool enables you to set the flash power based on only the center of the frame.



Unfortunately, FE Lock isn't available in Live View mode. If you want to use this feature, you must abandon Live View and use the viewfinder to frame your images.

Follow these steps to use FE Lock:

- 1. With the flash raised, frame your photo so that your subject falls under the center autofocus point.**

You want your subject smack in the middle of the frame. You can reframe the shot after locking the flash exposure, if you want.

- 2. Press the shutter button halfway.**

The camera meters the light in the scene. If you're using autofocus, focus is set on your subject. (If focus is set on another spot in the frame, see Chapter 5 to find out how to select the center autofocus point.) You can now lift your finger off the shutter button, if you want.



3. While the subject is still under the center autofocus point, press and release the AE Lock button.

You can see the button in the margin here. The camera emits the pre-flash, and the letters FEL display for a second in the viewfinder. (FEL stands for *flash exposure lock*.) You also see the asterisk symbol — the one that appears above the AE Lock button on the camera body — next to the flash icon in the viewfinder.

4. If needed, reestablish focus on your subject.

In autofocus mode, press and hold the shutter button halfway. (Take this step only if you released the shutter button after Step 2.) In manual focus mode, twist the focusing ring on the lens to establish focus.

5. Reframe the image to the composition you want.

While you do, keep the shutter button pressed halfway to maintain focus if you're using autofocus.

6. Press the shutter button the rest of the way to take the picture.

The image is captured using the flash output setting you established in Step 3.



Using flash outdoors

Although most people think of flash as a tool for nighttime and low-light photography, adding a bit of light from the built-in flash can improve close-ups and portraits that you shoot outdoors during the day. After all, your main light source — the sun — is overhead, so although the top of the subject may be adequately lit, the front typically needs some additional illumination. And if your subject is in the shade, getting no direct light, using flash is even more critical.

Do be aware of a couple issues that arise when you supplement the sun with the built-in flash, however:

➤ **You may need to make a white balance adjustment.** Adding flash may result in colors that are slightly warmer (more yellow/red), or cooler (bluish) because the camera's white balancing system can get tripped up by mixed light sources. If you

don't appreciate the shift in colors, see Chapter 6 to find out how to make a white balance adjustment to solve the problem.

➤ **You may need to stop down the aperture or lower ISO to avoid overexposing the photo.** When you use flash, the fastest shutter speed you can use is 1/200 second, which may not be fast enough to produce a good exposure in very bright light when you use a wide-open aperture, even if you use the lowest possible ISO setting. If you want both flash *and* the short depth of field that comes with an open aperture, you can place a neutral density filter over your lens. This accessory reduces the light that comes through the lens without affecting colors. In addition, some Canon external flash units enable you to access the entire range of shutter speeds on the camera.



Flash exposure lock is also helpful when you're shooting portraits. The preflash sometimes causes people to blink, which means that with normal flash shooting, in which the actual flash and exposure occur immediately after the preflash, their eyes are closed at the exact moment of the exposure. With flash exposure lock, you can fire the preflash and then wait a second or two for the subject's eyes to recover before you take the actual picture.

Better yet, the flash exposure setting remains in force for about 16 seconds, meaning that you can shoot a series of images using the same flash setting without firing another preflash at all.

Investigating the other Shooting Menu flash options

In the P, Tv, Av, and M modes, selecting the Flash Control option on the Shooting Menu, as shown in Figure 2-23, enables you to take advantage of the following flash settings:

- ✓ **Flash Firing:** Normally, this option is set to Enable. If you want to disable the flash, you can choose Disable instead. However, you don't have to take this step in most cases — just close the pop-up flash head on top of the camera if you don't want to use flash.

What's the point of this option, then? Well, if you use autofocus in dim lighting, the camera may need some help finding its target. To that end, it sometimes emits an *AF-assist beam* from the flash head — the beam is a series of rapid pulses of light. If you want the benefit of the AF-assist beam but you don't want the flash to fire, you can disable flash firing. Remember that you have to pop up the flash unit to expose the lamp that emits the beam. You also can take advantage of this option when you attach an external flash head.

- ✓ **Built-In Flash Function Setting:** If you highlight this option and press Set, you display the screen shown in Figure 2-24, which offers the following options related to using the built-in flash:

- **Flash Mode:** Ignore this option. It's related to using an external flash and isn't adjustable when you use the built-in flash. (Don't ask us why it's on the menu; Canon never consults with us on this stuff.)

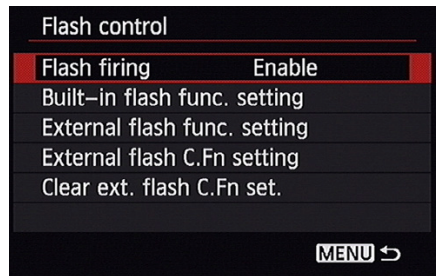


Figure 2-23: You can customize additional flash options through the Shooting menu.

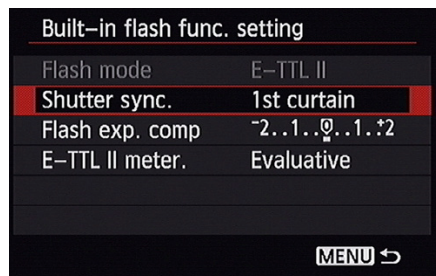


Figure 2-24: These advanced flash options affect only the built-in flash.

- *Shutter Sync*: By default, the flash fires at the beginning of the exposure. This flash timing, known as *1st curtain sync*, is the best choice for most subjects. However, if you use a very slow shutter speed and you're photographing a moving object, 1st curtain sync causes the blur that results from the motion to appear in front of the object, which doesn't make much visual sense.

To solve this problem, you can change the Shutter Sync option to *2nd curtain sync*, also known as *rear-curtain sync*. In this Flash mode, the motion trails appear behind the moving object. The flash fires twice in this mode: once when you press the shutter button and again at the end of the exposure.

- *Flash Exposure Compensation*: This setting adjusts the power of the built-in flash; see the earlier section "Adjusting flash power with Flash Exposure Compensation" for details. (This menu option is the only way to adjust flash power for Live View shooting.)
- *E-TTL II Metering*: Your camera uses a flash-metering system that Canon calls E-TTL II. The *E* stands for *evaluative*, *TTL* stands for *through the lens*, and *II* refers to the fact that this system is an update to the first version of the system.

This menu option enables you to choose from two flash metering setups. In the default mode, Evaluative, the camera exposes the background using ambient light when possible and then sets the flash power to serve as fill light on the subject. If you instead select the Average option, the flash is used as the primary light source, meaning that the flash power is set to expose the entire scene without relying on ambient light. Typically, this results in a more powerful (and possibly harsh) flash lighting and dark backgrounds.

- ✓ **External Flash controls:** The last three options on the Flash Control list relate to external flash heads; they don't affect the performance of the built-in flash. However, they apply only to Canon EX-series Speedlites that enable you to control the flash through the camera. If you own such a flash, refer to the flash manual for details.

Taking Great Pictures, Automatically

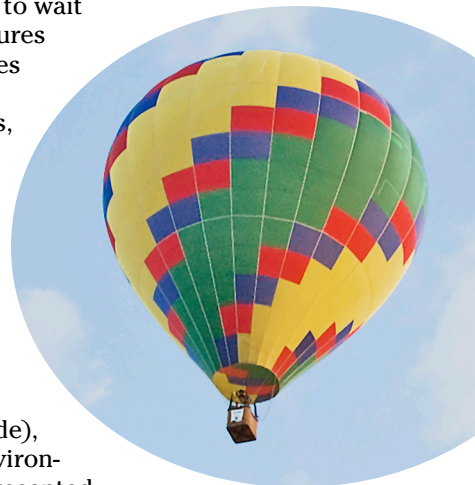
In This Chapter

- ▶ Shooting your first pictures in Scene Intelligent Auto mode
 - ▶ Trying Live View photography
 - ▶ Getting creative by using scene modes
 - ▶ Understanding the Ambience and Lighting/Scene Type features
 - ▶ Gaining more control with Creative Auto mode
-

Your camera is loaded with features for the advanced photographer, enabling you to exert precise control over f-stop, shutter speed, ISO, flash power, and much more. But you don't have to wait until you understand those options to take great pictures because your camera also offers eight exposure modes that provide point-and-shoot simplicity. This chapter shows you how to get the best results in those modes, including Scene Intelligent Auto, Flash Off, the five scene modes, and Creative Auto.

Shooting in Auto and Flash Off Modes

For the simplest camera operation, set the camera to Scene Intelligent Auto mode (also known as Auto mode), as shown in Figure 3-1. Or, if you're shooting in an environment that doesn't permit flash, choose Flash Off, represented by the symbol labeled in the figure. This mode works the same as Auto but, as its name promises, prevents the flash from firing.





Officially, Auto mode is called Scene Intelligent Auto mode. The name stems from the fact that in this mode, the camera uses its digital brain to analyze the scene — it's a smart camera, see — and then selects the most appropriate picture settings for that scene. We won't tell anyone at Canon if you stick with plain old "Auto" when referring to this mode, as we usually do.

Although the camera handles most picture-taking chores for you in both modes, you do need to consider a few settings, starting with whether you want to use the viewfinder to compose the photo or enable Live View, which sends a live preview of the subject to the camera monitor. Your choice makes a difference in how the camera's autofocus system works and, therefore, how you need to take the picture. The next section shows you how things work for viewfinder photography; following that, we show you how to take a picture in Live View mode.

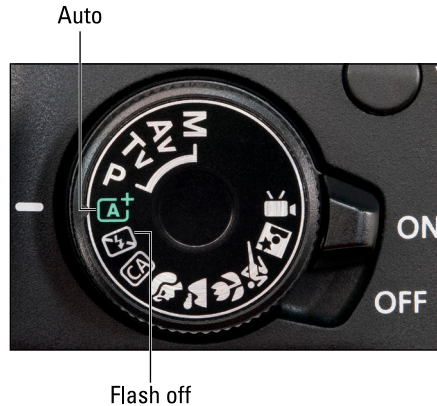


Figure 3-1: Set the Mode dial to Auto or Auto Flash Off for point-and-shoot simplicity.



Both sets of instructions assume that you're using the camera's default settings. To restore the defaults, set the Mode dial to P, Tv, Av, or M and then choose Clear Settings from Setup Menu 3. (You can't access this menu option in any of the point-and-shoot modes.)

Viewfinder photography in Auto and Flash Off modes

The following steps show you how to take a picture using the Auto or Flash Off mode, relying on the default camera settings and autofocus. If your lens doesn't autofocus with the T5/1200D, ignore the focusing instructions and focus manually.

- 1. Set the Mode dial to Auto, as shown in Figure 3-1.**
Or, for flash-free photography, select the Flash Off mode.
- 2. Set the lens focusing method to autofocus.**
On the 18–55mm kit lens, set the switch to AF.
- 3. Looking through the viewfinder, frame the image so that your subject appears under an autofocus point.**

The *autofocus points* are those nine rectangles clustered in the center of the viewfinder, as shown in Figure 3-2.

Framing your subject so that it falls under the center autofocus point typically produces the fastest and most accurate autofocus. (In this



case, one of the Correll family cats, Skittles, consented to sit still for a moment and help Robert illustrate the autofocus points.)

4. Press and hold the shutter button halfway down.

The camera's autofocus and autoexposure meters begin to do their thing. In Auto exposure mode, the flash pops up if the camera thinks additional light is needed to expose the subject. Additionally, the flash may emit an *AF-assist beam*, a few rapid pulses of light designed to help the autofocusing mechanism find its target. (The *AF* stands for autofocus.)

When the camera establishes focus, one or more of the autofocus points blink red to indicate which areas of the frame are in focus. For example, in Figure 3-3, four points over Skittles are lit, showing that everything under those points (his neck, shoulder, front leg, and hip) is in focus.

In most cases, you also hear a tiny beep, and the focus indicator in the viewfinder lights, as shown in Figure 3-3. Focus is locked as long as you keep the shutter button halfway down.

If the camera senses motion in front of the lens, however, you may hear a series of small beeps, and the focus lamp may not light. Both signals mean that the camera switched to an autofocusing option that enables it to adjust focus as necessary up to the time you take the picture. For this feature to work, you need to keep the subject framed within the area covered by the autofocus points.

5. Press the shutter button the rest of the way down to record the image.

When the recording process is finished, the picture appears briefly on the camera monitor. If the picture doesn't appear or you want to take a longer look at the image, see Chapter 9, which covers picture playback.

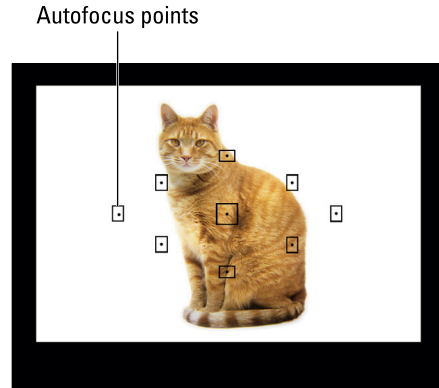


Photo by Robert Correll

Figure 3-2: The tiny rectangles in the viewfinder indicate autofocus points.

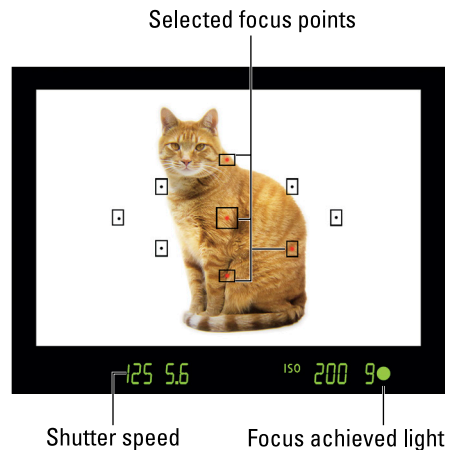


Photo by Robert Correll

Figure 3-3: When you photograph stationary subjects, the green focus indicator lights when the camera locks focus.





Help! My camera won't take the picture!

If the camera doesn't take a picture when you press the shutter button, don't panic: This error is likely related to autofocusing. When you shoot a stationary subject, the camera uses an auto-focusing feature (One-Shot AF) that prevents the shutter release until focus is achieved. You can press the shutter button all day, and the camera just ignores you if it can't set focus.

Try backing away from your subject a little — you may be exceeding the minimum focusing distance of the lens. If that doesn't work, the subject just may not be conducive to autofocusing. Highly reflective objects, scenes with very little contrast, and subjects behind

fences are some of the troublemakers. The easiest solution? Switch to manual focusing.

The camera also refuses to release the shutter if you don't have a memory card installed and the Release Shutter without Card option on Shooting Menu 1 is set to Disable, as we recommend in Chapter 1. (If you set the option to Enable, the camera records a temporary image that disappears a few seconds after you shoot it.) You also can't take a picture if there's insufficient space on the memory card to hold the file. One potential fix for that situation is to change the Image Quality setting, explained in Chapter 2, selecting a setting that results in a smaller picture file.

We need to add just a few more pointers:



- ✓ **Exposure:** After the camera meters exposure, it displays its chosen exposure settings at the bottom of the viewfinder, as shown in Figure 3-3. You can ignore all this data except for the shutter speed value, labeled in the figure. If that value blinks, the camera needs to use a slow shutter speed (long exposure time) to expose the picture. Because any movement of the camera or subject can blur the picture at a slow shutter speed, use a tripod and tell your subject to remain as still as possible. Also turn on Image Stabilization, if your lens offers that feature, to help compensate for slight camera movement. (On the kit lens, set the Stabilizer switch to the On position.)

Additionally, dim lighting may force the camera to use a high ISO setting, which increases the camera's sensitivity to light. Unfortunately, a high ISO can create *noise*, a defect that makes your picture look grainy. See Chapter 4 for tips on dealing with this and other exposure problems.

- ✓ **Drive mode:** By default, the camera uses the Single mode, which means you get one picture for each press of the shutter button. To change to other settings, including Self-Timer mode, see Chapter 2.
- ✓ **Flash:** The built-in flash has a relatively short reach, so if the flash fires but your picture is still too dark, move closer to the subject.

In Full Auto mode, you can set the flash to the Red-Eye Reduction mode (the control lives on Shooting Menu 1). Chapter 2 provides the full story.

- ✓ **Autofocusing:** If the camera can't establish focus, you may be too close to your subject. Additionally, some scenes simply confuse autofocusing systems — water, highly reflective objects, and subjects behind fences are some problematic subjects. Just switch to manual focusing and set focus yourself as outlined in Chapter 1.

Live View photography in Auto and Flash Off modes

Follow these steps to take a picture in Live View mode using autofocusing and the default settings for Auto and Auto Flash Off modes:

1. Set the Mode dial to Auto or Flash Off.

Refer to Figure 3-1 if you need help locating the symbols that represent these shooting modes.

2. Set the lens focusing method to autofocusing.

On the 18–55mm kit lens, set the switch to AF.

For handheld shots, also enable Image Stabilization, if your lens offers it. (On the kit lens, set the Stabilizer switch to On.) This feature helps to compensate for small amounts of camera shake that can blur an image when you handhold the camera.

3. Press the Live View button to engage Live View.

The viewfinder pulls the blanket over its head and goes to sleep, and the scene in front of the lens appears on the monitor. What data you see superimposed on top of the scene depends on your display mode; press Disp to cycle through the available display options.

If you press the button and nothing happens, Live View may be disabled. To turn it back on, set the Live View Shooting option on Shooting Menu 4 to Enable, which is the default setting. You can get to this option only when the Mode dial is set to P, Tv, Av, or M.

4. Focus.

The default Live View AF (auto-focus) mode is called FlexiZone-Single. In this mode, you use the cross keys to move the focus frame, labeled in Figure 3-4, over your subject. Then press the Shutter button halfway and hold it there to initiate autofocusing. When focus is achieved, the focus frame turns green and the camera beeps, signifying that you're ready to shoot.

For details on other Live View focusing options, see Chapter 5.

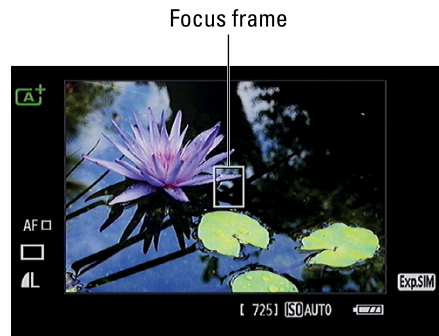


Figure 3-4: Move the focus frame over your subject and press the shutter button halfway to focus.

5. Press the shutter button fully to take the shot.

You see your just-captured image on the monitor for a few seconds before the Live View preview returns.



6. To exit the Live View preview, press the Live View button.

You see the standard Shooting Settings screen. You can then return to framing your images through the viewfinder.

For some tips on exposure, flash, and autofocus, see the end of the preceding section: All the notes provided there for viewfinder photography apply to Live View photography as well.

Taking Advantage of Scene (Image Zone) Modes

In Scene Intelligent Auto and Flash Off modes, the camera tries to figure out what type of picture you want to take. If you don't want to rely on the camera to make that judgment, you can choose from one of five Image Zone modes, more commonly known as *scene modes* because they're designed to capture specific scenes using traditional recipes.



The following sections apply to viewfinder as well as Live View shooting. However, autofocus works differently depending on whether you use the viewfinder or Live View. For viewfinder shooting, you can't deviate from the default autofocus settings, which work as outlined in the earlier section "Viewfinder photography in Auto and Flash Off modes." When you shoot in Live View mode, you can choose from three AF (autofocus) modes. For now, stick with the default, Flexi-Zone Single, which works as detailed in the steps in the preceding section. When you're ready to explore the other two options (Quick mode and Face Detection Live mode) and dig into other viewfinder focusing options as well, visit Chapter 5.

Choosing a scene mode

To select a scene mode, turn the Mode dial to the icon that represents the type of picture you want to take. Figure 3-5 labels the icons that represent each mode.

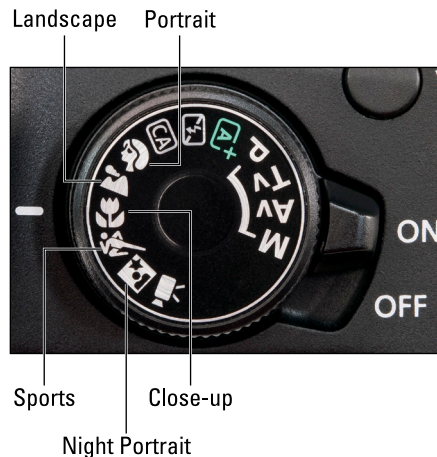


Figure 3-5: These icons represent automatic exposure modes geared to specific types of scenes.

As for the actual picture-taking process, everything works pretty much as outlined in the steps provided earlier, in the first section of this chapter. You do need to be aware of a few variations on the theme, which we spell out in the upcoming sections detailing each scene mode.

Portrait mode



Portrait mode is designed to produce the classic portraiture look featured in Figure 3-6: a sharply focused subject against a blurred background. In photography lingo, this picture has a *short depth of field*.



Figure 3-6: Portrait setting produces a softly focused background.



One way to control depth of field is to adjust an exposure control called *aperture*, or *f-stop setting*, so Portrait mode attempts to use an f-stop setting that produces a short depth of field. But the range of f-stops available to the camera depends on the lens and the lighting conditions, so one picture taken in Portrait mode may look very different from another. Additionally, the amount of background blurring depends on a couple other factors, all covered in Chapter 5. In other words, your mileage may vary.

Along with favoring an f-stop that produces a shorter depth of field, Portrait mode results in a slightly less sharp image, the idea being to keep skin

texture soft. Colors are also adjusted to enhance skin tones. A few other facts to note:

- ✓ **Drive mode:** The Drive mode is set to Continuous by default, which means that the camera records a series of images in rapid succession as long as you hold down the shutter button. This technique comes in handy if your subject can't be counted on to remain still for very long — a toddler or pet, for example. But you have the option of changing to any of the other Drive modes. See Chapter 2 for details.
- ✓ **Flash:** The flash fires if the camera deems extra lighting is needed. For outdoor portraits, this can pose a problem: Flash generally improves outdoor portraits, and if the ambient light is very bright, the camera may not think you need flash. You can switch to Creative Auto mode or one of the advanced exposure modes to take control of flash firing.

If the camera does pop up the flash, you can enable or disable Red-Eye Reduction flash via Shooting Menu 1.
- ✓ **Autofocusing:** The camera locks focus when you press the shutter button halfway, typically selecting the closest object that falls under one of the focus points (or the focus frame, in Live View mode).

Landscape mode



Landscape mode, designed for capturing scenic vistas, city skylines, and other large-scale subjects, produces a large depth of field. As a result, objects both close to the camera and at a distance appear sharply focused, as in Figure 3-7.

Like Portrait mode, Landscape mode achieves its depth-of-field goal by manipulating the aperture (f-stop) setting. Consequently, the extent to which the camera can succeed in keeping everything in sharp focus depends on your lens and on the available light. To fully understand this issue and other factors that affect depth of field, see Chapters 4 and 5.

Whereas Portrait mode tweaks the image to produce soft, flattering skin tones, Landscape mode results in sharper, more contrasty, photos. Color



Figure 3-7: Landscape mode produces a large zone of sharp focus.

saturation is increased as well, and blues and greens appear especially bold. Other critical settings work as follows:

- ✓ **Drive mode:** The default setting is Single, which records one image for each press of the shutter button. As with the other scene modes, you can switch to any of the other Drive modes if you prefer. See Chapter 2 for an explanation of your options.
- ✓ **Flash:** The built-in flash is disabled, which is typically no big deal. Because of its limited range, the flash is of little use when shooting most landscapes, anyway. But for some still-life shots, such as of a statue at close range, a flash may prove helpful. Try switching to Creative Auto mode, detailed later in this chapter, if you want to use flash.
- ✓ **Autofocusing:** Focus locks when you press the shutter button halfway. Focus usually is set on the nearest object that falls under one of the nine autofocus points (viewfinder photography) or focus frame (Live View mode).

Close-up mode



Switching to Close-up mode doesn't enable you to focus at a closer distance to your subject than normal as it does on some non-SLR cameras. The close-focusing capabilities of your camera depend entirely on the lens you use. (Your lens manual should specify the minimum focusing distance.)

Choosing Close-up mode does tell the camera to try to select an aperture (f-stop) setting that results in a short depth of field, which blurs background objects so that they don't compete for attention with your main subject. Julie took this creative approach to capture the orchid in Figure 3-8, for example. As with Portrait mode, though, how much the background blurs varies depending on a number of factors, all detailed in Chapter 5. For greater background blurring, move the subject farther from the background, use a telephoto lens (or zoom to the longest focal length your lens offers), and get closer to the subject. Also keep in mind that objects in front of your subject may also appear blurry with a very short depth of field.

As far as color, sharpness, and contrast, the camera doesn't play with those characteristics as it does in Portrait and Landscape modes. So in that regard, Close-up mode is the same as Scene Intelligent Auto and Flash Off modes.

These other settings apply to Close-up mode:

- ✓ **Drive mode:** The Drive mode is set to Single by default, so you record one photo each time you fully press the shutter button. However, you can use any of the other options you prefer. Don't know how those work? Chapter 2 explains.
- ✓ **Flash:** Flash is set to Auto, so the camera decides whether the picture needs the extra light from the flash. If the camera enables the flash, you can turn Red-Eye Reduction flash on or off via Shooting Menu 1.



Figure 3-8: Close-up mode also produces short depth of field.

✓ **Autofocusing:** When you press the shutter button halfway, the camera locks focus, usually on the nearest object (or the focus frame, in Live View mode). If you have trouble focusing, first make sure that you're not *too* close up: Remember, every lens has a minimum close-focusing distance.

Sports mode



Sports mode results in a number of settings that can help you photograph moving subjects, such as the soccer player in Figure 3-9. First, the camera selects a fast shutter speed, which is needed to “stop motion.” *Shutter speed* is an exposure control that you can explore in Chapter 4.

Colors, sharpness, and contrast are all standard in Sports mode, with none of the adjustments that occur in Portrait and Landscape mode. Other settings to note include the following:



Figure 3-9: To capture moving subjects and minimize blur, try Sports mode.

- ✓ **Drive mode:** To enable rapid-fire image capture, the Drive mode is set to Continuous by default. This mode enables you to record multiple frames with a single press of the shutter button. To find out about other Drive mode options, see Chapter 2.
- ✓ **Flash:** Flash is disabled, which can be a problem in low-light situations but also enables you to shoot more quickly because the flash needs time to recycle between shots. In addition, disabling the flash permits a faster shutter speed; when the flash is on, the maximum shutter speed is 1/200 second, which may not be fast enough to freeze quickly moving subjects. (See Chapter 2 for details about flash and shutter speeds.)
- ✓ **Autofocusing:** Frankly, we don't recommend using Live View to shoot action unless you're willing to focus manually. There is no way to continually focus on a moving subject in Live View mode.

For viewfinder photography, the camera uses continuous autofocusing. When you press the shutter button halfway, the camera establishes focus on whatever is under the center focus point. But if the subject moves, the camera attempts to refocus up to the moment you take the picture.

For this feature to work correctly, you must adjust framing so that your subject remains within one of the autofocus points.



The other critical thing to understand about Sports mode is that whether the camera can select a shutter speed fast enough to stop motion depends on the available light and the speed of the subject itself. In dim lighting, a subject that's moving at a rapid pace may appear blurry even when photographed in Sports mode. And the camera may need to increase light sensitivity by boosting the ISO setting, which has the unhappy side effect of creating *noise*, a defect that looks like grains of sand.

Night Portrait mode



As its name implies, Night Portrait mode is designed to deliver a better-looking portrait at night (or in any dimly lit environment). Night Portrait does so by combining flash with a slow shutter speed. That slow shutter speed produces a longer exposure time, which enables the camera to rely more on ambient light and less on the flash to expose the picture. The result is a brighter background and softer, more even lighting.



Shutter speed is covered in detail in Chapter 4. For now, the important thing to know is that the slower shutter speed used by Night Portrait mode means that you need a tripod. If you handhold the camera, you run the risk of camera shake blurring the image. Your subjects also must stay still during the exposure.

Night Portrait mode also differs from regular Portrait mode in that it renders the scene in the same way as Scene Intelligent Auto in terms of colors, contrast, and sharpness. So shots taken in Night Portrait mode typically display sharper, bolder colors than those taken in Portrait mode.

Other Night Portrait settings to note:

- ✓ **Drive mode:** The default setting is Single, but you also can switch to any of the other Drive mode options.
- ✓ **Autofocusing:** The AF mode for viewfinder photography is set to One-Shot, which locks focus when you press the shutter button halfway down. For Live View, the default AF mode (which you can change) is FlexiZone-Single,

Modifying scene mode results

With certain scene modes, you can play around a little with color, sharpness, contrast, and exposure through the Shoot by Ambience and Shoot by Lighting or Scene Type features.



Key words here: play around *a little*. These features don't give you anywhere near the level of control as the advanced exposure modes (P, Tv, Av, and M) or even as much as Creative Auto mode, explained at the end of this chapter. But they do offer an easy way to start exploring your creative possibilities and begin thinking about how *you* want to record a scene.

Our only beef with these two features is that they aren't presented in the most user-friendly fashion, especially for the novice photographer — heck, even for the advanced photographer. For starters, the feature names don't give you a lot of information about what you can accomplish by using them. And the displayed names of the default settings — shown on the Shooting Settings screen and Live View display in Figure 3-10 — are Standard and Default. Well, that's helpful, huh? Then again, if it weren't for confusing stuff like this, you might not need our input, so we probably shouldn't complain.

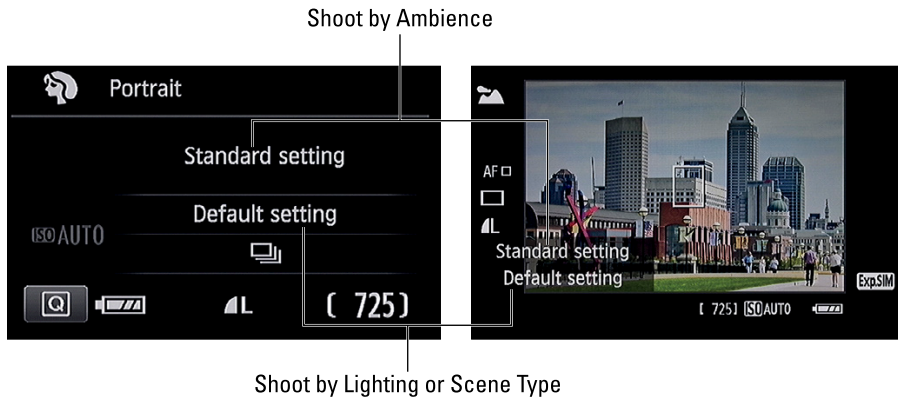


Figure 3-10: These settings enable you to adjust picture color, contrast, sharpness, and exposure when shooting in the scene modes.

At any rate, here's a quick explanation of each feature:

- ✓ **Shoot by Ambience:** With this option, you can affect the color, exposure, contrast, and sharpness of your pictures. This option is available in all the scene modes. You also can use it in Creative Auto mode, explained later in this chapter.
- ✓ **Shoot by Lighting or Scene Type:** This option, available in Portrait, Landscape, Close-up, and Sports modes, is designed to remove unwanted color casts that can occur if the camera can't properly compensate for the color of the light source (for example, the red glow of candlelight may cause skin colors to look too red).

The next two sections give you an idea of what you can accomplish with these options; following that, you can find step-by-step instructions for using them on your next shot.

Taking a look at the Shoot by Ambience options

For Shoot by Ambience, you can choose from these settings:

- ✓ **Standard:** Consider this the “off” setting. When you select this option, the camera makes no adjustment to the characteristics normally produced by your selected scene mode.
- ✓ **Vivid:** Increases contrast, color saturation, and sharpness.
- ✓ **Soft:** Creates the appearance of slightly softer focus.
- ✓ **Warm:** Warms (adds a reddish-orange color cast) and softens.
- ✓ **Intense:** Boosts contrast and saturation (color intensity) even more than the Vivid setting.
- ✓ **Cool:** Adds a cool (blue) color cast.
- ✓ **Brighter:** Lightens the photo.
- ✓ **Darker:** Darkens the photo.
- ✓ **Monochrome:** Creates a black-and-white photo, with an optional color tint.



All adjustments are applied *in addition* to whatever adjustments occur by virtue of your selected scene mode. For example, Landscape mode already produces slightly sharper, more vivid colors than normal. If you add the Vivid Shoot by Ambience option, you amp things up another notch.

In addition, you can control the amount of the adjustment through a related setting, Effect (another less-than-clear feature name, if you ask us). You can choose from three Effect levels. The level name and its effect depends on the adjustment you choose. Most Effects have Low, Standard, and Strong settings. Darker and Lighter have Low, Medium, and High settings. In the case of the Monochrome setting, the Effect setting enables you to switch from a black-and-white image to a monochrome image with a warm (sepia) or cool (blue) tint.

As a quick example of the color effects you can create, Figure 3-11 shows the same subject taken at four different Shoot by Ambience settings. Julie took all pictures in the Landscape scene mode. For the three variations — Vivid, Warm, and Intense — she applied the maximum level of adjustment, setting the Effect option to Strong.



Figure 3-11: To create these Shoot by Ambience variations, Julie used the maximum amount of adjustment for the Vivid, Warm, and Intense settings.



Although the color effects are entertaining, we think you'll get more use out of the Brighter and Darker settings, as they give you a way to overrule the camera's exposure decisions. For example, in the left image in Figure 3-12, the exposure of the background was fine, but the flower was overexposed. So Julie set the Shoot by Ambience option to Darker, set the Effect option to Medium, and shot the flower again.



Figure 3-12: If the initial exposure leaves your subject too bright, choose the Darker setting and reshoot.

Eliminating color casts with Shoot by Lighting or Scene Type

This option might be better named Eliminate Color Cast because that's what it's designed to do: Remove unwanted color casts that can occur when the camera makes a *white balance* misstep.



Chapter 6 explains white balancing fully, but in short, it has to do with the fact that every light source emits its own color cast — candlelight, a warm hue, flash, a slightly cool hue, and so on. The camera's White Balance setting is the mechanism that compensates for the color of the light so that colors in the scene are rendered accurately. Normally, the camera uses automatic white balancing and things turn out just fine. But if a scene is lit by different types of light, the camera sometimes gets confused, and colors may be out of whack.

In the advanced exposure modes, you deal with color casts by changing the White Balance setting; again, Chapter 6 shows you how. You can't access the White Balance setting in the scene modes, but in Portrait, Landscape, Close-up, and Sports modes, you can use the Shoot by Lighting or Scene Type option to tell the camera to balance colors for a specific light source.

You can choose from the following settings:

- ✓ **Default:** Colors are balanced for the light source automatically.
- ✓ **Daylight:** For bright sunlight.
- ✓ **Shade:** For subjects in shade.
- ✓ **Cloudy:** For shooting under overcast skies.
- ✓ **Tungsten Light:** For incandescent and tungsten bulbs; not available for Landscape scene mode.
- ✓ **Fluorescent Light:** For subjects lit by fluorescents (although this may not be suitable for some compact-fluorescent lights — try tungsten if you get bad results). Also not available for Landscape scene mode.
- ✓ **Sunset:** Helps capture brilliant sunset colors, especially when you're shooting into the sun. (P.S.: Don't aim the lens directly at the sun or look through the viewfinder directly into the sun. You can damage the camera and hurt your eyes.)

Adjusting (and previewing) the "Shoot by" settings

The two "Shoot by" options together determine your final photo colors and exposure. So being able to preview the possible combinations of settings without having to take a bunch of shots to experiment would be great, yes?

Well, luckily, you can enjoy that advantage in Live View mode. As you vary the Shoot by Ambience and Shoot by Lighting or Scene Type settings, the Live View display updates to show you how the subject will be rendered. (Note that the Live View preview isn't always 100-percent accurate, especially in terms of image brightness, but it's fairly close.)

The following steps explain how to select the "Shoot by" settings in Live View mode. (Remember that you can always preview and select the options and then switch back to viewfinder shooting to take the picture if you prefer.) Canon recommends that you set the Shoot by Lighting or Scene Type option first, so that's how the steps flow.



The Shoot by Lighting or Scene Type options are available in the Portrait, Landscape, Close-up, and Sports modes only. So to try out the following steps, set the camera to one of those modes and then follow these instructions:

1. Press the Live View button to shift to Live View mode.
2. Press the Q button to shift to the Quick Control display.
3. Select the Shoot by Lighting or Scene Type option, as shown on the left in Figure 3-13.

The name of the current setting is shown along the side of the screen. Descriptive text appears at the bottom. For example, on the left side of Figure 3-13, the Default (no adjustment) setting is selected and you are reminded that it is a light or scene-based setting.

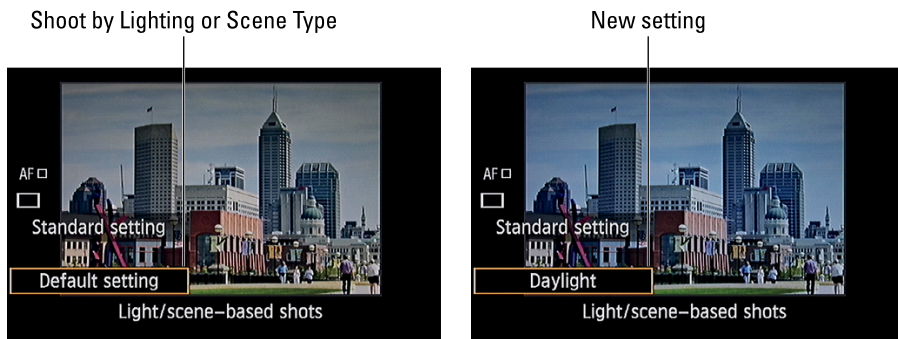


Figure 3-13: This control enables you to adjust the Shoot by Lighting or Scene Type setting.

4. Rotate the Main dial to cycle through the settings.



This setting is designed to remove unwanted color casts from a scene. But there's nothing preventing you from using the option to *add* a slight cast to the scene if your heart desires. You may like the effect of making your subject look a little warmer or cooler, and again, you can see the results of each setting on the camera monitor. What impact any setting has on your subject depends on the actual lighting conditions. In the right image in Figure 3-13, choosing the Daylight option made colors bluer, for example.

5. Use the cross keys to select the Shoot by Ambience option, labeled in Figure 3-14.

By default, the Standard setting is used.

6. Rotate the Main dial to change the Shoot by Ambience setting.

As soon as you rotate the dial, you see the impact of the newly selected ambience setting on the scene. For example, on the left side of Figure 3-15, the preview shows the result of changing from the Standard setting to the Brighter setting. In addition, the Effect setting, which determines the level at which the adjustment is applied, becomes available. We labeled this option on the right side of Figure 3-15.

Shoot by Ambience

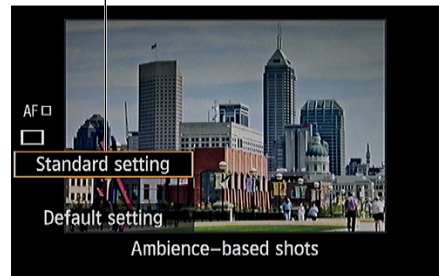


Figure 3-14: Use the Quick Control screen to access the Shoot by Ambience setting, too.

Shoot by Ambience setting



Effect setting

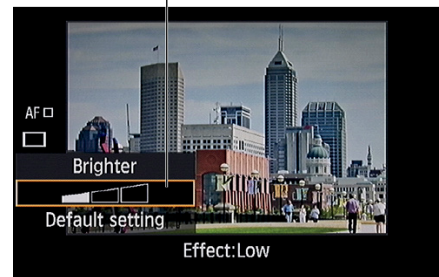


Figure 3-15: After highlighting the Shoot by Ambience option, rotate the Main dial to change the setting and display the Effect control.

7. Use the cross keys to select the Effect setting and rotate the Main dial to set the level of the adjustment.

You then can choose from Low (one notch on the little gauge), Standard or Medium (medium impact, represented by two notches), or Strong (three notches).

You're now ready to take the picture. Again, you can exit Live View mode if you prefer; the settings you just dialed in stay in force for both Live View and viewfinder shooting until you change them.



If you already know what settings you want to use, you can get the job done more quickly by staying out of Live View mode and just using the Quick Control screen to dial in both options. Refer to Figure 3-10 to see the location of the two settings on the Shooting Settings screen.

Gaining More Control with Creative Auto

CA Creative Auto mode, represented on the Mode dial by the letters CA, offers a bit more control over the look of your pictures than is possible in the scene modes or Auto and Flash Off modes. If you check the monitor after taking a shot and don't like the results, you can make the following adjustments for your next shot:

- ✓ Adjust color, sharpness, contrast, and exposure through the Shoot by Ambience option, as explained in the preceding few sections.
- ✓ Enable or disable the flash.
- ✓ Manipulate *depth of field*, or the distance over which focus appears acceptably sharp.

Figure 3-16 shows you where to look for the relevant controls in the Shooting Settings and Live View displays. You can adjust all the settings via the Quick Control screen.

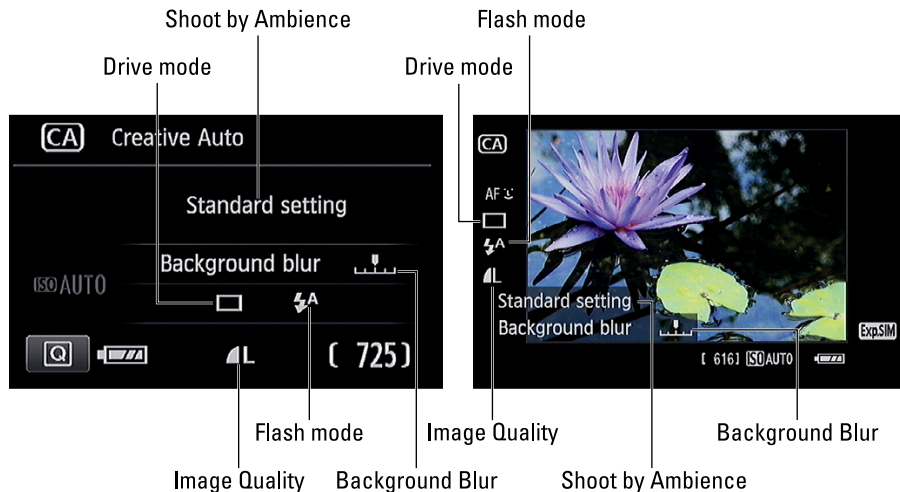


Figure 3-16: You can adjust these additional settings in Creative Auto mode.



The settings you choose remain in effect from shot to shot. If you turn the camera off or switch to a different exposure mode, though, the settings return to their defaults.

Here's what you need to know about each option:



✓ **Shoot by Ambience:** This setting enables you to alter how the camera processes the photo, enabling you to tweak color, contrast, and exposure slightly. The earlier section “Taking a look at the Shoot by Ambience options” explains this feature.

✓ **Flash:** You can choose from three flash settings:

- *Auto:* The camera fires the flash automatically if it thinks extra light is needed to expose the picture.
- *On:* The flash fires regardless of the ambient light.
- *Off:* The flash doesn't fire.

For the Auto and On settings, you can use the Red-Eye Reduction flash feature, found on Shooting Menu 1. See Chapter 2 for more information about flash photography.

✓ **Background Blur:** This feature is somewhat mislabeled. You can blur the background by adjusting the setting, but any objects in front of your subject may also become blurry. So apply with caution and do some test shots to find the right amount of blurring.

Unfortunately, this feature doesn't play nice with the flash. If you set the flash mode to On, the Background Blur bar becomes dimmed and out of your reach when the flash pops up. Ditto if you set the Flash mode to Auto and the camera sees a need for flash.

When you select the Background Blur option, you see the scale shown in Figure 3-16. Use the Main dial to move the indicator on the bar to the left to shorten depth of field; shift the indicator to the right to increase depth of field.

To find out more about depth of field, see Chapter 5. In the meantime, note these easy ways to tweak depth of field beyond using the Background Blur slider:

- *For blurrier backgrounds,* move the subject farther from the background, get closer to the subject, and zoom in to a tighter angle of view, if you use a zoom lens.
- *For sharper backgrounds,* do the opposite of the above.



Part II

Taking Creative Control



Visit www.dummies.com/extras/canoneosrebelt51200d for more great content.



In this part . . .

- ✔ Find out how to control exposure and shoot in the advanced exposure modes (P, Tv, Av, and M).
- ✔ Master the autofocus system and get help with manual focusing.
- ✔ Understand how to control depth of field.
- ✔ Manipulate color by using White Balance and other color options.
- ✔ Get pro tips for shooting portraits, action shots, landscapes, close-ups, and more.
- ✔ Take advantage of your camera's HD movie-recording features.

Taking Charge of Exposure

In This Chapter

- ▶ Getting a grip on aperture, shutter speed, and ISO
- ▶ Exploring advanced exposure modes: P, Tv, Av, and M
- ▶ Choosing an exposure metering mode
- ▶ Tweaking autoexposure results
- ▶ Taking advantage of Automatic Exposure Bracketing (AEB)

Understanding exposure is one of the most intimidating challenges for a new photographer — and for good reason. Discussions of the topic are loaded with technical terms — *aperture*, *metering*, *shutter speed*, and *ISO*, to name just a few — and your camera offers many exposure controls, all sporting equally foreign names.

We fully relate to the confusion you may be feeling — we’ve been there. But we can also promise that when you take things nice and slow, digesting a piece of the exposure pie at a time, the topic is *not* as complicated as it seems on the surface. The payoff will be worth your time, too: You’ll not only gain the know-how to solve just about any exposure problem but also discover ways to use exposure to put your creative stamp on a scene.

To that end, this chapter provides everything you need to know about controlling exposure, from a primer in exposure terminology (it’s not as bad as it sounds) to tips on using the P, TV, Av, and M exposure modes, which are the only ones that offer access to all exposure features.

Note: The one exposure-related topic not covered in this chapter is flash; we discuss flash in Chapter 2 because it’s among the options you can access even in Scene Intelligent Auto mode and many of the other point-and-shoot modes. Also, this chapter deals with still photography; see Chapter 8 for information on movie-recording exposure issues.



Introducing the Exposure Trio: Aperture, Shutter Speed, and ISO

Any photograph, whether taken with a film or digital camera, is created by focusing light through a lens onto a light-sensitive recording medium. In a film camera, the film negative serves as the medium; in a digital camera, it's the image sensor, which is an array of light-responsive computer chips.

Between the lens and the sensor are two barriers, the *aperture* and *shutter*, which together control how much light makes its way to the sensor. The actual design and arrangement of the aperture, shutter, and sensor vary depending on the camera, but Figure 4-1 offers an illustration of the basic concept.

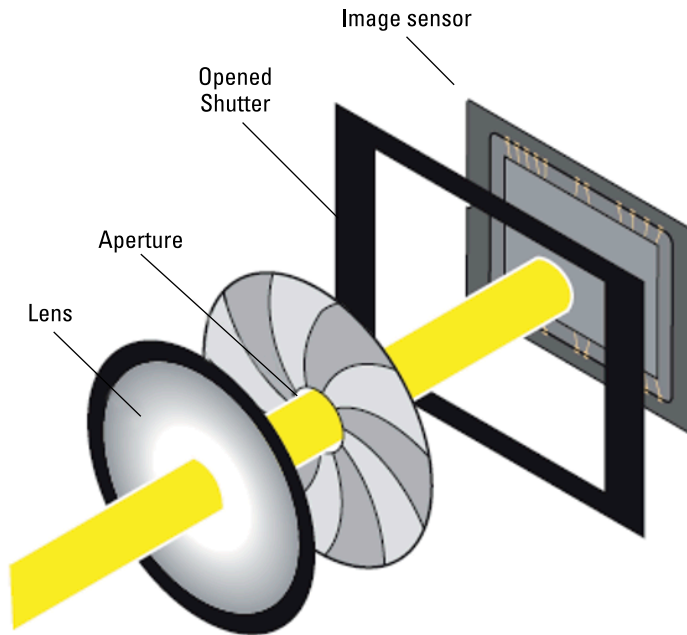


Figure 4-1: The aperture size and shutter speed determine how much light strikes the image sensor.

The aperture and shutter, along with a third feature, ISO, determine exposure — what most people would describe as picture brightness. This three-part exposure formula works as follows:

- ✓ **Aperture (controls amount of light):** The *aperture* is an adjustable hole in a diaphragm set inside the lens. By changing the size of the aperture, you control the size of the light beam that can enter the camera. Aperture settings are stated as *f-stop numbers*, or simply *f-stops*, and are expressed with the letter *f* followed by a number: $f/2$, $f/5.6$, $f/16$, and so on. The lower the f-stop number, the larger the aperture, as illustrated in Figure 4-2. The range of available aperture settings varies from lens to lens.

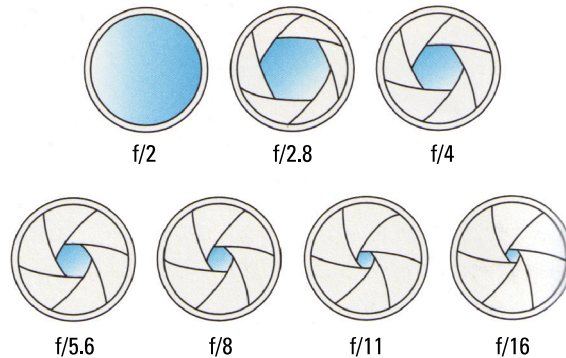


Figure 4-2: The smaller the f-stop number, the larger the aperture.

- ✓ **Shutter speed (controls duration of light):** Set behind the aperture, the shutter works something like, er, the shutters on a window. When you aren't taking pictures, the camera's shutter stays closed, preventing light from striking the image sensor. When you press the shutter button, the shutter opens briefly to allow light that passes through the aperture to hit the image sensor. The exception to this scenario is when you compose in Live View mode — the shutter remains open so that your image can form on the sensor and be displayed on the camera's LCD. In fact, when you press the shutter release in Live View mode, you hear several clicks as the shutter first closes and then reopens for the actual exposure.

The length of time that the shutter is open is the *shutter speed* and is measured in seconds: $1/60$ second, $1/250$ second, 2 seconds, and so on.

- ✓ **ISO (controls light sensitivity):** ISO, which is a digital function rather than a mechanical structure on the camera, enables you to adjust how responsive the image sensor is to light. The term *ISO* is a holdover from



film days, when an international standards organization rated each film stock according to light sensitivity: ISO 100, ISO 200, ISO 400, ISO 800, and so on. A higher ISO rating means greater light sensitivity.

On a digital camera, the sensor doesn't actually get more or less sensitive when you change the ISO — rather, the light “signal” that hits the sensor is either amplified or dampened through electronics wizardry, sort of like how raising the volume on a radio boosts the audio signal. But the upshot is the same as changing to a more light-reactive film stock: A higher ISO means that less light is needed to produce the image, enabling you to use a smaller aperture, faster shutter speed, or both.

Distilled to its essence, the image-exposure formula is this simple:

- ✓ Aperture and shutter speed together determine the quantity of light that strikes the image sensor.
- ✓ ISO determines how much the sensor reacts to that light.

The tricky part of the equation is that aperture, shutter speed, and ISO settings affect your pictures in ways that go *beyond* exposure:

- ✓ Aperture affects *depth of field*, or the distance over which focus appears sharp.
- ✓ Shutter speed determines whether moving objects appear blurry or sharply focused.
- ✓ ISO affects the amount of image *noise*, which is a defect that looks like tiny specks of sand.

You need to be aware of these side effects, explained in the next sections, to determine which combination of the three exposure settings will work best for your picture. If you're already familiar with this stuff and just want to know how to adjust exposure settings, skip ahead to the section “Setting ISO, f-stop, and Shutter Speed.”

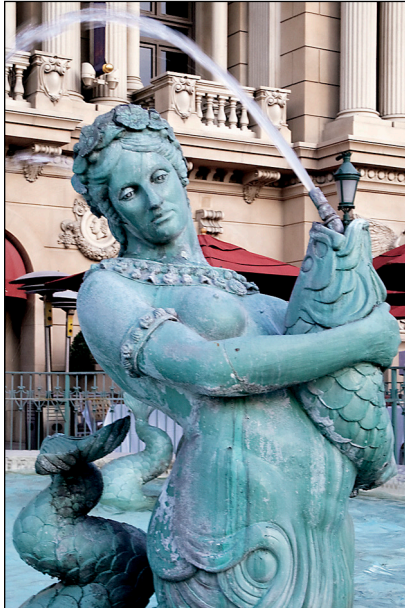
Aperture affects depth of field

The aperture setting, or f-stop, affects *depth of field*, or the distance over which sharp focus is maintained. With a shallow depth of field, your subject appears more sharply focused than faraway objects; with a large depth of field, the sharp-focus zone spreads over a greater distance.

When you reduce the aperture size — “stop down the aperture,” in photo lingo — by choosing a higher f-stop number, you increase depth of field. As an example, see Figure 4-3. For both shots, Julie established focus on the

fountain statue. Notice that the background in the first image, taken at $f/13$, is sharper than in the right example, taken at $f/5.6$. Aperture is just one contributor to depth of field, however; the focal length of the lens and the distance between that lens and your subject also affect how much of the scene stays in focus. See Chapter 5 for the complete story.

$f/13$, 1/25 second, ISO 200



$f/5.6$, 1/125 second, ISO 200

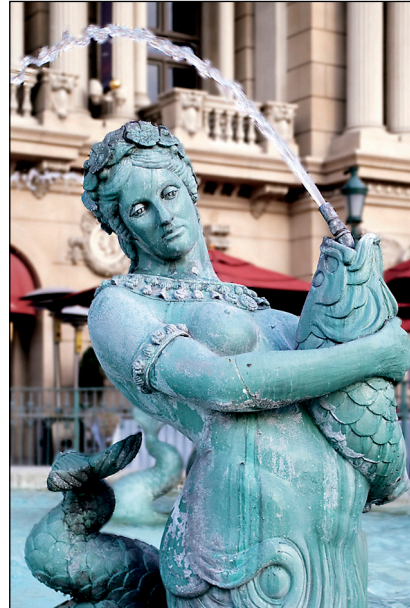


Figure 4-3: Widening the aperture (choosing a lower f -stop number) decreases depth of field.



One way to remember the relationship between f -stop and depth of field, or the distance over which focus remains sharp, is simply to think of the f as *focus*: The higher the f -stop number, the larger the zone of sharp *focus*. (Please *don't* share this tip with photography elites, who will roll their eyes and inform you that the f in *f-stop* most certainly does *not* stand for focus but, rather, for the ratio between aperture size and lens focal length — as if *that's* helpful to know if you aren't an optical engineer. Chapter 1 explains focal length, which is helpful to know.)

Shutter speed affects motion blur

At a slow shutter speed, moving objects appear blurry, whereas a fast shutter speed captures motion cleanly. This phenomenon has nothing to do with the actual focus point of the camera but rather on the movement occurring — and being recorded by the camera — while the shutter is open.

Handholding the camera: How low can you go?

When you handhold the camera, how slow a shutter speed you can use before you encounter the risk of blur-inducing camera shake depends on a couple factors, including your physical abilities and your lens — the heavier the lens, the harder it is to hold steady. Camera shake also affects your picture more when you shoot with a lens that has a long focal length. You may be able to use a slower shutter speed with a 55mm lens than with a 200mm lens, for example.

A standard photography rule is to use the inverse of the lens focal length as the minimum handheld shutter speed. For example, with a 50mm lens, use a shutter speed no slower than

1/50 second. That rule was developed before the advent of today's modern lenses, though, which tend to be significantly lighter and smaller than older lenses, as do cameras themselves. So the best idea is to do your own tests to see where your handholding limit lies. See Chapter 9 to find out how to select the picture-playback mode that enables you to see the shutter speed you used for each picture.

Remember, too, that if your lens offers Image Stabilization, turning on that feature can compensate for small amounts of camera shake. On the T5/1200D kit lens, just set the IS switch on the lens to the On position.

Compare the photos in Figure 4-3, for example. The static elements are perfectly focused in both images although the background in the left photo appears sharper because that image was shot using a higher f-stop, increasing the depth of field. But how the camera rendered the moving portion of the scene — the fountain water — was determined by shutter speed. At 1/25 second (left photo), the water blurs, giving it a misty look. At 1/125 second (right photo), the droplets appear more sharply focused, almost frozen in mid-air. How fast a shutter speed you need to freeze action depends on the speed of your subject.



If your picture suffers from overall image blur, like the picture shown in Figure 4-4, where even stationary objects appear out of focus, the camera moved during the exposure — which is always a danger when you handhold the camera at slow shutter speeds. The longer the exposure time, the longer you have to hold the camera still to avoid the blur caused by camera shake.

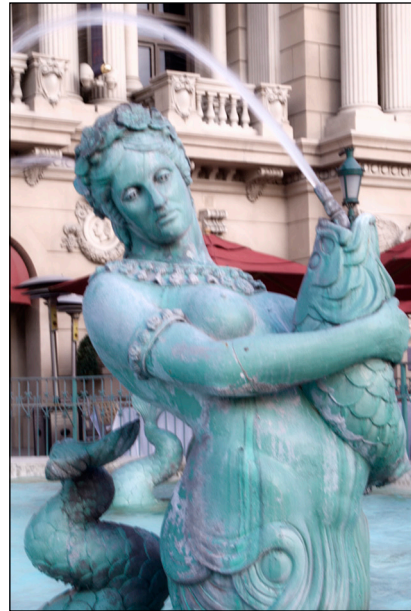


Figure 4-4: If both stationary and moving objects are blurry, camera shake is the usual cause.



Freezing action isn't the only way to use shutter speed to creative effect. When shooting waterfalls, for example, many photographers use a slow shutter speed to give the water even more of a blurry, romantic look than you see in the fountain example. With colorful subjects, a slow shutter can produce some cool abstract effects and create a heightened sense of motion. Chapter 7 offers examples of both effects.

ISO affects image noise

As ISO increases, making the image sensor more reactive to light, you increase the risk of *noise*. Noise looks like sprinkles of sand and is similar in appearance to film *grain*, a defect that often mars pictures taken with high ISO film. Figure 4-5 offers an example.



Figure 4-5: Noise is caused by a very high ISO or long exposure time, and it becomes more visible as you enlarge the image.

Ideally, then, you should always use the lowest ISO setting on your camera to ensure top image quality. But sometimes the lighting conditions don't permit you to do so. Take the rose photos in Figure 4-6 as an example. When Julie shot these pictures, she didn't have a tripod, so she needed a shutter speed fast enough to allow a sharp handheld image. She opened the aperture to $f/6.3$, which was the widest setting on the lens she was using, to allow as much light as possible into the camera. At ISO 100, the camera needed a

shutter speed of 1/40 second to expose the picture, and that shutter speed wasn't fast enough for a successful handheld shot. You see the blurred result on the left in Figure 4-6. Raising the ISO to 200 allowed a shutter speed of 1/80 second, which was fast enough to capture the flower cleanly, as shown on the right in the figure.

ISO 100, f/6.3, 1/40 second



ISO 200, f/6.3, 1/80 second



Figure 4-6: Raising the ISO allowed a faster shutter speed, which produced a sharper handheld shot.

Fortunately, you don't encounter serious noise on the T5/1200D until you really crank up the ISO. In fact, you may even be able to get away with a fairly high ISO if you keep your print or display size small. Some people probably wouldn't even notice the noise in the left image in Figure 4-5 unless they were looking for it, for example. But as with other image defects, noise becomes more apparent as you enlarge the photo, as shown on the right in that same figure. Noise is also easier to spot in shadow areas of your picture and in large areas of solid color.

How much noise is acceptable (and, therefore, how high an ISO is safe) is a personal choice. Even a little noise isn't acceptable for pictures that require the highest quality, such as images for a product catalog or a travel shot that you want to blow up to poster size.



It's also important to know that a high ISO isn't the only cause of noise: A long exposure time (slow shutter speed) can also produce the defect. So how high you can raise the ISO before the image gets ugly varies depending on shutter speed. We can pretty much guarantee, though, that your pictures will

exhibit visible noise at the camera's highest normal ISO setting, 6400. (You can bump that up to H, which is equivalent to ISO 12800, by enabling ISO Expansion in Custom Function 2.)



Doing the exposure balancing act

Aperture, shutter speed, and ISO combine to determine image brightness. So changing any one setting means that one or both of the others must also shift to maintain the same image brightness.

Suppose that you're shooting a soccer game and you notice that although the overall exposure looks great, the players appear slightly blurry at the current shutter speed. If you raise the shutter speed, you have to compensate with either a larger aperture, to allow in more light during the shorter exposure, or a higher ISO setting, to make the camera more sensitive to the light. Which way should you go? Well, it depends on whether you prefer the shorter depth of field that comes with a larger aperture or the increased risk of noise that accompanies a higher ISO. Of course, you can also adjust both settings to get the exposure results you need. (We explain how to actually adjust all these settings later.)

All photographers have their own approaches to finding the right combination of aperture, shutter speed, and ISO, and you'll no doubt develop your own system when you become more practiced at using the advanced exposure modes. In the meantime, here are some handy recommendations:

- ✓ Use the lowest possible ISO setting unless the lighting conditions are so poor that you can't use the aperture and shutter speed you want without raising the ISO.
- ✓ If your subject is moving, give shutter speed the next highest priority in your exposure decision. Choose a fast shutter speed to ensure a blur-free photo or, on the flip side, select a slow shutter speed to intentionally blur that moving object, an effect that can create a heightened sense of motion.
- ✓ For nonmoving subjects, make aperture a priority over shutter speed, setting the aperture according to the depth of field you have in mind. For portraits, for example, try using a wide-open aperture (a low f-stop number) to create a short depth of field and a nice, soft background for your subject.



Be careful not to go too shallow with depth of field when shooting a group portrait — unless all the subjects are the same distance from the camera, some may be outside the zone of sharp focus. A short depth of field also makes action shots more difficult because you have to be absolutely spot on with focus. With a larger depth of field, the subject can move a greater distance toward or away from you before leaving the sharp-focus area, giving you a bit of a focusing safety net.

Keeping all this information straight is a little overwhelming at first, but the more you work with your camera, the more the whole exposure equation will make sense to you. You can find tips in Chapter 7 for choosing exposure settings for specific types of pictures; keep moving through this chapter for details on how to monitor and adjust aperture, shutter speed, and ISO settings.

Stepping Up to Advanced Exposure Modes (P, Tv, Av, and M)

With your camera in Creative Auto mode, covered in Chapter 3, you can affect picture brightness and depth of field to some extent by using the Shoot by Ambience and Background Blur features. The scene modes let you request a slightly brighter or darker exposure via the Shoot by Ambience setting, but that's pretty much it. So if you're really concerned with these picture characteristics — and you should be — set the Mode dial to one of its four advanced exposure modes, highlighted in Figure 4-7: P, Tv, Av, or M.

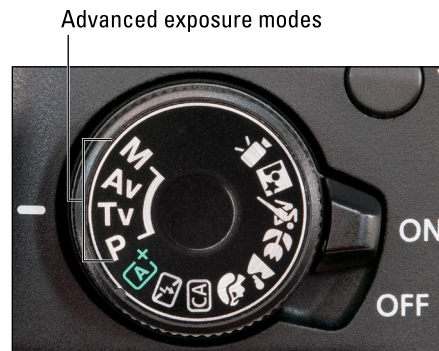


Figure 4-7: To fully control exposure and other picture properties, choose one of these exposure modes.

Chapter 2 introduces the P, S, A, and M modes, but because they're critical to your control of exposure, we want to offer some additional information here. First, a recap of how the four modes differ:

- ✓ **P (programmed autoexposure):** The camera selects both the aperture and shutter speed to deliver a good exposure at the current ISO setting. But you can choose from different combinations of the two for creative flexibility (which is why this mode is sometimes referred to generically as *flexible programmed autoexposure*.)
- ✓ **Tv (shutter-priority autoexposure):** You select a shutter speed, and the camera chooses the aperture setting that produces a good exposure at that shutter speed and the current ISO setting.
 Why *Tv*? Well, shutter speed controls exposure time; *Tv* stands for time value.
- ✓ **Av (aperture-priority autoexposure):** The opposite of shutter-priority autoexposure, this mode asks you to select the aperture setting — thus *Av*, for aperture value. The camera then selects the appropriate shutter speed to properly expose the picture — again, based on the selected ISO setting.
- ✓ **M (manual exposure):** In this mode, you specify both shutter speed and aperture.





To sum up, the first three modes are semiautomatic modes that are designed to offer exposure assistance while still providing you with some creative control. Note one important point about these modes, however: In extreme lighting conditions, the camera may not be able to select settings that will produce a good exposure, and it doesn't stop you from taking a poorly exposed photo. You may be able to solve the problem by using features designed to modify autoexposure results, such as Exposure Compensation (explained later in this chapter) or by adding flash, but you get no guarantees.

Manual mode puts all exposure control in your hands. If you're a longtime photographer who comes from the days when manual exposure was the only game in town, you may prefer to stick with this mode. If it ain't broke, don't fix it, as they say. And in some ways, manual mode is simpler than the semi-automatic modes — if you're not happy with the exposure, you just change the aperture, shutter speed, or ISO setting and shoot again. You don't have to fiddle with features that enable you to modify your autoexposure results.

But even when you use the M exposure mode, you're never really flying without a net: The camera assists you by displaying the exposure meter, explained next.

Monitoring Exposure Settings

When you press the shutter button halfway, the current f-stop, shutter speed, and ISO speed appear in the viewfinder display, as shown in Figure 4-8. Or if you're looking at the Shooting Settings or Live View display, the settings appear as shown in Figure 4-9.

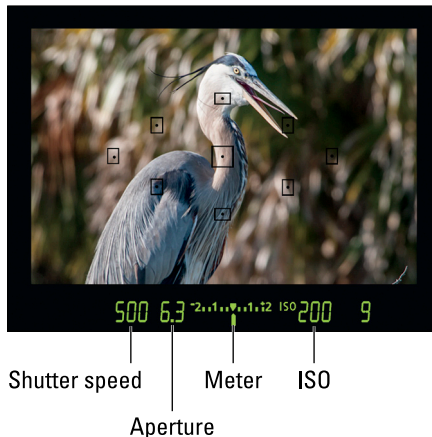


Figure 4-8: The shutter speed, f-stop, and ISO speed appear in the viewfinder.

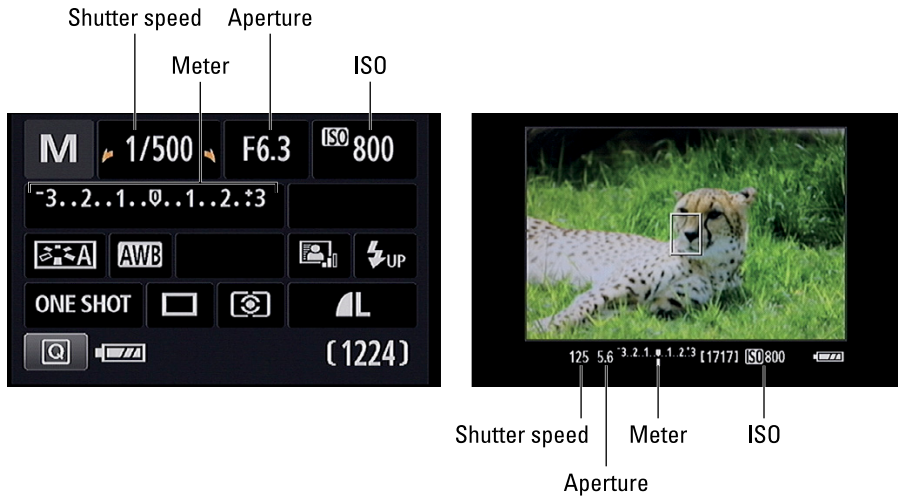


Figure 4-9: You also can view the settings in the Shooting Settings display (left) and Live View display (right).



In the viewfinder and on the monitor in Live View mode, shutter speeds are presented as whole numbers, even if the shutter speed is set to a fraction of a second. For example, for a shutter speed of 1/60 second, you see just the number 60 in the display. When the shutter speed slows to 1 second or more, you see quotation marks after the number in both displays — 1" indicates a shutter speed of 1 second, 4" means 4 seconds, and so on.

The viewfinder, Shooting Settings display, and Live View display also offer an *exposure meter*, labeled in Figures 4-8 and 4-9. This graphic serves two different purposes, depending on the exposure mode:

- ▶ **In M mode, the meter acts in its traditional role, which is to indicate whether your settings will properly expose the image.** Figure 4-10 gives you three examples. When the *exposure indicator* (the bar under the meter) aligns with the center point of the meter, as shown in the middle example, the current settings will produce a proper exposure. If the indicator moves to the left of center, toward the minus side of the scale, as in the left example in the figure, the camera is alerting you that the image will be underexposed. If the indicator moves to the right of center, as in the right example, the image will be overexposed. The farther the indicator moves toward the plus or minus sign, the greater the potential exposure problem.



Keep in mind that the information reported by the meter is dependent on the *metering mode*, which determines what part of the frame the camera uses to calculate exposure. You can choose from three metering modes, as covered in the next section. But regardless of metering mode, consider the meter a guide, not a dictator — the beauty of manual exposure is that *you* decide how dark or bright an exposure you want, not the camera.

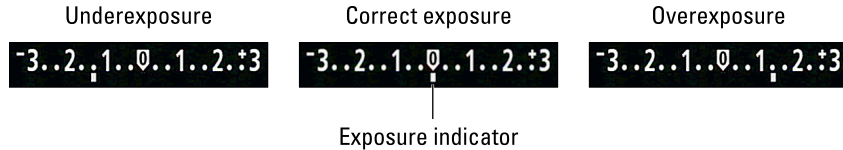


Figure 4-10: In manual exposure (M) mode, the meter indicates whether exposure settings are on target.

✓ **In the other modes (P, Tv, and Av), the meter displays the current Exposure Compensation setting.** Remember, in those modes the camera sets either the shutter speed or aperture, or both, to produce a good exposure — again, depending on the current metering mode. Because you don't need the meter to tell you whether exposure is okay, the meter instead indicates whether you enabled *Exposure Compensation*, a feature that forces a brighter or darker exposure than the camera thinks is appropriate. (Look for details later in this chapter.) When the exposure indicator is at 0, no compensation is being applied. If the indicator is to the right of 0, you applied compensation to produce a brighter image; when the indicator is to the left, you asked for a darker photo.

In some lighting situations, the camera *can't* select settings that produce an optimal exposure in the P, Tv, or Av modes, however. Because the meter indicates the exposure compensation amount in those modes, the camera alerts you to exposure issues as follows:

- *Av mode (aperture-priority autoexposure)*: The shutter speed value blinks to let you know that the camera can't select a shutter speed that will produce a good exposure at the aperture you selected. Choose a different f-stop or adjust the ISO.
- *Tv mode (shutter-priority autoexposure)*: The aperture value blinks to tell you that the camera can't open or stop down the aperture enough to expose the image at your selected shutter speed. Your options are to change the shutter speed or ISO.
- *P mode (programmed autoexposure)*: In P mode, both the aperture and shutter speed values blink if the camera can't select a combination that will properly expose the image. Your only recourse is to either adjust the lighting or change the ISO setting.



Choosing an Exposure Metering Mode

The *metering mode* determines which part of the frame the camera analyzes to calculate the proper exposure. Your camera offers three metering modes, described in the following list and represented in the Shooting Settings by the icons you see in the margin.



You can access all three modes only in the advanced exposure modes (P, Tv, Av, and M) and only during regular, through-the-viewfinder shooting. In Live View mode, as well as in the fully automatic exposure modes, the camera always uses Evaluative metering.



✓ **Evaluative metering:** The camera analyzes the entire frame and then selects exposure settings designed to produce a balanced exposure.



✓ **Partial metering:** The camera bases exposure only on the light that falls in the center 10 percent of the frame.



✓ **Center-Weighted Average metering:** The camera bases exposure on the entire frame but puts extra emphasis — or *weight* — on the center.

In most cases, Evaluative metering does a good job of calculating exposure. But it can get thrown off when a dark subject is set against a bright background, or vice versa. For example, in the left image in Figure 4-11, the amount of bright background caused the camera to select exposure settings that underexposed the statue, which was the point of interest for the photo. Switching to Partial metering properly exposed the statue.

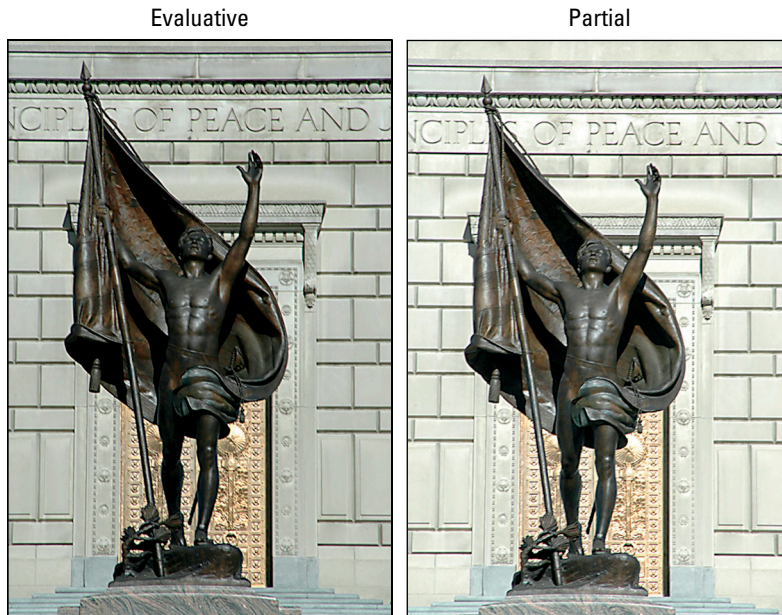


Figure 4-11: In Evaluative mode, the camera underexposed the statue; switching to Partial metering produced a better result.



Of course, if the background is very bright and the subject is very dark, the exposure that does the best job on the subject typically overexposes the background. You may be able to reclaim some lost highlights by turning on Highlight Tone Priority, a Custom Function explored later in this chapter.

Use either of these two options to change the metering mode:



- **Quick Control screen:** After displaying the screen, highlight the Metering mode symbol, which is the one selected on the left in Figure 4-12. You can then rotate the Main dial to cycle through the three settings or press the Set button to display all three options on one selection screen, as shown on the right in the figure.



Figure 4-12: You can quickly adjust the Metering mode from the Quick Control screen.

- **Shooting Menu 2:** You also can find the Metering Mode option at the menu address shown in Figure 4-13.



In theory, the best practice is to check the Metering mode before each shot and choose the mode that best matches your exposure goals (when in Live View, the monitor shows you the anticipated results of the current exposure settings). But in practice, it's a pain, not just in terms of having to adjust yet one more setting but also in terms of having to *remember* to adjust one more setting. So until you're comfortable with all the other controls on your camera, just stick with Evaluative metering. It produces good results in most situations, and after all, you can see in the monitor whether you like your results and, if not, adjust exposure settings and reshoot. This option makes the whole Metering mode issue a lot less critical than it is when you shoot with film.

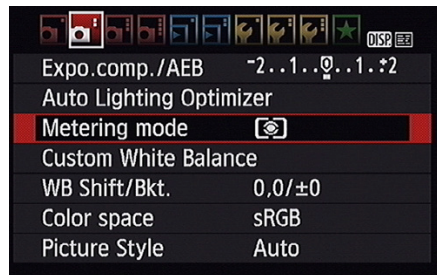


Figure 4-13: You also can access the Metering mode from Shooting Menu 2.

The one exception might be when you're shooting a series of images in which a significant contrast in lighting exists between subject and background. Then, switching to Center-Weighted metering or Partial metering may save you the time spent having to adjust the exposure for each image. Many portrait photographers, for example, rely on Center-Weighted or Partial metering exclusively because they know their subject is usually going to be hovering near the center of the frame.

Setting ISO, f-stop, and Shutter Speed



If you want to control ISO, aperture (f-stop), or shutter speed, set the camera to one of the advanced exposure modes: P, Tv, Av, or M. Then check out the next several sections to find the exact steps to follow in each of these modes.

Controlling ISO

To recap the ISO information presented at the start of this chapter, your camera's ISO setting controls how sensitive the image sensor is to light. At a camera's higher ISO values, you need less light to expose an image correctly. Remember the downside to raising ISO, however: The higher the ISO, the greater the possibility of noisy images. Refer to Figure 4-5 for a reminder of what that defect looks like.

In Scene Intelligent Auto, Creative Auto, Flash Off, and the scene modes (Portrait, Landscape, and so on), the camera controls ISO. But in the advanced exposure modes, you have the following ISO choices:

- **Select a specific ISO setting.** Normally, you can choose ISO settings ranging from 100 to ISO 6400. Or if you really want to push things, you can amp ISO up to 12800. In order to take advantage of that option, set Custom Function 2, ISO Expansion, to On, as shown in Figure 4-14. Now when you adjust ISO, an H (for High) appears as a possible setting; select that setting for ISO 12800.

A few complications to note: If you enable Highlight Tone Priority, an exposure feature covered later in this chapter, you lose the option of using ISO 100 as well as the expanded ISO setting (H, 12800). In addition, choosing H (ISO 12800) slows the maximum burst rate the camera can achieve in Continuous Drive mode.

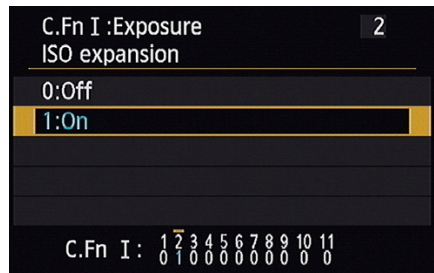


Figure 4-14: By enabling Custom Function 2, you can push the available ISO range to 12800.



✓ **Let the camera choose (Auto ISO).** You can ask the camera to adjust ISO for you if you prefer. And you can specify the highest ISO setting that you want the camera to use, which you can limit to as little as ISO 400 or as much as ISO 6400. Set the top ISO limit via the ISO Auto setting on Shooting Menu 3, as shown in Figure 4-15, which shows the default maximum of ISO 3200.

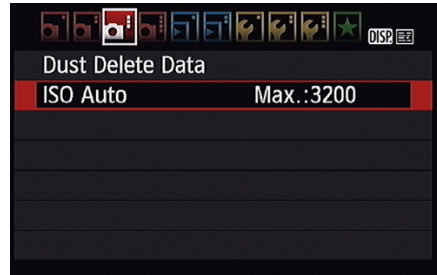


Figure 4-15: This setting enables you to specify the maximum ISO setting the camera can use in Auto ISO mode.



Using Auto ISO is especially handy when the light is changing fast or your subject is moving from light to dark areas quickly. In these situations, Auto ISO can save the day, giving you properly exposed images without any ISO futzing on your part.

You can view the current ISO setting in Shooting Settings and Live View displays, as shown in Figure 4-16, as well as in the viewfinder, as shown in Figure 4-17. (If you don't see the value in Live View mode, press the Disp button to switch to a display mode that presents the data.)

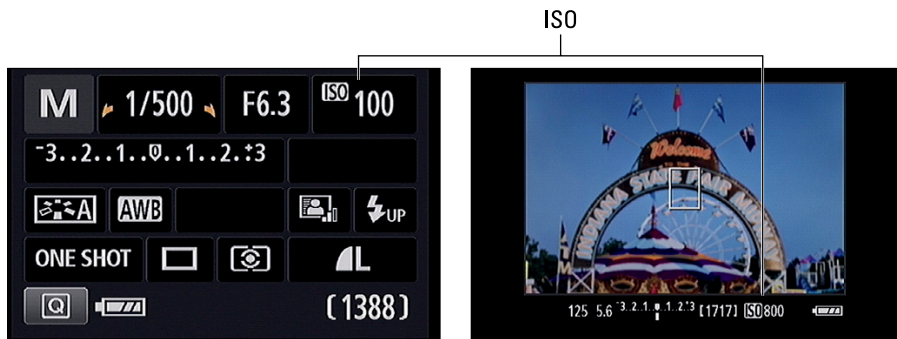


Figure 4-16: Look here for the current ISO setting.



In Auto ISO mode, the Shooting Settings and Live View displays initially show Auto as the ISO value, as you would expect. But when you press the shutter button halfway, which initiates exposure metering, the value changes to show you the ISO setting the camera has selected. You also see the selected value rather than Auto in the viewfinder.

Note: When you view shooting data during playback, you may see a value reported that isn't on the list of "official" ISO settings — ISO 320, for example. This happens because in Auto mode, the camera can select values all along the available ISO range, whereas if you select a specific ISO setting, you're restricted to specific notches within the range.

To adjust the ISO setting, you have these options:

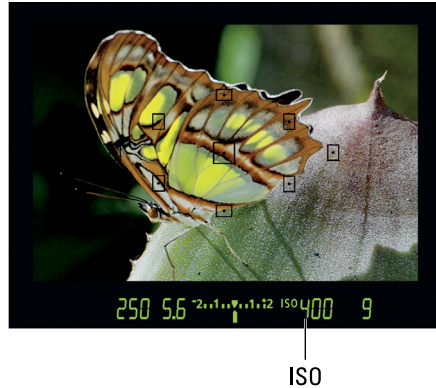


Figure 4-17: The viewfinder also shows the ISO setting.



✓ **Use the Quick Control screen.**

After choosing the ISO option, as shown on the left in Figure 4-18, rotate the Main dial to cycle through the available ISO settings. You also can press Set to display a screen containing all the available options, as shown on the right in the figure.

Figure 4-18 shows you how the screens appear during viewfinder shooting; in Live View mode, the ISO option appears in the lower-left corner of the monitor after you press the Q button to shift to the Quick Control display. Again, highlight the ISO setting and either rotate the Main dial to change it or press Set to see all the available options onscreen at once.



Figure 4-18: Press the Q button to change the ISO setting via the Quick Control screen.

✓ **Press the ISO button (not available in Live View mode).** You then see the screen shown on the right in Figure 4-18, where you can choose your desired setting.



✓ **Reconfigure the Flash button to act as an ISO button.** For one-button access to the ISO setting during Live View shooting, you can set the Flash button to bring up the ISO settings screen. Make the change via

Custom Function 10 (look for the Custom Functions option on Setup Menu 3). Obviously, if you plan to use the built-in flash, this isn't a good solution because you then have no way to raise the flash. This approach really becomes useful if you're shooting with an external flash, in which case you don't need to use the button for any flash-related purpose.



Dampening noise

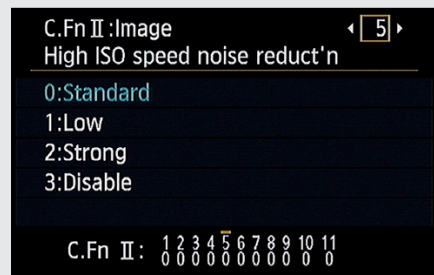
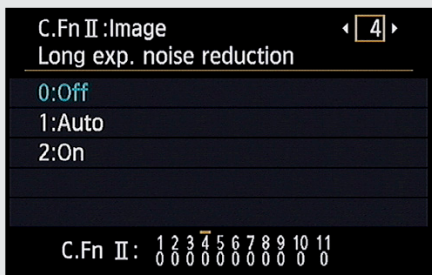
Noise, the digital defect that gives your pictures a speckled look (refer to Figure 4-6), can occur for two reasons: a long exposure time and a high ISO setting. Your camera offers two noise-removal filters, one to address each cause of noise. The camera applies the filters as it's processing your images and recording the data to the memory card.

Both filters are provided through Custom Functions, which means that you can control whether and how they're applied only in the P, Tv, Av, and M exposure modes. Here are the available settings for each option:

- ▶ **Long Exposure Noise Reduction (Custom Function 4):** At the default setting, Off, no noise reduction is applied. If you select Auto, noise reduction is applied when you use a shutter speed of 1 second or longer, but only if the camera detects the type of noise that's caused by long exposures. At the On setting, noise reduction is always applied at exposures of 1 second or longer. (*Note:* Canon suggests that this setting may result in more noise than either Off or Auto when the ISO setting is 1600 or higher.)

This filter works fairly well, but at a cost: Using it doubles the processing time for each exposure — longer than one second — that you shoot. Say that you make a 30-second exposure at night. After the shutter closes at the end of the exposure, the camera takes a *second* 30-second exposure to measure the noise by itself, and then it subtracts that noise from your *real* exposure.

- ▶ **High ISO Speed Noise Reduction (Custom Function 5):** This filter offers four settings: Standard, which is the default setting; Low, which applies just a touch of noise removal; Strong, which goes after noise in a more dramatic way; and Disable, which turns off the filter. High ISO noise-reduction filters work primarily by applying a slight blur to the image. Don't expect this process to eliminate noise entirely, and expect some resulting image softness. Also, enabling the feature at the Strong setting reduces the maximum frames-per-second rate you can achieve when using the Continuous Drive mode.



Adjusting aperture and shutter speed



You can adjust aperture and shutter speed only in P, Tv, Av, and M exposure modes. To wake up the exposure meter and view the current f-stop and shutter speed in the displays, press the shutter button halfway. Then use these techniques to adjust the settings, depending on your exposure mode:

- ✓ **P (programmed auto):** The camera displays its recommended combination of aperture and shutter speed. To select a different combination, rotate the Main dial.
- ✓ **Tv (shutter-priority autoexposure):** Rotate the Main dial to set the shutter speed. The camera automatically adjusts the aperture as needed to maintain the proper exposure as the chosen shutter speed.
- ✓ **Av (aperture-priority autoexposure):** Rotate the Main dial to change the f-stop setting. As you do, the camera adjusts the shutter speed to produce the proper exposure.



After changing the aperture, make sure that the shutter speed hasn't dropped so low that handholding the camera or capturing a moving subject won't be possible. If this problem arises, use a higher ISO setting, which will enable the camera to select a faster shutter speed.

- ✓ **M (manual exposure):** Select aperture and shutter speed like so:
 - *Adjust shutter speed.* Rotate the Main dial.
 - *Adjust aperture.* Press and hold the Exposure Compensation button while rotating the Main dial. (See the *Av* label on the Exposure Compensation button? That's your clue to the aperture-related function of the button — *Av* stands for *aperture value*.)



In M, Tv, and Av modes, the setting that's available for adjustment appears in the Shooting Settings display with little arrows at each side. Your camera manual refers to this display as the Main dial pointer, and it's provided as a reminder that you use the Main dial to change the setting. For example, in M mode, the shutter speed is bordered by the arrows until you hold down the Exposure Compensation button, at which point the marker shifts to the aperture (f-stop) value, as shown in Figure 4-19.



When the Shooting Settings screen is displayed, you also can use the Quick Control screen to adjust the settings in the M, Tv, and Av modes. This technique is more cumbersome but comes in handy in M mode because you can adjust the f-stop setting without having to remember what button to push to do the job. The Quick Control method doesn't work in Live View mode.



Figure 4-19: To set the aperture in M mode, press the Exposure Compensation button while you rotate the Main dial.

A few more words of wisdom related to aperture and shutter speed:



- ✓ When using Manual exposure, don't forget that you can check the exposure meter to get the camera's take on your exposure settings (when in Live View, look at the monitor for a preview). Of course, you don't have to follow the camera's guidance — you can take the picture using any settings you like, even if the meter indicates that the image will be under- or overexposed.
- ✓ In P, Tv, and Av mode, the shutter speed or f-stop value blinks if the camera isn't able to select settings that produce a good exposure. If the problem is too little light, try raising the ISO or adding flash to solve the problem. If there's too much light, lower the ISO value or attach an *ND* (*neutral density*) filter, which is sort of like sunglasses for your lens — it simply cuts the light entering the lens. (The *neutral* part just means that the filter doesn't affect image colors, just brightness.)
- ✓ Keep in mind that when you use P, Tv, and Av modes, the settings that the camera selects are based on what it thinks is the proper exposure. If you don't agree with the camera, you have two options. Switch to manual exposure (M) mode and simply dial in the aperture and shutter speed that deliver the exposure you want, or if you want to stay in P, Tv, or Av mode, try using exposure compensation, one of the exposure-correction tools described in the next section.

Sorting through Your Camera's Exposure-Correction Tools

In addition to the normal controls over aperture, shutter speed, and ISO, your Rebel offers a collection of tools that enable you to solve tricky exposure problems. The next four sections give you the lowdown on these features.

Overriding autoexposure results with Exposure Compensation



In the P, S, and A exposure modes, you have some input over exposure: In P mode, you can rotate the Main dial to choose from different combinations of aperture and shutter speed; in Tv mode, you can dial in the shutter speed; and in Av mode, you can select the aperture setting. But because these are semiautomatic modes, the camera ultimately controls the final exposure. If your picture turns out too bright or too dark in P mode, you can't simply

choose a different f-stop/shutter speed combo because they all deliver the same exposure — which is to say, the exposure that the camera has in mind. And changing the shutter speed in Tv mode or adjusting the f-stop in Av mode won't help either because as soon as you change the setting that you're controlling, the camera automatically adjusts the other setting to produce the same exposure it initially delivered.

Not to worry: You actually do have final say over exposure in these exposure modes. The secret is Exposure Compensation, a feature that tells the camera to produce a brighter or darker exposure on your next shot, whether or not you change the aperture or shutter speed (or both, in P mode).

Best of all, this feature is probably one of the easiest on the camera to understand. Here's all there is to it:



- ✓ Exposure compensation is stated in EV values, as in +2.0 EV. Possible values range from +5.0 EV to -5.0 EV.
- ✓ Each full number on the EV scale represents an exposure shift of one *full stop*. In plain English, it means that if you change the Exposure Compensation setting from EV 0.0 to EV -1.0, the camera adjusts either the aperture or the shutter speed to allow half as much light into the camera as it would get at the current setting. If you instead raise the value to EV +1.0, the settings are adjusted to double the light.
- ✓ A setting of EV 0.0 results in no exposure adjustment.
- ✓ For a brighter image, you raise the EV value. The higher you go, the brighter the image becomes.
- ✓ For a darker image, you lower the EV value. The picture becomes progressively darker with each step down the EV scale.



Exposure compensation is especially helpful when your subject is much lighter or darker than an average scene. For example, take a look at the image on the left in Figure 4-20. Because of the very bright sky, the camera chose an exposure that made the tree too dark. Setting the Exposure Compensation value to EV +1.0 resulted in a properly exposed image.

Sometimes you can cope with situations like this one by changing the Metering mode, as discussed earlier in this chapter. The images in Figure 4-20 were metered in Evaluative mode, for example, which meters exposure over the entire frame. Switching to Partial or Center-Weighted Average metering probably wouldn't have helped in this case because the center of the frame was bright. In any case, it's usually easier to simply adjust exposure compensation than to experiment with metering modes.



Figure 4-20: For a brighter exposure than the autoexposure mechanism chooses, dial in a positive Exposure Compensation value.



You can take several roads to applying exposure compensation:



- ✓ **Exposure Compensation button:** The fastest option is to press and hold the Exposure Compensation button while rotating the Main dial. As you adjust the setting, the exposure meter in the Shooting Settings and Live View displays indicates the current Exposure Compensation amount. For example, in Figure 4-21, the amount of adjustment is +1.0. The viewfinder meter also displays the amount of adjustment.

Note that even though the meters initially show a range of just +/- three stops, you can access the entire five-stop range. Just keep rotating the Main dial to display the far ends of the range.



- ✓ **Quick Control screen (not available in Live View mode):** Highlight the exposure meter in the Quick Control display and rotate the Main dial to move the exposure indicator left or right along the meter.
- ✓ **Shooting Menu 2:** Select Expo Comp/AEB, as shown on the left in Figure 4-22, and press Set to display the screen shown on the right in the figure. You can access this same screen by pressing set when the meter is highlighted on the Quick Control screen.

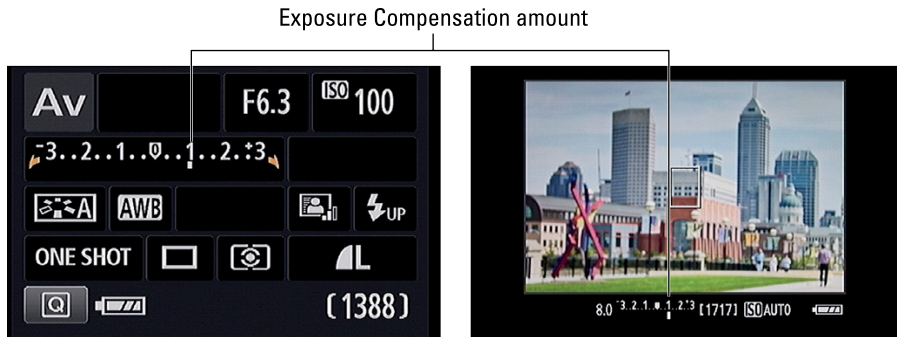


Figure 4-21: In the P, Tv, and Av exposure modes, the meter indicates the amount of Exposure Compensation adjustment.

Either way, this is a tricky screen, so pay attention:

- The screen has a double purpose: You use it to enable automatic exposure bracketing (AEB) as well as exposure compensation. So if you're not careful, you can wind up changing the wrong setting.
- To apply exposure compensation, press the left/right cross keys to move the exposure indicator (the red line on the meter) along the scale.

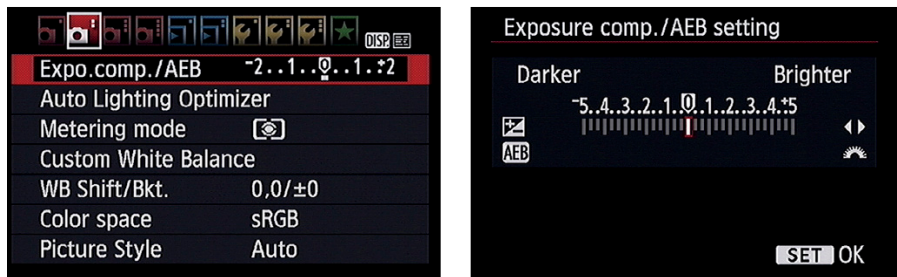


Figure 4-22: Be careful that you adjust Exposure Compensation and not AEB (Automatic Exposure Bracketing).



When you dial in an adjustment of greater than three stops, the notch under the viewfinder meter disappears and is replaced by a little triangle at one end of the meter — at the right end for a positive Exposure Compensation value and at the left for a negative value. However, the meter on the Shooting Settings and Live View screens and on Shooting Menu 2 adjust to show the proper setting.

Whatever setting you select, the way that the camera arrives at the brighter or darker image you request depends on the exposure mode:

- ✓ In Av (aperture-priority) mode, the camera adjusts the shutter speed but leaves your selected f-stop in force.
- ✓ In Tv (shutter-priority) mode, the opposite occurs: The camera opens or stops down the aperture, leaving your selected shutter speed alone.
- ✓ In P (programmed autoexposure) mode, the camera decides whether to adjust aperture, shutter speed, or both to accommodate the Exposure Compensation setting.

These explanations assume that you have a specific ISO setting selected rather than Auto ISO. If you do use Auto ISO, the camera may adjust that value instead.

Keep in mind, too, that the camera can adjust the aperture only so much, according to the aperture range of your lens. The range of shutter speeds is limited by the camera. So if you reach the end of those ranges, you have to compromise on either shutter speed or aperture, or adjust ISO.



A final, and critical, point about exposure compensation: When you power off the camera, it doesn't return you to a neutral setting (EV 0.0). The setting you last used remains in force for the P, Tv, and Av modes until you change it. So it's always a good idea to zero out the setting at the end of a shoot.

Improving high-contrast shots with Highlight Tone Priority

When a scene contains both very dark and very bright areas, achieving a good exposure can be difficult. If you choose exposure settings that render the shadows properly, the highlights are often overexposed, as in the left image in Figure 4-23. Although the dark lamppost in the foreground looks fine, the white building behind it has become so bright that all detail has been lost. The same thing occurred in the highlight areas of the green church steeple.

Your camera offers an option that can help produce a better image in this situation — Highlight Tone Priority — which was used to produce the image on the right in Figure 4-23. The difference is subtle, but if you look at that white building and steeple, you can see that the effect does make a difference. Now the windows in the building are at least visible, the steeple has regained some of its color, and the sky, too, has a bit more blue.

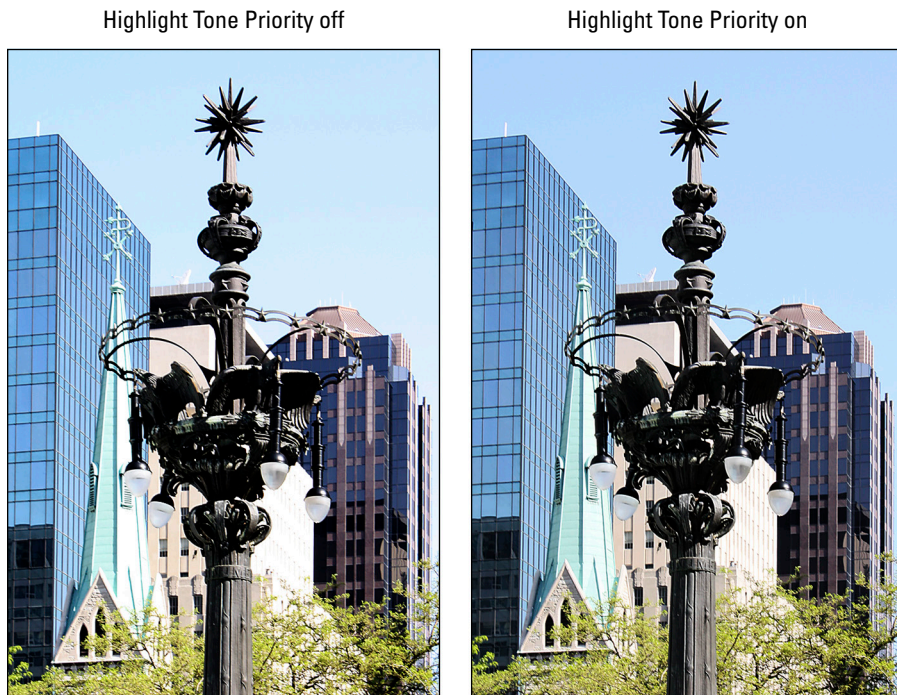


Figure 4-23: The Highlight Tone Priority feature can help prevent overexposed highlights.



This feature is available only in the P, Tv, Av, and M modes. It's turned off by default, which may seem like an odd choice after looking at the improvement it made to the scene in Figure 4-23. What gives? The answer is that in order to do its thing, Highlight Tone Priority needs to play with a few other camera settings, as follows:

- ✓ **The ISO range is reduced to ISO 200–6400.** The camera needs the more limited range in order to favor the image highlights.
- ✓ **Auto Lighting Optimizer is disabled.** This feature, which attempts to improve image contrast, is incompatible with Highlight Tone Priority. So read the next section, which explains Auto Lighting Optimizer, to determine which of the two exposure tweaks you want to use.
- ✓ **You can wind up with slightly more noise in shadow areas of the image.** Again, noise is the defect that looks like speckles in your image.

The only way to enable Highlight Tone Priority is via Custom Function 6, found on Setup Menu 3 and shown in Figure 4-24.

As a reminder that Highlight Tone Priority is enabled, a D+ symbol appears near the ISO value in the Shooting Settings and Live View displays, as shown in Figure 4-25. The same symbol appears with the ISO setting in the viewfinder and in the shooting data that appears in Playback mode. (See Chapter 9 to find out more about picture playback.) Notice that the symbol that represents Auto Lighting Optimizer is dimmed because that feature is now disabled.



Figure 4-24: Enable Highlight Tone Priority from Custom Function 6.

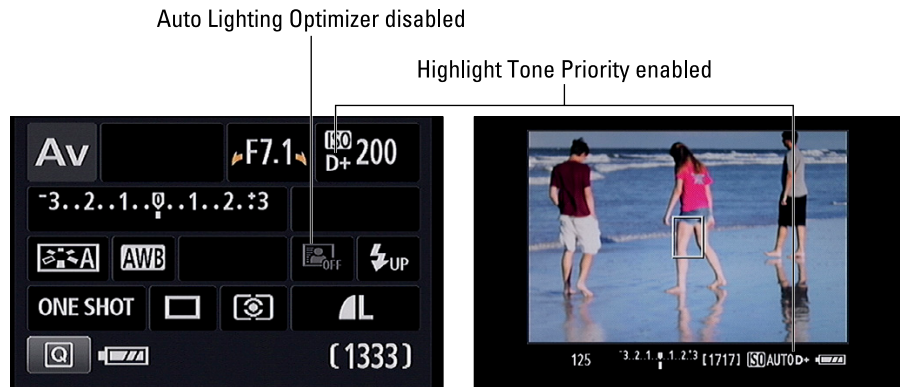


Figure 4-25: These symbols indicate that Highlight Tone Priority is enabled and Auto Lighting Optimizer is disabled.

Experimenting with Auto Lighting Optimizer

When you select an Image Quality setting that results in a JPEG image file — that is, any setting other than Raw — the camera tries to enhance your photo while it's processing the picture. Unlike Highlight Tone Priority, which concentrates on preserving highlight detail only, Auto Lighting Optimizer adjusts both shadows and highlights to improve the final image tonality (range of darks to lights). In other words, it's a contrast adjustment.

In the fully automatic exposure modes as well as in Creative Auto, you have no control over how much adjustment is made. But in P, Tv, Av, and M modes, you can decide whether to enable Auto Lighting Optimizer. You also can request a stronger or lighter application of the effect than the default setting. Figure 4-26 offers an example of the type of impact of each Auto Lighting Optimizer setting.

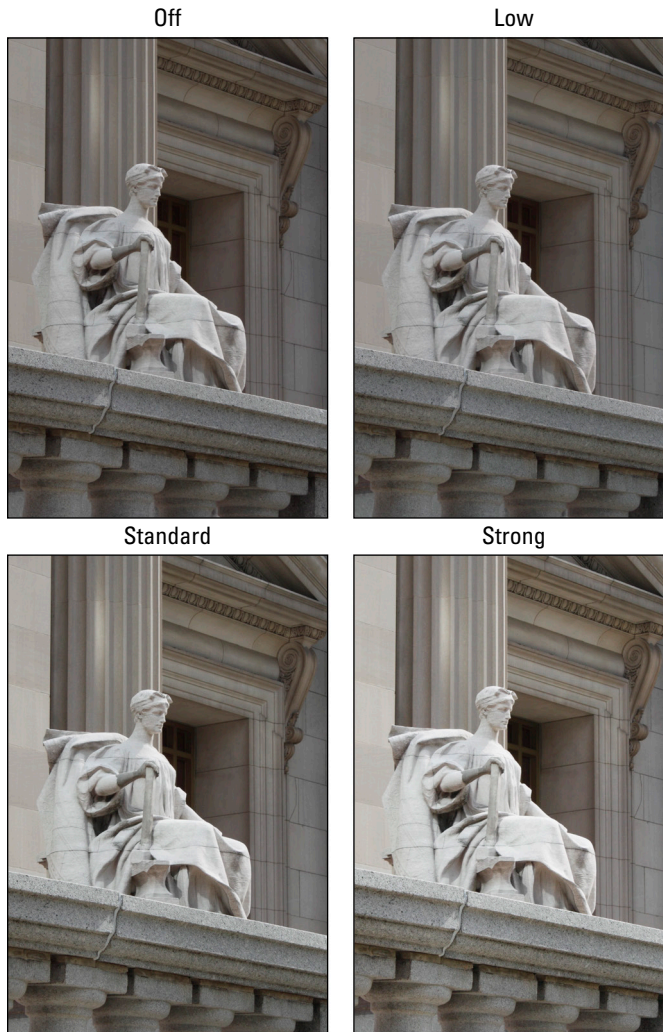


Figure 4-26: For this image, Auto Lighting Optimizer brought more life to the shot by increasing contrast.

Given the level of improvement that the Auto Lighting Optimizer correction made to this photo, you may be thinking that you'd be crazy to ever disable the feature. But it's important to note a few points:

- ✓ The level of shift that occurs between each Auto Lighting Optimizer setting varies depending on the subject. This particular example shows a fairly noticeable difference between the Strong and Off settings. But you don't always see this much impact from the filter. Even in this example, it's difficult to detect much difference between Off and Low.



- ✓ Although the filter improved this particular scene, at times you may not find it beneficial. For example, maybe you're purposely trying to shoot a backlit subject in silhouette or produce a low-contrast image. Either way, you don't want the camera to insert its opinions on the exposure or contrast you're trying to achieve.
- ✓ Because the filter is applied after you capture the photo, while the camera is writing the data to the memory card, it can slow your shooting rate.
- ✓ In some lighting conditions, Auto Lighting Optimizer can produce an increase in image noise.
- ✓ The corrective action taken by Auto Lighting Optimizer can make some other exposure-adjustment features less effective. So turn it off if you don't see the results you expect when you're using the following features:
 - Exposure compensation, discussed earlier in this chapter
 - Flash compensation, discussed in Chapter 2
 - Automatic exposure bracketing, also discussed later in this chapter
- ✓ You can't use this feature while Highlight Tone Priority, explained in the preceding section, is enabled.

In the Shooting Settings and Live View displays, look for the icon representing this setting in the areas labeled in Figure 4-27. Notice the little vertical bars in the graphic — the number of bars tells you how much adjustment is being applied. Two bars, as in Figure 4-27, represent the Standard setting, which is the default; three bars, Strong; and one bar, Low. The bars are replaced by the word *Off* when the feature is disabled.

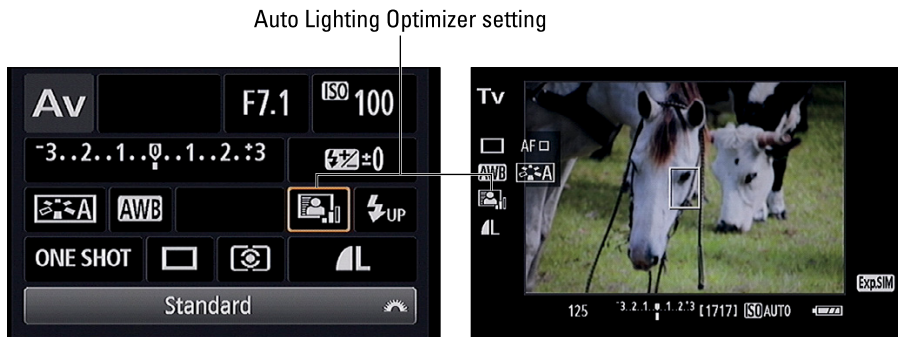


Figure 4-27: These symbols tell you the status of the Auto Lighting Optimizer setting.

You can adjust the setting in two ways:

- ✓ **Shooting Menu 2:** Select the option and press Set to display the selection screen, as shown on the left in Figure 4-28. (Remember: This menu option appears only when the Mode dial is set to P, Tv, Av, or M.)
- ✓ **Quick Control screen:** After highlighting the setting icon, rotate the Main dial to cycle through the four options. Or press Set to display a selection screen like the one shown on the right in Figure 4-28.

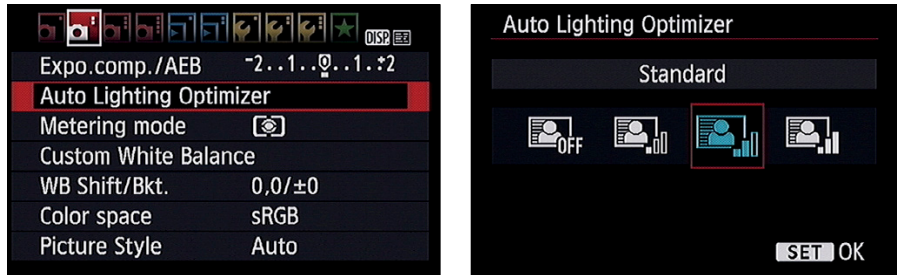


Figure 4-28: The menu option appears only in the P, Tv, Av, and M exposure modes.



If you're not sure what level of Auto Lighting Optimizer might work best or you're concerned about the other drawbacks of enabling the filter, consider shooting the picture in the Raw file format. For Raw pictures, the camera applies no post-capture tweaking, regardless of whether this filter or any other one is enabled. Then, by using Canon Digital Photo Professional, the software provided free with the camera, you can apply the Auto Lighting Optimizer effect when you convert your Raw images to a standard file format. (See Chapter 10 for details about processing Raw files.)

Correcting lens vignetting with Peripheral Illumination Correction

Because of some optical science principles that are too boring to explore, some lenses produce pictures that appear darker around the edges of the frame than in the center, even when the lighting is consistent throughout. This phenomenon goes by several names, but the two heard most often are *vignetting* and *light fall-off*. How much vignetting occurs depends on the lens, your aperture setting, and the lens focal length.

To help compensate for vignetting, your camera offers Peripheral Illumination Correction, which adjusts image brightness around the edges of the frame.

Figure 4-29 shows an example. In the left image, just a slight amount of light fall-off occurs at the corners, most noticeably at the top of the image. The right image shows the same scene with Peripheral Illumination Correction enabled.



Figure 4-29: Peripheral Illumination Correction tries to correct the corner darkening that can occur with some lenses.

Now, this “before” example hardly exhibits serious vignetting — it’s likely that most people wouldn’t even notice if it weren’t shown next to the “after” example. But if your lens suffers from stronger vignetting, Peripheral Illumination Correction can help correct the problem.

The adjustment is available in all your camera’s exposure modes. But a few factoids need spelling out:

- ✓ **The correction is available only for photos captured in the JPEG file format.** For Raw photos, you can choose to apply the correction and vary its strength if you use Canon Digital Photo Professional to process your Raw images. Chapter 10 talks more about Raw processing.



- ✓ **For the camera to apply the proper correction, data about the specific lens must be included in the camera's *firmware* (internal software).** You can determine whether your lens is supported by opening Shooting Menu 1 and selecting Peripheral Illumination Correction, as shown on the left in Figure 4-30. Press Set to display the right screen in the figure. If the screen reports that correction data is available, as in the figure, the feature is enabled by default.

If your lens isn't supported, you may be able to add its information to the camera; Canon calls this step *registering your lens*. You do this by cabling the camera to your computer and then using some tools included with the free EOS Utility software, also provided with your camera. We must refer you to the software manual for help on this bit of business because of the limited number of words that can fit in these pages. (The manuals for all the software are located on one of the three CDs that ship in the camera box.)



- ✓ **For non-Canon lenses, Canon recommends disabling Peripheral Illumination Correction even if correction data is available.** You can still apply the correction in Digital Photo Professional when you shoot in the Raw format.
- ✓ **In some circumstances, the correction may produce increased noise at the corners of the photo.** This problem occurs because exposure adjustment can make noise more apparent. Also, at high ISO settings, the camera applies the filter at a lesser strength — presumably to avoid adding even more noise to the picture. (See the earlier “ISO affects image noise” section and “Dampening noise” sidebar for an understanding of noise and its relationship to ISO.)

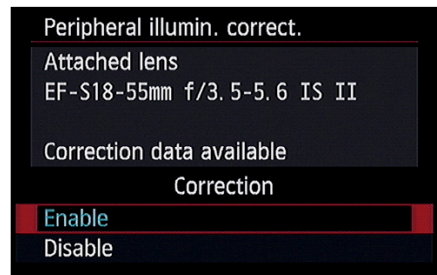
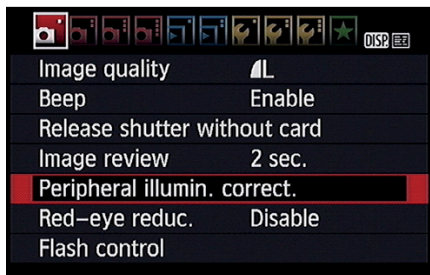


Figure 4-30: If the camera has information about your lens, you can enable the feature.

Locking Autoexposure Settings

To help ensure a proper exposure, your camera continually meters the light until the moment you press the shutter button fully to shoot the picture. In autoexposure modes — that is, any mode but M — the camera also keeps adjusting exposure settings as needed.

For most situations, this approach works great, resulting in the right settings for the light that's striking your subject when you capture the image. But on occasion, you may want to lock in a certain combination of exposure settings. For example, perhaps you want your subject to appear at the far edge of the frame. If you were to use the normal shooting technique, you would place the subject under a focus point, press the shutter button halfway to lock focus and set the initial exposure, and then reframe to your desired composition to take the shot. The problem is that exposure is then recalculated based on the new framing, which can leave your subject under- or overexposed.



The easiest way to lock in exposure settings is to switch to M (manual exposure) mode and use the same f-stop, shutter speed, and ISO settings for each shot. In manual exposure mode, the camera never overrides your exposure decisions; they're locked until you change them.

But if you prefer to stay in P, Tv, or Av mode, you can lock the current autoexposure settings by using the AE (autoexposure) Lock function. Here's how to do it:

- 1. Press the shutter button halfway.**

If you're using autofocus, focus is locked at this point.



- 2. Press the AE Lock button.**

Exposure is now locked and remains locked for 4 seconds, even if you release the AE Lock button and the shutter button.

To remind you that AE Lock is in force, the camera displays a little asterisk at the left end of the viewfinder or, in Live View mode, in the lower-left corner of the display. If you need to relock exposure, just press the AE Lock button again.

Note: If your goal is to use the same exposure settings for multiple shots, you must keep the AE Lock button pressed during the entire series of pictures. Every time you let up on the button and press it again, you lock exposure anew based on the light that's in the frame.



One other critical point to remember about using AE Lock: The camera establishes and locks exposure differently depending on the metering mode, the focusing mode (automatic or manual), and on an autofocus setting called AF Point Selection mode. (Chapter 5 explains this option thoroughly.) Here's the scoop:

- ✓ **Evaluative metering and automatic AF Point Selection:** Exposure is locked on the focusing point that achieved focus.
- ✓ **Evaluative metering and manual AF Point Selection:** Exposure is locked on the selected autofocus point.

- ✓ **All other metering modes:** Exposure is based on the center autofocus point, regardless of the AF Point Selection mode.
- ✓ **Manual focusing:** Exposure is based on the center autofocus point.

Bracketing Exposures Automatically

Many photographers use a strategy called *bracketing* to ensure that at least one shot of a subject is properly exposed. They shoot the same subject multiple times, slightly varying the exposure settings for each image. To make bracketing easy, your camera offers *Automatic Exposure Bracketing* (AEB). When you enable this feature, your only job is to press the shutter button to record the shots; the camera automatically adjusts the exposure settings between each image.



Aside from cover-your, uh, “bases” shooting, bracketing is useful for *HDR imaging* (also called *HDR photography*). HDR stands for *high dynamic range*, with dynamic range referring to the spectrum of brightness values in a photograph. The idea behind HDR is to capture the same scene multiple times, using different exposure settings for each image. You then use special imaging software, called *tone mapping software*, to combine the exposures in a way that uses specific brightness values from each shot. By using this process, you get a shot that contains more detail in both the highlights and shadows than a camera could ever record in a single image.

Whether you’re interested in automatic exposure bracketing for HDR or just want to give yourself an exposure safety net, keep these points in mind:



- ✓ **Exposure mode:** AEB is available only in the P, Tv, Av, and M exposure modes.
- ✓ **Flash:** AEB isn’t available when you use flash.
- ✓ **Bracketing amount:** You can request an exposure change of up to two stops from the auto bracketing system.
- ✓ **Exposure Compensation:** You can combine AEB with exposure compensation if you want. The camera simply applies the compensation amount when it calculates the exposure for the three bracketed images.
- ✓ **Auto Lighting Optimizer:** Because that feature is designed to automatically adjust images that are underexposed or lacking in contrast, it can render AEB ineffective. So it’s best to disable the feature when bracketing. See the section “Experimenting with Auto Lighting Optimizer,” earlier in this chapter, for information on where to find and turn off the feature.

The next two sections explain how to set up the camera for automatic bracketing and how to actually record a series of bracketed shots.



For more information on high dynamic range photography, including many more examples, check out Robert's books on HDR: *High Dynamic Range Digital Photography For Dummies* and *HDR Photography Photo Workshop* (with Pete Carr).

Turning auto bracketing on and off

The following steps show you how to turn on Automatic Exposure Bracketing via Shooting Menu 2. (We explain more about another option for enabling the feature momentarily.)

1. **Display Shooting Menu 2 and highlight Expo Comp/AEB, as shown on the left in Figure 4-31.**

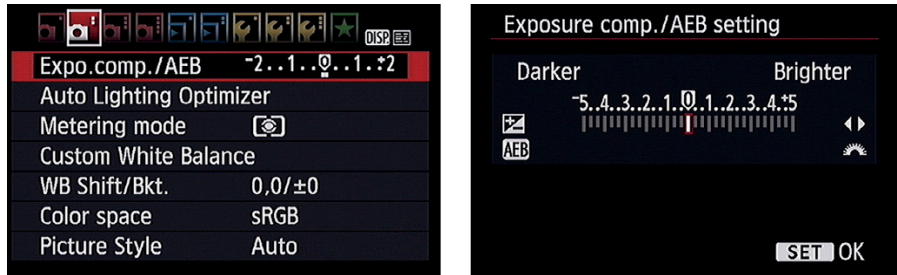


Figure 4-31: Automatic Exposure Bracketing records your image at three exposure settings.

2. **Press Set.**

You see a screen like the one shown on the right in Figure 4-31. This is the same dual-natured screen that appears when you apply exposure compensation, as explained earlier in this chapter. In M mode, exposure compensation isn't relevant — if you want a darker or brighter image, you just adjust the f-stop, shutter speed, or ISO. So the Exposure Compensation controls are dimmed on the Exposure Comp/AEB screen if the Mode dial is set to M.

3. **Rotate the Main dial to establish the amount of exposure change you want between images.**

What you see onscreen after you rotate the dial depends on your exposure mode:

- *M mode:* The screen changes to look similar to the one on the left in Figure 4-32, with only the AEB setting active. On the little meter, each whole number represents one stop of exposure shift. The little

red lines under the meter show you the amount of shift that will occur in your bracketed series of shots. For example, the settings in Figure 4-32 represent the maximum two stops of adjustment. No matter what the settings, the first image is captured at the actual exposure settings; the second, at settings that produce a darker image; and the third, at settings that produce a brighter photo.

Exposure Compensation disabled in Manual mode



Autoexposure bracketing amount

Figure 4-32: The bracketing control appears different in M mode (left) than in the other advanced exposure modes (right).

- *P*, *Tv*, or *Av* modes: For these modes, both the Exposure Compensation and AEB features are enabled. And the meter expands, as shown on the right in Figure 4-32, to represent the total 4-stop adjustment you can make in bracketed shots if you also enable the maximum amount of exposure compensation. (The meter expands after you rotate the Main dial; otherwise, it just shows the 5-stop range for exposure compensation.)

Where does the 4-stop thing come from? Well, you're still limited to adjusting exposure a total of two stops between bracketed shots, but if you turn on the Exposure Compensation feature and set that value to +5.0 and then set the bracketed amount to +2.0, your brightest shot in the bracketed series is captured at +7.0. Your darkest shot is captured at +3.0.

Keep rotating the dial until you get the exposure indicators to reflect the amount of adjustment you want between each bracketed shot. (If you want to adjust the Exposure Compensation setting, press the right/left cross keys.)

4. Press Set.

AEB is now enabled. To remind you of that fact, the exposure meter in the Shooting Settings display and on Shooting Menu 2 shows the three exposure indicators to represent the exposure shift you established, as shown in Figure 4-33. You see the same markers on the viewfinder meter as well as on the meter that appears at the bottom of the screen in Live View mode.

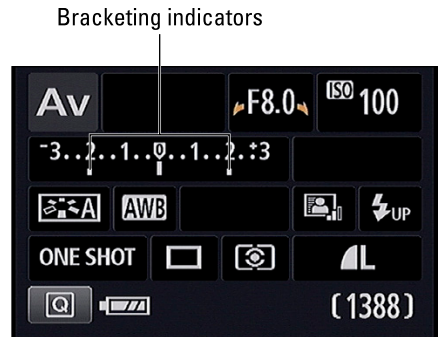


Figure 4-33: The three bars under the meter remind you that Automatic Exposure Bracketing is enabled.

- Q** For viewfinder photography, you can also enable AEB through the Quick Control screen. After highlighting the exposure meter, press Set to display a screen that works just like the one you get through the menu. Again, rotate the Main dial to set the bracketing amount and then press Set to wrap things up.

To turn off Automatic Exposure Bracketing, just change the AEB setting back to 0.



AEB is also turned off when you power down the camera, enable the flash, replace the camera battery, or replace the memory card. You also can't use the feature in manual exposure (M) mode if you set the shutter speed to the Bulb option. (At that setting, the camera keeps the shutter open as long as you press the shutter button.)

Shooting a bracketed series

After you enable auto bracketing, the way you record your trio of bracketed exposures depends on whether you set the Drive mode to Single or Continuous. Drive mode, which is described in Chapter 2, determines whether the camera records a single image or multiple images with each press of the shutter button. (Press the left cross key to access the screen that enables you to change this setting.)

- ✓ **AEB in Single mode:** You take each exposure separately, pressing the shutter button fully three times to record your trio of images.



If you forget which exposure you're taking, look at the exposure meter. After you press the shutter button halfway to lock focus, the meter shows just a single indicator bar instead of three. If the bar is at 0, you're ready to take the first capture. If it's to the left of 0, you're on capture two, which creates the darker exposure. If it's to the right of 0, you're on capture three, which produces the brightest image. Our advice assumes that you haven't also applied exposure compensation, in which case the starting point is at a notch other than zero.

- ✓ **AEB in Continuous mode:** Press and hold the shutter button down to record three continuous frames. (Be sure to wait for the camera to record all three frames before you release the shutter button.) To record another series, release and then press the shutter button again. In other words, when AEB is turned on, the camera doesn't keep recording images until you release the shutter button as it normally does in Continuous mode — you can take only three images with one press of the shutter button.
- ✓ **Self-Timer modes:** In these modes, all three exposures are recorded with a single press of the shutter button. But you don't need to hold down the shutter button as you do in Continuous mode — just press and release.

Controlling Focus and Depth of Field

In This Chapter

- ▶ Understanding autofocus options
- ▶ Choosing a specific autofocus point
- ▶ Using continuous autofocus to track a moving subject
- ▶ Taking advantage of manual-focusing aids
- ▶ Choosing the best focusing option for Live View and movie shooting
- ▶ Manipulating depth of field

To many people, the word *focus* has just one interpretation when applied to a photograph: Either the subject is in focus or it's blurry. But an artful photographer knows that there's more to focus than simply getting a sharp image of a subject. You also need to consider *depth of field*, or the distance over which other objects in the scene appear sharply focused. This chapter explains how to manipulate both aspects of an image.

After a reminder of how to set your lens to auto or manual focusing, the first part of the chapter details focusing options available for viewfinder photography; following that, you can get help with focusing during Live View photography and movie recording. A word of warning: The two systems are quite different, and mastering them takes time. If you start feeling overwhelmed, simplify things by following the steps laid out at the beginning of Chapter 3, which show you how to take a picture in the Scene Intelligent Auto exposure mode, using the default autofocus settings. Then return another day to study the focusing options discussed here.

Things get much easier (and more fun) at the end of the chapter, where we explain how to control depth of field. Thankfully, the concepts related to that subject apply no matter whether you're using the viewfinder, taking advantage of Live View photography, or shooting movies.



Setting the Lens Focus Mode

REMEMBER



Regardless of whether you're using the viewfinder or Live View, your first focus task is to set the lens to auto or manual focusing (assuming that your lens supports autofocus with the T5/1200D). On most lenses, including the 18–55mm kit lens, you find a switch with two settings: AF for autofocus and MF for manual focusing, as shown in Figure 5-1. The position of the manual focusing ring varies from lens to lens; Figure 5-1 shows you where to find it on the kit lens.

Some Canon lenses do enable you to adjust focus manually when the lens switch is set to AF. See your lens manual to find out if your lens offers this option (the kit lens does not).



Figure 5-1: On the kit lens, as on many Canon lenses, you set the switch to AF for autofocus and to MF for manual focusing.

Exploring Viewfinder Focusing Options

Chapters 1 and 3 offer brief primers in focusing, but in case you're not reading the book from front to back, here's a quick recap of focusing basics. Again, these apply only when you use the viewfinder to compose your image; details for focusing in Live View and Movie modes come later in this chapter.

- **To autofocus:** Frame your subject so that it appears under one of the nine focus points, one of which is labeled in Figure 5-2. Then press and hold the shutter button halfway.

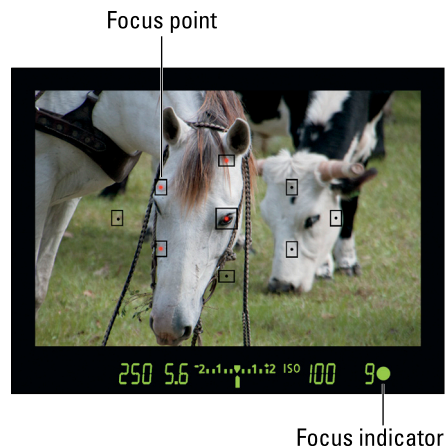


Figure 5-2: The viewfinder offers these focusing aids.

What happens next depends on your exposure mode:

- *Scene Intelligent Auto, Auto Flash Off, and Creative Auto:* With stationary subjects, one or more of the focus points turn red briefly to indicate the points the camera used to set the focusing distance, as shown in Figure 5-2. Then you see the viewfinder focus light, also labeled in the figure, and you hear a beep. Focus remains locked as long as you hold down the shutter button.

If the camera detects subject motion, the focus indicators don't appear; instead focus is continuously adjusted as needed to track the subject until you snap the picture. The beep sounds each time the camera re-establishes focus.

For continuous autofocus to work properly, you must adjust framing as necessary to keep the subject under the area covered by the autofocus points.

- *Sports mode:* The continuous-autofocusing setup is used.
- *All other Scene modes and P, Tv, Av, and M modes:* The camera assumes that you're shooting a stationary subject and so locks focus when you press the shutter button halfway. In the P, Tv, Av, and M exposure modes, you can vary this autofocus behavior; see the next sections for how-to's.

- ✓ **To focus manually:** After setting the lens switch to the manual focusing position, rotate the focusing ring on the lens. (On many lenses, including the kit lens, you can damage the lens if you rotate the focusing ring with the switch in the AF position.)

Even when focusing manually, you can confirm focus by pressing the shutter button halfway. The focus point or points that achieve focus flash for a second or two, the viewfinder's focus lamp lights, and you hear the focus-achieved beep.

By the way, if you find the focusing beep annoying, you can disable it via the Beep option on Shooting Menu 1.

Adjusting autofocus performance

In P, Tv, Av, and M exposure modes, you can tweak autofocus behavior through the following two controls:

- ✓ **AF Point Selection:** This setting determines which focus points the camera uses to establish the focusing distance. At the default setting (Automatic Selection), all nine focus points are in play, and the camera typically focuses on the closest object. By setting this option to Manual Selection mode, you can base focus on a single point that you select.





Shutter speed and blurry photos

A poorly focused photo isn't always related to the issues discussed in this chapter. Any movement of the camera or subject can also cause blur. Both problems relate to shutter speed, an

exposure control we cover in Chapter 4. Be sure to also visit Chapter 7, which provides additional tips for capturing moving objects without blur.

- ✓ **AF (autofocus) mode:** This option determines whether the camera locks focus when you press the shutter button halfway or continues to adjust focus from the time you press the shutter button halfway to the time you press the button the rest of the way to take the shot.

The next sections explain both options in detail.

AF Point Selection: One focus point or many?

For this setting, you have two options: Automatic and Manual. At the Automatic setting, which is the default, the camera looks at all nine focus points when trying to establish focus. Typically, it sets focus on the point that falls over the object closest to the lens. If you change the setting to Manual, you can tell the camera to base focus on a single focus point that you select.

Take these steps to see which option is in force and change the setting:

1. **Press and release the AF Point Selection button, highlighted in Figure 5-3.**



You see the AF Point Selection screen on the monitor. In Automatic AF Point Selection mode, all focus points appear in color, as shown in Figure 5-4. In Manual AF Point Selection mode, only one focus point is selected and appears in color, as shown in Figure 5-5.

In the figure, the center focus point is selected.

AF Point Selection button



Figure 5-3: Press and release the AF Point Selection button to select a focus point.



You can check the current mode by looking through the viewfinder, too. When you press and release the AF Point Selection button, all nine focus points turn red in the viewfinder if you're in Automatic AF Point Selection mode. A single focus point turns red if you're in Manual AF Point Selection mode. (You may need to press the shutter button halfway to wake up the viewfinder display in order for the focus points to light.)

Remember, you must be in an advanced exposure mode (M, Av, Tv, or P) to change AF Point Selection modes.

2. To choose a single focus point, set the camera to Manual AF Point Selection mode.

You can make the shift from Automatic to Manual mode in two ways:

- *Rotate the Main dial.* This option is easiest when you're looking through the viewfinder.
- *Press the Set button.* Pressing the button toggles the camera between Automatic AF Point Selection and Manual AF Point Selection with the center focus point activated. When Manual AF Point is active and an AF point outside the center is selected, the first press moves the active AF point back to the center. Press Set again to switch to Automatic selection mode.

3. For Manual AF Point Selection, specify which AF Point you want to use.

Either rotate the Main dial or press the cross keys to select a focus point. When all focus points again turn red, you've cycled back to Automatic mode. Rotate the dial or press a cross key to switch back to Manual Point Selection.

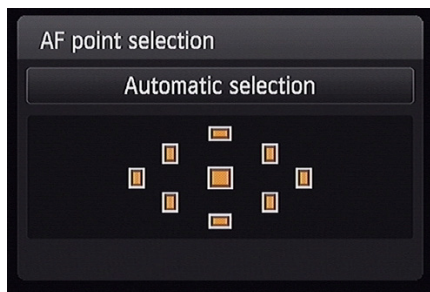


Figure 5-4: In Automatic mode, all nine focus points are active.

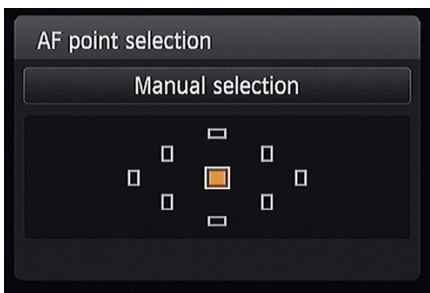


Figure 5-5: You also can base autofocus on a single focus point; here, the center focus point is selected.

Changing the AF (autofocus) mode

The other autofocusing option you can control in the P, Tv, Av, and M modes is the AF mode, which determines if and when the camera locks focus. You have the following choices:

- ✓ **One Shot:** In this mode, which is geared to shooting stationary subjects, the camera locks focus when you press the shutter button halfway. Focus remains locked as long as you hold the shutter button at that half-way position.
- ✓ **AI Servo:** In this mode (the *AI* stands for *artificial intelligence*, if you care), the camera adjusts focus continually as needed from when you press the shutter button halfway to the time you take the picture. This mode is designed to make focusing on moving subjects easier.



For AI Servo to work properly, you must reframe as needed to keep your subject under the active focus point if you're working in Manual AF Point Selection mode. If the camera is set to Automatic AF Point Selection, the camera initially bases focus on the center focus point. If the subject moves away from the point, focus should still be okay as long as you keep the subject within the area covered by one of the other nine focus points.

In either case, the green focus dot in the viewfinder blinks rapidly if the camera isn't tracking focus successfully. If all is going well, the focus dot doesn't light up, nor do you hear the beep that normally sounds when focus is achieved. (You can hear the autofocus motor whirring a little when the camera adjusts focus.)

- ✓ **AI Focus:** This mode automatically switches the camera from One Shot to AI Servo as needed. When you first press the shutter button halfway, focus is locked on the active focus point (or points), as usual in One Shot mode. But if the subject moves, the camera shifts into AI Servo mode and adjusts focus as it thinks is warranted.

We prefer not to use AI Focus because we don't want to rely on the camera to figure out whether we're interested in a moving or stationary subject. So we stick with One Shot for stationary subjects and AI Servo for focusing on moving subjects.



One way to remember which mode is which: For still subjects, you only need *one shot* at setting focus. For moving subjects, think of a tennis or volleyball player *servicing* the ball — so *AI Servo* for action shots.

The Shooting Settings screen displays the current AF Mode setting in the area labeled in Figure 5-6. To change the setting, you have two choices:

AF mode



Figure 5-6: Look here for the current AF Mode setting.

✓ **AF mode button (right cross key):** Your fastest move is to press this button, labeled in Figure 5-7. It takes you directly to the screen shown in the figure.



✓ **Quick Control screen:** After activating the Quick Control screen, highlight the AF mode setting (labeled in Figure 5-6). The selected AF mode setting appears at the bottom of the screen. Rotate the Main dial to cycle through the three mode options. Or press Set to access the same selection screen you see in Figure 5-7.



Figure 5-7: The fastest way to access the AF mode setting is to press the right cross key.

Choosing the right autofocus combo



You'll get the best autofocus results if you pair your chosen AF mode with the most appropriate AF Point Selection mode because the two settings work in tandem. Here are the combinations that we suggest for the maximum autofocus control:

- ✓ **For still subjects: One Shot and Manual AF Point Selection.** When you select a specific focus point and press the shutter button halfway, the camera locks focus on that point and you hear a beep (if enabled). Focus remains locked on your subject even if you reframe the shot after you press the button halfway.
- ✓ **For moving subjects: AI Servo and Automatic AF Point Selection.** You begin by framing your subject so that it's under the center focus point — remember, when you combine AI Servo with Automatic AF Point Selection, the camera chooses the center focus point to establish the initial focusing distance when you press the shutter button halfway. But the camera adjusts focus as needed (without beeping) if your subject moves within the frame before you take the shot. All you need to do is reframe as needed to keep your subject within the boundaries of the focus points.

Keeping these two combos in mind should greatly improve your autofocusing accuracy. But don't forget that in some situations, no combination will enable speedy or correct autofocusing. For example, if you try to focus on a very reflective subject, the camera may hunt for a focus point forever. And if you try to focus on a subject behind a fence, the autofocus system may continually insist on focusing on the fence instead of your subject. In such scenarios, don't waste time fooling around with the autofocus settings — just switch to manual focusing.

Focusing During Live View and Movie Shooting

As with viewfinder photography, you can opt for autofocus or manual focusing during Live View and movie shooting, assuming that your lens supports autofocus with the T5/1200D. But focus options and techniques differ from those you use for viewfinder photography.





The next several sections detail Live View and movie focusing. It's important to understand that the camera typically takes longer to autofocus in Live View mode than it does during viewfinder photography — the difference is because of the type of autofocus the camera must use when in Live View. For the fastest autofocus response during still photography, take the camera out of Live View mode.

Unfortunately, Live View is the only game in town for movie recording; you can't use the viewfinder to frame and focus movie shots.

Choosing an AF (autofocus) mode

As with viewfinder shooting, the AF mode determines the autofocus method. But the options for Live View and Movie autofocus work differently than the ones available for viewfinder photography. Upcoming sections detail the AF modes; here's a quick introduction to each one:

- AF  ▶ **FlexiZone-Single mode:** You move a focus frame over your subject to specify where the camera should establish focus.
- AF  ▶ **(Face Detection) Live mode:** If the camera detects a face, it automatically focuses on that face. When no face is detected, the camera operates as it does in FlexiZone-Single mode.
- AF Quick ▶ **Quick mode:** As its name implies, Quick mode offers the fastest Live View autofocus. The downside is that the Live View display turns off temporarily as the camera sets focus.

An icon representing the AF mode appears in the upper-left corner of the Live View and Movie mode displays, as shown in Figure 5-8.



Don't see the AF icon? Press Disp to cycle through the various display modes until one appears. What other data shows up depends both on the display mode and your exposure mode.

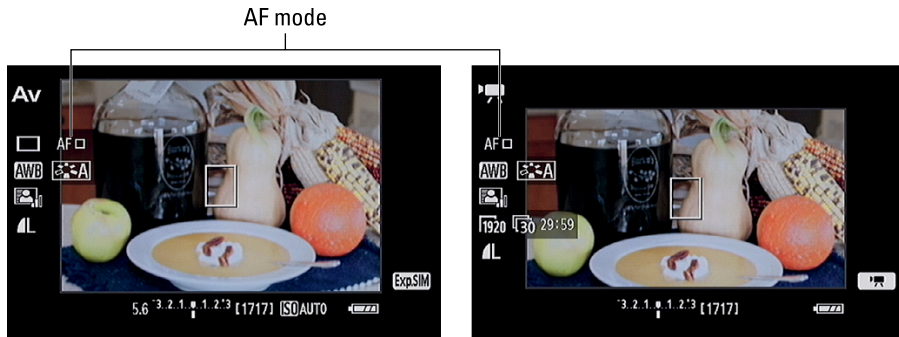


Figure 5-8: These icons indicate the AF mode for Live View shooting (left) and Movie recording (right).

To change the AF mode setting, use either of these methods:



➤ **Quick Control screen:** After pressing the Q button, select the icon that represents the focusing method, as shown on the left in Figure 5-9. Rotate the Main dial to cycle through the available settings or press Set to display the selection screen shown on the right in the figure. (The figure shows the Live View version of the screen, but things work similarly in Movie mode.)

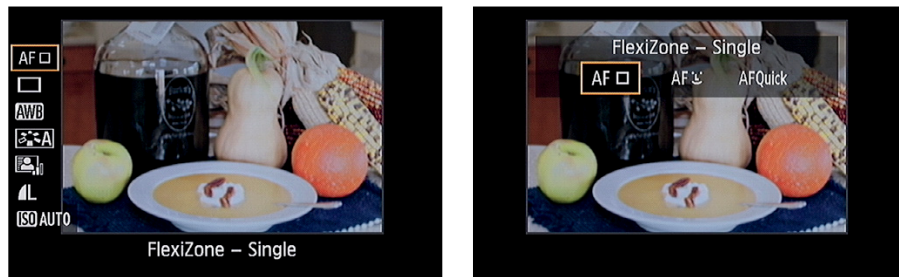


Figure 5-9: You can adjust the AF mode via the Quick Control screen.

➤ **Menus:** For still photography, chose the AF mode via the AF Method option on Shooting Menu 4, as shown on the left in Figure 5-10. For Movie recording, look for the option on Movie Menu 1, as shown on the right.



Figure 5-10: You also can adjust the autofocus method via Shooting Menu 4 for still photos (left) or via Movie Menu 1 for movie recording (right).

FlexiZone-Single autofocus

In this autofocus mode, you initially see a focus frame at the center of the screen, as shown on the left in Figure 5-11. The figure shows the Live View display; in Movie mode, the focus frame looks the same. Either way, use the cross keys to move the frame over your subject. For example, in the right screen in the figure, the frame is positioned over the soup garnish.

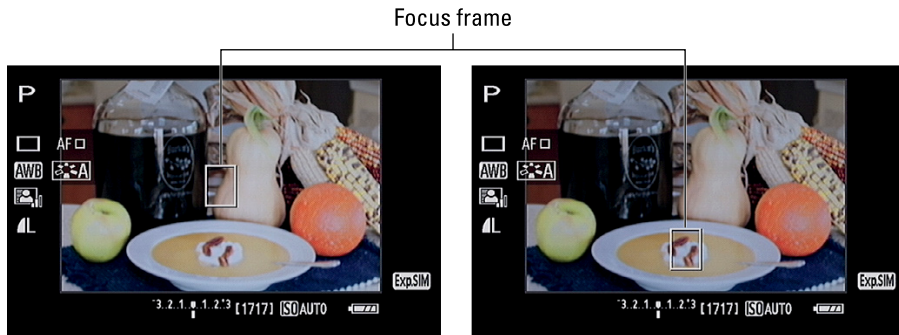



Figure 5-11: In FlexiZone-Single mode, use the cross keys to move the focus frame over your subject.



Press the Set button to immediately move the focus frame back to the center position. If you used Custom Function 9 to reassign the Set button's function, press and hold the Delete button before pressing Set to center the frame. (See Chapter 11 to find out how to change the function of the Set button.)

To focus, press the shutter button halfway. The focus frame turns green when focus is achieved. The camera also emits a beep, unless you turned off that function (through the Beep option on Shooting Menu 1). If the camera can't focus on the spot you selected, the frame turns red.

(Face Detection) Live mode

AF  In this mode, the camera searches for faces in the frame. If it finds one, it displays a white focus frame over the face, as shown on the left in Figure 5-12.

In a group shot where more than one face is recognized by the camera, you see arrows on either side of the focus frame. To choose a different face as the focusing target, press the cross keys to move the target frame over the face.



Figure 5-12: The white frame represents the face chosen for focusing; the frame turns green when focus is achieved.

To focus, press and hold the shutter button halfway down. When focus is locked, the focus frame turns green and the camera emits a tiny beep. If focus isn't successful, the focus frame turns red.



When the conditions are *just right* in terms of lighting, composition, and phase of the moon, this setup works fairly well. However, it has a number of “issues”:

- ✓ People must be facing the camera to be detected — the feature is based on the camera recognizing the pattern created by the eyes, nose, and mouth. So if you're shooting the subject in profile, don't expect face detection to work.
- ✓ The camera may mistakenly focus on an object that has a similar shape, color, and contrast to a face.
- ✓ Face detection sometimes gets tripped up if the face isn't just the right size with respect to the background, is tilted at an angle, is too bright or dark, or is partly obscured.

- ✓ Autofocusing isn't possible when a subject is very close to the edge of the frame. The camera alerts you to this issue by displaying a gray frame instead of a white one over your subject. You can always temporarily reframe to put the subject within the acceptable autofocus area, press and hold the shutter button halfway to lock focus, and then reframe to your desired composition.

If the camera can't detect a face, the autofocus system operates as it does when FlexiZone-Single is active. You also can press the Set button to display the FlexiZone-Single focus frame.

Quick mode autofocusing

As its name implies, Quick mode offers the fastest autofocusing during Live View or movie shooting. It's based on the same nine-point focusing grid used for viewfinder photography, so it may feel more familiar to you than the other AF methods. Also, Canon recommends that you use this mode when shooting with certain EF lenses; the list of affected lenses is provided in the camera manual. With those lenses, the other autofocus modes can be problematic.

So why isn't Quick mode the default setting? Well, it's a little more complex to use. In addition, the monitor display goes dark during the time the camera is focusing, which can throw off the unsuspecting photographer.

If those limitations don't affect you, here's what you need to know about using Quick mode. First, press the Q button to enter Quick Control mode and set the AF mode to Quick, as shown on the left in Figure 5-13. You then see nine autofocus points in the center of the screen. In Scene Intelligent Auto, Flash Off, Creative Auto, and the scene modes (Portrait, Landscape, and so on), the camera automatically selects which of the nine points to use when focusing. Typically, focus is established on the closest object.

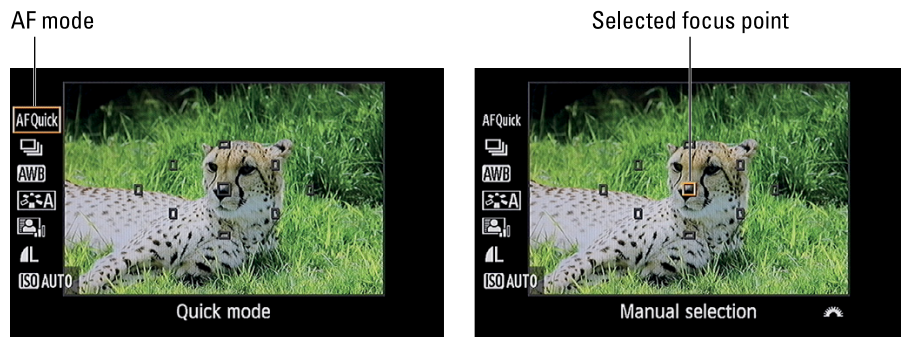


Figure 5-13: Use the Quick Control screen to select Quick Mode (left), then press the up/down cross key and rotate the Main dial to select a focus point.

In P, Tv, Av, or M exposure mode, you can stick with Automatic AF Point Selection or choose one of the nine points. While the Quick Control screen is active, make sure that the AF mode is highlighted, as shown on the left in Figure 5-13. Then press the up cross key to activate the focus-point display, as shown on the right in the figure, and rotate the Main dial to select the point you want to use. The selected point appears amber; the other points are dimmed. For example, in Figure 5-13, the center point is selected. After you cycle through all the available points, all nine become active again, meaning that you've shifted back to Automatic AF Point Selection.

Regardless of whether you use Automatic or Manual AF Point Selection, set focus by pressing and holding the shutter button halfway down. The monitor turns off and the autofocus mechanism kicks into gear. (It may sound as though the camera took the picture, but don't worry — that isn't actually happening.) When focus is achieved, the Live View display reappears, and, in Automatic selection mode one or more of the focus points appears green to tell you which areas of the frame are in focus. For Manual selection, just your chosen point turns green. Focus remains locked as long as you keep the shutter button pressed halfway; press the button the rest of the way to take the picture.

If the camera can't find a focusing target, the focus point (or points) turn red and blink. Try using manual focusing, explained next, or getting a little farther away from your subject — you may be so close that you're exceeding the minimum focusing distance of the lens.

Manual focusing in Live View and Movie modes

Manual focusing is the easiest of the Live View focusing options — and in most cases, it's faster, too.

After setting the lens to MF mode, simply rotate the lens focusing ring to set focus. Take note that when the camera's in MF mode, the information displayed on the monitor continues to show the current AF mode. It gives you no indication that you are in MF mode.



Most people who shy away from manual focusing do so because they don't trust their eyes to judge focus. But thanks to a feature that enables you to magnify the Live View preview, you can feel more confident in your manual focusing skills. See the next section for details.

Zooming in for a focus check

Here's a cool focusing feature not available during viewfinder photography: You can magnify the Live View display to ensure that focus is accurate. This trick works during manual focusing or in any AF mode except Face+Tracking mode.

After setting focus, follow these steps to magnify the display:

1. Use the cross keys to move the focusing frame over your subject if needed.
2. Press the AF Point Selection button to magnify the display.



After you press the button, you see a magnification frame somewhere on the screen plus a white box in the lower-right corner, as shown on the right in Figure 5-14. The white rectangle is a thumbnail representing the entire image area.

The value x5 appears above the thumbnail to show you that you're viewing the image at five times its regular size. Press the AF Point Selection button again to zoom the view to 10 times magnification. You can scroll the display as needed by pressing the cross keys.

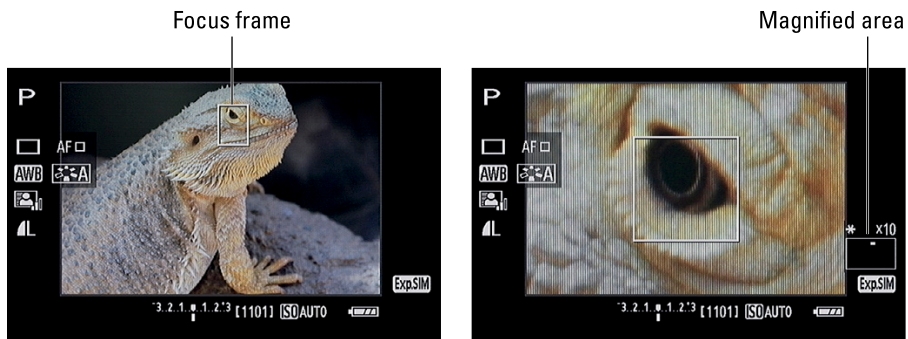


Figure 5-14: Press the AF Point Selection button to magnify the display and check focus.

3. To exit magnified view, press the AF Point Selection button again.

Pretty cool, yes? Just a couple of tips on using this feature:

- ✓ Press the Set button to quickly shift the magnification frame back to the center of the screen.
- ✓ Exit magnified view before you actually take the picture. Otherwise exposure may be off. However, if you *do* take the picture in magnified view, the entire frame is captured — not just the area currently displayed on the monitor.

Manipulating Depth of Field

Getting familiar with the concept of depth of field is one of the biggest steps you can take to becoming a better photographer. Chapter 4 introduces you to depth of field, but here's a quick recap:

- ✓ *Depth of field* refers to the distance over which objects in a photograph appear acceptably sharp.
- ✓ With a shallow, or small, depth of field, the subject is sharp but objects both in front of and behind it appear blurry. The farther an object is from the subject, the blurrier it looks.
- ✓ With a large depth of field, the zone of sharp focus extends to include objects at a distance from your subject.

Which arrangement works best depends on your creative vision and your subject. In portraits, for example, a classic technique is to use a short depth of field, as in the example shown in Figure 5-15. But for landscapes, you might choose to use a large depth of field, as shown in Figure 5-16. Because the historical marker, the lighthouse, and the cottage are all sharp, they have equal visual weight in the scene.

Again, though, which part of the scene appears blurry when you use a shallow depth of field depends on the spot at which you establish focus. Consider the lighthouse scene: Suppose you opted for short depth of field and set focus on the lighthouse. In that case, both the historical marker in the foreground and the cottage in the background might be outside the zone of sharp focus.

So how do you manipulate depth of field? You have three points of control:

- ✓ **Aperture setting (f-stop):** The aperture is one of three main exposure settings, all explained fully in Chapter 4. Depth of field increases as you stop down the aperture (by choosing a higher f-stop number). For shallow depth of field, open the aperture (by choosing a lower f-stop number).

Shallow depth of field



Figure 5-15: A shallow depth of field blurs the background and draws added attention to the subject.



Figure 5-17 offers an example. Notice that the trees in the background are much more softly focused in the $f/5.6$ example than in the $f/11$ version. Of course, changing the aperture requires adjusting the shutter speed or ISO to maintain the equivalent exposure; for these images, Julie adjusted shutter speed.

- ✓ **Lens focal length:** *Focal length*, which is measured in millimeters, determines what the lens “sees.” As you increase focal length, the angle of view narrows, objects appear larger in the frame, and — the important point in this discussion — depth of field decreases. Additionally, the spatial relationship of objects changes as you adjust focal length.

For example, Figure 5-18 compares the same scene shot at focal lengths of 138mm and 255mm. The aperture was set to $f/22$ for both examples.

Large depth of field



Figure 5-16: A large depth of field keeps both near and far subjects in sharp focus.

$f/5.6$, 1/1000 second



$f/11$, 1/200 second



Figure 5-17: Raising the f-stop value increases depth of field.

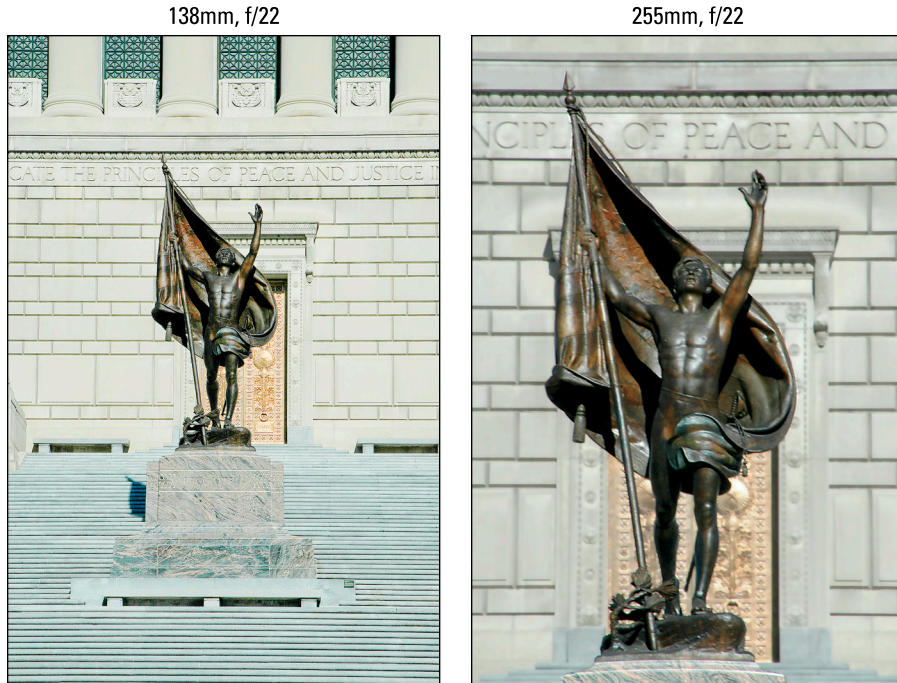


Figure 5-18: Using a longer focal length also reduces depth of field.

Whether you have any focal-length flexibility depends on your lens: If you have a zoom lens, you can adjust the focal length by zooming in or out. If your lens offers only a single focal length — a *prime* lens in photo-speak — scratch this means of manipulating depth of field (unless you want to change to a different prime lens, of course).

- ✓ **Camera-to-subject distance:** When you move the lens closer to your subject, depth of field decreases. This statement assumes that you don't zoom in or out to reframe the picture, thereby changing the focal length. If you do, depth of field is affected by both the camera position and focal length.



Together, these three factors determine the maximum and minimum depth of field that you can achieve, as follows:

- ✓ **To produce the shallowest depth of field:** Open the aperture as wide as possible (select the lowest f-stop number), zoom in to the maximum focal length of your lens, and move as close as possible to your subject.
- ✓ **To produce maximum depth of field:** Stop down the aperture to the highest possible f-stop setting, zoom out to the shortest focal length your lens offers, and move farther from your subject.

Here are a few additional tips and tricks related to depth of field:



- ✓ **Aperture-priority autoexposure mode (Av) enables you to easily control depth of field while enjoying exposure assistance from the camera.** In this mode, you rotate the Main dial to set the f-stop, and the camera selects the appropriate shutter speed to produce a good exposure. The range of available aperture settings depends on your lens.

If you adjust aperture to affect depth of field, be sure to always keep an eye on shutter speed as well. To maintain the same exposure, shutter speed must change in tandem with aperture, and you may encounter a situation where the shutter speed is too slow to permit handholding the camera or capturing a moving subject without blur. You can raise the ISO setting to make the image sensor more reactive to light, which in turn enables a faster shutter speed, but remember that higher ISO settings can produce noise. (Chapter 4 has details.)

- ✓ **For greater background blurring, move the subject farther from the background.** The extent to which background focus shifts as you adjust depth of field also is affected by the distance between the subject and the background.
- ✓ **You can assign the Set button to provide a depth-of-field preview.** When you view your image through your viewfinder or on the Live View screen, you can see the effect of focal length and the camera-to-subject distance. But because the aperture doesn't actually stop-down to your selected f-stop until you take the picture, the displays can't show you how that setting will affect depth of field.

Through Custom Function 9, however, you can assign the Set button to provide a depth-of-field preview. Choose option 4, as shown in Figure 5-19, to take advantage of this feature. Remember, you can access Custom Functions only in the P, Tv, Av, and M exposure modes.

Depending on the selected f-stop, the scene in the viewfinder or Live View display may get darker when you initiate the preview. This effect doesn't mean that your picture will be darker; it's just a function of how the preview works.

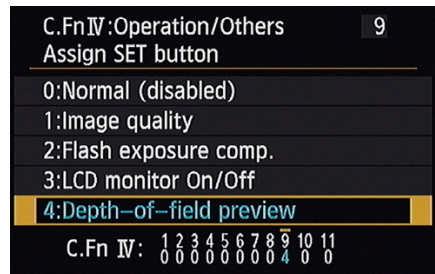


Figure 5-19: Select this Custom Function setting, and pressing the Set button displays a depth-of-field preview.

Mastering Color Controls

In This Chapter

- ▶ Exploring white balance and its effect on color
- ▶ Creating custom White Balance settings
- ▶ Bracketing white balance
- ▶ Experimenting with Picture Style

Compared with understanding certain aspects of digital photography — resolution, aperture, shutter speed, and so on — making sense of your camera's color options is easy-breezy. First, color problems aren't that common, and when they are, they're usually simple to fix with a shift of your camera's White Balance setting. And getting a grip on color requires learning only a couple of new terms, an unusual state of affairs for an endeavor that often seems more like high-tech science than art.

This chapter explains the White Balance control along with other features that enable you to fine-tune colors, whether you're shooting photos or recording movies.

Understanding the White Balance Setting

Every light source emits a particular color cast. The old-fashioned fluorescent lights found in most public restrooms, for example, put out a bluish-green light, which is why our reflections in the mirrors in those restrooms look so sickly. And if you think that your beloved looks especially attractive by candlelight, you aren't imagining things: Candlelight casts a yellow-red glow that's flattering to the skin.

Science-y types measure the color of light, or *color temperature*, on the Kelvin scale, which is named after its creator. You can see an illustration of the Kelvin scale in Figure 6-1.



When photographers talk about “warm light” and “cool light,” though, they aren’t referring to the position on the Kelvin scale — or at least not in the way we usually think of temperatures, with a higher number meaning hotter. Instead, the terms describe the visual appearance of the light. Warm light, produced by candles and incandescent lights, falls in the red-yellow spectrum you see at the bottom of the Kelvin scale; cool light, in the blue-green spectrum, appears at the top of the scale.

At any rate, most of us don’t notice these fluctuating colors of light because our eyes automatically compensate for them. Except in extreme lighting conditions, a white tablecloth appears white to us no matter whether we view it by candlelight, fluorescent light, or regular house lights. Similarly, a digital camera compensates for different colors of light through a feature known as *white balancing*. Simply put, white balancing neutralizes light so that whites are always white, which in turn ensures that other colors are rendered accurately. If the camera senses warm light, it shifts colors slightly to the cool side of the color spectrum; in cool light, the camera shifts colors in the opposite direction.

Your camera’s Automatic White Balance (AWB) setting tackles this process remarkably well in most situations. In some lighting conditions, it doesn’t quite do the trick, resulting in an unwanted color cast like the one shown on the left in Figure 6-2.

Serious AWB problems most often occur when your subject is lit by a variety of light sources. For example, Julie shot the figurine in Figure 6-2 under a mix of tungsten photo lights along with strong window light. The photo lights are similar in color temperature to regular household incandescent bulbs while the daylight is very blue by comparison. In Automatic White Balance mode, the camera reacted to that daylight — which has a cool color cast — and applied too much warming, giving the image a yellow tint. Switching from AWB to the Tungsten Light setting rendered the colors correctly, as shown on the right in Figure 6-2.

Unfortunately, you can’t access the White Balance setting in the point-and-shoot exposure modes, including the Scene and Creative Auto modes. You can sometimes address color issues in those modes via the Shoot by Lighting or Scene Type or Shoot by Ambience features, which we cover in Chapter 3. But for full control over color, shift to P, Tv, Av, or M mode, which enable you to easily select a White Balance setting and also fine-tune each setting to precisely match the light that’s illuminating your subject.

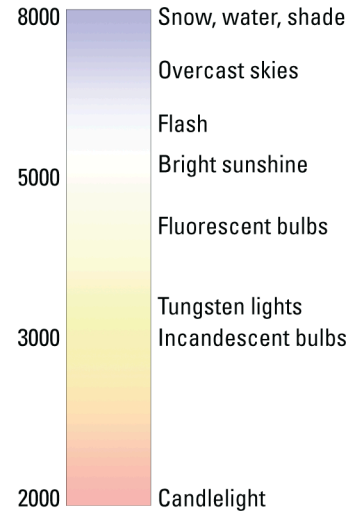


Figure 6-1: Each light source emits a specific color.





Figure 6-2: Multiple light sources can result in a color cast in Auto White Balance mode (left); try switching to manual White Balance control to solve the problem (right).

Checking and changing the White Balance setting

An icon representing the current White Balance setting appears in the Shooting Settings and Live View displays, in the areas labeled in Figure 6-3. Table 6-1 shows all the White Balance symbols.

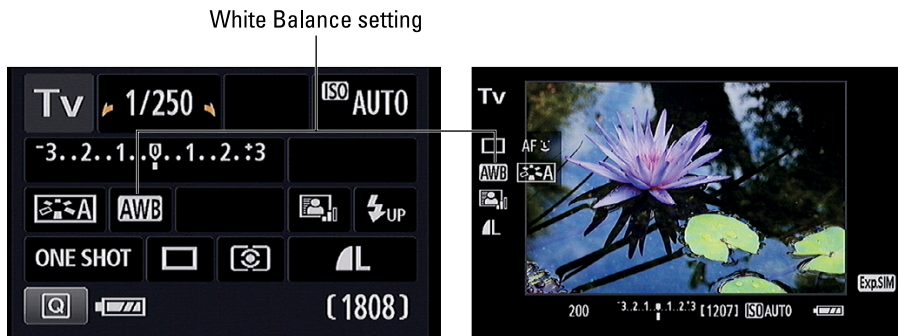


Figure 6-3: The AWB in the displays stands for the Auto White Balance setting.

For viewfinder photography, you can adjust the setting using either of these methods:

- WB button (bottom cross key):** Press the WB button to access the selection screen shown in Figure 6-4. For some settings, the camera displays the approximate Kelvin temperature (K) of the selected light source.



Figure 6-4: The WB button (bottom cross key) takes you to the White Balance setting.











- Quick Control screen:** Press the Q button to shift to Quick Control mode and then highlight the White Balance option. The current setting appears at the bottom of the screen; rotate the Main dial to cycle through the various options or press Set to access the selection screen you see in Figure 6-4.

During Live View shooting, the WB button performs a function related to focusing, so you must use the Quick Control screen to change the setting. But Live View gives you a White Balance feature not available for viewfinder shooting: As you adjust White Balance, the monitor updates to show you the effect of the setting on the subject colors.



Table 6-1 White Balance Settings

<i>Symbol</i>	<i>Setting</i>
	Auto
	Daylight
	Shade
	Cloudy
	Tungsten
	White Fluorescent
	Flash
	Custom

A couple quick tips related to white balancing:



- ✓ If the scene is lit by several sources, choose the setting that corresponds to the strongest one.
- ✓ Your selected White Balance setting remains in force until you change it. To avoid accidentally using an incorrect setting later, get in the habit of resetting the option to the automatic setting (AWB) after you finish shooting whatever subject it was that caused you to switch to manual white balancing.
- ✓ If none of the settings produce accurate colors, try the advanced options outlined in the next three sections.

Creating a custom White Balance setting

Through the Custom White Balance option, you can create a white balance setting that's based on the color of the light hitting your subject, whether that light comes from one or many sources. To use this technique, you need a piece of card stock that's either neutral gray or absolute white — not eggshell white, sand white, or any other close-but-not-perfect white. (You can buy reference cards made for this purpose in many camera stores.)

After positioning the reference card in the lighting you plan to use for your subject, follow these steps to create the custom setting:

1. Set the camera to the P, TV, Av, or M exposure modes.

You can't use this feature in other modes, although after you create your custom setting, you can tell the camera to use that setting.

If you want to set a custom White Balance to use in Movie mode, set your camera to one of the above modes and follow these steps.

2. Take a picture of the reference card.

Frame the shot so that the reference card fills the viewfinder (or, if you're using Live View, the monitor). For best results, focus manually.

If you want to shoot movies, switch to Movie mode before continuing to Step 3.

3. Display Shooting Menu 2 (Movie Menu 3 if in Movie mode) and highlight Custom White Balance, as shown on the left in Figure 6-5.

4. Press Set to display the screen shown on the right in Figure 6-5.

The image you just captured should appear in the display, along with a message that tells you that the camera will display only that image and others that are compatible with the Custom White Balance option. If your picture doesn't appear on the screen, press the right or left cross key to scroll to it.

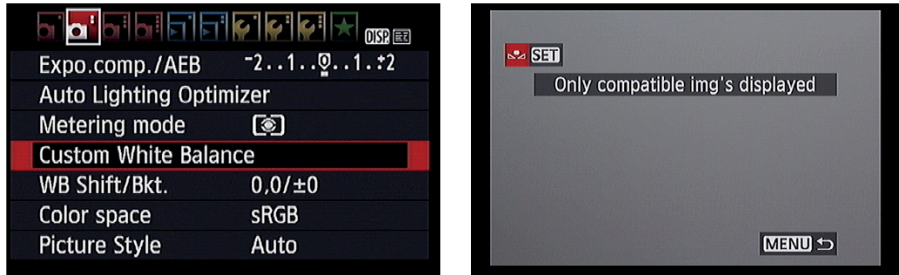


Figure 6-5: You can create a Custom White Balance setting.

5. Press Set to select the displayed image as the basis for your custom white balance reference.

You're asked to confirm that you want to use the image to create the Custom White Balance setting.

6. Press the right cross key to highlight OK and then press Set.

A message tells you that the custom setting is stored. The little icon in the message area represents the custom setting. (Refer to Table 6-1.)

7. Press Set one more time to finalize things.

Your custom setting remains stored until the next time you work your way through these steps.

Using White Balance Correction to fine-tune settings

In addition to creating a custom White Balance setting, you can tweak any White Balance setting in a way that shifts all colors toward a particular part of the color spectrum. Follow these steps:

- 1. Set the Mode dial to P, Tv, Av, or M.**
- 2. Display Shooting Menu 2 and highlight WB Shift/Bkt, as shown on the left in Figure 6-6.**

The first two numbers next to the option name indicate the current amount of fine-tuning, or *shift*, and the second value represents the amount of White Balance Bracketing enabled. (See the next section for details on that topic).

- 3. Press Set to display the screen you see on the right in Figure 6-6.**

The screen contains a grid that's oriented around two main color pairs: green and magenta (represented by the G and M labels) and blue and amber (represented by B and A). The little white square indicates the amount of White Balance Shift. When the square is dead center in the grid, as it is initially, no shift is applied.

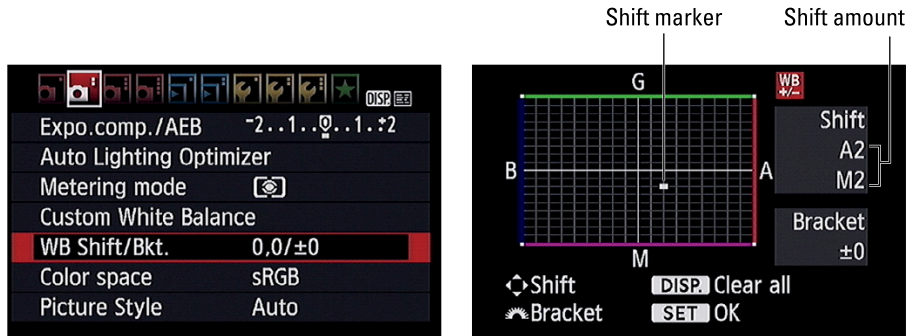


Figure 6-6: White Balance Correction fine-tunes the current White Balance setting.

4. Use the cross keys to move the shift indicator marker in the direction of the shift you want to achieve.

As you do, the Shift area of the display tells the amount of color bias you've selected. For example, in Figure 6-6, the shift is two levels toward amber and two toward magenta.



If you're familiar with traditional lens filters, you may know that the density of a filter, which determines the degree of color correction it provides, is measured in *mireds* (pronounced "my-reds"). The White Balance grid is designed around this system: Moving the marker one level is the equivalent of adding a filter with a density of 5 mireds.

5. Press Set to apply the change and return to the menu.

After you apply White Balance Correction, a +/- sign appears next to the White Balance symbol in the Shooting Settings display, as shown in Figure 6-7. It's your reminder that White Balance Shift is being applied. The same symbol appears in the viewfinder, right next to the ISO value. The Live View display offers no such symbol to indicate that the shift is in force, but the onscreen colors update to show you the impact of your change.

You can see the exact shift values in Shooting Menu 2 and in the Camera Settings display. (To activate that display, display any menu and then press the Disp button.)

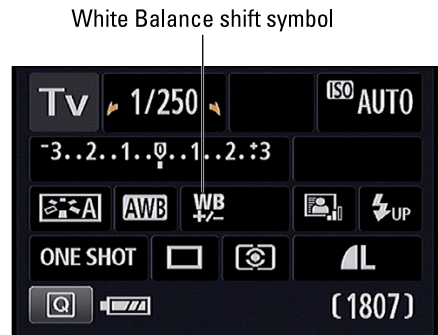


Figure 6-7: The +/- symbol lets you know that White Balance Shift is being applied.



Your adjustment remains in force for all advanced exposure modes until you change it. And the correction is applied no matter which White Balance setting you choose. Check the monitor or viewfinder before your next shoot; otherwise, you may forget to adjust the white balance for the current light.

6. To cancel White Balance Correction, repeat the steps, set the marker to the center of the grid, and then press Set.

As an alternative, you can press the Disp button to clear your settings after you get to the grid display. However, doing so also cancels White Balance Bracketing, which we explain in the next section. After you press Disp, be sure to press Set to lock in your decision.

Bracketing shots with White Balance

Chapter 4 introduces you to Automatic Exposure Bracketing, which enables you to easily record the same scene with three different exposure settings. Similarly, the camera offers White Balance Bracketing, which records the same image three times, using a slightly different white balance adjustment for each one.



Note a couple of things about this feature:

- ✓ Because the camera records three images each time you press the shutter button, White Balance Bracketing reduces the maximum capture speed that's possible. Only one photo is taken; however it is processed and saved three times. This can affect shooting speed no matter what Drive mode you have engaged. See Chapter 2 for more about Drive modes. Recording three images instead of one also eats up more space on your memory card.
- ✓ White Balance Bracketing is designed around the same grid used for White Balance Correction, explained in the preceding section. As a reminder, the grid is based on two color pairs: green/magenta and blue/amber.
- ✓ When White Balance Bracketing is enabled, the camera records the first of the three bracketed shots using a neutral White Balance setting — or, at least, what it considers neutral, given its measurement of the light. The second and third shots are recorded using the specified shift along either the green/magenta or the blue/amber axis of the color grid.

If all that is as clear as mud, take a look at Figure 6-8 for an example. These images were shot using a tungsten studio light and the candlelight. White Balance Bracketing was set to work along the blue/amber color axis, with a +3 bias in each direction.

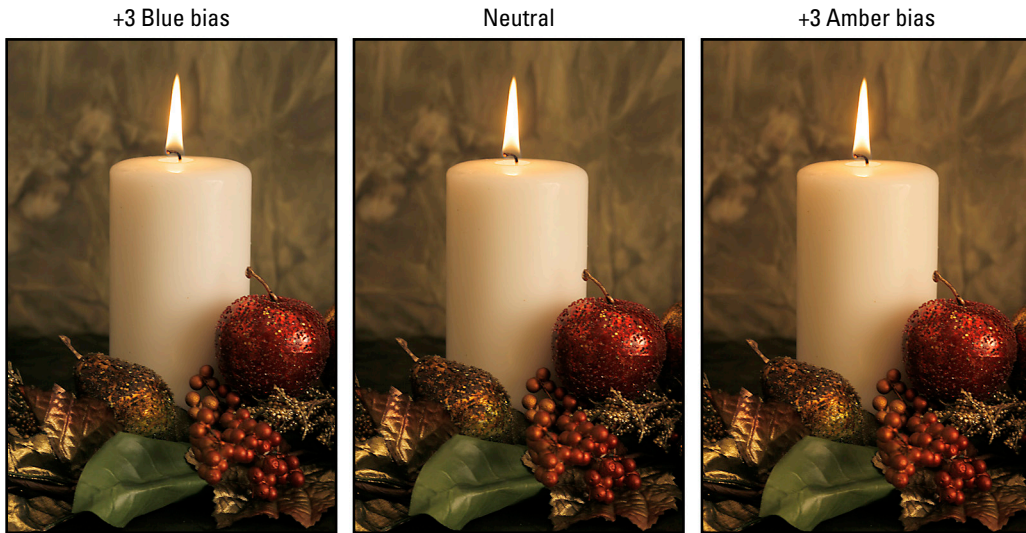
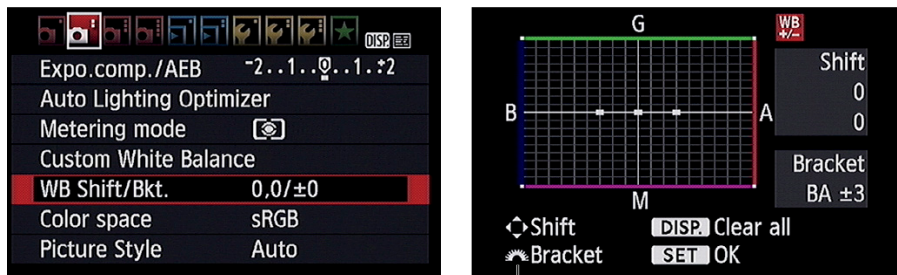


Figure 6-8: With White Balance Bracketing enabled, the camera recorded one neutral image, one with a blue bias, and one with an amber bias.

To enable White Balance Bracketing, follow these steps:

1. Set the Mode dial to P, Tv, Av, or M.
2. Display Shooting Menu 2 and highlight WB/Shift Bkt, as shown on the left in Figure 6-9.
3. Press Set to display the grid shown on the right in Figure 6-9.



Use Main dial to adjust bracketing amount

Figure 6-9: These settings represent the maximum (+3) bracketing amount on the Blue to Amber axis.

4. Rotate the Main dial to set the amount and direction of the bracketing shift.

Rotate the dial as follows to specify whether you want the bracketing applied across the horizontal axis (blue to amber) or the vertical axis (green to magenta).

- *Blue to amber bracketing:* Rotate the dial right.
- *Green to magenta bracketing:* Rotate the dial left.

As you rotate the dial, three markers appear on the grid, indicating the amount of shift that will be applied to your trio of bracketed images. You can apply a maximum shift of plus or minus three levels of adjustment.

The Bracket area of the screen also indicates the shift; for example, in Figure 6-9, the display shows a bracketing amount of plus and minus three levels on the blue/amber axis. The settings shown in Figure 6-9 were used to record the sample images in Figure 6-8. As you can see, even at the maximum shift (+/-3), the difference to the colors is subtle.



If you want to get truly fancy, you can combine White Balance Bracketing with White Balance Shift. To set the amount of White Balance Shift, press the cross keys to move the square markers around the grid. Then use the Main dial to adjust the bracketing setting.

5. Press Set to apply your changes and return to the menu.

On Shooting Menu 2, the value after the slash shows you the bracketing setting, as shown on the left in Figure 6-10. (The two values to the left of the slash indicate the White Balance Shift direction and amount.) The Shooting Settings screen also contains a White Balance Bracketing symbol, as shown on the right in the figure, as does the Camera Settings display, which you bring up by pressing Disp when any menu is visible. In the Live View display, the White Balance setting symbol blinks to indicate the bracketing is enabled.

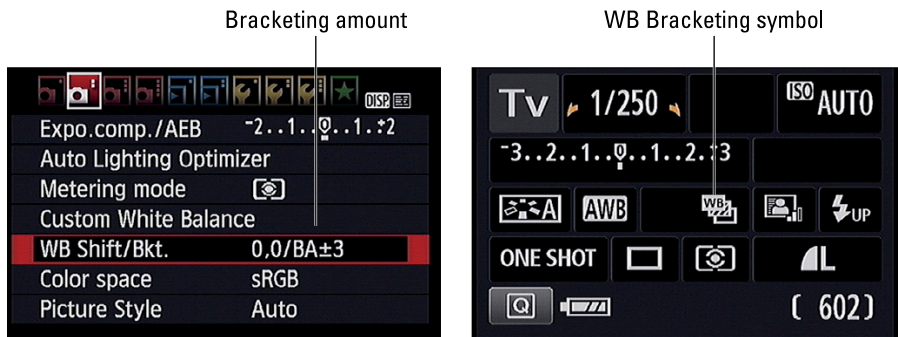


Figure 6-10: These symbols indicate that White Balance Bracketing is turned on.



Bracketing remains in effect until you turn off the camera. You can also cancel bracketing by revisiting the grid screen shown earlier, in Figure 6-9. Either rotate the Main dial until you see only a single grid marker or press the Disp button. Either way, press Set to finish.



Although White Balance Bracketing is a fun feature, if you want to ensure color accuracy, creating a custom White Balance setting is more reliable than bracketing white balance; after all, you can't be certain that shifting white balance a couple steps is going to produce accurate colors. Or, if you're comfortable with shooting in the Raw format, that's the best color safety net: You can assign a White Balance setting when you process the Raw images, whether you're after a neutral color platform or want to lend a slight color tint to the scene. See Chapter 2 for an introduction to Raw files; see Chapter 10 for help with the Raw conversion process.

Taking a Quick Look at Picture Styles

Picture Styles give you an additional way to tweak image colors. But the setting you choose for these options also affects color saturation, contrast, and image sharpening.



Sharpening is a software process that adjusts contrast in a way that creates the illusion of slightly sharper focus. Emphasis on the word *slightly*: Sharpening cannot remedy poor focus, but instead produces a subtle improvement to this aspect of your pictures.

The camera offers the following Picture Styles:

- ✓ **Auto:** The camera analyzes the scene and determines which Picture Style is the most appropriate. (This setting is the default.)
- ✓ **Standard:** Produces the image characteristics that Canon considers as suitable for the majority of subjects.
- ✓ **Portrait:** Reduces sharpening slightly to keep skin texture soft. Color saturation, on the other hand, is slightly increased.
- ✓ **Landscape:** Emphasizes greens and blues and amps up color saturation and sharpness.
- ✓ **Neutral:** Reduces saturation and contrast slightly compared to how the camera renders images at the Standard setting.
- ✓ **Faithful:** Renders colors as closely as possible to how the human eye perceives them.
- ✓ **Monochrome:** Produces black-and-white photos.



If you set the Quality option to Raw (or Raw+Large/Fine), the camera displays your image on the monitor in black and white during playback. But during the Raw converter process, you can either choose to go with your black-and-white version or view and save a full-color version. Or even better, you can process and save the image once as a grayscale photo and again as a color image.

If you *don't* capture the image in the Raw format, you can't access the original image colors later. In other words, you're stuck with *only* a black-and-white image.

The extent to which Picture Styles affect your image depends on the subject, the exposure settings you choose, and the lighting conditions. Figure 6-11 offers a test subject shot at each setting except Auto to give you a general idea of what to expect. As you can see, the differences are subtle, with the exception of the Monochrome option, of course. Note that in Auto mode, the camera will never select Monochrome, so if you do want a black-and-white capture, you have to select that setting yourself.

You have control over the Picture Style setting only in the P, Tv, Av, M, and Movie modes. In the Shooting Settings screen and Live View display, you see a symbol representing the current Picture Style, as shown in Figure 6-12. (In Movie mode, the symbol appears in the same spot as in Live View still-photography mode.)

To change the setting, use these methods:



- **Quick Control screen:** After highlighting the Picture Style icon, as shown on the left in Figure 6-13, rotate the Main dial to cycle through the available styles. The label at the bottom of the screen indicates the current setting.



The numbers that appear with the style name at the bottom of the screen represent the four characteristics applied by the style: Sharpness, Contrast, Color Tone, and Saturation. Sharpness values range from 0 to 7; the higher the value, the more sharpening is applied. At 0, no sharpening is applied. The other values, however, are set to 0, which represents the default setting for the selected Picture Style. (Using certain advanced options, you can adjust all four settings; more on that momentarily.)

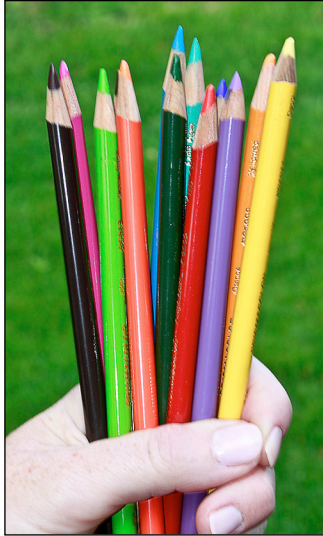
To see all available styles, press Set to display the screen you see on the right in Figure 6-13. Highlight the style you want to use, and the four style values appear along with the style name, as shown in the figure. Press Set to finish up.

- **Shooting Menu 2 (P, Tv, Av, or M modes) or Movie Menu 3 (Movie mode):** Select Picture Style and press Set to display the screen shown in Figure 6-14. This screen also shows the four characteristics for each style. Highlight a Picture Style and press Set to exit that screen.

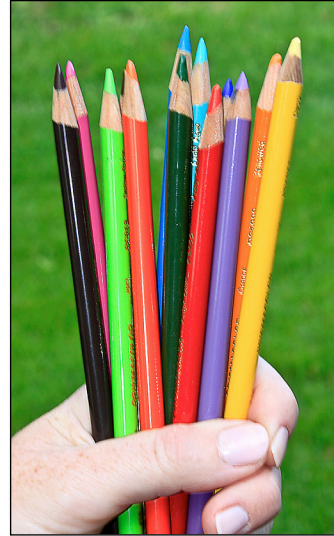
Standard



Portrait



Landscape



Neutral



Faithful



Monochrome



Figure 6-11: Each Picture Style produces a slightly different take on the scene.

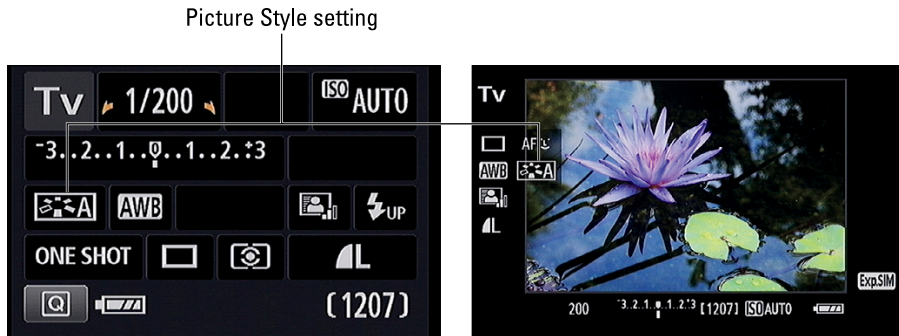


Figure 6-12: This symbol represents the Picture Style.

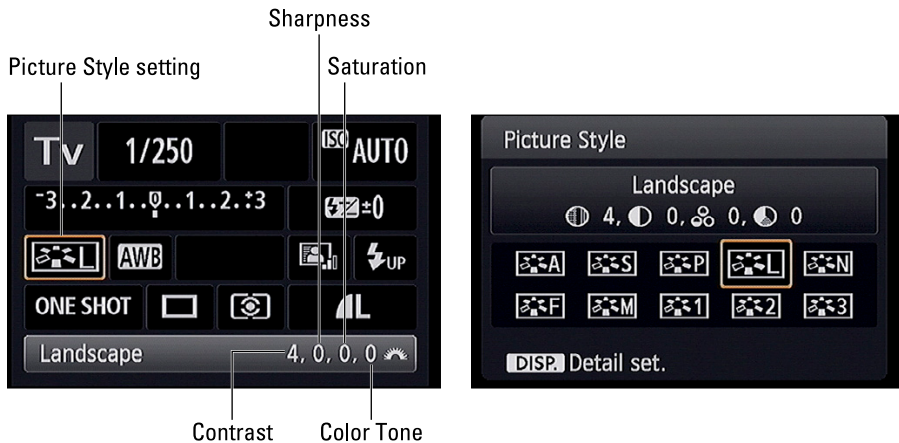


Figure 6-13: You can quickly select a Picture Style by using the Quick Control screen.



Unless you're tickled pink by the prospect of experimenting with Picture Styles, we recommend that you stick with the default setting (Auto). First, you have way more important camera settings to worry about — aperture, shutter speed, autofocus, and all the rest. Why add one more setting to your list, especially when the impact of changing it is minimal? Second, if you want to mess with the characteristics that the Picture Style options affect, you're much better off shooting in the Raw (CR2) format and then making those adjustments on a

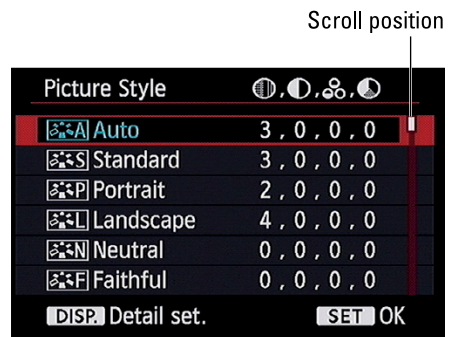


Figure 6-14: You also can access these options by choosing Picture Style on Shooting Menu 2 or Movie Menu 3.

picture-by-picture basis in your Raw converter. In Canon Digital Photo Professional, which comes free with the camera, you can even assign any of the existing Picture Styles to your Raw files and then compare how each one affects the image. The camera tags your Raw file with whichever Picture Style is active at the time you take the shot, but the image adjustments are in no way set in stone or even in sand — you can tweak your photo at will. (The selected Picture Style does affect the JPEG preview that's used to display the Raw image thumbnails in Digital Photo Professional and other photo software.)

For these reasons, we opt in this book to present you with just this brief introduction to Picture Styles to make room for more details about functions that do make a big difference in your daily photography life. However, we do want to let you know that the camera does offer the following advanced Picture Style features:

- ✔ You can modify a style, varying the sharpness, contrast, saturation, and color tone adjustment that the style produces.
- ✔ You can create and store three custom Picture Styles, which are named User Defined 1, 2, and 3.
- ✔ For übergeeks (you know who you are), one of the CDs accompanying your camera includes a software package named Picture Style Editor, where you can create and save Picture Style files to your heart's content. You then download the styles to your camera via the memory card. We would be remiss if we didn't also mention that some Canon user groups swap Picture Styles with each other online. (We'd be equally remiss if we didn't warn you to play at your own risk any time you download files from persons unknown to you.)

For details on all these features, read the electronic user manual, found on one of the CDs that ships with your camera. The paper manual covers just basic features, and the advanced Picture Style options didn't make the cut.

Putting It All Together

In This Chapter

- ▶ Reviewing the best all-around picture-taking settings
- ▶ Adjusting the camera for portrait photography
- ▶ Discovering the keys to super action shots
- ▶ Dialing in the right settings to capture landscapes and other scenic vistas
- ▶ Capturing close-up views of your subject
- ▶ Shooting through glass, capturing fireworks, and conquering other special challenges

Earlier chapters break down critical picture-taking features on your camera, detailing how the various controls affect exposure, picture quality, focus, color, and the like. This chapter pulls all that information together to help you set up your camera for specific types of photography.

Keep in mind, though, that there's no one "right way" to shoot a portrait, a landscape, or whatever. So feel free to wander off on your own, tweaking this exposure setting or adjusting that focus control, to discover your own creative vision. Experimentation is part of the fun of photography, after all, and thanks to your camera monitor and the Delete button, it's an easy, completely free proposition.

Recapping Basic Picture Settings

For some camera options, such as exposure mode, aperture, and shutter speed, the best settings depend on your subject, lighting conditions, and creative goals. But for certain basic options, you can rely on the same settings for almost every shooting scenario.



- Q** See the following figure and table for more info about settings. Table 7-1 offers recommendations for basic settings and lists the chapter where you can find more information about each option. Figure 7-1 shows you where on the Shooting Settings screen you can find the symbols representing some settings, along with a few not included in the table; don't forget that you can adjust these options via the Quick Control screen. Just press the Q button to shift from the Shooting Settings screen to the Quick Control display. (See Chapter 1 for the full story on using the Quick Control screen.)

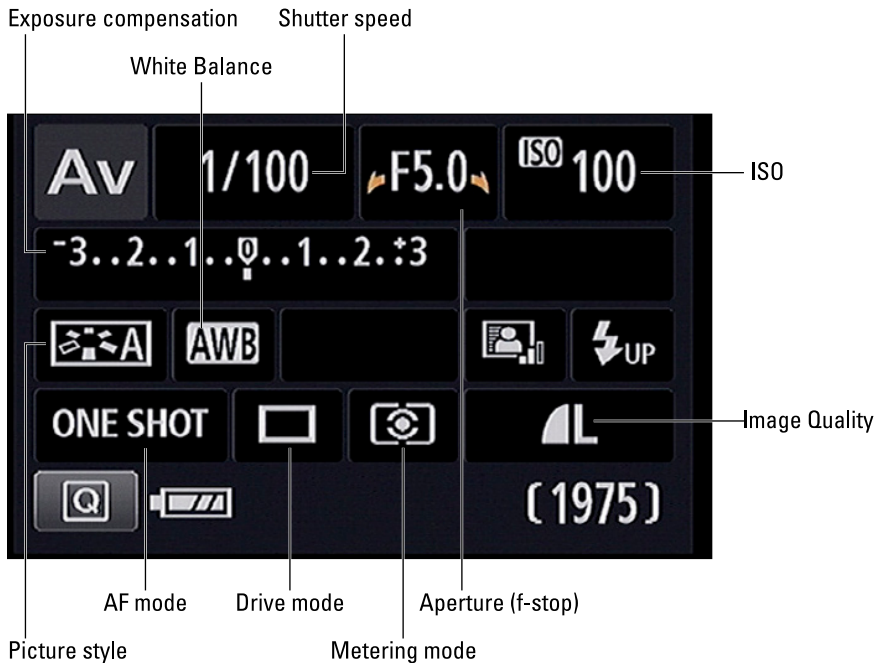


Figure 7-1: You can monitor critical options on the Shooting Settings display.



One key point: Instructions in this chapter assume that you use one of the advanced exposure modes: P, Tv, Av, or M. The problem with the other modes is that they prevent you from accessing certain settings that can be critical to capturing certain subjects, especially in difficult lighting. Also, this chapter discusses options available for viewfinder photography. For Live View photography, most settings work the same as discussed here, however, with the exception of the autofocus options, which are quite different.

Table 7-1 All-Purpose Picture-Taking Settings

<i>Option</i>	<i>Recommended Setting</i>	<i>See This Chapter</i>
Image Quality	Large/Fine (JPEG), Medium/Fine (JPEG), or Raw (CR2)	2
Drive mode	Action photos, Continuous; all others, Single	2
ISO	100	4
Metering mode	Evaluative	4
AF mode	Moving subjects, AI Servo; stationary subjects, One Shot; Live View, FlexiZone Single	5
AF Point Selection Mode	Moving subjects, Automatic; stationary subjects, Single Point	5
White Balance	Auto (AWB)	6
Auto Lighting Optimizer	Standard for P, Tv, and Av modes; Disable for M mode	4
Picture Style	Auto	6

Shooting Still Portraits

By *still portrait*, we mean that your subject isn't moving. For subjects who aren't keen on sitting still, use the techniques given for action photography instead.

Assuming that you do have a subject willing to pose, the classic portraiture approach is to keep the subject sharply focused while throwing the background into soft focus, as shown in Figure 7-2. This artistic choice (known as a *short depth of field*) emphasizes the subject and helps diminish the impact of any distracting background objects in cases where you can't control the setting. The following steps show you how to achieve this look:

- 1. Set the Mode dial to Av and rotate the Main dial to select the lowest f-stop value possible.**

A low f-stop setting opens the aperture, which not only allows more light to enter the camera but also shortens

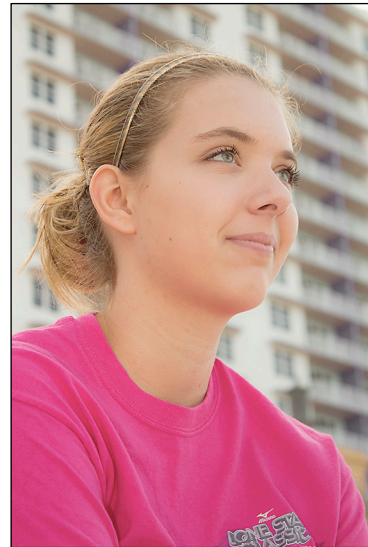


Figure 7-2: To diminish a distracting background and draw more attention to your subject, use camera settings that produce a short depth of field.

depth of field, or the range of sharp focus. So dialing in a low f-stop value is the first step in softening your portrait background. However, for a group portrait, don't go too low or else the depth of field may not be enough to keep everyone in the sharp-focus zone. Take test shots and inspect the results at different f-stops to find the right setting.



We recommend aperture-priority autoexposure mode (Av) when depth of field is a primary concern because you can control the f-stop while relying on the camera to select the shutter speed that will properly expose the image. But you do need to pay attention to shutter speed also to make sure that it's not so slow that any movement of the subject or camera will blur the image.

You can monitor the current f-stop and shutter speed in the Shooting Settings display, as shown in Figure 7-1. The settings also appear in the viewfinder. (If you don't see the settings, give the shutter button a quick half-press and release to wake up the exposure meter.)

2. To further soften the background, zoom in, get closer, and put more distance between subject and background.

As covered in Chapter 5, zooming to a longer focal length also reduces depth of field, as does moving closer to your subject. And the greater the distance between the subject and background, the more the background blurs.



A lens with a focal length of 85–120mm is ideal for a classic head-and-shoulders portrait. But don't fret if you have only the 18–55mm kit lens; just zoom all the way to the 55mm setting. Avoid using a short focal length (wide-angle lens) for portraits. They can cause features to appear distorted — sort of like how people look when you view them through a security peephole in a door.

3. Check composition.

Just two quick pointers on this topic:

- *Consider the background.* Scan the entire frame, looking for background objects that may distract the eye from the subject. If necessary, reposition the subject against a more flattering backdrop.
- *Frame the subject loosely to allow for later cropping to a variety of frame sizes.* Your camera produces images that have an aspect ratio of 3:2. That means your portrait perfectly fits a 4-x-6 print size but will require cropping to print at any other proportion, such as 5 x 7 or 8 x 10.

4. For indoor portraits, shoot flash-free if possible.

Shooting by available light rather than flash produces softer illumination and avoids the problem of red-eye. To get enough light to go flash-free, turn on room lights or, during daylight, pose your subject so he is lit by a sunny window.

In Av mode, keeping the flash closed disables the flash. If flash is unavoidable, see the tips at the end of the steps to get better results.

5. For outdoor portraits in daylight, use a flash if possible.

Even in daylight, a flash adds a beneficial pop of light to subjects' faces, as illustrated in Figure 7-3. A flash is especially important when the background is brighter than the subjects, as in this example; when the subject is wearing a hat; or when the sun is directly overhead, creating harsh shadows under the eyes, nose, and chin. In Av mode, press the Flash button to enable flash.



One caveat about using flash outdoors: The fastest shutter speed you can use with the built-in flash is 1/200 second, and in extremely bright conditions, that speed may be too slow to avoid overexposing the image even if you use the lowest ISO (light sensitivity) setting. If necessary, move your subject into the shade. (On some external Canon flashes, you can select a faster shutter speed than 1/200 second; see your flash manual for details.) Your other option is to stop down the aperture (use a higher f-stop setting), but that brings more of the background into sharp focus.

6. Press and hold the shutter button halfway to engage exposure metering and, if using autofocus, to establish focus.

As spelled out in Table 7-1, the One Shot AF mode using a Manual AF Point Selection works best for portrait autofocusing. After selecting a focus point, position that point over one of your subject's eyes and then press and hold the shutter button halfway to lock focus.

Chapter 5 explains more about using autofocus (including Face Detection mode if you are using Live View), but if you have trouble, simply switch to manual focusing.

7. Press the shutter button the rest of the way to capture the image.

Figure 7-3: To better illuminate faces in outdoor portraits, use flash.

When flash is unavoidable, try these tricks for best results:

- ✓ **Pay attention to white balance if your subject is lit by flash and ambient light.** If you set the White Balance setting to Auto (AWB), as we recommend in Table 7-1, enabling flash tells the camera to warm colors to compensate for the cool light of a flash. If your subject is also lit by other light sources, such as sunlight, the result may be colors that are slightly warmer or cooler (more blue) than neutral. A warming effect typically looks nice in portraits, giving the skin a subtle glow. If you aren't happy with the result, see Chapter 6 to find out how to fine-tune white balance.
- ✓ **Indoors, turn on as many room lights as possible.** With more ambient light, you reduce the flash power needed to expose the picture. Adding light also causes the pupils to constrict, further reducing the chances of red-eye. (Pay heed to the preceding white-balance warning, however.) As an added benefit, the smaller pupil allows more of the iris to be visible, so you see more eye color in the portrait.
- ✓ **In dim lighting, try enabling Red-Eye Reduction (Shooting Menu 1).** Warn your subject to expect both a light coming from the Red-Eye Reduction lamp, which constricts pupils, and the actual flash. See Chapter 2 for details about this flash option.
- ✓ **Pay extra attention to shutter speed.** In dim lighting, the camera may select a shutter speed as slow as 30 seconds when you enable the built-in flash in Av mode, so keep an eye on that value and use a tripod if necessary to avoid blurring from camera shake. Also warn your subject to remain as still as possible.
- ✓ **For nighttime pictures, try switching to Tv exposure mode and using a slow shutter speed.** The longer exposure time enables the camera to soak up more ambient light, producing a brighter background and reducing the flash power needed to light the subject. Again, though, a slow shutter means that you need to take extra precautions to ensure that neither camera nor subject moves during the exposure.
- ✓ **For professional results, use an external flash with a rotating flash head.** Then aim the flash head up so that the flash light bounces off the ceiling and falls softly down on the subject. (This is called bounce lighting.) An external flash isn't cheap, but the results make the purchase worthwhile if you shoot lots of portraits. Compare the portraits in Figure 7-4 for an illustration. In the first example, the built-in flash resulted in strong shadowing behind the subject and harsh, concentrated light. Bounced lighting produced the better result on the right.

Make sure that surface you use to bounce the light is white; otherwise the flash's light will pick up the color of the surface and influence the color of your subject.
- ✓ **Invest in a flash diffuser to further soften the light.** A *diffuser* is simply a piece of translucent plastic or fabric that you place over the flash to soften and spread the light — much like sheer curtains diffuse window light. Diffusers come in lots of different designs, including small, fold-flat models that fit over the built-in flash.





Figure 7-4: To eliminate harsh lighting and strong shadows (left), use bounce flash and move the subject farther from the background (right).

✓ **To reduce shadowing from the flash, move your subject farther from the background.** Moving the subject away from the wall helped eliminate the background shadow in the second example in Figure 7-4. The increased distance also softened the focus of the wall a bit (because of the short depth of field resulting from the f-stop and focal length). You may also wish to light the background separately.



Positioning subjects far enough from the background that they can't touch it is a good general rule. If that isn't possible, though, try going the other direction: If the person's head is smack against the background, any shadow will be smaller and less noticeable. For example, less shadowing is created when a subject's head is resting against a sofa cushion than if he sits upright with his head a foot or so away from the cushion.

Capturing Action

A fast shutter speed is the key to capturing a blur-free shot of any moving subject, whether it's a spinning Ferris wheel, a butterfly flitting from flower to flower, or in the case of Figures 7-5 and 7-6, a hockey-playing teen. In Figure 7-5, a shutter speed of 1/125 second was too slow to catch the subject without blur. A shutter speed of 1/1000 second froze the action cleanly, as shown in Figure 7-6. (The backgrounds are blurry in both shots because the images

were taken using a lens with a long focal length, which decreases depth of field. Also, in the first image, the skater is farther from the background, blurring the background more than in the second image.)



Figure 7-5: A too-slow shutter speed (1/125 second) causes the skater to appear blurry.



Figure 7-6: Raising the shutter speed to 1/1000 second freezes the action.

Along with the basic capture settings outlined earlier (refer to Table 7-1), try the techniques in the following steps to photograph a subject in motion:

1. Set the Mode dial to Tv (shutter-priority autoexposure).

In this mode, you control shutter speed, and the camera chooses the aperture setting that will produce a good exposure at the current ISO setting.



2. Rotate the Main dial to select the shutter speed.

You can monitor the shutter speed in the Shooting Settings display (see Figure 7-1) and viewfinder.

The shutter speed you need depends on how fast your subject is moving, so you have to experiment. Another factor that affects your ability to stop action is the *direction* of subject motion. A car moving toward you can be stopped with a lower shutter speed than one moving across your field of view, for example. Generally speaking, 1/500 second should be plenty for all but the fastest subjects — speeding hockey players, race cars, or boats, for example. For slower subjects, you can even go as low as 1/250 or 1/125 second.

Remember, though, that when you increase shutter speed in Tv exposure mode, the camera opens the aperture to maintain the same exposure. At low f-stop numbers, depth of field becomes shorter, so you have to be more careful to keep your subject within the sharp-focus zone as you compose and focus the shot.



You also can take an entirely different approach to capturing action: Instead of choosing a fast shutter speed, select a speed slow enough to blur the moving objects, which can create a heightened sense of motion and, in scenes that feature very colorful subjects, cool abstract images such as the carnival ride images Julie captured in Figure 7-7. For the left image, the shutter speed was 1/30 second; for the right version, 1/5 second. In both cases, she used a tripod, but because nearly everything in the frame was moving, the entirety of both photos is blurry — the 1/5 second version is simply more blurry because of the slower shutter.

For an alternate effect, try panning (rotating the camera horizontally or vertically) with the movement. The subject you track during the pan will remain relatively sharp, even with a slower shutter speed. (Lots of practice and experimentation are required to get it right.)



If the aperture value blinks after you set the shutter speed, the camera can't select an f-stop that will properly expose the photo at that shutter speed and the current ISO setting.

3. Raise the ISO setting to produce a brighter exposure, if needed.

In dim lighting, you may not be able to create a good exposure at your chosen shutter speed without taking this step. Raising the ISO increases the possibility of noise, but a noisy shot is better than a blurry shot. (The current ISO setting appears in the upper-right corner of the Shooting Settings display, as shown in Figure 7-1.)



Figure 7-7: Using a shutter speed slow enough to blur moving objects can be a fun creative choice, too.

If Auto ISO is in force, ISO may go up automatically when you increase shutter speed. Auto ISO can be a big help when you're shooting fast-paced action; just be sure to limit the camera to choosing an ISO setting that doesn't produce an objectionable level of noise. Chapter 4 provides details on Auto ISO.



Why not just add flash to throw some extra light on the scene? That solution has a number of drawbacks. First, the flash needs time to recycle between shots, which slows down your shooting pace. Second, the fastest possible shutter speed when you enable the built-in flash is 1/200 second, which may not be fast enough to capture a quickly moving subject without blur. (You can use a faster shutter speed with certain Canon external flash units, however.) And finally, the built-in flash has a limited range, so unless your subject is pretty close to the camera, you're just wasting battery power with flash, anyway.

4. For rapid-fire shooting, set the Drive mode to Continuous.



In this mode, the camera continues to record images as long as the shutter button is pressed, capturing as many as five frames per second. You can access the Drive mode setting quickly by pressing the Drive button.

5. If possible, use manual focusing; otherwise select AI Servo AF (autofocus) mode and Automatic AF Point Selection.

With manual focusing, you eliminate the time the camera needs to lock focus during autofocusing. Chapter 5 shows you how to focus manually, if you need help. Of course, focusing manually gets a little tricky if your subject is moving in a way that requires you to change the focusing distance quickly from shot to shot. In that case, try these two autofocus settings for best performance:

- *Set the AF (autofocus) mode to AI Servo (continuous-servo autofocus).* Press the AF button or use the Quick Control screen to access this setting.
- *Set the AF Point Selection Mode setting to Automatic.* Press the button shown in the margin to access the setting. Then press the Set button to quickly toggle from Single-Point Selection mode to Automatic Selection mode.



When you use these two autofocus settings, the camera initially sets focus on the center focus point. So frame your subject under that point, press the shutter button halfway to set the initial focusing distance, and then just reframe as necessary to keep the subject within the area covered by the focus points. As long as you keep the shutter button pressed halfway, the camera continues to adjust focus up to the time you actually take the shot. Chapter 5 details these autofocus options.

6. Compose the subject to allow for movement across the frame.

Don't zoom in so far that your subject might zip out of the frame before you take the shot — frame a little wider than usual. You can always crop the photo later to a tighter composition. (Many examples in this book were cropped to eliminate distracting elements.)



These action-shooting strategies also are helpful for shooting candid portraits of kids and pets. Even if they aren't running, leaping, or otherwise cavorting when you pick up your camera, snapping a shot before they move or change positions is often tough. So, if an interaction or scene catches your eye, set your camera into Sports mode and then just fire off a series of shots as fast as you can.

One other key to shooting sports, wildlife, or any moving subject: Before you even put your eye to the viewfinder, spend time studying your subject so that you get an idea of when it will move, where it will move, and how it will move. The more you can anticipate the action, the better your chances of capturing it.

Capturing Scenic Vistas

Providing specific camera settings for landscape photography is tricky because there's no single best approach to capturing a beautiful stretch of countryside, a city skyline, or another vast subject. Depth of field is an example: One person's idea of a super cityscape might be to keep all buildings in the scene sharply focused. Another photographer might prefer to shoot the same scene so that a foreground building is sharply focused while the others are less so, thus drawing the eye to that first building.

That said, here are a few tips to help you photograph a landscape the way *you* see it:

- ✔ **Shoot in aperture-priority autoexposure mode (Av) so that you can control depth of field.** If you want extreme depth of field so that both near and distant objects are sharply focused, as shown in Figure 7-8, select a high f-stop value. An aperture of $f/22$ worked for this shot.
- ✔ **If the exposure requires a slow shutter, use a tripod to avoid blurring.** The downside to a high f-stop is that you need a slower shutter speed to produce a good exposure. If the shutter speed is slower than you can comfortably handhold, use a tripod to avoid picture-blurring camera shake. No tripod handy? Look for any solid surface on which to steady the camera. Using a remote-control to trigger the shutter release can also help avoid camera shake caused by the mere motion of pressing the shutter button.

You can always increase the ISO setting to increase light sensitivity, which in turn allows a faster shutter speed, too, but that option brings with it the chance of increased image noise. See Chapter 4 for details. Also enable Image Stabilization, if your lens offers it; this feature can help you take sharper handheld shots at slow shutter speeds. (On the kit lens, set the IS switch to the On position.)

- ✔ **For dramatic waterfall and fountain shots, consider using a slow shutter to create that “misty” look.** The slow shutter blurs the water, giving it a soft, romantic appearance, as shown in Figure 7-9. Shutter speed for this shot was $1/15$ second. Again, use a tripod to ensure that camera shake doesn't blur the rest of the scene.



Figure 7-8: Use a high f-stop value to keep foreground and background sharply focused.



Figure 7-9: For misty water movement, use a slow shutter speed (and tripod).



In bright light, using a slow shutter speed may overexpose the image even if you stop the aperture all the way down and select the camera's lowest ISO setting. As a solution, consider investing in a *neutral-density filter* for your lens. This type of filter works something like sunglasses for your camera: It simply reduces the amount of light that passes through the lens, without affecting image colors, so that you can use a slower shutter than would otherwise be possible.

- ✓ **At sunrise or sunset, base exposure on the sky.** The foreground will be dark, but you can usually brighten it in a photo editor, if needed. If you base exposure on the foreground, on the other hand, the sky will become so bright that all the color will be washed out — a problem you usually can't easily fix after the fact.

You can also invest in a graduated neutral-density filter, which is a filter that's dark on top and clear on the bottom. You orient the filter so that the dark half falls over the sky and the clear side over the dimly lit portion of the scene. This setup enables you to better expose the foreground without blowing out the sky colors.

Enabling Highlight Tone Priority can also improve your results, so take some test shots using that option, too. Chapter 4 offers more information.

- ✓ **For cool nighttime city pics, experiment with a slow shutter.** Assuming that cars or other vehicles are moving through the scene, the result is neon trails of light, like those you see in Figure 7-10. Shutter speed for this image was 10 seconds. The longer your shutter speed, the blurrier the motion trails.

Rather than change the shutter speed manually between each shot, try *Bulb* mode. Available only in M (manual) exposure mode, access this option by increasing the length of the shutter speed until you see Bulb displayed where the shutter speed should be. Bulb mode records an image for as long as you hold down the shutter button. So just take a series of images, holding down the button for different lengths of time for each shot.

Because long exposures can produce image noise, you also may want to enable the Long Exposure Noise Reduction feature (Custom Function 4). Chapter 4 discusses this option.

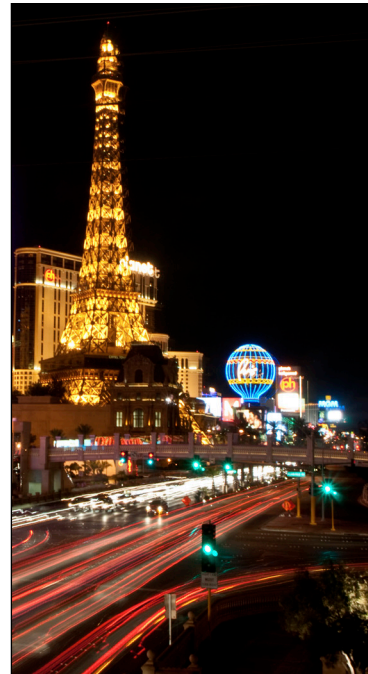


Figure 7-10: A slow shutter also creates neon light trails in city-street scenes.





- ✓ **For the best lighting, shoot during the “magic hours.”** That’s the term photographers use for early morning and late afternoon, when the light cast by the sun is soft and warm, giving everything that beautiful, gently warmed look.

Can’t wait for the perfect light? Tweak your camera’s White Balance setting, using the instructions laid out in Chapter 6, to simulate magic-hour light.

- ✓ **In tricky light, bracket shots.** *Bracketing* simply means to take the same picture at several different exposures to increase the odds that at least one captures the scene the way you envision. Bracketing is especially a good idea in difficult lighting situations such as sunrise and sunset.

Your camera offers automatic exposure bracketing (AEB). See Chapter 4 to find out how to take advantage of this feature.

Also experiment with the Auto Lighting Optimizer and Highlight Tone Priority options; capture some images with the features enabled and then take the same shots with the features turned off. See Chapter 4 for help. Remember, though, that you can’t use both these tonality-enhancing features concurrently; turning on Highlight Tone Priority disables Auto Lighting Optimizer.

Capturing Dynamic Close-Ups

For great close-up shots, start with the basic capture settings outlined earlier, in Table 7-1. Then try the following additional settings and techniques:

- ✓ **Check your owner’s manual to find out the minimum close-focusing distance of your lens.** How “up close and personal” you can be to your subject depends on your lens, not on the camera body.
- ✓ **Take control of depth of field by setting the camera mode to Av (aperture-priority autoexposure) mode.** Whether you want a shallow, medium, or extreme depth of field depends on the point of your photo. For the romantic scene shown in Figure 7-11, for example, setting the aperture to $f/5.6$ blurred the background, helping the subjects stand out more from the similarly colored background. But if you want the viewer to clearly see all details



Figure 7-11: Shallow depth of field helps set the subject apart from the background.

throughout the frame — for example, if you're shooting a product shot for your company's sales catalog — go in the other direction, stopping down the aperture as far as possible.

- ✓ **Remember that both zooming in and getting close to your subject decrease depth of field.** Back to that product shot: If you need depth of field beyond what you can achieve with the aperture setting, you may need to back away or zoom out, or both. (You can always crop your image to show just the parts of the subject that you want to feature.)
- ✓ **When shooting flowers and other nature scenes outdoors, pay attention to shutter speed, too.** Even a slight breeze may cause your subject to move, causing blurring at slow shutter speeds.
- ✓ **Use fill flash for better outdoor lighting.** Just as with portraits, a tiny bit of flash typically improves close-ups when the sun is your primary light source. You may need to reduce the flash output slightly, via the camera's Flash Exposure Compensation control. Chapter 2 offers details.

Keep in mind that the maximum shutter speed possible when you use the built-in flash is 1/200 second (some Canon Speedlites enable you to use a faster shutter speed). So in extremely bright light, you may need to use a high f-stop setting to avoid overexposing the picture. You also can lower the ISO speed setting, if it's not already all the way down to ISO 100.
- ✓ **When shooting indoors, try not to use flash as your primary light source.** Because you're shooting at close range, the light from your flash may be too harsh even at a low Flash Exposure Compensation setting. If flash is inevitable, turn on as many room lights as possible to reduce the flash power that's needed. Remember that if you have multiple light sources, though, you may need to tweak the White Balance setting.
- ✓ **To get *very* close to your subject, invest in a macro lens or a set of diopters.** A true macro lens is an expensive proposition; expect to pay \$300 or more. If you enjoy capturing the tiny details in life, it's worth the investment.

For a less expensive way to go, you can spend about \$40 for a set of *diopters*, which are sort of like reading glasses you screw onto your existing lens. Diopters come in several strengths: +1, +2, +4, and so on, with a higher number indicating a greater magnifying power. In fact, a diopter was used to capture the rose in Figure 7-12. The left image shows the closest shot possible with the regular lens; to produce the right image, a +6 diopter was attached. The downfall of diopters, sadly, is that they typically produce images that are very soft around the edges, as in Figure 7-12 — a problem that doesn't occur with a good macro lens.

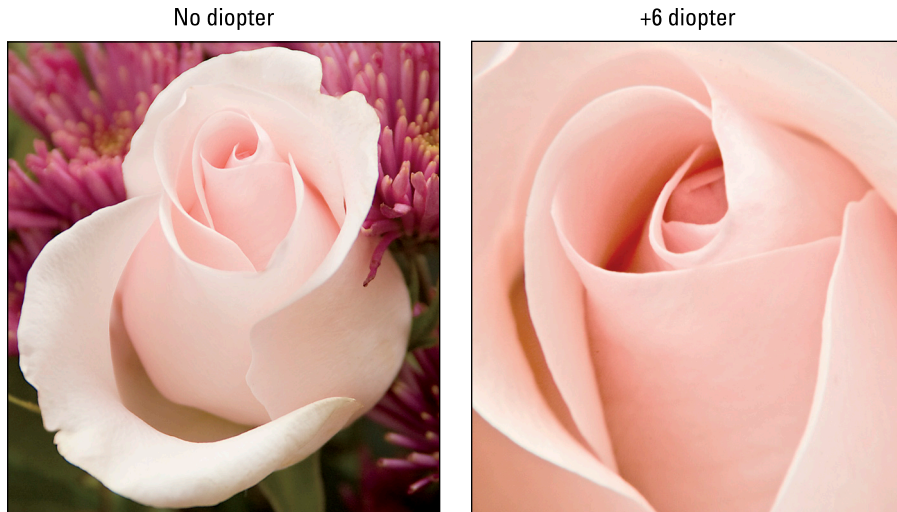


Figure 7-12: To extend the close-focus ability of a lens, add magnifying diopters.

Coping with Special Situations

A few subjects and shooting situations pose some additional challenges not already covered in earlier sections. So to close this chapter, here's a quick list of ideas for tackling a variety of common tough-shot photos:

- ✓ **Shooting through glass:** To capture subjects that are behind glass, such as animals at a zoo, you can try a couple tricks. First, set your camera to manual focusing — the glass barrier can give the autofocus mechanism fits. Disable your flash to avoid creating any unwanted reflections, too (it also makes the alligators angry). Then, if you can get close enough, your best odds are to put the lens right up to the glass. (Be careful not to scratch your lens.) If you must stand farther away, try to position your lens at a 90-degree angle to the glass. Julie used this approach to capture the photo shown in Figure 7-13.



Figure 7-13: To photograph subjects that are behind glass, use manual focusing and disable flash.

- ✔ **Shooting out a car window:** Set the camera to shutter-priority autoexposure or manual mode and dial in a fast shutter speed to compensate for the movement of the car. Also turn on image stabilization, if your lens offers it. Oh, and keep a tight grip on your camera. Do not attempt while driving!
- ✔ **Shooting fireworks:** First off, use a tripod; fireworks require a long exposure, and trying to handhold your camera simply isn't going to work. If using a zoom lens, zoom out to the shortest focal length (widest angle). Switch to manual focusing and set focus at infinity (the farthest focus point possible on your lens). Set the exposure mode to manual, choose a relatively high f-stop setting — say, f/16 or so — and start at a shutter speed of 1 to 5 seconds. From there, it's simply a matter of experimenting with different shutter speeds. Also play with the timing of the shutter release, starting some exposures at the moment the fireworks are shot up, some at the moment they burst open, and so on. For the example featured in Figure 7-14, Julie set the shutter speed to 5 seconds and began the exposure as the rocket was going up — that's what creates the “corkscrew” of light that rises up through the frame.



Figure 7-14: A shutter speed of 5 seconds captured this fireworks shot.



Be especially gentle when you press the shutter button — with a very slow shutter, you can easily create enough camera movement to blur the image. If you purchased the accessory remote control for your camera, this is a good situation in which to use it.

- ✔ **Shooting in strong backlighting:** When the light behind your subject is very strong, the result is often an underexposed subject. You can try using flash to better expose the subject, assuming that you're shooting in an exposure mode that permits flash. The Highlight Tone Priority feature, which captures the image in a way that retains better detail in the shadows without blowing out highlights, may also help. (Chapter 4 has an example.)

But for another creative choice, you can purposely underexpose the subject to create a silhouette effect, as shown in Figure 7-15. Base your exposure on the brightest areas of the background so that the darker areas of the frame remain dark.

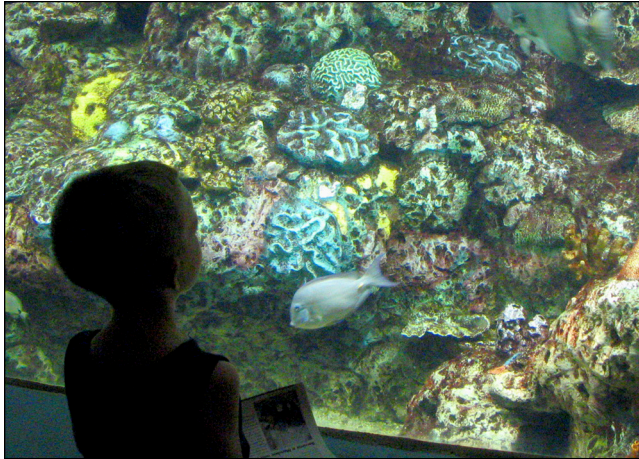


Figure 7-15: Experiment with shooting backlit subjects in silhouette.

Shooting and Viewing Movies

In This Chapter

- ▶ Recording your first movie using the default settings
- ▶ Understanding the frame rate, frame size, and movie quality options
- ▶ Adjusting audio-recording options
- ▶ Controlling exposure during movie recording
- ▶ Playing movies

In addition to being a stellar still-photography camera, your T5/1200D enables you to record HD (high-definition) movies. This chapter tells you what you need to know to take advantage of the movie-recording options.



You'll find information on related subjects elsewhere in the book. For example, we cover focusing, which works the same way for movie shooting as it does when you use Live View to shoot a still photo, in Chapter 5, and provide just a basic recap in these pages.

Also be sure to visit Chapter 1, which lists precautions to take while Live View is engaged whether you're shooting stills or movies. (To answer your question: No, you can't use the viewfinder for movie recording; Live View is your only option.)

Note: You may see minor differences between what you see on your monitor when shooting and viewing movies and what you see in the figures in this chapter. Again, the variation is due to the process used to capture the camera screens for publication. The data itself is the same; only the positioning varies.



Recording Your First Movie Using the Default Settings

Recording a movie using the default settings is a cinch. The following steps show you how to do it using autofocusing:

1. Set the Mode dial to the Movie position, as shown in Figure 8-1.

The viewfinder shuts off, and the live preview appears on the monitor. By default, you see limited data onscreen, as shown on the left in Figure 8-2.



At the default display setting, the available recording time is not shown, nor is the Movie Recording Size setting. We think these are important bits of information, so we use a more detailed display for the rest of the chapter. If you want to see that information now, press the Disp button to cycle through different displays. More on what you can see and what everything means is coming up later in the chapter.

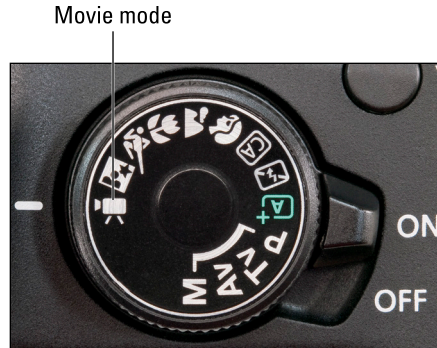


Figure 8-1: Set the Mode dial to the movie camera icon to record movies.



Figure 8-2: Use the cross keys to position the focus frame over your subject.

2. **Frame your initial shot.**
3. **Use the cross keys to move the focusing frame over your subject.**

You can see the focusing frame in Figure 8-2.

4. Press the shutter button halfway to meter and set focus.

The camera evaluates the lighting and chooses the proper exposure settings. When focus is achieved, the focus frame turns green. You can then let up on the shutter button; focus remains at the established distance throughout your recording unless you press the shutter button halfway again.

5. To start recording, press the Live View button.

The red dot near the Live View button reminds you of the movie-recording function. A red “recording” symbol appears, as shown on the right in Figure 8-2.

The maximum movie length at the default recording settings is 11 minutes (that’s how long it takes for the file to reach 4 gigabytes, which is the file size limit). When you reach that limit, the camera creates a new movie file to hold the next 11 minutes of video.

6. To stop recording, press the Start/Stop button again.

At the default settings, your movie is recorded using the following settings:

- ✓ FlexiZone-Single AF mode
- ✓ Full HD video quality (1920 x 1080 pixels at 30 frames per second, or fps)
- ✓ Audio recording enabled
- ✓ Auto exposure mode (camera controls exposure)
- ✓ Evaluative (whole frame) exposure metering
- ✓ Automatic white balancing
- ✓ Auto Lighting Optimizer applied at the Standard setting
- ✓ Auto Picture Style

But of course, you didn’t buy this book so that you could remain trapped in the camera’s default behaviors. So the upcoming sections explain all your recording options, which range from fairly simply to fairly not.



Whatever settings you select, the camera records movies in the MOV format, a popular file format for storing digital video. You can play MOV files on your computer with most movie-playback programs. If you want to view your movies on a TV, you can connect the camera to the TV, as explained in Chapter 12. You also can edit your movie in a program that can work with MOV files.

Customizing Movie Recording Settings

After you set the Mode dial to the Movie position, you can view critical recording settings on the monitor, shown in Figure 8-3. If you don't see the same data, press the Disp button to cycle through different display styles.

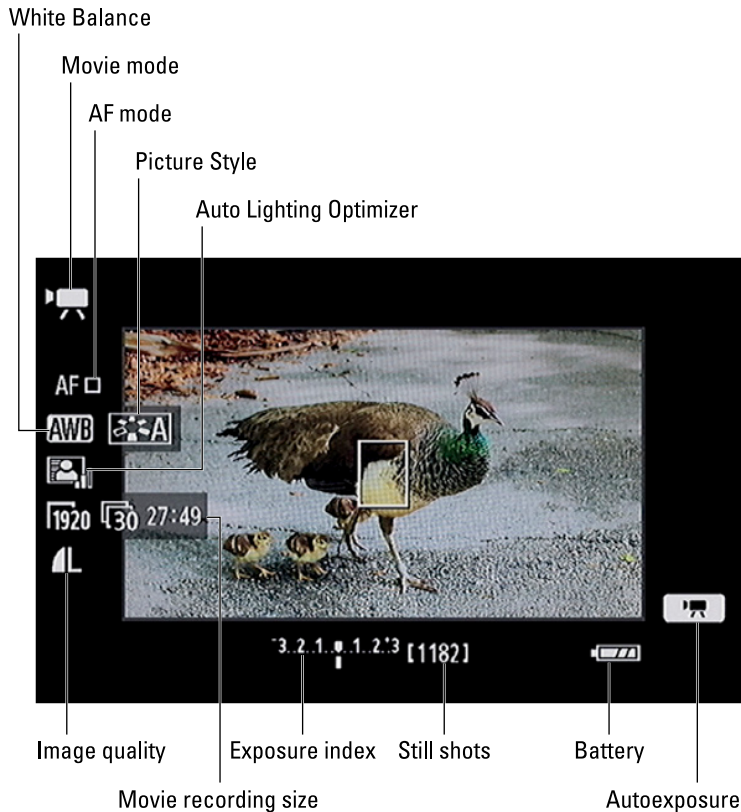


Figure 8-3: Press the Disp button to change the data display.

To adjust movie recording options, you can go two routes:

- ✓ **Movie Menus 1, 2, and 3:** The Movie menus appear after you set the Mode dial to the Movie setting.



✔ **Quick Control screen:** You can also adjust some recording options via the Quick Control screen. After you press the Q button, the currently selected option is highlighted, and its current setting is displayed at the bottom of the screen, as shown in Figure 8-4.

Note that the Image Quality setting applies only to still photos you shoot during recording, as does the Shots Remaining value that appears in brackets at the bottom of some of the screens (shown in Figure 8-3).

Highlighted option selected



Current setting

Figure 8-4: You can adjust these settings via the Quick Control screen.

Movie Menu 1

Start customizing your production with the options on Movie Menu 1, shown in Figure 8-5:

✔ **Movie Exposure:** By default, this option is set to Auto, and the camera controls the aperture, shutter speed, and ISO. Pressing the shutter button halfway displays the shutter speed, f-stop, and ISO for any still shot you take during recording, which may be different than the settings for the movie recording.

If you want to control exposure, set the Movie Exposure option to Manual. This option is best left to experts and involves more details than we have room to cover, so see the camera instruction manual for the full story. (The complete manual is provided in electronic format on one of the CDs included with your camera; the paper manual contains only basic information.)

✔ **AF Method:** This option enables you to choose from the same three auto-focusing options available for Live View photography: FlexiZone-Single, Live Mode with Face Detection, and Quick Mode. Chapter 5 explains these focusing methods.

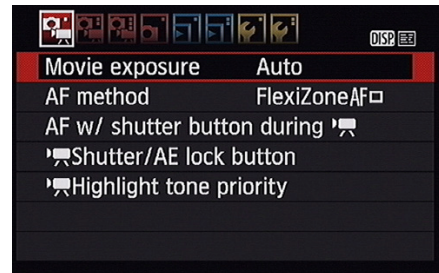


Figure 8-5: Set the Movie Exposure option to Auto to let the camera handle exposure duties.



The T5/1200D doesn't offer continuous autofocus during movie recording. If you want to change the focus distance after recording begins, you can press the shutter button halfway to do so, but only if you have first enabled the AF with Shutter Button During Movie Recording option (discussed in the next bullet item).

You also can set the AF mode option via the Quick Control screen (refer to Figure 8-4).

- ✓ **AF with Shutter Button During Movie Recording:** If you enable this option, you can press the shutter button halfway to reset autofocus during movie recording. But understand that doing so can be distracting. The image can drift in and out of focus, and the sound of the lens focusing mechanism might be recorded if you use the internal microphone. Long story short, if you don't want to use the same focusing distance for the entire movie, use manual focusing.
- ✓ **Shutter/AE Lock button:** This setting enables you to mess with the normal functions of the shutter button and the AE Lock button. Don't.
- ✓ **Highlight Tone Priority:** By default, this setting is turned off, as it is for still photography. Leave the feature turned off until you explore the details in Chapter 4. If you do turn on Highlight Tone Priority, the Auto Lighting Optimizer feature is automatically disabled. (The control for that feature lives on Movie Menu 3.)

Movie Menu 2

Movie Menu 2, shown in Figure 8-6, includes the following settings:

- ✓ **Movie Recording Size:** This option determines movie resolution (frame size, in pixels), frames per second (fps), and frame aspect ratio. This setting is a little complex, so see the next section if you don't know what option to choose.
- ✓ **Sound Recording:** Via this menu item, you adjust microphone volume and a couple other sound options. See "Choosing audio recording options," later in this chapter, for help with all the audio settings.
- ✓ **Metering Timer:** By default, exposure information such as f-stop and shutter speed disappears from the display after 8 seconds if you don't press any camera buttons. If you want the exposure data to remain visible for a longer period, you can adjust the shutdown time through this menu option. Just keep in mind that the metering mechanism uses battery power, so the shorter the cutoff time, the better.

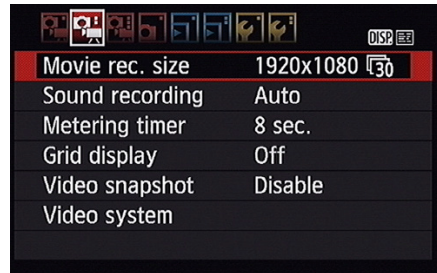


Figure 8-6: Options controlling video quality and sound recording reside on Movie Menu 2.

- ✓ **Grid Display:** You can choose to display one of three different grid styles on the monitor to help ensure alignment of vertical and horizontal structures when you're framing the scene.
- ✓ **Video Snapshot:** This feature enables you to shoot multiple brief movie clips and then combine the clips into one movie. Turn off this feature for regular movie recording and see Chapter 12 for information about video snapshots.
- ✓ **Video System:** This option sets the camera to one of two video standards, NTSC or PAL. NTSC is the standard in North America and Japan; PAL is used in Europe, China, and many other countries.

Setting the Movie Recording Size option

Through this setting, you set movie frame dimensions (in pixels) and frame rate, measured in frames per second (fps). Access the option via Movie Menu 2, shown in Figure 8-7.

You also can adjust the setting via the Quick Control screen, as shown in Figure 8-8. After selecting the Movie Size setting (highlighted in the figure), use the Main dial to change the setting (the current setting is displayed along the bottom of the screen) or press Set to access a screen showing all possible settings.

However you get there, you have the following choices:

- ✓ 1920 x 1080 pixels, 30 fps (16:9 aspect ratio)
- ✓ 1920 x 1080 pixels, 24 fps (16:9)
- ✓ 1280 x 720 pixels, 60 fps (16:9)
- ✓ 640 x 480 pixels, 30 fps (4:3)

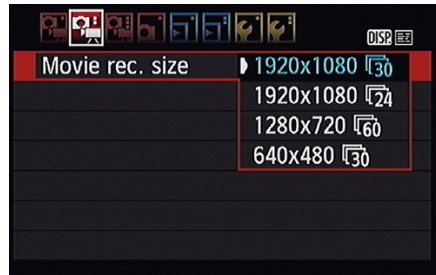


Figure 8-7: This option determines the frame size and frame rate of your movie.



Figure 8-8: You also can access the setting via the Quick Control screen.



The frame-rate options depend on the Video System option found at the bottom of Movie Menu 2. If you choose NTSC, you see the recording options shown in Figure 8-7 and in the preceding list. If you select PAL, you can choose frame rates of 24, 25, and 50 instead of 24, 30, and 60.

Here's a bit more information to help you choose the best frame size and frame rate combo:

- ✔ **For high-definition (HD) video, choose 1920 × 1080 (Full HD) or 1280 × 720 (Standard HD).** The 640 × 480 setting gives you standard definition (SD) video. This smaller size video is useful if you want to post videos to a website that doesn't permit high-def movies or restricts the size of your video files, a consideration discussed next.
- ✔ **The Movie Recording Size setting determines file size and the maximum length of your movie.** The following list shows the maximum approximate recording time of a single movie clip for each size:
 - *1920 x 1080*: 11 minutes
 - *1280 x 720*: 11 minutes
 - *640 x 480*: 46 minutes



The maximum file size for a movie is 4GB, regardless of the capacity of your memory card. However, you can keep shooting until you reach a total time of 29 minutes, 59 seconds — the camera automatically creates a new file to hold your new clip. You have to play back each clip separately or join them together in a movie-editing program if you want one continuous 30-minute (or so) movie.

At the 640 x 480 setting, the maximum movie length is still just shy of 30 minutes, even though you can fit more minutes of recording in the 4GB file-size limit. (Don't yell at us — we don't set the limits, we just report them.)

Either way, when the maximum recording time is up, the camera automatically stops recording. You can always start a new recording, however, and, again, you can join the segments in a movie-editing program later, if you want.

- ✔ **Frame rate affects playback quality.** Higher frame rates transfer to smoother playback, especially for fast-moving subjects. But the frame rate also influences the crispness of the picture. To give you some reference, 30 fps is the NTSC standard for television-quality video, and 24 fps is the motion-picture standard. Movies shot at 60 fps tend to appear very sharp and detailed — a look that some people like and others find too harsh. It's hard to explain the difference in words, so experiment to see which look you prefer. The über-high frame rate is also good for maintaining video quality if you edit your video to create slow-motion effects. Additionally, if you want to “grab” a still frame from a video to use as a photograph, 60 frames per second gives you more frames from which to choose.



One final note about the Movie Recording Size option: In the camera specifications provided in the user manual, all recording sizes are followed by the letter *p*. This marking refers to *progressive video*, which is one of two technologies used to record the lines of pixels that make up a digital video frame. The other technology is *interlaced video*. With interlaced video, a single frame is split into odd and even *fields*, or lines of pixels. The data from the odd lines is recorded first, followed rapidly by the data from the even lines — so rapidly, in fact, that the picture appears seamless during playback. With progressive video, all the lines are pulled out of the magic video hat in sequential order, in a single pass. Your camera offers only progressive video, but don't fret: Progressive, the newer technology, delivers smoother, cleaner footage than interlaced video when you're shooting fast motion or panning the camera.

Choosing audio recording options

To control audio recording, select Sound Rec from Movie Menu 2, as shown on the left in Figure 8-9, and then press OK to display the screen shown on the right in the figure. At the bottom of this screen, a volume meter appears to guide you in choosing recording levels.



Figure 8-9: Adjust audio recording settings here.



Audio levels are measured in decibels (dB). Levels on the volume meter range from -40 (very, very soft) to 0 (as much as can be measured digitally without running out of room). At the ideal recording level, the sound peaks consistently in the -12 range, as shown in Figure 8-9. The indicators on the meter turn yellow in this range, which is good. (The extra space beyond that level, called *headroom*, gives you both a good signal and a comfortable margin of error.) If the sound is too loud, the volume indicators will peak at 0 and appear red — a warning that the audio may sound distorted.

The menu options work as follows:

- **Sound Rec:** At the default setting, Auto, sound is recorded, with the camera automatically adjusting recording volume. To record a silent movie, choose Disable.

If you select Manual, as shown on the left in Figure 8-10, the Rec Level (recording level) option becomes available. Select that option and press Set to activate the Rec Level meter, as shown on the right in the figure. Use the right/left cross keys to adjust the setting. As you do, the blue marker shows you the setting the camera suggests; the white marker, your selected volume setting. Again, refer to the volume meter at the bottom of the screen for guidance.

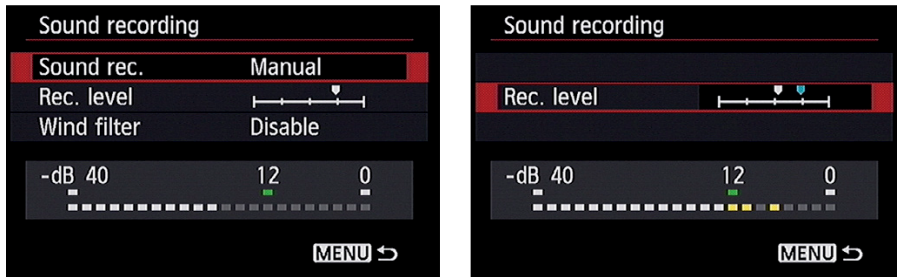


Figure 8-10: Set the Sound Rec option to Manual to adjust recording volume yourself.

If you choose the Manual Sound Recording option, a microphone symbol with the letter M appears in the lower-right corner of the live preview, as shown in Figure 8-11. When you go with the Auto setting, the symbol disappears.

- **Wind Filter:** Ever seen a news-caster out in the field, carrying a microphone that looks like it's covered with a big piece of foam (or a large squirrel, depending on the style)? That foam thing is a wind filter. It's designed to lessen the sounds that the wind makes when it hits the microphone. You can enable a digital version of the same thing via the Wind Filter menu option. Essentially, the filter works by reducing the volume of noises that are similar to those made by wind. The problem is that some noises *not* made by wind can also be muffled when the filter is enabled. So when you're indoors or shooting on a still day, keep this option set to Disable.

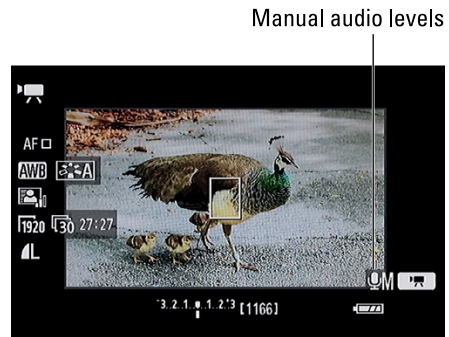


Figure 8-11: This symbol means that you set the recording volume control to Manual mode.

Movie Menu 3

Through Movie Menu 3, shown in Figure 8-12, you can access some of the same advanced exposure and color options that are available when you shoot pictures in the P, Tv, Av, or M exposure modes. Specifically, you can adjust the following settings:

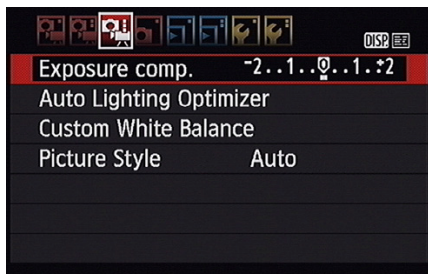


Figure 8-12: These options work just like they do for still photography.

- ✓ **Exposure Compensation:** When you set the Movie Exposure option on Movie Menu 1 to Auto, you can use the Exposure Compensation option to tell the camera to brighten or darken the scene, just as you can when you shoot still pictures in the P, Tv, or Av exposure modes. Select a higher Exposure Compensation value for a brighter picture; lower the value for a darker image. One quirk: For movies, the camera can produce an exposure shift of only plus or minus three stops, even though the meter shows you the full five-stop range available for still photography. If you do set the option to a level greater than EV +/- 3.0, the added exposure shift is applied only to any still photos you take in Movie mode.

For a faster way to adjust this setting, press and hold the Exposure Compensation button while you rotate the Main dial.

Either way, the indicator on the exposure meter updates to show you the amount of compensation being applied, as shown in Figure 8-13. For example, in the figure, the indicator shows that a +1.0 adjustment is in effect, producing a one-stop increase in exposure.

- ✓ **Auto Lighting Optimizer:** This feature also works just as it does for still photos, as explained in Chapter 4. It's enabled by default; until you have time to dig into the pros and cons of changing the setting, let it be.
- ✓ **Custom White Balance:** You can customize the white balance to match the lighting used for your movie. Chapter 6 explains the steps involved in using this feature.
- ✓ **Picture Style:** By default, movies are recorded using the Auto Picture Style, the same one used for still photographs by default. Changing the Picture Style enables you to tweak color, contrast, and sharpness. For a black-and-white movie, choose the Monochrome setting. Chapter 6 provides complete details about Picture Styles.



You can view the current settings for these options on the display; Figure 8-13 shows you where to look for the icon representing each option. You also can save yourself some time and change these options via the Quick Control screen instead of digging into the menus.

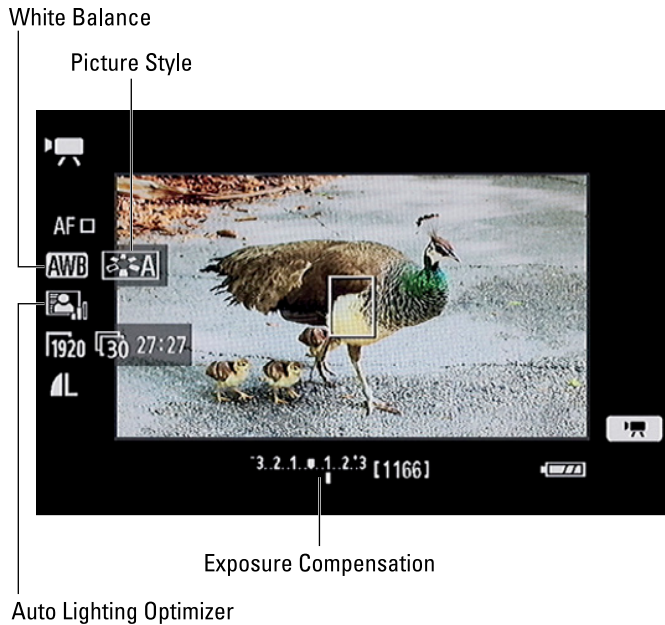


Figure 8-13: The meter tells you how much Exposure Compensation is in effect.



Snapping a photo during recording

You can interrupt your recording to take a still photo without exiting Movie mode. Just press the shutter button as usual to take the shot. The camera records the still photo as a regular image file, using the same Picture Style, White Balance, and Auto Lighting Optimizer settings you chose for your movie. The Image Quality setting determines the picture resolution and file format, as outlined in Chapter 2. You're restricted to the Single Frame setting for the Drive mode (one picture per each press of the shutter button), and Evaluative (whole frame) exposure metering is always used.

There are a few drawbacks to capturing a still photo during a recording:

- If you use a Movie Recording Size setting that results in a 16:9 aspect ratio, you get a 16:9 still JPEG photo instead of the normal 3:2 proportions. If you set the Image Quality to Raw instead of JPEG, the camera records

the entire 3:2 image, but the preview you see on the camera monitor appears as a cropped, 16:9 image. To reveal the hidden image area, you must process the Raw file in Digital Photo Professional, the Canon software we cover in Chapter 10. If the movie size is set to 640 x 480, your still photos still have the normal 3:2 aspect ratio regardless of the Image Quality setting.

- You can't use flash.
- Perhaps most importantly, your movie will contain a still frame at the point you took the photo; the frame lasts about 1 second.

If you do shoot a photo during recording, it's displayed automatically during playback. You can also view the separate image file after you exit the movie playback; see Chapter 9 for still-photo playback details.

Playing Movies

To view movies on the camera monitor, set the camera to Playback mode and then display the movie file in full-frame view. You can spot a movie file by looking for the little movie-camera icon, shown in Figure 8-14, in the upper-left corner of the screen.

If you see thumbnails instead of a full movie frame on the screen, use the cross keys to highlight it and then press Set to display the file in the full-frame view. You can't play movies in thumbnail view.

Use these techniques to start, stop, and control playback:

- ✓ **Start playback.** Press Set once to display the first frame of your movie plus a slew of control icons, as shown in Figure 8-15.



Figure 8-14: This symbol tells you that you're looking at a movie file.



Exit

Start playback

Slow

Skip to beginning

Previous frame

Next frame

Edit

Skip to end

Background music

Adjust volume

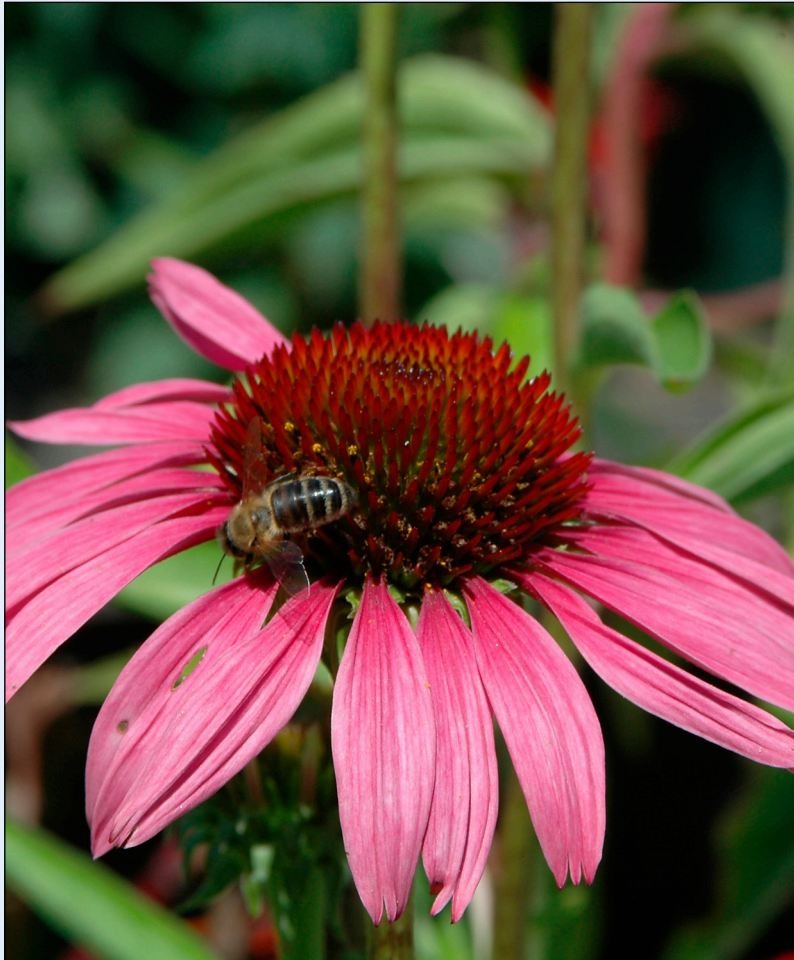
Figure 8-15: The icons at the bottom of the screen indicate playback controls.

To start playback, highlight the Play icon or press Set again. The control icons disappear and you then see a progress bar and the elapsed playback time at the top of the screen.

- ✔ **Adjust volume.** Rotate the Main dial. Note the little white wheel and a volume display bar in the bottom-right corner of the display — it reminds you to use the Main dial to adjust volume. Rotating the dial controls volume only for the camera speaker during on-camera playback, however. If you connect the camera to a TV, control the volume using the TV controls instead.
- ✔ **Pause playback.** Press the Set button to pause playback and redisplay the movie-control symbols. To resume playback, press Set again.
- ✔ **Play in slow motion.** Select the slow-motion icon and press Set. Press the right cross key to increase playback speed; press the left cross key to decrease it.
- ✔ **Fast forward/fast rewind.** Select the Next Frame icon and then hold down the Set button. To rewind, select the Previous Frame icon and hold down the Set button.
- ✔ **Go forward/back one frame while paused.** Highlight the Next Frame or Previous Frame icon and then press the Set button once. Each time you press the button, you go forward or backward one frame.
- ✔ **Skip to the first or last frame of the movie.** Highlight the first or last frame icons, respectively, and press Set.
- ✔ **Enable Background Music.** If you recorded a movie without sound, you can enable the Background Music option to play a sound file. In order to use this feature, you must install the Canon EOS Utility found on the software provided with your camera and then use the program to copy music files to your camera memory card. The EOS Utility program's user guide, found on one of the CDs in your camera box, offers all the details you need to know to copy music files to the card.
- ✔ **Edit the movie.** Highlight the scissors symbol and press Set. Then follow the instructions in Chapter 12 to trim frames from the start or end of the movie — the limits of the editing you can do in-camera.
- ✔ **Exit playback.** Press the Menu button.

Part III

After the Shot



Visit www.dummies.com/extras/canoneosrebel51200d to see ideas for creating better photographs.



In this part . . .

- ✔ Get the details on picture playback, including how to customize playback screens.
- ✔ Erase files you don't want and protect the ones you like from being accidentally deleted.
- ✔ Assign ratings to picture and movie files.
- ✔ Download files from the camera to the computer.
- ✔ Convert Raw images using the free Canon software.
- ✔ Prepare photos for online sharing.

Picture Playback

In This Chapter

- ▶ Exploring picture playback functions
- ▶ Magnifying your picture to check details
- ▶ Deciphering the picture information displays
- ▶ Understanding histograms

Without question, one of the best things about digital photography is being able to view pictures right after you shoot them. No more guessing whether you got the shot you want or need to try again; no more wasting money on developing and printing pictures that stink.

Seeing your pictures is just the start of the things you can do when you switch your camera to playback mode, though. You also can review settings you used to take the picture, display graphics that alert you to exposure problems, and magnify a photo to check details. This chapter introduces you to these playback features and more.

Note: Some information in this chapter applies only to still photographs; if a feature also works for movie files, we spell that out. For the basics of movie playback, see the end of Chapter 8.

Disabling and Adjusting Image Review

After you take a picture, it appears briefly on the monitor. By default, the instant-review period lasts 2 seconds. However, you can customize this behavior via the Image Review option on Shooting Menu 1, shown in Figure 9-1.



You can select from the following options:

- ✓ **A specific review period:** Pick 2, 4, or 8 seconds.
- ✓ **Off:** Disables automatic instant review. Turning off the monitor saves battery power, so keep this option in mind if the battery is running low. You can still view pictures by pressing the Playback button.
- ✓ **Hold:** Displays the current image indefinitely or until the camera automatically shuts off to save power. (The camera shutdown timing is controlled through the Auto Power Off option on Setup Menu 1.)

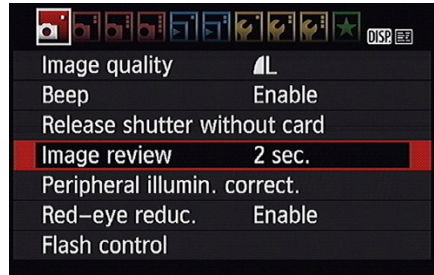


Figure 9-1: Control the timing of instant picture review.

Viewing Pictures in Playback Mode

- ▶ To switch to Playback mode, press the Playback button, labeled in Figure 9-2. Press the right or left cross key to scroll through your pictures; to return to shooting, press the Playback button or give the shutter button a quick half-press and release.

In Playback mode, you may see your photo only, as in Figure 9-2, or see shooting data along with the image. Press the Disp button to change how much data appears and read “Viewing Picture Data,” later in this chapter, to find out how to interpret the data. You can also display thumbnails of multiple images, as explained next.

Viewing multiple images at a time



To quickly review and compare several photos, press the AE Lock button, which is noted in Figure 9-2 with the callout labeled “Press to reduce size/display thumbnails.” The camera shifts to Index display mode, and you see either four or nine image thumbnails, as shown in Figure 9-3. Press once to display four thumbnails at a time; press again to display nine thumbnails.



Note the little blue checkerboard and magnifying glass icons under the button. Blue labels are reminders that the button serves a function in Playback mode. In this case, the checkerboard indicates the Index function, and the minus sign in the magnifying glass tells you that pressing the button reduces the size of the thumbnail image.



Photo by Robert Correll

Figure 9-2: The default Playback mode displays one picture at a time, with minimal picture data.

Remember these factoids about Index display mode:

- ▶ **Select a photo.** For some playback operations, you start by selecting a photo. A highlight box surrounds the currently selected photo. For example, in Figure 9-3, the photo of the Curve Ahead sign is selected. To select a different image, press the cross keys to move the highlight box over it.

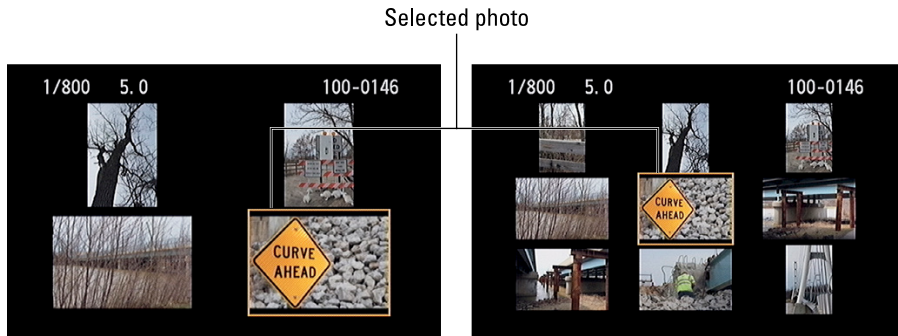


Photo by Robert Correll

Figure 9-3: You can view four or nine thumbnails at a time.

✓ **Scroll to the next screen of thumbnails.** You can simply press the cross keys to scroll the screen. To shift from screen to screen more quickly, rotate the Main dial.



✓ **Reduce the number of thumbnails.** Press the AF Point Selection button, noted in Figure 9-2 with the callout labeled “Press to magnify photo.” This button also has a blue magnifying glass icon, this time with a plus sign in the center to indicate that pressing it enlarges the thumbnail size. Press once to switch from nine thumbnails to four; press again to switch from four thumbnails to single-image view, filling the screen with the selected image.

For a quicker way to shift from Index view to full-frame view, select a photo and then press Set.

Using the Quick Control screen during playback

During playback, you can access a handful of playback functions via the Quick Control screen. Here’s how it works:



1. Press the Q button.

If you’re viewing pictures in Index mode, the camera shifts temporarily to full-frame playback. Then a strip of icons appears on the left side of the screen, as shown in Figure 9-4. The labels in the figure show you what feature each icon represents.

2. Use the up and down cross keys to highlight an icon.

The name of the selected feature appears at the bottom of the screen, along with symbols that represent the available settings for that option. For example, in Figure 9-4, the Rotate feature is selected.

You can read more about rotating and jumping through images in other sections of this chapter. Chapter 10 covers protecting, rating, and resizing images; Chapter 12 shows you the Creative Filters.

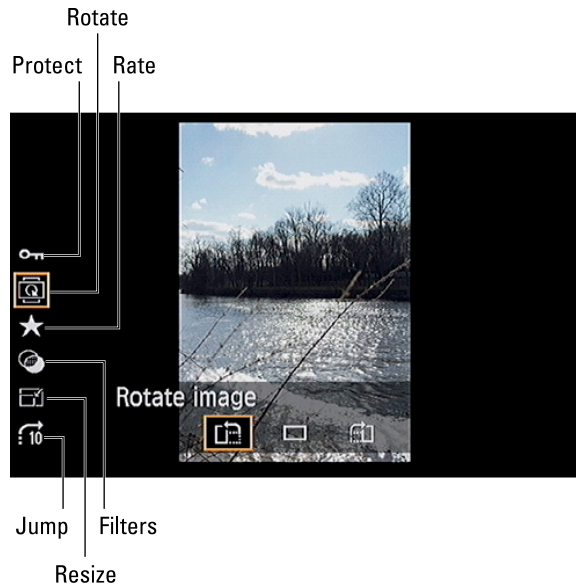


Photo by Robert Correll

Figure 9-4: You can control these playback features via the Quick Control screen.

3. Use the left and right cross keys to select a setting.

In some cases you have to press the Set button (Resize, for example) to apply the selected setting. (We give you details as we describe each function.)

4. Press the Q button again to return to image playback.

Jumping through images

If your memory card contains scads of images, here's a trick you'll love: By using the Jump feature, you can rotate the Main dial to leapfrog through images rather than press the right or left cross key a bazillion times to get to the picture you want to see. You also can search for the first image shot on a specific date, tell the camera to display only movies or only still shots, or display images with a specific rating. (See Chapter 10 for details on rating photos.)

You can choose from the following Jump options:



- **Display Images One by One:** This option, in effect, disables jumping, restricting you to browsing pictures one at a time. So what's the point? If you select this setting, you can scroll pictures by rotating the Main dial as well as by pressing the right/left cross keys.

- ✓ **Jump 10 Images:** Advance 10 images at a time.
- ✓ **Jump 100 Images:** Advance 100 images at a time.
- ✓ **Display by Date:** If your card contains images shot on different dates, you can jump between dates with this option. For example, if you're looking at the first of 30 pictures taken on June 1, you can jump past all others from that day to the first image taken on, say, June 5.
- ✓ **Display by Folder:** If you create custom folders on your memory card — an option outlined in Chapter 11 — this option jumps you from the current folder to the first photo in a different folder.
- ✓ **Display Movies Only:** Does your memory card contain both still photos and movies? If you want to view only the movie files, select this option. Then rotate the Main dial to jump from one movie to the next without seeing any still photos.
- ✓ **Display Stills Only:** This one is the opposite of the Movies option: Movie files are hidden when you use the Main dial to scroll photos. You scroll one picture at a time, just like when you use the Display Images One by One option.
- ✓ **Display by Image Rating:** If you rate photos, you can use this Jump method to view all rated photos or only those with a specific rating.

Use one of these methods to specify which type of jumping you want to do:



- ✓ **Quick Control screen:** Press the Q button and then use the up/down cross keys to highlight the Jump option, as shown on the left in Figure 9-5. Use the left/right cross keys to change the setting and then press the Q button again. If you select the Display by Image Rating mode, as on the left in Figure 9-5, rotate the Main dial to select a rating, as shown on the right in Figure 9-5. Press the Q button to get back to reviewing and jumping through photos.

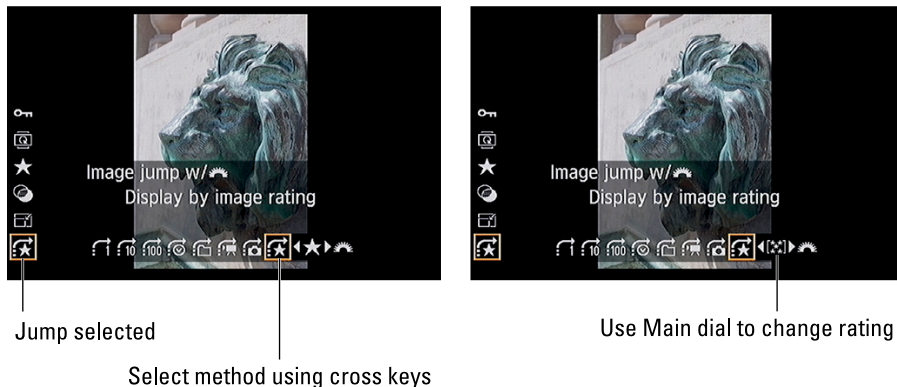


Photo by Robert Correll

Figure 9-5: You can specify a Jump method by using the Quick Control screen.

- **Playback Menu 2:** Highlight Image Jump, as shown on the left in Figure 9-6, and press Set to display a screen showing the jump settings, as shown on the right in the figure. Select your choice and press Set again; then press Playback to return to Playback mode. If you select the Display by Image Rating option, rotate the Main dial to specify how many stars qualifies an image for jump viewing.

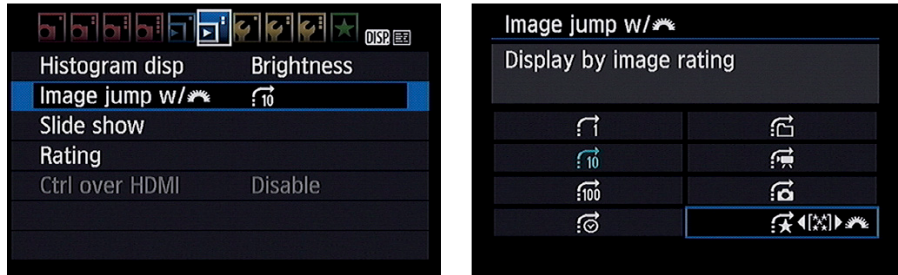


Figure 9-6: Or select the Jump method from Playback Menu 2.

After selecting a Jump method, take the following steps to jump through your photos during playback:



1. Set the camera to display a single photo.

You can use jumping only when viewing a single photo at a time. To leave Index mode, just press Set.

2. Rotate the Main dial.

The camera jumps to the next image. The number of images you advance, and whether you see movies as well as still photos, depends on the Jump method you select.

If you select any Jump setting but Display Images One by One, a *jump bar* appears for a few seconds at the bottom of the monitor, as shown in Figure 9-7, indicating the current Jump setting. For the Image Rating Jump method, you also see the number of stars you specified. In Figure 9-7, for example, the five tiny stars above the Jump bar indicate asking the camera to show only five-star photos.



Photo by Robert Correll

Figure 9-7: Rotate the Main dial to start jumping through pictures.

3. To return to regular Playback mode, press the right or left cross key.

Rotating pictures

When you take a picture, the camera can tag the image file with the camera orientation: that is, whether you held the camera horizontally or vertically. When you view the picture, the camera can read the data and rotate the image so that it appears upright in the monitor, as shown on the left in Figure 9-8, instead of on its side, as shown on the right. The image is also rotated automatically when you view it in the Canon photo software that ships with your camera (as well as in some other programs that can read the rotation data).



Photo by Robert Correll

Figure 9-8: Display vertically oriented pictures upright (left) or sideways (right).



Photographers use the term *portrait orientation* to refer to vertically oriented pictures and *landscape orientation* to refer to horizontally oriented pictures. The terms stem from the traditional way that people and places are photographed — portraits, vertically; landscapes, horizontally.

By default, the camera tags the photo with the orientation data and rotates the image automatically both on the camera and on your computer screen. But you have other choices, as follows:

- **Disable or adjust automatic rotation.** Select Auto Rotate on Setup Menu 1, as shown on the left in Figure 9-9. Then choose from these options:
 - *On (Camera and Computer):* This option is the default; rotation happens both on the camera and camera.
 - *On (Computer Only):* Pictures are rotated only on a computer monitor.
 - *Off:* New pictures aren't tagged with the orientation data, and existing photos aren't rotated during playback on the camera, even if they are tagged.

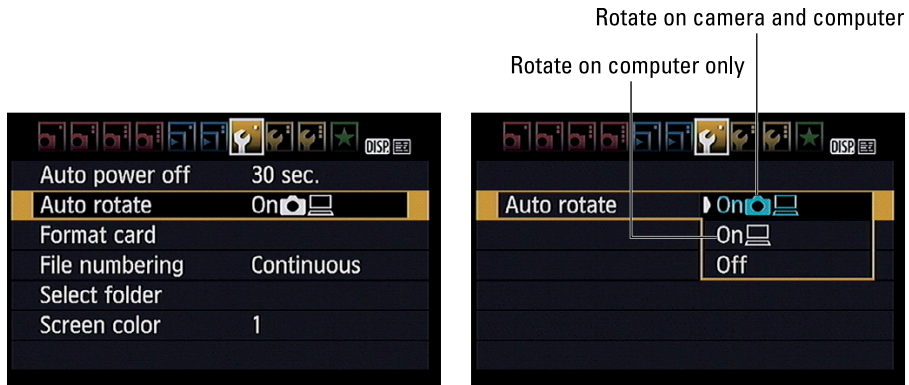


Figure 9-9: Go to Setup Menu 1 to disable or adjust automatic image rotation.



✓ **Rotate pictures during playback.** If you stick with the default Auto Rotate setting, you can rotate pictures during playback via the Quick Control screen. Highlight the Rotate option, and then press the right or left cross keys to select one of the three orientation icons (labeled in Figure 9-10) at the bottom of the screen. Press the Q button a second time to exit the Quick Control screen.

This technique does *not* work with either of the two other Auto Rotate settings (Off, or computer-rotation only). However, you can still rotate pictures via the Rotate Image option on Playback Menu 1, shown on the right in the figure.

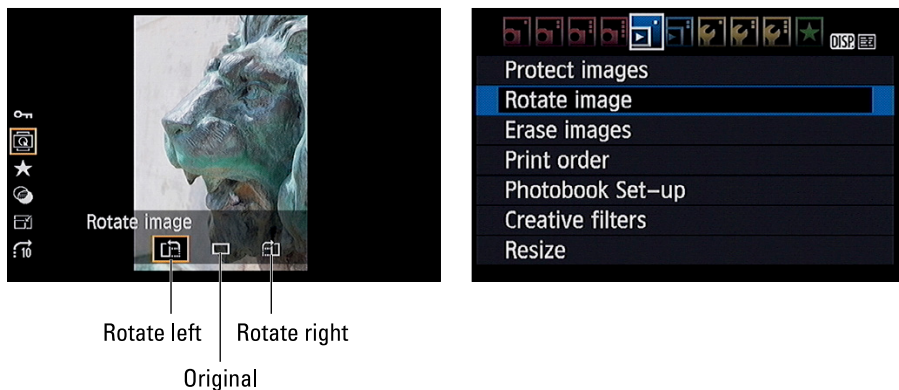


Figure 9-10: The fastest way to rotate individual images is to use the Quick Control screen (on left).

Photo by Robert Correll

Choose the menu option and then press Set to display your photos. In Index display mode, use the cross keys to select the image that needs rotating. In full-frame display, just scroll to the photo. Either way, press Set once to rotate the image 90 degrees; press again to rotate 180 additional degrees; press once more to return to 0 degrees, or back where you started. Press Menu to return to the menu system or Playback to return to viewing pictures. The photo remains in its rotated orientation only if the Auto Rotate option is set to the default.



These steps apply only to still photos; you can't rotate movies. See Chapter 8 for more about movie playback.

Zooming in for a closer view

During playback, you can magnify a photo to inspect details, as shown in Figure 9-11. Zooming works only for still photos and only when you're displaying photos one at a time, though. So if you're viewing pictures in Index display mode, press Set to return to full-frame view. Then use these techniques to adjust the image magnification:



Photo by Robert Correll

Figure 9-11: After displaying your photo in full-frame view (left), press the AF Point Selection button to zoom in for a closer view (right).



- **Zoom in.** Press and hold the AF Point Selection button until you reach the magnification you want. You can enlarge the image up to ten times its normal display size.
- **View another part of the picture.** When the image is magnified, a little thumbnail representing the entire image appears in the lower-right corner of the monitor, as shown in the right image in Figure 9-11. The solid white box indicates the area of the image that is shown on the monitor. Press the cross keys to scroll the display to see another portion of the image.



TIP

- **View more images at the same magnification.** While the display is zoomed, rotate the Main dial to display the same area of the next photo at the same magnification. (The Jump feature, normally triggered by rotating the dial, is disabled while a photo is magnified.) For example, if you shot a group portrait several times, you can easily check each one for shut-eye problems.



✱

- **Zoom out.** To zoom out to a reduced magnification, press the AE Lock button. Continue holding down the button until you reach the magnification you want.

- **Return to full-frame view when zoomed in.** To exit magnified view, don't keep pressing the AE Lock button until you zoom out all the way. Instead, just press the Playback button, which quickly returns you to full-frame view.

Viewing Picture Data



REMEMBER

When you review photos, press the Disp button to change the shooting data that appears with the photo. You can choose from the following display styles, shown in Figure 9-12. We tell you more about this data in the following sections.

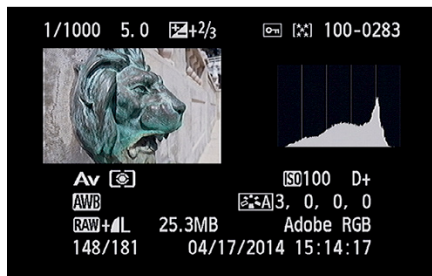
Basic Information



Basic plus Image Quality/Playback Number



Shooting Information



Histogram

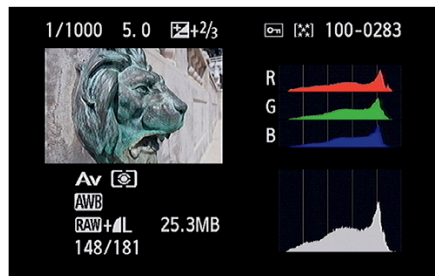


Photo by Robert Correll

Figure 9-12: Press the Disp button to change the amount of picture data displayed with your photo.

- ✓ **Basic Information:** What's this? A setting with a clear-cut name? Holy cannoli, pretty soon you won't need us at all. Well, at least check out the next section, which explains the basic data that appears in this display mode.
- ✓ **Basic Information plus Image Quality/Playback Number:** True to its name, this display option is the clear-cut Basic Information display with two additional items: image quality and playback number, which shows the frame number of the current file, followed by the total number of files on the memory card. For example, the image in Figure 9-12 is file 148 of 181.
- ✓ **Shooting Information:** This mode gives you a slew of symbols and numbers, all representing various shooting settings, plus a brightness histogram (the graph in the upper-right corner of the screen). We explain how to make sense of all this data two sections from here.
- ✓ **Histogram:** This mode gives you a brightness histogram plus an RGB histogram. Head to "Understanding Histogram display mode," later in this chapter, to find out what wisdom you can glean from histograms.



When you view images on your camera, you may see minor alignment differences compared to the display data shown in the figures in this book. These shifts are due to the process used to capture the camera screens for publication. The data itself is the same; only the positioning varies.

If you shot a picture using Full Auto, Flash Off, Creative Auto, or a scene mode, you see less data in Shooting Information and Histogram display modes than appears in Figure 9-12. You get the full complement of data only if you took the picture in P, Tv, Av, or M modes.

Basic Information display data

In Basic Information mode, you see the following bits of information (labeled in Figure 9-13):

- ✓ **Shutter speed, f-stop (aperture), and Exposure Compensation setting:** Chapter 4 explains these exposure settings, the last of which appears in the display only if you adjusted it when you took the shot.
- ✓ **Protected status:** The key icon appears if you used the Protect feature to prevent your photo from being erased when you use the normal picture-deleting feature. You can find out how to protect photos in the next chapter.
- ✓ **Rating:** If you rated the photo, a topic also covered in Chapter 10, you can see how many stars you assigned it.
- ✓ **Folder number and last four digits of file number:** See Chapter 1 for information about how the camera assigns folder and file numbers. And visit Chapter 11 for details on how you can create custom folders.

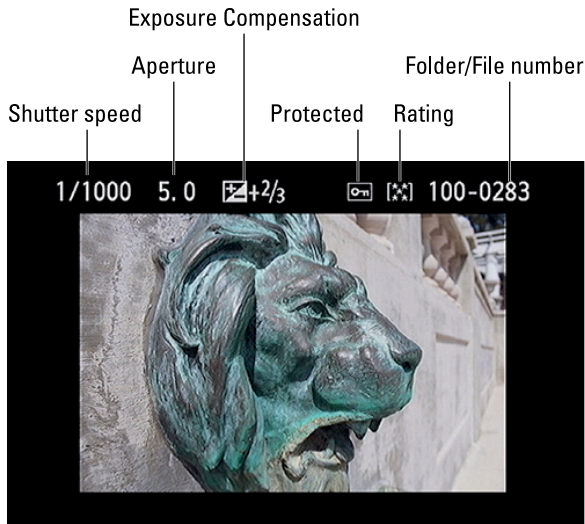


Photo by Robert Correll

Figure 9-13: You can view basic exposure and file data in this display mode.

Basic Information plus Image Quality/Playback Number display mode

This display mode adds two pieces of information to the Basic display, as shown in Figure 9-14:

- ✓ **Image quality:** These values correspond to the Image Quality setting. In the figure, the symbols indicate that the Raw+JPEG Fine setting was selected. See Chapter 2 to find out how to interpret the Image Quality symbols. (The L indicates that the images were captured at the Large resolution setting; the smooth arc indicates the JPEG Fine quality setting.)

- ✓ **Frame number/total frames:** These values show the current file number and the total number of files on the memory card.

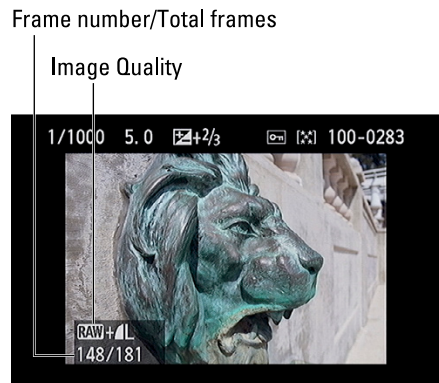


Photo by Robert Correll

Figure 9-14: You have access to a bit more information in this display mode.

Shooting Information display mode

In Shooting Information display mode, the camera presents a thumbnail of your image along with scads of shooting data. You also see a *brightness histogram* — the chart-like thingy on the top-right side of the screen. You can get schooled in the art of reading histograms in the next section. (Remember, press the Disp button to cycle through the other display modes.)

How much data you see, though, depends on the exposure mode you used to take the picture, as illustrated in Figure 9-15. The screen on the left shows the data dump that occurs when you shoot in the advanced exposure modes, where you can control all the settings indicated on the playback screen. When you shoot in the other exposure modes, you get a far less detailed playback screen. For example, the right screen in Figure 9-15 shows the data that appears for a picture taken in Close-Up mode. Here, you can view the Shoot by Ambience and Shoot by Lighting or Scene Type settings you used, but not all the individual exposure and color settings that appear for pictures shot in the advanced exposure modes.



Photo by Robert Correll

Figure 9-15: How much data appears depends on which exposure mode you used to shoot the picture.

We're going to go out on a limb here and assume that if you're interested in the Shooting Information display mode, you're shooting in the advanced exposure modes, so the rest of this section concentrates on that level of playback data. To that end, it helps to break the display shown on the left in Figure 9-15 into five rows of information: the row along the top of the screen

and the four rows that appear under the image thumbnail and histogram. Here's what appears in the five rows:



- ✓ **Row 1:** Shows the same data as Basic Information display mode, including the f-stop and shutter speed.
- ✓ **Row 2:** Contains the additional exposure settings labeled in Figure 9-16. Look for details about them in Chapter 4.

Note that in Figures 9-15 through 9-18, we show all possible shooting data for the purpose of illustration. If a data item doesn't appear on your monitor, it simply means that the feature wasn't enabled when you captured the photo.

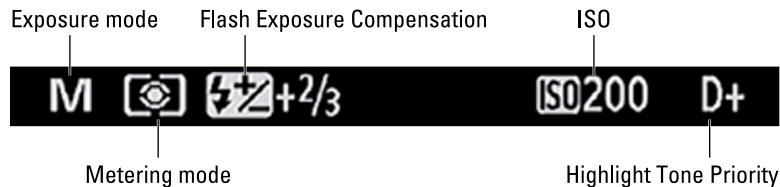


Figure 9-16: This row contains additional exposure information.

- ✓ **Row 3:** These values, labeled in Figure 9-17, relate to color settings that you can explore in Chapter 6.

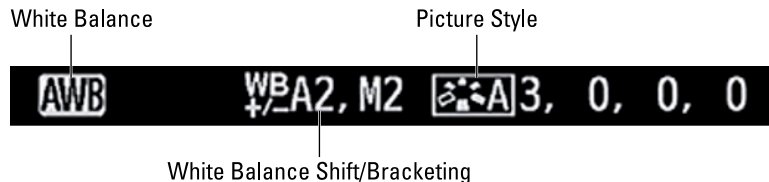


Figure 9-17: Look to this row for details about advanced color settings.

- ✓ **Row 4 and 5:** Wrapping up the smorgasbord of shooting data, the bottom two rows hold the information labeled in Figure 9-18. See Chapter 2 for information about the Image Quality setting and how it affects file size; Chapter 11 explains the Color Space option.

If the date/time information displayed isn't accurate, head for Setup Menu 2 and adjust the camera's clock via the Date/Time setting. (This change affects only any new pictures you shoot; your existing photos still bear the old date/time information.)

If you use Eye-Fi memory cards, you also see an icon depicting the card's wireless connection status. See the Chapter 1 section related to using memory cards for more information about Eye-Fi cards.

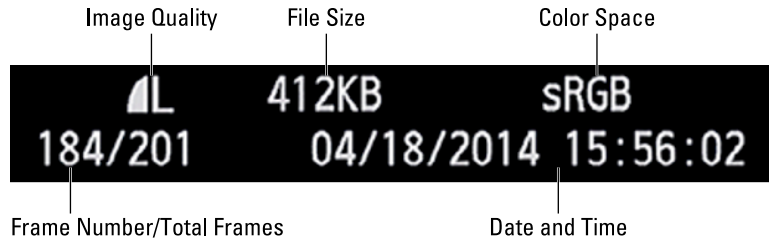


Figure 9-18: The bottom two rows of the display offer this data.

Understanding Histogram display mode

A variation of the Shooting Information display, the Histogram display offers the data you see in Figure 9-19. Again, you see an image thumbnail, but some of the detailed color and exposure information that you see in the Shooting Information display is left out, making room for an additional histogram, called an RGB histogram. Remember that this figure shows you the playback screen for pictures taken in the advanced exposure modes; in the other exposure modes, you see slightly different data, but you still get two histograms.

The next two sections explain what information you can gain from both types of histograms.

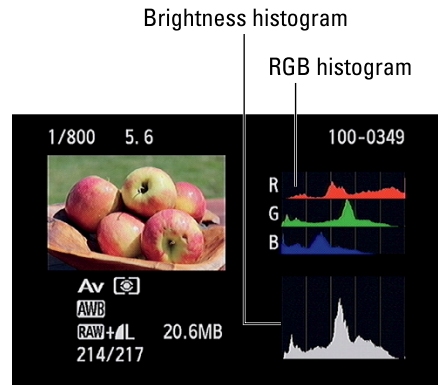


Photo by Robert Correll

Figure 9-19: Histogram display mode replaces some shooting data with an RGB histogram.

Interpreting a brightness histogram

One of the most difficult problems to correct in a photo editing program is known as *blown highlights* or *clipped highlights*. Both terms mean that the brightest areas of the image are so overexposed that areas that should include a variety of light shades are instead totally white. For example, in a cloud image, pixels that should be light to very light gray are white, resulting in a loss of detail in those clouds.

In Shooting Information and Histogram display modes, areas that fall into this category blink in the image thumbnail. This warning is a helpful feature because simply viewing the image on the camera monitor isn't always a reliable way to gauge exposure: The brightness of the monitor and the ambient light in which you view it affect the appearance of the image.



The *Brightness histogram*, found in both display modes, offers another analysis of image exposure. This graph, featured in Figure 9-20, indicates the distribution of shadows, highlights, and *midtones* (areas of medium brightness) in an image. Photographers use the term *tonal range* to describe this aspect of their pictures.

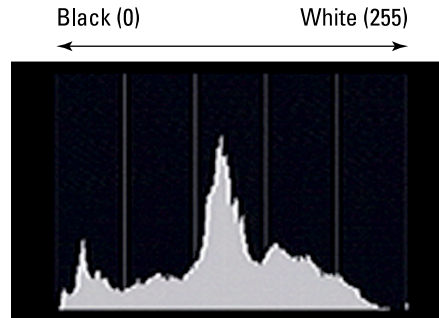


Figure 9-20: The Brightness histogram indicates the tonal range of an image.

The horizontal axis of the graph represents the possible picture brightness values, from black (a value of 0) to white (a value of 255). And the vertical axis shows you how many pixels fall at a particular brightness value. A spike indicates a heavy concentration of pixels. For example, in Figure 9-20, which shows the histogram for the image you see in Figure 9-19, the histogram indicates a broad range of brightness values but with very few at either end of the brightness spectrum.



Keep in mind that there is no “perfect” histogram that you should try to duplicate. Instead, interpret the histogram with respect to the amount of shadows, highlights, and midtones that make up your subject. For example, because the photo of the apples in Figure 9-19 seems very bright, the lack of white pixels may seem odd. But if you look closely, you can see that this subject in fact contains few, if any, completely white areas. Pay attention, however, if you see a very high concentration of pixels at the far right or left end of the histogram, which can indicate a seriously overexposed or underexposed image, respectively.

Reading an RGB histogram

In Histogram display mode, you see two histograms: the Brightness histogram (covered in the preceding section) and an RGB histogram, shown in Figure 9-21.

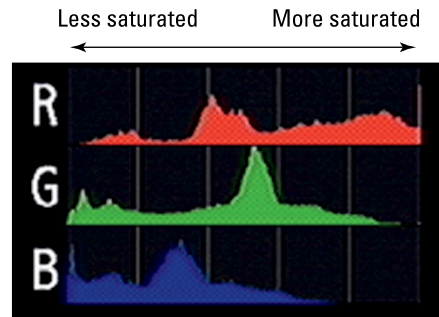


Figure 9-21: The RGB histogram can indicate problems with color saturation.



To make sense of an RGB histogram, you first need to know that digital images are known as *RGB images* because they’re created from three primary colors of light: red, green, and blue. In the image file, the brightness values for those colors are

contained in three separate vats of color data, known as *color channels*. Whereas the Brightness histogram reflects the brightness of all three color channels rolled into one, RGB histograms let you view the values for each individual channel.

When you look at the brightness data for a single channel, though, you glean information about color saturation rather than image brightness. We don't have space in this book to provide a full lesson in RGB color theory, but the short story is that when you mix red, green, and blue light, and each component is at maximum brightness, you create white. Zero brightness in all three channels creates black. If you have maximum red and no blue or green, though, you have fully saturated red. If you mix two channels at maximum brightness, you also create full saturation. For example, maximum red and blue produce fully saturated magenta. And, wherever colors are fully saturated, you can lose picture detail. For example, a rose petal that should have a range of tones from medium to dark red may instead be a flat blob of dark red.

The upshot is that if all the pixels for one or two channels are slammed to the right end of the histogram, you may be losing picture detail because of overly saturated colors. If all three channels show a heavy pixel population at the right end of the histograms, you may have blown highlights — again, because the maximum levels of red, green, and blue create white. Either way, you may want to adjust the exposure settings and try again.



A side note about the histogram in Figure 9-21, which represents the RGB information for the apple photo you see in Figure 9-19: If you just looked at the Brightness histogram (Figure 9-20), you might think that the photo was underexposed because of the lack of pixels at the right end of that histogram. But the readout of the Red channel in the RGB histogram shows that there is very little room for additional brightness in that channel. So this is a case where you have to look at both histograms to make the right call about exposure.

A savvy RGB-histogram reader can also spot color balance issues by looking at the pixel values. But frankly, color balance problems are fairly easy to notice just by looking at the image on the camera monitor.



If you're a fan of RGB histograms, however, you may be interested in another possibility: You can swap the standard Brightness histogram that appears in Shooting Information playback mode with the RGB histogram. Just set the Histogram option on Playback Menu 2 to RGB instead of Brightness.

For information about manipulating color, see Chapter 6.



What are these blinking spots?

When you view photos in the Shooting Information or Histogram display modes, you may notice some areas of the photo thumbnail blinking black and white. Those blinking spots indicate pixels that are completely white. Depending on the number and location of the “blinkies,” you

may or may not want to retake the photo. For example, if someone’s face contains the blinking spots, you should take steps to correct the problem. But if the blinking occurs in, say, a bright window behind the subject, and the subject looks fine, you may choose to simply ignore it.

Working with Picture and Movie Files

In This Chapter

- ▶ Deleting unwanted files
 - ▶ Protecting files from accidental erasure
 - ▶ Rating photos and movies
 - ▶ Downloading files to your computer using the Canon software
 - ▶ Processing Raw files in Canon Digital Photo Professional
 - ▶ Shrinking files for online use
-

Every creative pursuit involves its share of cleanup and organizational tasks. Painters have to wash brushes, embroiderers have to separate strands of floss, and woodcrafters have to haul out the wet/dry vac to suck up sawdust. Digital photography is no different: At some point, you have to stop shooting so that you can download and process your files.

This chapter explains these after-the-shot tasks. First up is a review of several in-camera file-management operations: Delete unwanted files, protect your best work from accidental erasure, and rate files. Following that, you can get help with transferring files to your computer, processing files that you shot in the Raw (CR2) format, and preparing images for online sharing. Along the way, we introduce you to Canon's free photo programs, which offer easy ways to handle many of these jobs.



Deleting Files

When you spot clunkers during your picture and movie review, you can use the following options to erase them from your memory card:



- ✓ **Erasing single images:** To delete photos or movies one at a time, display the photo (in Single Image view) or select it (in Index view). Then press the Delete button. The words *Cancel* and *Erase* appear at the bottom of the screen, as shown in Figure 10-1. To zap that bad boy into digital oblivion, press the right cross key to highlight *Erase* and press the Set button.



Photo by Robert Correll

Figure 10-1: After pressing the Delete button to display this screen, highlight *Erase* and press Set.

- ✓ **Erasing all images:** To erase all images (this includes photos and movies) on the memory card — with the exception of those you locked by using the Protect feature discussed in the following section — display Playback Menu 1, shown on the left in Figure 10-2. Choose *Erase* to display the screen shown on the right in the figure. Choose *All Images on Card* and press Set. On the confirmation screen that appears, choose *OK* and press Set.

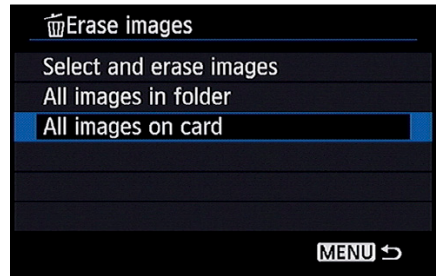


Figure 10-2: Use the *Erase* option on Playback Menu 1 to delete multiple images quickly.



TIP

If your card contains multiple folders, you can limit the image dump to images in a specific folder. Just choose *All Images in Folder* instead of *All Images on Card* on the screen shown on the right in Figure 10-2. You see a list of folders; choose the folder you want to empty and press the Set button.

✔ **Erasing selected images:** To erase more than a few but not all photos and movies on your memory card, save time and trouble by using the Select and Erase Images option, available when you choose Erase Images from Playback Menu 1. (Refer to Figure 10-2.)

After you select this option, you see the current image in the monitor. At the top of the screen, a little check box appears, as shown on the left in Figure 10-3. (To the right of the box is a value showing you how many files are currently tagged for erasure.) To mark the file as ready for the trash, press the up or down cross key to put a check mark in the box, as shown in the figure. If you change your mind, press up or down again to remove the check mark. To scroll through your images to find the next bad apple, press the right or left cross keys; press up or down to tag that file for erasure.

If you don't need to inspect each image closely, you can display up to three thumbnails per screen. (Refer to the image on the right in Figure 10-3.) Just press the AE Lock button to shift into this display. Use the same methods to tag images for erasure and to scroll through photos as you do when viewing them one at a time.

To return to full-frame view, press the AF Point Selection button.

When you finish tagging images, press the Delete button. You see a confirmation screen asking whether you really want to get rid of the selected images. Highlight OK and press Set.

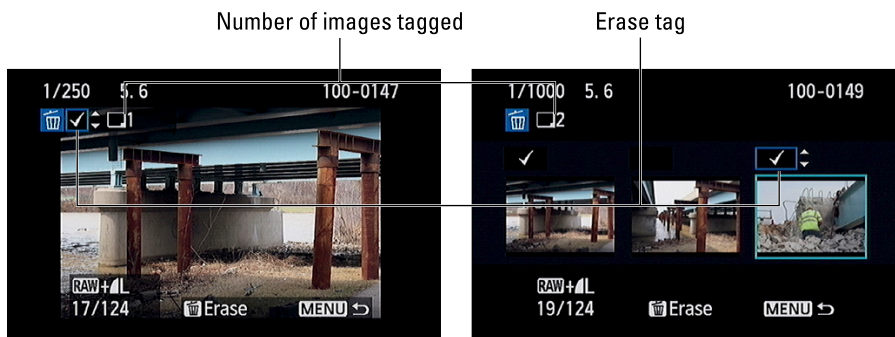


Photo by Robert Correll

Figure 10-3: Press the up/down cross keys to toggle the delete check box on and off.

Protecting Photos and Movies

You can protect pictures and movies from accidental erasure by giving them protected status. After you take this step, the camera doesn't allow you to delete the file from your memory card, whether you press the Delete button or use the Erase Images option on Playback Menu 1.



You can also save time by using the protection feature when you want to keep a handful of pictures but delete the rest. Instead of using the Select and Erase Images option, which requires that you tag each photo you want to delete, protect the handful that you want to preserve. Then use the Erase All Images option to dump the rest — the protected photos are left intact.



Although the Erase functions don't touch protected pictures or movies, formatting your memory card *does* erase them. For more about formatting, see the Chapter 1 section related to Setup Menu 1, which contains the Format Card tool.

Also note that when you download protected files to your computer, they show up as *read-only* files, which means that you can't edit them (or delete them). If you try to edit a protected photo using the provided Canon software, you're warned that it's read-only and asked to save a copy of your original and then edit the copy. This practice ensures that your original remains intact. Just be sure to give your copy a new name so that you don't overwrite the original file. If you do want to remove protection from a file after downloading, you can do so by unchecking the Read-only status in the File Info area using ImageBrowser EX.

Anyway, protecting a picture on the camera is easy. You can use either of these techniques:



- Protecting (or unprotecting) a single photo/movie:** The Quick Control screen offers the fastest option. Display the photo in full-frame view. Or in Index view, select the photo by moving the highlight box over it. Then press the Q button and highlight the Protect Images symbol, labeled in Figure 10-4. Choose Enable at the bottom of the screen, and a little key symbol appears at the top of the frame, as shown in the figure. Press the Q button again to exit the Quick Control display.

If you later want to remove the protected status, follow the same steps but choose Disable on the Quick Control screen.

- Protecting multiple photos/movies:** When you want to apply protected status — or remove it — from more than a couple photos or movies, going through Playback Menu 1 is faster than using the Quick Control screen. From the menu, choose Protect Images, as shown on the left in Figure 10-5.

Protect images Protected symbol

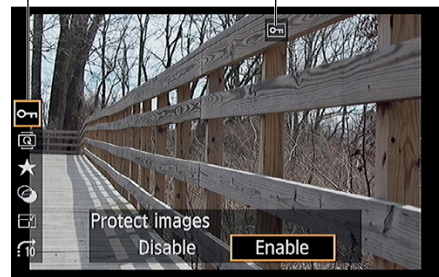


Photo by Robert Correll

Figure 10-4: You can use the Quick Control screen to protect the current photo.

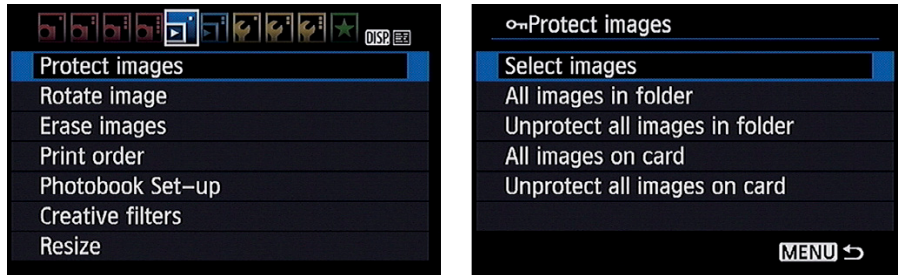


Figure 10-5: Go the menu route to protect multiple photos at a time.

You then can select from these options, shown on the right in Figure 10-5:

- *Select Images:* Choose this option to protect specific photos or movies. An image appears along with a key icon in the upper-left corner of the screen, as shown on the left in Figure 10-6. Scroll to the picture you want to protect and press the Set button. A key icon appears at the top of the screen, as shown in the right image of the figure. Press the right/left cross key to scroll through your images, pressing Set to add the key to each file you want to protect. To remove protection, press Set to make the key disappear.



Photo by Robert Correll

Figure 10-6: The key icon indicates that the picture is protected.

- *All Images in Folder:* When you choose this option, you see a screen listing available folders; select the one that contains the images you want to protect and press Set. (Unless you create custom folders, you probably only have one folder on your card.)
- *Unprotect All Images in Folder:* Use this option to unlock all protected images in the folder you select.

- *All Images on Card:* After you select this option, choose OK on the confirmation screen and press Set. All photos and movies on the memory card are now locked.
- *Unprotect All Images on Card:* Select this option to unlock all pictures and movies on the card.

When you finish protecting or unlocking photos, press the Menu button to exit the protection screens.

Rating Photos and Movies

Many image browsers provide a tool that you can use to assign a rating to a picture: five stars for your best shots, one star for those you wish you could reshoot, and so on. But you don't have to wait until you make it to your computer because your camera offers the same feature. If you later view your pictures in the Canon image software, you can see the ratings you assigned and sort pictures according to rating.

You assign a rating to a photo either via the Quick Control screen or Playback Menu 2. For rating just a photo or two, either works fine, but for rating a batch of photos or movies, using the menu is fastest. Here's how the two options work:



- ✓ **Quick Control screen:** Display your photo in full-screen view; or, in Index view, select it by moving the highlight box over it. Then press the Q button and highlight the Rating icon, as shown in Figure 10-7. Press the right or left cross key to highlight the number of stars you want to give the photo and then press the Q button to return to the normal playback screen. You must exit the Quick Control screen before rating a second photo; there's no way to advance to another image while the Quick Control screen is active.

- ✓ **Playback Menu 2:** Choose Rating, as shown in Figure 10-8, and then press Set. You then see the screen shown on the left in Figure 10-9. Above the image, you get a control box for setting the rating of the

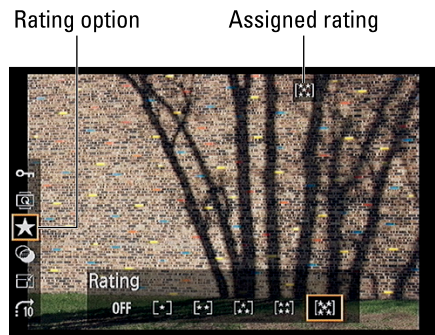


Photo by Robert Correll

Figure 10-7: You can rate photos via the Quick Control screen.

current picture or movie; just press the up or down cross keys to give the photo anything from one to five stars (cycle back around to turn the rating off for the photo). The values next to the control box indicate how many other photos on the card have been assigned each rating. For example, in the figure, the numbers indicate one five-star image.



Figure 10-8: Rating photos is a great organizational tool.

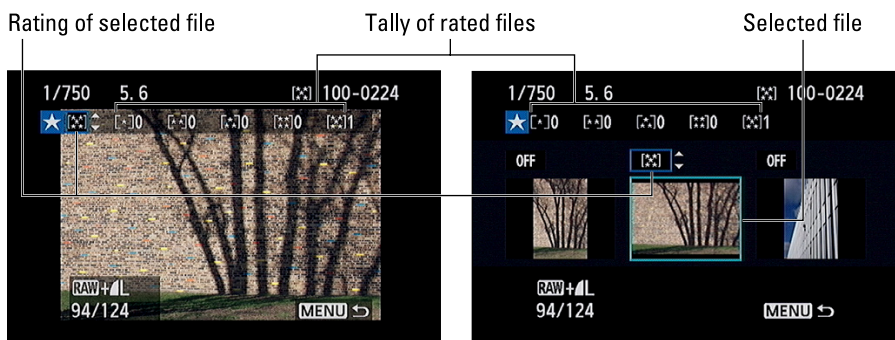


Photo by Robert Correll

Figure 10-9: Press the up or down cross key to change the photo rating.



You can press the AE Lock button to display three thumbnails at a time, as shown on the right in Figure 10-9. Use the right/left cross keys to highlight a thumbnail; its rating appears in the box right above the thumbnails. A value of Off means you haven't rated the photo yet.

To go back to the single-image display, press the AF Point Selection button.

After rating your photos, press Menu to return to the Playback menu.

Installing the Canon Software

For many tasks covered in the rest of the chapter, including downloading photos and processing Raw photos, you can use the free software that Canon provides on CD with your camera. We provide step-by-step instructions for

tackling these after-the-shot projects in upcoming sections, but your first job is to install these programs on your computer:

- ▶ **Canon ImageBrowser EX:** Shown in Figure 10-10, this program is an image organizer and offers a few photo-editing features as well. To find out exactly how these features work, open the built-in user guide by clicking the icon labeled Display Help menu in Figure 10-10.

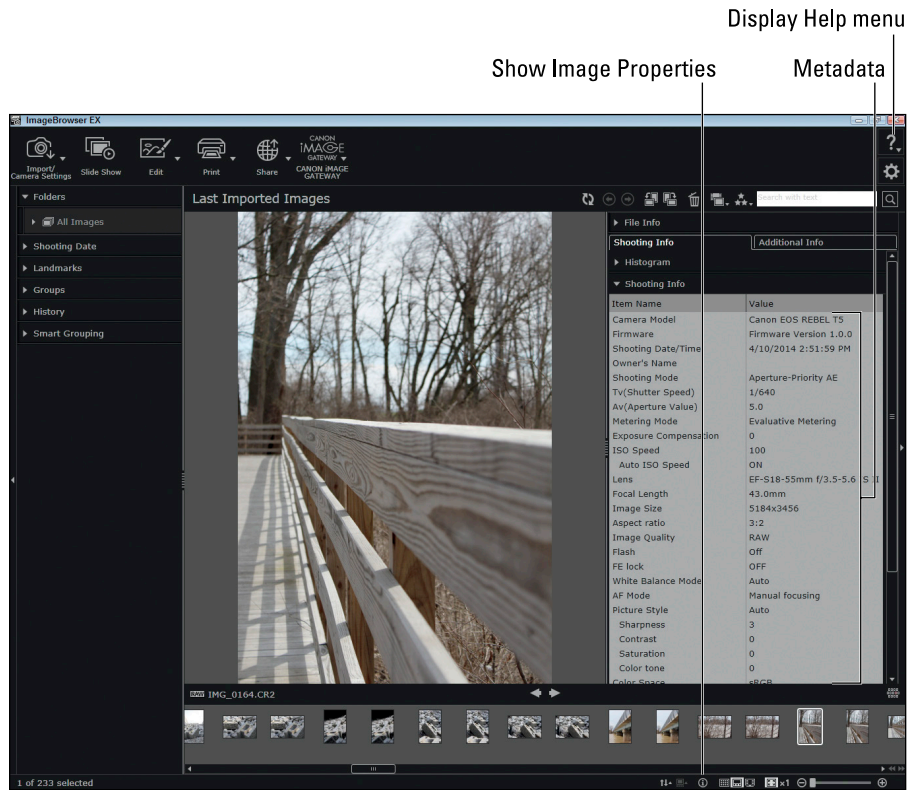


Photo by Robert Correll

Figure 10-10: Canon ImageBrowser EX provides easy-to-use photo viewing and organizing tools.



One especially neat feature of using this software is that you can view the camera *metadata*, which is invisible data stored in the camera file. The metadata includes all the major camera settings you used to shoot the picture. To display and hide the metadata panel, click the Show Image Properties arrow shown the figure. The data appears in the large panel on the right side of the window.

- ✔ **Canon Digital Photo Professional:** Designed for more advanced users, this product offers a higher level of control over certain photo functions. But its most important difference from ImageBrowser EX is that it offers a tool to convert photos that you shoot in the Raw (CR2) format into a standard format (JPEG or TIFF).

You also can view metadata in this program; click the Info button at the top of the program window to display the metadata in a separate window.

- ✔ **Canon EOS Utility:** EOS Utility is required for downloading pictures to the camera.

You also have the option of installing a program designed for sharing videos on YouTube (Movie Uploader for YouTube), for stitching multiple images together into a panorama (PhotoStitch), and for creating your own Picture Styles (Picture Style Editor). We don't cover these programs in the book, but if you're interested in exploring them, the second CD in the camera box contains digital manuals for using them.



Two crucial bits of business about installing the software:

- ✔ **Installing without a CD/DVD drive:** If your computer doesn't have a CD/DVD drive, visit the Canon website and locate the support pages for the T5/1200D, which contain links to download the various Canon programs. Be sure to download the version of the software that's labeled specifically for users who can't install from the CD. Then go dig out the USB cable that shipped with the camera: During installation, Windows users are prompted to attach your camera to the computer via the USB cable. Mac users are asked for the product serial number to download the software.

- ✔ **Getting the latest and greatest versions:** Depending on when you bought your camera, the CD may not have the most current versions of the programs. So if you install from the CD, check the website to make sure that you have the most current versions of the program. Look for the files labeled as updates to the existing software rather than downloading the whole initial software package. Again, you may be prompted to connect your camera to the computer during installation of the program.



For most of the programs, you can see the version number by choosing Help→About on a Windows computer or by choosing About from the program's menu on a Mac. But for one program, Canon EOS Utility, you need to click the Preferences button on the main screen, click OK to ignore the warning that appears, and then click the About button on the resulting screen.

Note: Figures in this book show the Windows version of the software, but the Mac version contains the same options, although sometimes with a slightly different visual design.

Sending Pictures to the Computer

Whatever photo software you choose, you can take the following approaches to downloading images to your computer:

- ✓ **Connect the camera to the computer via a USB cable.** The cable is supplied in the camera box.
- ✓ **Use a memory-card reader.** With a card reader, you pop the memory card out of your camera and into the card reader instead of hooking the camera to the computer. Many computers and printers now have card readers, and you also can buy standalone readers for under \$30. **Note:** If you use SDHC (Secure Digital High Capacity) or SDXC (Secure Digital Extended Capacity) cards, the reader must specifically support that type. Many older card readers — including some still on the market — do not.



For most people, we recommend a card reader. Sending pictures directly from the camera requires that the camera be turned on during the download process, wasting battery power. That said, we include information about both options in the next sections.

Downloading via USB

To download images by connecting the camera to the computer via USB, follow these steps:

1. **Make sure the camera battery is fully charged.**

Running out of battery power during the transfer process can cause problems, including lost picture data. Alternatively, if you have an AC adapter, use it to power the camera during picture transfers.

2. **Turn the camera off.**
3. **Insert the smaller of the two plugs on the USB cable into the Digital Terminal port on the left side of the camera.**

You can see the port in Figure 10-11.

4. **Plug the other end of the cable into a USB port on the computer.**



Figure 10-11: Connect the smaller end of the USB cable here to download pictures.

5. Turn on the camera.

Assuming that you installed the Canon software as directed earlier in the chapter, you may see the Canon EOS Utility window, shown in Figure 10-12, or your operating software may offer a link to launch the tool. If neither of those things happens, start Canon ImageBrowser EX, click the Import/Camera Settings icon at the top of the window, and choose Connect to EOS Camera to open the utility.

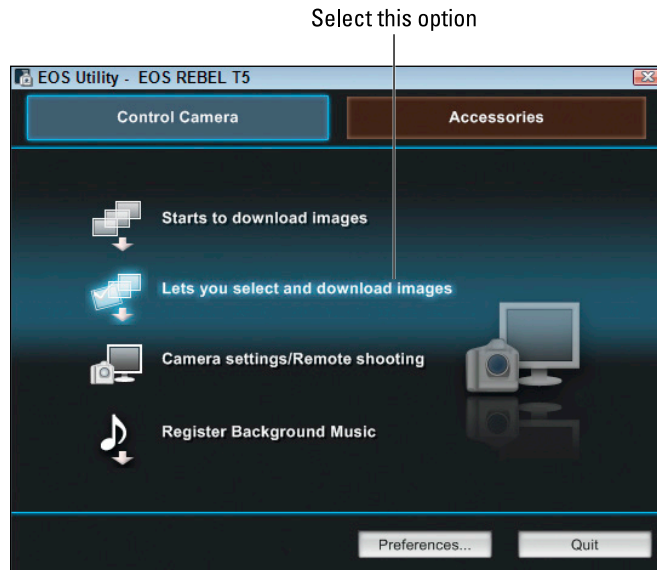


Figure 10-12: Canon EOS Utility is the key to downloading pictures directly from your camera.

6. Click the Lets You Select and Download Images option.

You see a browser window that looks similar to the one in Figure 10-13, with thumbnails of the images on your memory card. Click the magnifying glass icons in the lower-right corner of the window to enlarge or reduce the thumbnail size.

7. Select the images you want to copy to the computer.

Each thumbnail contains a check box in its lower-left corner. To select an image for downloading, click the box to put a check mark in it.

8. Click the Download button.

A screen appears that tells you where the program wants to store your downloaded pictures, as shown in Figure 10-14.

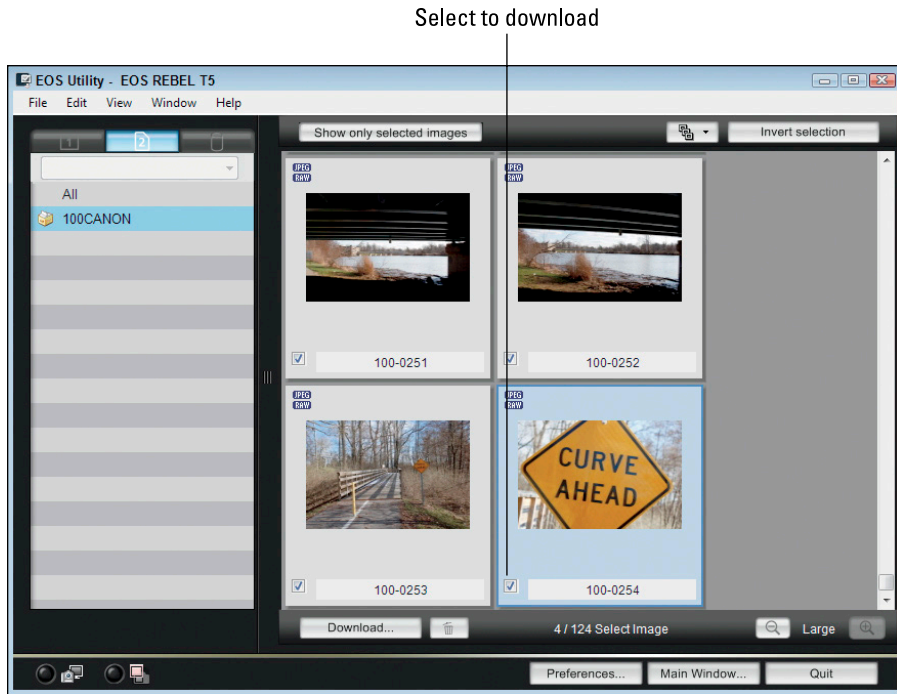


Photo by Robert Correll

Figure 10-13: Select the thumbnails of the images you want to transfer.

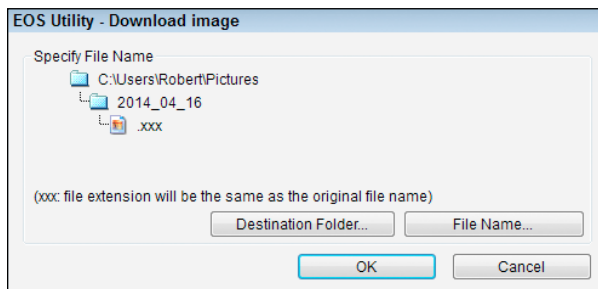


Figure 10-14: You can specify where you want to store the photos.

9. Verify or change the storage location for your pictures.

If you want to put the pictures in a location different from the one the program suggests, click the Destination Folder button and then select the storage location and folder name you prefer.

10. Click OK to begin the download.

A progress window appears, showing you the status of the download.

11. When the download is complete, turn off the camera.

You can then safely remove the cable connecting it to the computer.

A couple of fine points here:

- ✓ **Setting download preferences:** While the camera is connected and turned on, click the Preferences button at the bottom of the EOS Utility browser (refer to Figure 10-13) to open the Preferences dialog box, where you can specify many aspects of the transfer process.
- ✓ **Auto-launching the other Canon programs:** After the download is complete, the EOS Utility may automatically launch Canon Digital Photo Professional or ImageBrowser EX so that you can immediately start working with your pictures. (You must have installed the programs for this to occur.) Visit the Linked Software panel of the EOS Utility's Preferences dialog box to specify which software you want to use or choose None to disable auto-launch altogether.
- ✓ **Closing the EOS Utility:** The browser window doesn't close automatically after the download is complete. You must return to it and click the Quit button in the lower-right corner to shut it down.

Downloading from a card reader

After you put your camera memory card into a card reader, the ImageBrowser EX dialog box shown in Figure 10-15 may appear automatically. This window is the jump-off point for memory-card transfers. If you don't see it after a few moments, you can access it by opening ImageBrowser EX, clicking the Import Camera Settings menu at the top of the screen, and selecting Import Images from Memory Card. Note that depending on your operating system and the program preferences you install, the dialog box shown in Figure 10-15 may also have an option to print directly from the memory card (not shown in the figure).



Figure 10-15: Choose Lets You Select and Download images option to choose which pictures get transferred to the computer.

After the window appears, take these steps:

1. Click the Lets You Select and Download Images option.

You see the window shown in Figure 10-16. (The figure shows the Windows version of the window; on a Mac, the controls you see at the top of the screen in the figure appear at the bottom of the window.)

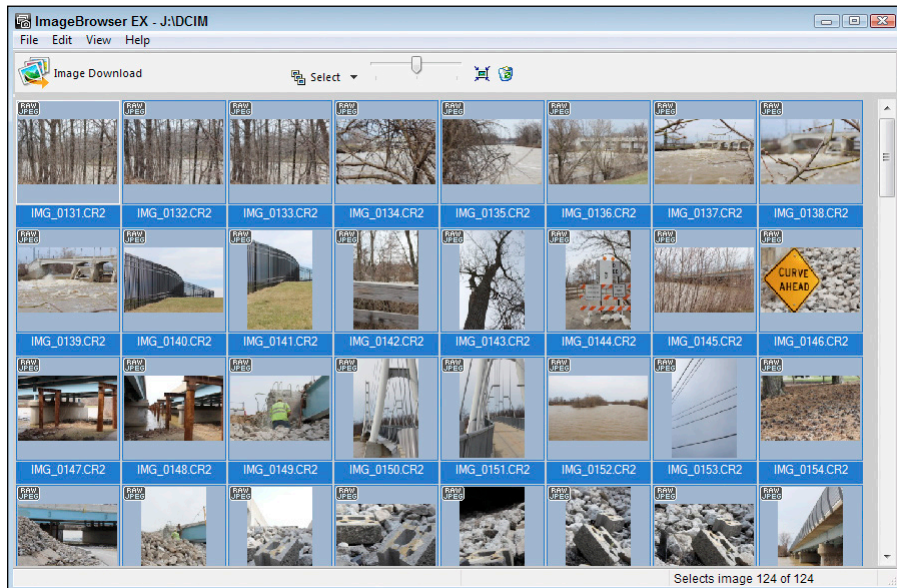


Photo by Robert Correll

Figure 10-16: Select images to download from the browser window.

2. Select the images you want to download.

- *To select the first photo:* Click its thumbnail.
- *To select additional pictures:* Ctrl+click (Windows) or ⌘+click (Mac) their thumbnails. If you want to select several contiguous photos, select the first, press and hold Shift, and then click the last photo of the group.
- *To quickly select all images:* Press Ctrl+A in Windows or ⌘+A on a Mac.

3. Click the Image Download button.

A new window opens to show you where the program wants to put your files and the name it plans to assign the storage folder, as shown in Figure 10-17.

If you're not happy with the program's choices, click the Change Settings button to open a dialog box where you can select a different storage location. In the same dialog box, you can also choose to have the files renamed when they're copied. Click OK to close the Change Settings dialog box.

4. Click the Starts Download button.

Your files start making their way to your computer. When the download is finished, your pictures appear in ImageBrowser EX. You must close the downloader windows yourself; they don't automatically disappear.

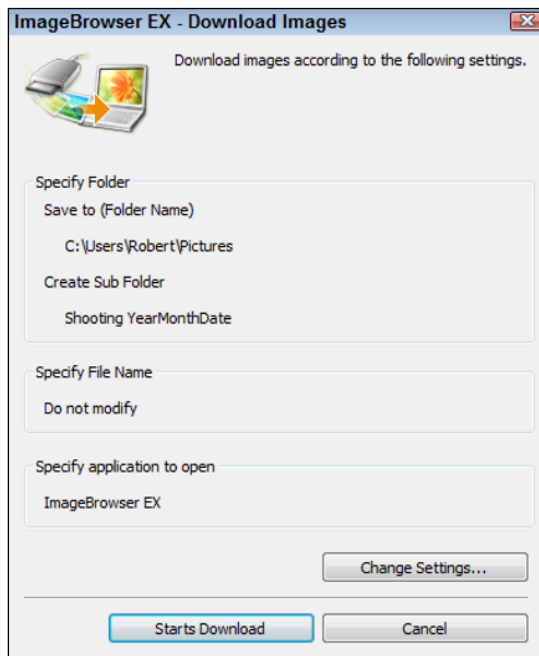


Figure 10-17: Specify where you want to store the downloaded photos via this dialog box.

Converting Raw Images in Digital Photo Professional

Chapter 2 introduces you to the Raw file format, which enables you to capture images as raw data. Although you can print Raw files immediately if you use the Canon software, you can't take them to a photo lab for printing, share them online, or edit them in your photo software until you process them using a Raw converter tool.

Digital Photo Professional, one of the free programs provided with your camera, offers a Raw conversion tool that you can use if you don't already own a photo program with such a feature. Here's how to do the job:

1. Open Digital Photo Professional to view thumbnails of your images, as shown in Figure 10-18.

Show or hide a list of folders (hidden in the figure) by clicking the Folder View button on the toolbar. Use options on the View menu to resize thumbnails. If you don't see any thumbnails, press the Main Window button, which is the first button on the toolbar. The button then changes to the Edit Image Window button.

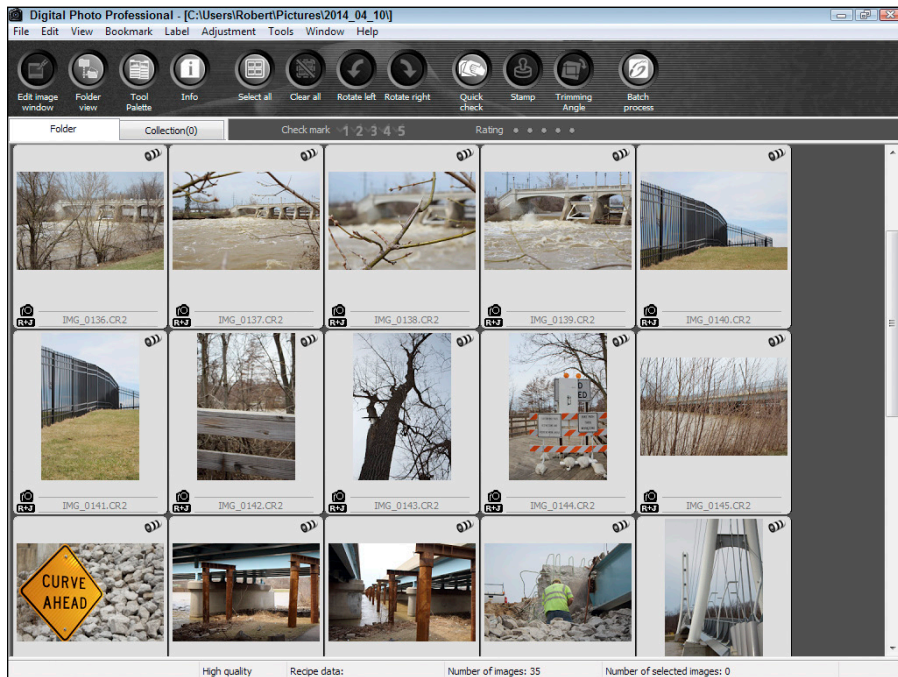


Photo by Robert Correll

Figure 10-18: Use Digital Photo Professional to process Raw images.

2. Click the thumbnail of the image you want to process and choose View⇨Edit in Edit Image Window.

Or click the aforementioned Edit Image Window button. Either way, your photo appears inside an editing window, as shown in Figure 10-19. The appearance of the window varies depending on your program settings. If you don't see the Tool palette on the right side of the window, choose View⇨Tool Palette or click the Tool Palette button. (Other View menu options enable you to customize the window display.)

3. Choose Adjustment → Work Color Space to choose the color space.

By default, the program uses the color space selected when you shot the picture (sRGB or Adobe RGB, Shooting Menu 2). But you can select from a couple of other options if you prefer. The color space determines the spectrum of colors your image can contain; sRGB is the best option if you're not yet schooled in this subject, which we cover in Chapter 11.

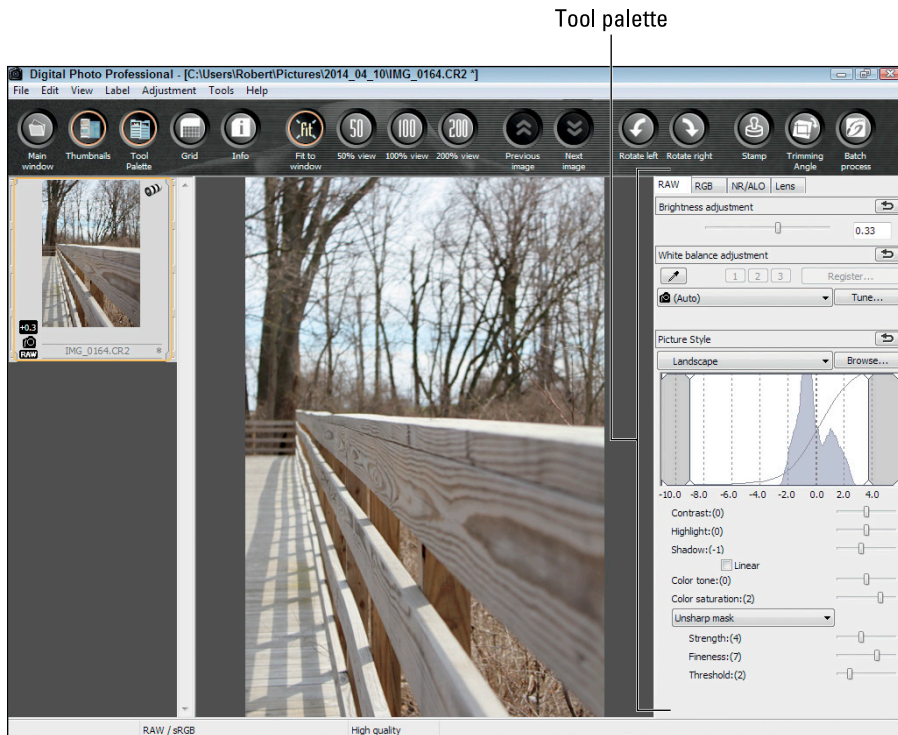


Photo by Robert Correll

Figure 10-19: Adjust the image by selecting options on the Tool palette.

4. Adjust the image using controls in the Tool palette.

The Tool palette offers four tabs of controls for adjusting photos. You can find complete details in the program's Help system, but here are some tips for a couple critical options:

- **Raw tab:** On this tab, you find controls for tweaking exposure, white balance, color, and sharpness. For white balance, you can choose a specific setting or click the little eyedropper and then click an area of the image that should be white, black, or gray to remove any color cast. Using the Picture Style option, you can apply one of the camera's Picture Style options to the photo.



If you captured the picture in Live View and set the aspect ratio to anything other than 3:2, the thumbnail image at the bottom of the Raw tab (not shown in the figure) shows a border over the image to indicate how the photo will be cropped to achieve that ratio. Remember, Raw images are captured using the 3:2 aspect ratio — and then the Raw processing function crops the original to the aspect ratio you chose. To change the aspect ratio or crop area, choose Tools⇨Start Trimming/Angle Adjustment tool, which displays your picture in a separate editing window. Drag inside the crop box to reposition it; click the Clear button to remove the crop box. Then use the Aspect Ratio option to set a new aspect ratio for the picture and drag in the window to create a new crop box. Click OK to close the window. (The program's built-in Help system, available via the Help menu, has details.) You can use this same tool to crop an image captured in the 3:2 aspect ratio, by the way.

- *RGB tab*: From this tab, you adjust exposure further by using Tone Curve adjustment, a tool that may be familiar to you if you've done any advanced photo editing. You can make additional color and sharpness adjustments here as well, but make those changes using the controls on the Raw tab instead. (The RGB tab options are provided primarily for manipulating JPEG and TIFF photos and not for Raw conversion.)
- *NR/ALO tab*: On this tab, you find controls for reducing image noise and can apply the Auto Lighting Optimizer effect here instead of using the in-camera correction, which we detail in Chapter 4.
- *Lens tab*: Click the Tune button to access the options that enable you to access certain lens correction options, including the Peripheral Illumination feature, also discussed in Chapter 4.



At any time, you can revert the image to the original settings by choosing Adjustment⇨Revert to Shot Settings.

5. Choose File⇨Convert and Save.

You see the standard file-saving dialog box with a few additional controls. Here's the rundown of critical options:

- *Save as type*: Choose Exif-TIFF (8bit) if you want to use the file as the source of a high quality printout or will continue working on it in another photo editing program. The TIFF format preserves all your original image data and is the print-standard format.

Choose JPEG if you want to share your photo online or need to conserve space on your computer's hard drive. JPEG files can be viewed in any web browser or e-mail program, and they're smaller than TIFF files, so you can fit more of them on your hard drive or other storage device. Just remember that JPEG applies lossy compression, which degrades image quality. You probably won't notice much difference if you just save the file once as a JPEG, but if you repeatedly edit and save the file in that format, you can do significant damage. (See Chapter 2 for more about JPEG compression.)



A *bit* is a unit of computer data; the more bits you have, the more colors your image can contain. Some photo-editing programs can't open 16-bit files, or else they limit you to a few editing tools, so stick with the standard, 8-bit image option unless you know that your software can handle the higher bit depth. If you prefer 16-bit files, you can select the TIFF (16-bit) file type.

- *Output Resolution:* This option *does not* adjust the pixel count of an image, as you might imagine. It only sets the default output resolution to be used if you send the photo to a printer. The final resolution will depend on the print size you choose, however.
- *Embed ICC Profile in Image:* Select this check box to include the color-space data in the file. If you then open the photo in a program that supports color profiles, the colors are rendered more accurately. *ICC* refers to the International Color Consortium, the group that created color-space standards.
- *Resize:* Clear this check box so that your processed file contains all its original pixels.

6. Enter a filename, select the folder where you want to store the image, and then click Save.

A progress box appears, letting you know that the conversion is going forward. Click the Exit button (Windows) or the Terminate button (Mac) to close the progress box when the process is complete.

7. Click the Main Window button (upper-right corner of program window) to return to the image browser.

8. Close Digital Photo Professional.

You see a dialog box that tells you that your Raw file was edited and asks whether you want to save the changes.

9. Click Yes to store your Raw-processing “recipe” with the Raw file.

The Raw settings you used are then kept with the original image so that you can create additional copies of the Raw file easily without having to make all your adjustments again.

Again, these steps give you only a basic overview of the process. If you regularly shoot in the Raw format, take the time to explore the Digital Photo Professional Help system so that you can take advantage of its other features.



If you prefer, you can jump from ImageBrowser EX directly to the Digital Photo Professional Raw processing window. In ImageBrowser EX, open the Edit menu and choose Process Raw Images to do so.

Preparing Pictures for Online Sharing

Have you ever received an e-mail message containing a photo so large that you can't view the whole thing on your monitor without scrolling the e-mail window? This annoyance occurs because monitors can display only a limited number of pixels. The exact number depends on the screen resolution setting, but suffice it to say that most of today's digital cameras produce photos with pixel counts in excess of what the monitor can handle.

Thankfully, the newest e-mail programs incorporate features that automatically shrink the photo display to a viewable size. But that doesn't change the fact that a large photo file means longer downloading times and, if recipients hold onto the picture, a big storage hit on their hard drives.

Sending a high-resolution photo *is* the thing to do if you want the recipient to be able to generate a good print. But for simple onscreen viewing, we suggest limiting your photos to about 1,000 pixels on the longest side. That ensures that people who use an e-mail program that doesn't offer the latest photo-viewing tools can see the entire picture without scrolling the viewer window.



At the lowest Image Quality setting on your camera, S3, pictures contain 720 x 480 pixels. But recording your originals at that tiny size isn't a good idea because if you want to print the photo, you won't have enough pixels to produce a good result. Instead, shoot your originals at a resolution appropriate for print and then create a low-res copy of the picture for e-mail sharing or for other online uses, such as posting to Facebook. (Posting only low-res photos to Facebook and online photo-sharing sites also helps dissuade would-be photo-thieves looking for free images for use in their company's brochures and other print materials.)

In addition to resizing high-resolution images, also check their file types; if the photos are in the Raw or TIFF format, you need to create a JPEG copy for online use. Web browsers and e-mail programs can't display Raw or TIFF files.

You have a couple ways to tackle both bits of photo prep:

- ✓ You can use Canon Digital Photo Professional to convert Raw and TIFF files to the JPEG format and then use ImageBrowser EX's Share→E-Mail Images feature to size your JPEG copy and ship it off through the intertubes. Check the programs' Help systems for assistance.
- ✓ For JPEG pictures, you can create a small-size copy right in the camera. The only exceptions are pictures captured using the S3 Quality setting — at 740 x 480 pixels, they're already the smallest images the camera can create.

Use either of these approaches to use the in-camera shrink ray:

- **Playback Menu 1:** Choose the Resize option, as shown on the left in Figure 10-20. You see a photo along with a Resize icon in the upper-left corner and a Set icon in the lower-right corner.

Scroll to the picture you want to resize and then press the Set button. You see display size options available for the photo, as shown on the right in Figure 10-20. Which sizes appear depends on the size of the original photo; you're offered only sizes that produce a smaller picture. The text label above the options indicates the file size and pixel count of the selected setting.

Highlight the setting you want to use and press Set to display a confirmation screen. Choose OK, and the camera creates your low-res copy and displays a text message along with a seven-digit number. The first three numbers indicate the folder number where the copy is stored and the last four numbers are the last four numbers of the image filename. Be sure to note the filename of the small copy so that you can tell it apart from its high-pixel sibling later. Choose OK one more time to wrap up.



Photo by Robert Correll

Figure 10-20: Choose the Resize command to make a low-resolution copy of an existing image.



- **Quick Control screen:** Display the photo you want to resize, press the Q button, and then highlight the Resize icon, as shown in Figure 10-21. Size options appear at the bottom of the screen; use the left/right cross keys to highlight a size and press Set. From that point, things work as just described.



Photo by Robert Correll

Figure 10-21: You can resize photos from the Quick Control screen during playback.

Part IV

The Part of Tens



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In this part . . .

- ✔ Customize your camera ten ways to Sunday.
- ✔ Create a custom menu containing your favorite options.
- ✔ Tag your files with copyright information.
- ✔ Use Creative Filters for fun special effects.
- ✔ Create slide shows and video snapshots.
- ✔ Connect your camera to an HDTV for big-screen playback.

Ten More Ways to Customize Your Camera

In This Chapter

- ▶ Changing the function of the Set button
- ▶ Turning off the beep and AF-Assist beam
- ▶ Creating your own folders and camera menu
- ▶ Customizing a few other camera behaviors

Have you ever tried to cook dinner in someone else's house or work from another colleague's desk? Why is *nothing* stored in the right place? The coffee cups, for example, should be stowed in the cabinet above the coffee maker, and yet there they are, way across the kitchen, in the cupboard near the fridge. And everyone knows that the highlighter pens belong in the middle top drawer, not the second one on the left. Yeesh.

In the same way, you may find a particular aspect of your camera's design illogical or maybe a tad inconvenient. If so, check out this chapter, which introduces you to ten customization options not considered in earlier chapters. You can give the Set button a new job, for example, silence the camera's beeper, and even create your own camera menu.

Changing the Function of the Set Button

Normally, the main role of the Set button is to select items from the camera menus and Quick Settings screens. When you shoot in the P, Tv, Av, or M exposure modes, though, you can set the button to perform the following tasks when no menus are displayed:



- ✓ **Image Quality:** Displays the screen where you can change the Image Quality settings.
- ✓ **Flash Exposure Compensation:** Displays the meter that enables you to manually adjust flash power up or down.
- ✓ **LCD Monitor On/Off:** Toggles the Shooting Settings screen on and off. Note that this function doesn't work in Live View mode.
- ✓ **Depth of Field Preview:** This option enables you to visually preview the photo's intended depth of field. Change the lens aperture to match the shooting setting by holding the Set button down.

You establish the button's purpose via Custom Function 9, as illustrated in Figure 11-1. Chapter 1 has a primer on navigating the Custom Functions menus if you need additional help.

To go back to the default setting, return to the Custom Functions menu and select option 0 (Normal).

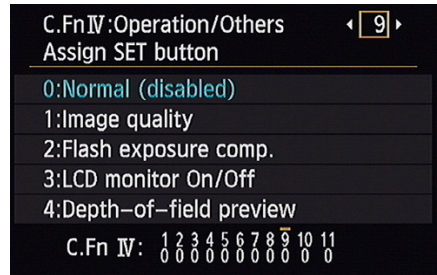



Figure 11-1: You can configure the Set button to perform an extra function during shooting.

Customizing the AE Lock and Shutter Button

- *  By default, you initiate autofocusing by pressing the shutter button halfway and lock autoexposure by pressing the AE (autoexposure) Lock button. We recommend that you stick with this setup while learning about your camera — otherwise, our instructions won't work. But after you feel more comfortable, you may want to customize the locking behaviors of the two buttons.

To configure the buttons, set the Mode dial to P, Tv, Av, or M. Then head for Custom Function 8. As shown in Figure 11-2, you can choose from the following configuration options. The part of the option name before the slash indicates the result of pressing the shutter button halfway; the name after the slash indicates the result of pressing the AE Lock button.

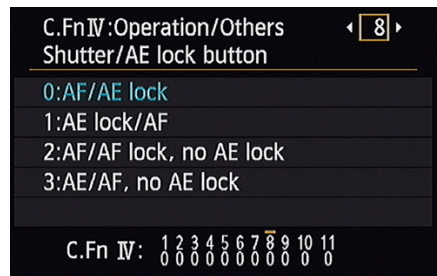


Figure 11-2: Adjust autoexposure and autofocus lock behavior via Custom Function 6.



- ✓ **AF/AE Lock:** This is the default setting. Pressing the shutter button halfway initiates autofocus; pressing the AE Lock button locks autoexposure.
- ✓ **AE Lock/AF:** With this option, pressing the shutter button halfway locks autoexposure. To initiate autofocusing, you instead press the AE Lock button. In other words, this mode is the exact opposite of the default setup.
- ✓ **AF/AF Lock, no AE Lock:** Pressing the shutter button halfway initiates autofocusing and exposure metering, and pressing the AE Lock button locks focus. Autoexposure lock isn't possible.

This option is designed to prevent focusing mishaps when you use AI Servo autofocusing, a viewfinder-shooting option explained in Chapter 5. In AI Servo mode, the autofocus motor continually adjusts focus from the time you press the shutter button halfway until the time you take the image. This feature helps keep moving objects focused. But if something moves in front of your subject, the camera may mistakenly focus on that object instead. To cope with that possibility, this locking option enables you to initiate autofocusing as usual, by pressing the shutter button halfway. But at any time before you take the picture, you can hold down the AE Lock button to stop the autofocusing motor from adjusting focus. Releasing the button restarts autofocusing. Exposure is set at the time you take the picture.

- ✓ **AE/AF, no AE Lock:** In this mode, press the shutter button halfway to initiate autoexposure and press the AE Lock button to autofocus. In AI Servo mode, continuous autofocusing occurs only while you hold down the AE Lock button, which is helpful if your subject repeatedly moves and then stops. Exposure is set at the moment you take the picture.

Disabling the AF-Assist Beam

In dim lighting, your camera may emit an AF (autofocus)-assist beam from the built-in flash when you press the shutter button halfway — assuming that the flash unit is open, of course. This pulse of light helps the camera “see” its target better, improving the performance of the autofocusing system. In situations where the AF-assist beam may be distracting, you can disable it in the P, TV, Av, or M exposure modes. Make the change via Custom Function 7, which offers these choices:

- ✓ **Enable:** This setting is the default and turns the AF-Assist Beam function on.
- ✓ **Disable:** We know you can figure this one out.

- ✓ **Enable External Flash Only:** Choose this setting to permit an external flash unit to emit the beam but prevent the built-in flash from doing so. (The idea is to save you the time and hassle of revisiting the Custom Functions setting to enable or disable the beam every time you switch from the built-in flash to an external flash — two settings in one, if you will.) The external flash must be a compatible EX-series Speedlite unit, such as the Speedlite 430EX II.
- ✓ **IR AF Assist Beam Only:** This setting allows an external Canon EOS Speedlite with infrared (IR) AF-assist to use only the IR beam to aid in focusing instead of pulsing a series of small flashes like the built-in flash does when it tries to play autofocus guide dog. This setting gives you the best of both worlds: an AF assist beam that is invisible to the naked eye. Just don't activate it next to your garage door or you may open it!



An external Canon Speedlite has its own provision to disable the AF-assist beam. If you turn off the beam on the flash unit, it won't light no matter which Custom Functions setting you choose.

Silencing the Camera

By default, your camera beeps after certain operations, such as after it sets focus when you use autofocus and during the timer-countdown when you use the Self-Timer Drive mode. If you need the camera to hush up, set the Beep option on Shooting Menu 1 to Disable. This option is available in all shooting modes.

Preventing Shutter Release without a Memory Card

By default, you can take a picture without any memory card in the camera. But the image you shoot is only temporary, appearing for just a few seconds on the monitor and then dissolving into digital nothingness. During the instant image-review period, your camera warns you that there's no card in the camera. You also see a warning message on the monitor if no card is installed when you turn on the camera.

If you're wondering about the point of this option, it's designed for use in camera stores, enabling salespeople to demonstrate cameras without having to keep a memory card in every model. For those of us not in that biz, we recommend disabling it when you get your camera and only turning it back on if you have a specific need to take but not save photos. The Release Shutter without Card option is found on Shooting Menu 1.

Reducing the Number of Exposure Stops



In photography, the term *stop* refers to an increment of exposure. To increase exposure by one stop means to adjust the aperture or shutter speed to allow twice as much light into the camera as the current settings permit. To reduce exposure a stop, you use settings that allow half as much light. Doubling or halving the ISO value also adjusts exposure by one stop.

By default, all the major exposure-related settings on your camera are based on one-third stop adjustments. If you prefer, you can tell the camera to present exposure adjustments in half-stop increments so that you don't have to cycle through as many settings each time you want to make a change. Make your preferences known via Custom Function 1.

Note that when you use the 1/2-stop setting, the exposure meter appears slightly different in the Shooting Settings display and Live View display than you see it in this book: Only one intermediate notch appears between each number on the meter instead of the usual two. The viewfinder meter doesn't change, but the exposure indicator bar appears as a double line if you set the Exposure Compensation value to a half-step value (+0.5, +1.5, and so on).

Creating Your Own Camera Menu

Through the My Menu feature, you can create a custom menu containing up to six items from the camera's other menus, as shown in Figure 11-3. The menu is represented by the green star icon.

To create your menu, take these steps:

1. **Set the camera Mode dial to P, Tv, Av, or M.**

You can create and order from the custom menu only in these exposure modes.

2. **Display the My Menu screen.**

Initially, the screen shows only a single item, as shown on the left in Figure 11-4.



Figure 11-3: Group your top six menu items together by using the My Menu feature.

3. Choose My Menu Settings.

The screen shown on the right in Figure 11-4 appears.

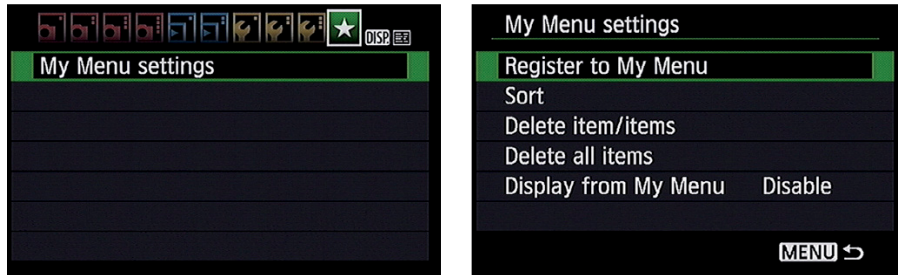


Figure 11-4: Choose Register to My Menu to add an item to your custom menu.

4. Choose Register to My Menu.

You see a scrolling list that contains every item found on the camera's menus.

5. Highlight the first item to include on your custom menu.

You can scroll the menu screen by using the up/down cross keys.



To add a specific Custom Function to your menu, scroll *past* the item named Custom Functions to find and highlight the individual function. (The item named Custom Functions simply puts the Custom Functions menu item on your menu, and you still have to wade through multiple levels of steps to reach your function.)

6. Press Set to add the item to your menu.

You see a confirmation screen.

7. Highlight OK and press Set.

You return to the list of menu options. The option you just added to your menu is dimmed in the list.

8. Repeat Steps 5 through 7 to add up to five additional items to your menu.

9. Press the Menu button to return to the My Menu Settings screen.

10. Press the Menu button again to return to the My Menu screen.

The items you added appear on the menu.

After creating your menu, you can manage it as follows:



- ✓ **Give your menu priority.** You can tell the camera that you want it to automatically display your menu anytime you press the Menu button. To do so, choose My Menu Settings on the main My Menu screen to display the screen shown on the right side of Figure 11-4. Then set the Display from My Menu option to Enable.
- ✓ **Change the order of the list of menu items.** Once again, navigate to the right screen in Figure 11-4. This time, choose the Sort option. Choose a menu item and then press the up/down cross keys to move the menu item up or down in the list. Press the Set button to glue the menu item in its new position.
- ✓ **Delete menu items.** Display your menu, choose My Menu Settings, and then choose Delete Item/Items (refer to the right screen in Figure 11-4). Choose the menu item that you want to delete; on the resulting confirmation screen, choose OK and then press the Set button.

To remove all items from your custom menu, choose Delete All Items (again, refer to the right side of Figure 11-4), and then highlight OK and press the Set button.

Creating Custom Folders

Normally, your camera automatically creates folders to store your images. The first folder has the name 100Canon; the second, 101Canon; the third, 102Canon; and so on. Each folder can hold 9,999 photos. If you want to create a new folder before the existing one is full, choose Select Folder from Setup Menu 1 and then choose Create Folder, as illustrated in Figure 11-5. You might take this organizational step so that you can segregate work photos from personal photos, for example.



Figure 11-5: You can create a new image-storage folder at any time.

The camera asks for permission to create the folder; choose OK and press Set. The folder is automatically assigned the next available folder number and is selected as the active folder — the one that will hold any new photos you shoot. Press the Set button to return to Setup Menu 1.

To make a different folder the active folder, choose Select Folder again, choose the folder you want to use, and press Set.

Turning Off the Shooting Settings Screen

When you turn on your camera, the monitor automatically displays the Shooting Settings screen. At least, it does if you stick with the default setting selected for Custom Function 11, which bears the lengthy name LCD Display When Power On and appears in Figure 11-6.

You can prevent the monitor from displaying the screen every time you power up the camera, if you choose. The monitor is one of the biggest drains on the camera battery, so limiting it to displaying information only when you need it can extend the time between battery charges.

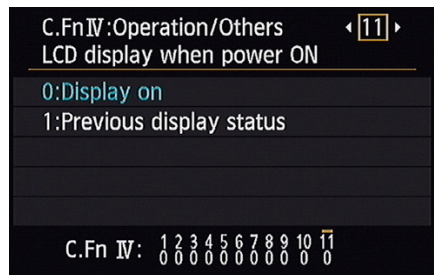


Figure 11-6: This option affects whether the Shooting Settings screen appears when you turn on the camera.



Note the Custom Function setting name: Previous Display Status. It means what the name implies: The camera preserves the monitor status when you turn the camera off and then back on again. If the Shooting Settings screen was displayed when you turned off the camera, it *will* appear the next time you power up. We don't know about you, but we leave this option at the default and use the Disp button to turn off the monitor when needed. Julie is already memory-challenged — she doesn't need to add one more thing to the list of items to remember. Robert doesn't want to have to enter a PS4 cheat code (up, up, down, down, left, right, left, right, x, circle) every time he wants to change the display. (You didn't hear it from us, but setting this option to Previous Display Status on someone else's camera makes for a pretty harmless practical joke.)



As with other Custom Functions, this option works only when the camera is set to one of the advanced exposure modes — in other modes, the screen still appears automatically. Still, any battery savings can be helpful when you're running low on juice.

To take advantage of this feature, set Custom Function 11 to Previous Display Status, exit the menus, and then press the shutter button halfway and release it. You get a temporary display of the Shooting Settings screen. Press the Disp button to turn off the monitor and then turn off the camera.

When you turn on the camera again, the monitor doesn't automatically display the Shooting Settings screen — as long as the Mode dial is set to an advanced shooting mode, that is. To view the screen, press the Disp button.

Changing the Color Space from sRGB to Adobe RGB

By default, your camera captures JPEG images using the *sRGB color mode*, which simply refers to an industry-standard spectrum of colors. (The *s* is for *standard*, and the *RGB* is for *red, green, blue*, which are the primary colors in the digital color world.) The sRGB color mode was created to help ensure color consistency as an image moves from camera (or scanner) to monitor and printer; the idea was to create a spectrum of colors that all these devices can reproduce.

However, the sRGB color spectrum leaves out some colors that *can* be reproduced in print and onscreen, at least by some devices. So, as an alternative, your camera also offers the Adobe RGB color mode — which includes a larger spectrum of colors. It's important to know that some colors in the Adobe RGB spectrum *can't* be reproduced in print; the printer just substitutes the closest printable color, if necessary.

So which option is right for you? Well, if you plan to print and share your photos without making any adjustments in your photo editor, you're better off sticking with sRGB because most printers and web browsers are designed around that color space. Second, to retain all your original Adobe RGB colors when you work with your photos, your editing software must support that color space — not all programs do. You also must be willing to study the whole topic of digital color a little bit because you need to use some specific settings to avoid really mucking up the color works.



To use Adobe RGB, you must shoot in the advanced exposure modes: P, Tv, Av, and M. After setting the Mode dial to one of those settings, make your decision known via the Color Space option on Shooting Menu 2, shown in Figure 11-7. In other modes, the camera automatically selects sRGB. Additionally, your color space selection is applied to only your JPEG images; with Raw captures, you select the color space as you process the Raw image and convert it to a JPEG

or TIFF, not when you capture it. (See Chapter 10 for details about Raw-image processing.)



After you transfer pictures to your computer, you can tell whether you captured an image in the Adobe RGB color space by looking at its file-name: Adobe RGB images start with an underscore, as in `_MG_0627.jpg`. Pictures captured in the sRGB color space start with the letter *I*, as in `IMG_0627.jpg`.

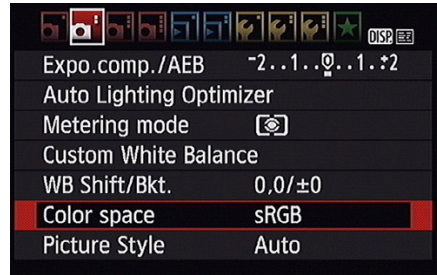


Figure 11-7: Choose sRGB unless you're savvy about image color management.

Ten Features to Explore on a Rainy Day

In This Chapter

- ▶ Tagging files with cleaning instructions and copyright data
- ▶ Investigating printing features and special-effects filters
- ▶ Creating slide shows and video snapshots
- ▶ Trimming frames from the beginning and end of a movie
- ▶ Viewing photos and movies on a TV

Consider this chapter the literary equivalent of the end of one of those late-night infomercial offers — the part where the host exclaims, “But wait! There’s more!” Options covered here aren’t the sort of features that drive people to choose one camera over another, and they may come in handy only for certain users, on certain occasions. Still, they’re included at no extra charge with your camera, so check ’em out when you have a spare moment. Who knows; you may discover just the solution you need for one of your photography problems.

Adding Cleaning Instructions to Images

If small spots appear consistently on your images — and you know that dirt on your lens isn’t the cause — your sensor may need cleaning. We don’t recommend that you clean the sensor yourself because you can easily ruin your camera if you don’t know what you’re doing. Instead, take the camera to a good repair shop for cleaning.



Until you can have the camera cleaned, however, you can use a software-based dust-removal filter found in Digital Photo Professional, one of the programs that ships with your camera. You start by recording a data file that maps the location of the dust spots on the sensor. To do this, you need a white piece of paper and the kit lens. Then take these steps:

1. **Set the lens focal length at 50mm or longer.**
2. **Switch the lens to manual focusing and set focus at infinity.**

Hold the camera normally and then turn the lens focusing ring counter-clockwise until it stops.

3. **Set the camera to the P, Tv, Av, or M exposure mode.**

You can create the dust data file only in these modes.

4. **Display Shooting Menu 3 and choose Dust Delete Data, as shown on the left in Figure 12-1.**

You see the message shown on the right in Figure 12-1.



Figure 12-1: You can record dust-removal data that can be read by Digital Photo Professional.

5. **Choose OK and press Set.**
6. **Position the white paper 8 to 12 inches from the camera and make sure that the paper fills the viewfinder.**
7. **Press the shutter button all the way to record the data.**

No picture is taken; the camera just records the Dust Delete Data in its internal memory. If the process was successful, you see the message “Data obtained.”



If the camera can't record the data, the lighting conditions are likely to blame. Make sure that the lighting is even across the entire surface of your paper and that the paper is sufficiently illuminated, and then try again.

8. **On the Data Obtained screen, choose OK and press Set.**

The current date appears on the initial Dust Delete Data screen. (Refer to the right screen in Figure 12-1.)

After you create your Dust Delete Data file, the camera attaches the data to every image you shoot. To clean a photo, open it in Digital Photo Professional and choose Tools⇨Start Stamp Tool. Your photo appears in an editing window; click the Apply Dust Delete Data button to start the dust-busting feature. The program's Help system (choose Help⇨Digital Photo Professional Help) offers details.

Tagging Files with Your Copyright Claim

By using the Copyright Information feature on Setup Menu 3, you can add copyright information to the image *metadata* (extra data) recorded with the image file. You can view metadata in the Canon software; Chapter 10 shows you how.



Including a copyright notice is a reasonable first step to prevent people from using your pictures without permission. Anyone who views your picture in a program that can display metadata can see your copyright notice. Obviously, that won't be enough to completely prevent unauthorized use of your images. And technically speaking, you hold the copyright to your photo whether or not you mark it with your name. But if you ever come to the point of pressing legal action, you can show that you did your due diligence in letting people know that you hold the copyright.

To turn on the copyright function, take these steps:

1. Set the camera Mode dial to P, Tv, Av, or M.

You can create or modify copyright information only in these modes. However, your copyright information (after it's created) will be added to images you shoot in any exposure mode.

2. Display Setup Menu 3 and highlight Copyright Information, as shown on the left in Figure 12-2.



Figure 12-2: Tagging files with your copyright notice lets people know who owns the rights to the picture.

3. Press Set.

Now you see the screen shown on the right in Figure 12-2.

4. Select the Enter Author's Name option and press Set.

This step opens the data entry screen, shown in Figure 12-3.

5. Enter your name.

Use these tricks to enter up to 63 characters:



- To alternate between the text box and the character-selection area below, press the Q button.
- To select a character, use the cross keys or Main dial to highlight it.
- To enter the highlighted character, press Set.
- To delete a character, highlight it and press the Delete button.

**6. Press Menu to return to the screen shown on the right in Figure 12-2.****7. Highlight Enter Copyright Details and press Set to add more copyright data.**

You might want to add the year and possibly a web address, for example, or your company name. Just repeat the same text entry process you used to enter your name. (You don't need to enter the word *Copyright* — it's added automatically.)

8. Press Menu to exit the text entry screen.**9. To wrap things up, press Menu one more time.**

You can disable copyright tagging by choosing the Delete Copyright Information option that's shown on the right in Figure 12-2. (The option is unavailable, as in the figure, until you add copyright data.)

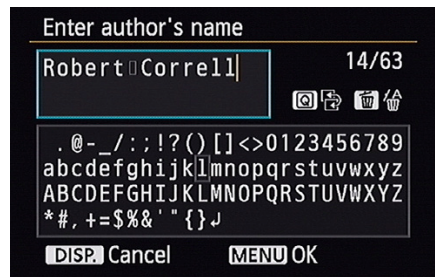


Figure 12-3: Enter your name and other copyright information that you want tagged to your images.

Exploring Two Special Printing Options

Through the Print Order option on Playback Menu 1, you can access two features that enable you to print directly from your memory card or the camera:

- ✔ **DPOF (Digital Print Order Format):** With this option, you select pictures from your memory card and then specify how many prints you want of each image. Then, if your photo printer has a card reader compatible with your memory card and supports DPOF, you just pop the card into the reader. The printer checks your “print order” and outputs just the requested prints. You also can print by connecting the camera to the printer using the USB cable supplied in the camera box.
- ✔ **PictBridge:** With a PictBridge-enabled photo printer, you can send pictures to the printer by connecting the two devices with the same USB cable you use for picture downloads.

If you're interested in exploring either feature, look for details in your camera manual.

Adding Special Effects to Your Photos

With the Creative Filters, you can add special effects to your pictures. For example, Julie used this feature to create the three versions of her city scene shown in Figure 12-4. When you use this feature, the camera creates a copy of your image and applies the filter to the copy; your original remains intact. If the original was captured using the Raw Quality setting, the altered image is stored in the JPEG format.

You can choose from these effects:

- ✔ **Grainy B/W:** Creates a black-and-white photo with a speckled appearance.
- ✔ **Soft Focus:** Blurs the photo to make it look soft and fuzzy.
- ✔ **Fish-Eye:** Distorts your photo so that it appears to have been shot using a fish-eye lens, as illustrated in the top-right image in Figure 12-4.
- ✔ **Toy Camera:** Creates an image with dark corners — called a *vignette* effect. Vignetting is caused by poor-quality lenses not letting enough light in to expose the entire frame of film (like in toy cameras). When you choose this effect, you can also add a warm (yellowish) or cool (blue) tint. For example, Julie applied the effect with a warm tint to create the lower-left variation in Figure 12-4.
- ✔ **Miniature:** Creates a trick of the eye by playing with depth of field. It blurs all but a very small area of the photo to create a result that looks something like one of those miniature dioramas you see in museums. Julie applied the filter to the city scene to produce the lower-right variation in Figure 12-4. This effect works best on pictures taken from a high angle, like the one featured in the figure.



Figure 12-4: Julie used the Creative Filters feature to create these variations on a city scene.

To try out the filters, take either of these approaches:



✓ **Quick Control screen:** After setting the camera to Playback mode, press the Q button and then use the up/down cross keys to highlight the Creative Filters option, as shown on the left in Figure 12-5. Symbols

representing the available filters appear at the bottom of the screen. Use the left/right cross keys to highlight a filter icon, as shown on the right in the figure, and then press Set. You'll see a preview of your photo with the currently selected filter active. You have the option of making changes to the settings before you apply and save, as described shortly.

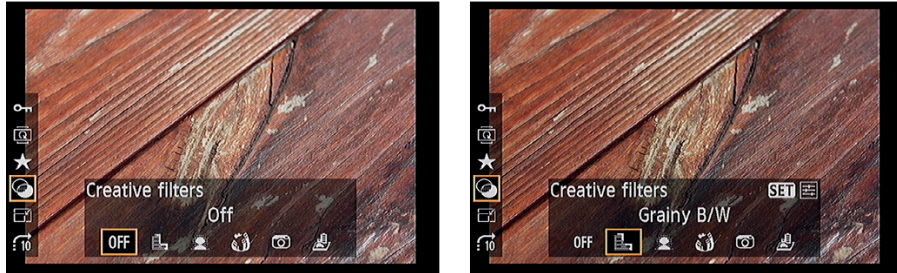


Photo by Robert Correll

Figure 12-5: During playback, press Q to access Creative Filters.

➤ **Playback Menu 1:** Highlight Creative Filters, as shown on the left in Figure 12-6, and press Set. The camera shifts to Playback mode, as shown on the right. Use the cross keys or Main dial to select a photo, press Set, use the cross keys to select a filter, and then press Set again.



Photo by Robert Correll

Figure 12-6: You also can access the filters from Playback Menu 1.

From this point, both methods work similarly. After you select a filter, use the left and right cross keys to make adjustments to specific filter settings. For example, the screen shown on the left in Figure 12-7 shows the options available for the Toy Camera Effect. In the case of Miniature effect, as shown on the right, use the up or down Cross keys to change the position of the focus frame, which determines which part of the image is kept in sharp focus. You can also press the Disp button to change the orientation of the focus box.

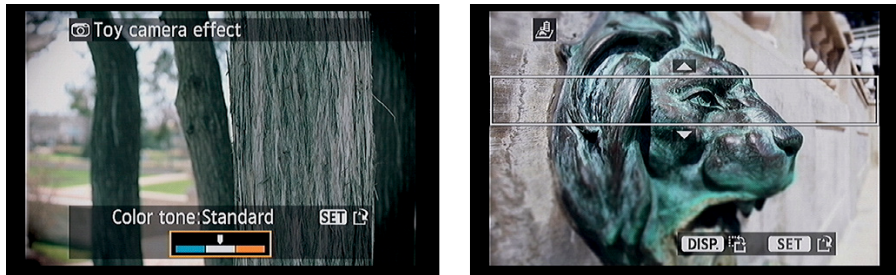


Photo by Robert Correll

Figure 12-7: After you select a filter, options for tweaking the results appear.

Press Menu to cancel and return to the screen where you can choose a different filter. Press Set to apply the filter. When asked, confirm that you want to save the image as a new file.

Tagging Pictures for a Photo Book

Many online and retail photo-printing sites make it easy to print books featuring your favorite images. The Photobook Set-Up option on Playback Menu 1 is a nod to this popular trend. Using this feature, you can tag photos that you want to include in a photo book. Then, if you use the Canon EOS Utility software to transfer pictures to your computer, tagged photos are dumped into a separate folder so that they're easy to find. This feature works only when you download pictures by connecting the camera to the computer. In addition, it doesn't work with Raw (CR2) files.

Unfortunately, we don't have room in this book to provide steps for the process of creating your photo books this way, but if you're interested, the camera manual tells you how to tag pictures for inclusion in the book. You can find instructions about the software side of the photo-book function on the software instruction CD that shipped with your camera.

Presenting a Slide Show

Many photo programs offer a tool for creating digital slide shows that can be viewed on a computer or (if copied to DVD) on a DVD player. But if you want a simple slide show — that is, one that just displays all the photos and movies on the camera memory card one by one — you don't need a computer or any photo software. You can create and run the slide show right on your camera. You can even add some transition effects if you choose. And by connecting your camera to a TV, as outlined in an upcoming section, you can display your best photos and movies to the whole roomful of people.

To create and run the slide show, follow these steps:

1. **Display Playback Menu 2 and highlight Slide Show, as shown on the left in Figure 12-8.**

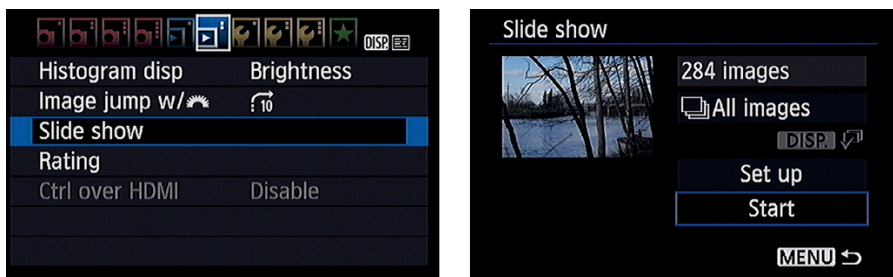


Photo by Robert Correll

Figure 12-8: Choose Slide Show and then either start it or customize different aspects.

2. **Press Set.**

You see the screen shown on the right in Figure 12-8. The thumbnail shows the first image that will appear in the slide show. Should you change the selection criteria, the image will automatically update to show you the first file that will appear in the show.

Also on this screen, you see the total number of images (again, still or movies) slated for inclusion in the show. On your first trip to this menu screen, all images on the card are selected for the show.

3. **Use the cross keys to navigate to the selection criteria box (shown on the left in Figure 12-9) and press Set.**

The option box becomes active and is shown with up and down arrows, as shown on the right in Figure 12-9.



Photo by Robert Correll

Figure 12-9: Use this option to select the criteria you want to use to specify which photos or movies are included in the show.

4. Press the up or down cross keys to specify which files to include in your show.

You can choose from the following settings:

- *All Images*: Includes all files, regardless of whether they're still photos or movies.
- *Date*: Plays pictures or movies taken on a single date. As soon as you select the option, the Disp label underneath the option box turns white, clueing you in to the fact that you can press the Disp button to display a screen listing all the shooting dates on the memory card. Again, press the up or down cross keys to select a date and then press Set to exit the date list.
- *Folder*: Includes still photos and movies in the selected folder. Again, press Disp to display a list of folders and highlight the one you want to use, and then press Set to exit the folder list. Chapter 11 shows you how to create custom folders.
- *Movies*: Includes only movies.
- *Stills*: Includes only still photos.
- *Rating*: Selects photos and movies based on their rating. (Chapter 10 shows you how to rate photos.) Press Disp to display a screen where you can specify the rating that qualifies a file for inclusion and to see how many files have that rating. After selecting the rating, press Set to exit the rating screen.

5. Press Set.

6. Highlight Set Up and then press Set.

You cruise to the screen shown in Figure 12-10, which offers the following slide show options:

- *Display Time*: Determines how long each still photo appears on the screen. You can choose timing settings ranging from 1 to 20 seconds. Movies, however, are always played in their entirety.
- *Repeat*: Set this option to Enable if you want the show to play over and over until you decide you've had enough. Choose Disable to play the show only once.

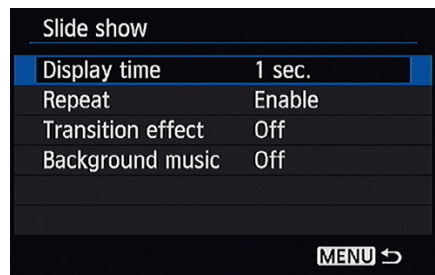


Figure 12-10: Use these four options to specify your playback preferences.

- **Transition Effect:** You can enable one of five transition effects. With Slide in 1, photos push their way onto the screen from the right. Slide in 2, they slide in randomly from one of the four sides. With Fade 1, photos fade in as if placed atop the previous slide; with Fade 2, one slide fades to black and then the next slide fades into view. Fade 3 slides the photos (or movies) in from one of the four sides and fades it into view as in Fade 1. Choose Off if you don't want any effects between slides.
- **Background Music:** You can register and upload background music onto your camera's memory card to play during the slide show using EOS Utility. MP3s aren't compatible. The audio must be 48-kHz, 16-bit, stereo, linear-PCM, WAV format, which you won't have or easily be able to convert to unless you're an audio-engineer geek like Robert. In lieu of using your own, Canon provides a small handful of samples when you install the EOS Utility. Please consult the EOS Utility manual that's on the CD that ships with your camera.

7. After selecting your playback options, press Menu to return to the main Slide Show screen.

Refer to the screen on the left in Figure 12-9.

8. Highlight Start and press Set.

Your slide show begins playing.

During the show, you can control playback as follows:

- ✓ **Pause playback.** Press the Set button. While the show is paused, you can press the right or left cross key to view the next or previous photo. Press Set again to continue playback from the current slide.
- ✓ **Change the information display style.** Press the Disp button.
- ✓ **Adjust sound volume (for movies).** Rotate the Main dial.
- ✓ **Exit the slide show.** Press the Menu button twice to return to Playback Menu 2. Or press the Playback button to return to normal photo playback.

Creating Video Snapshots

The Video Snapshot feature, found on Movie Menu 2, enables you to capture short video clips that you stitch into a single recording, called a *video album*. A few pertinent facts about this feature:

- ✓ Each clip can be no more than 8 seconds long. You also can record 2- and 4-second clips.

- ✓ All clips in an album must be the same length.
- ✓ You cannot shoot normal movies when the Video Snapshot feature is enabled.

To create your first album, set the camera to Movie mode, pull up Movie Menu 2, and highlight Video Snapshot (as shown on the left in Figure 12-11). Press OK, then set the Video Snapshot shooting time, as shown in the right image. Now you're ready to start shooting snapshots.

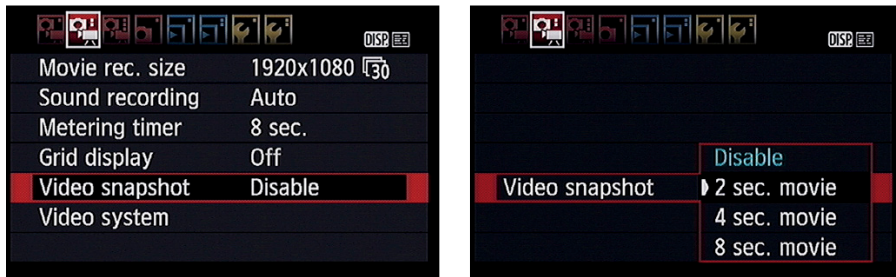


Figure 12-11: Video Snapshots are short movie clips combined into a single recording.

Press the shutter button halfway to exit the menu screen and then press the Movie-Record button to record your first snapshot. While you're shooting, a blue progress bar shows you how much time you have left for the clip. When you reach the maximum clip length, recording stops automatically. You see the last frame of the clip along with three options: Save as Album, Playback Video Snapshot, or Do Not Save to Album. Select the Save as Album option to store the clip in your first album.

When you record your second clip, you can choose to start a second, new album or add the clip to your existing album. Again, the option appears after the clip is recorded. They are: Choose Add to Album, Save as a New Album, Playback Video Snapshot, and Delete Without Saving to Album. To stop capturing snapshots, return to Movie Menu 2 and set the Video Snapshot option to Disable. You can then shoot regular movies again.



While the camera is in Movie mode, you also can use the Quick Control screen to enable and disable Video Snapshot recording. After pressing the Q button to enter Quick Control mode, highlight the Video Snapshot icon labeled on the left in Figure 12-12. Press the Set button and choose an option shown in the right image.

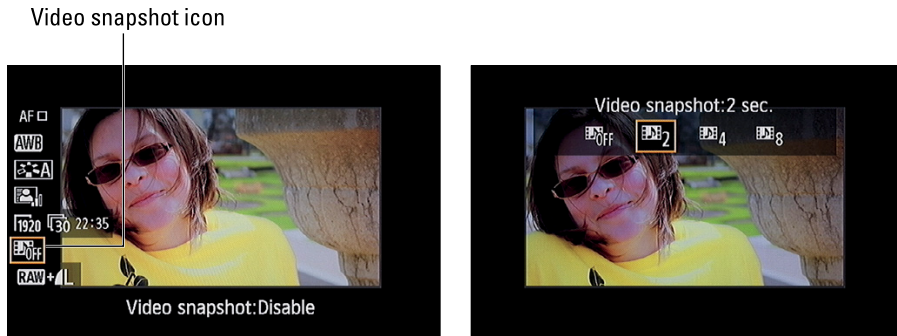


Photo by Robert Correll

Figure 12-12: You also can enable and disable the Video Snapshot feature via the Quick Settings screen.

A few final notes about recording video snapshots:

- ✓ **Sound recording:** By default, audio is recorded; you can control audio recording through the Sound Recording option on Movie Menu 2, just as for regular movies. You can also play background music.
- ✓ **Movie Recording Size:** All clips in an album must use the same Movie Recording Size option (which you choose from Movie Menu 2). If you change the setting, the camera automatically creates a new album for your next snapshot.
- ✓ **Autofocusing:** Your options are the same as for normal movie recording; Chapter 5 has details.
- ✓ **Normal playback:** To play a video snapshot after you exit the creation process, use the normal movie-playback steps, detailed at the end of Chapter 8.

Trimming Movies

Your camera's movie-edit feature makes it possible to remove unwanted material from the beginning or end of a movie (imagine the focus was poor at the start, as shown in the figure). To access the editing tools, set the camera to Playback mode and select a movie for playback. Then press the Set button to display the controls shown on the left in Figure 12-13. Use the cross keys to highlight the scissors symbol (Edit) and press Set to enter the editing screen, shown on the right in the figure.

To trim content from the start of a movie, highlight the Cut Beginning icon, labeled on the right in Figure 12-13, and press Set. Press the left/right cross keys to advance to the first frame you want to keep and then press Set. Then

choose the Save option and select New File. This step saves your trimmed movie as a new file instead of overwriting your original. (Choose Overwrite if you wish to do so, but this is a riskier option.)

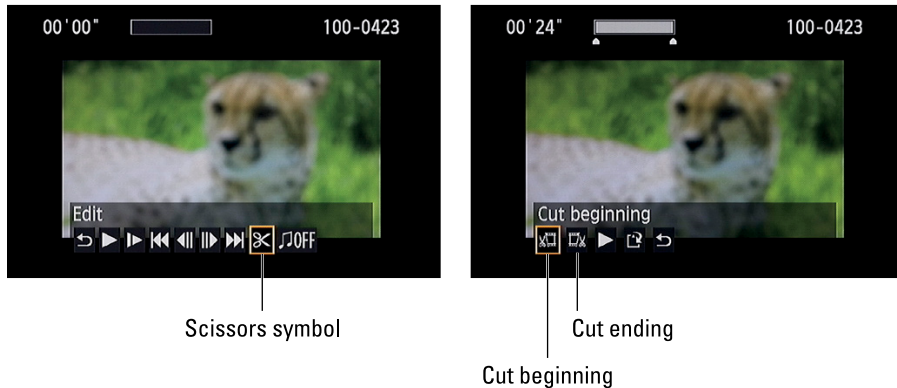


Figure 12-13: From the playback screen, select the scissors icon to get to the movie-editing functions.

To trim the end of a movie, follow the same process, but choose the Cut Ending icon (labeled in Figure 12-13) instead of the Cut Beginning icon.



The in-camera movie-editing function doesn't provide very precise trimming. If you want frame-by-frame control, download your movies to a computer and edit them using video-editing software.

Viewing Your Photos and Movies on an HDTV

Your camera is equipped with a feature that allows you to play your pictures and movies on an HDTV screen. However, you need to purchase an HDMI cable to connect the camera and television; the Canon part number you need is HDMI cable HTC-100.



Two notes before you connect your camera to your TV:

- ✓ Not all HDTVs are compatible with every feature your camera offers. Please read the manuals (for both the camera and the television) and remain calm when troubleshooting. Throwing your remote control at the TV rarely produces the desired solution.
- ✓ If your television is compatible with HDMI CEC, your camera enables you to use the TV's remote control to rule your playback operations. You can put the camera on the coffee table and sit back with your normal remote in hand to entertain family and friends with your genius. To make this operation work, you must enable it on Playback Menu 2.

To get things hooked up, turn the camera off. Then connect the smaller end of the HDMI cable to the port labeled in Figure 12-14, found under the cover on the left side of the camera.



Figure 12-14: Plug the small end of the HDMI cable into this camera port.

At this point, we need to point you to your TV manual to locate the HDMI terminal where you should connect your camera. You also need to consult your manual to find out which channel or input source to select for playback of signals from auxiliary devices.

After you sort out those issues, turn on your camera to send the signal to the TV set. If you don't have the latest and greatest HDMI CEC capability (or lost your remote), you can control playback using the same camera controls as you normally do to view pictures on your camera monitor.

Getting Free Help and Creative Ideas

Okay, so this last tip is a bit of a cheat: It isn't actually found on your camera, but it will help you better understand the features that are. We speak of the Canon website, which you can access at www.canon.com.

If you haven't yet visited the site, we encourage you to do so. In the Support section of the site, you can get free technical support for camera problems and even download an electronic copy of your camera manual, should you happen to misplace the one that came with your camera. Most importantly, check periodically to make sure that your camera is running the latest *firmware*, which is the camera's internal software.

Be sure to also check out the Learning Center section of the site. There, you can find loads of tutorials and other great instructional offerings, not only about your camera but also about the software that ships with it.

Index

• A •

- AC power adapter kit, 16
- accessories
 - AC power adapter kit, 16
 - flash hot shoe use, 11
 - GPS unit, 16
 - tripod, 16
 - viewfinder cover, 21
- action shots
 - Auto ISO mode, 166
 - car window shots, 173
 - composing for movement, 167
 - Continuous Drive mode, 166
 - fireworks, 173
 - focus options, 166–167
 - panning, 165
 - shutter speeds, 163–165
 - shutter-priority mode, 165
- Adobe RGB color mode
 - file names, 244
 - sRGB versus, 243–244
- Advanced Exposure modes
 - aperture/shutter speed settings, 94–95, 104–105
 - flash settings, 56–58, 70
 - ISO choices, 100–101
 - metering options, 97–98
 - noise removal options, 103
 - recommendations, 93
 - white balance adjustments, 78
- AE. *See* autoexposure
- AE Lock button
 - customizing, 236–237
 - overview, 13, 236
 - single versus multiple shots, 117–118
 - thumbnail viewing, 192
- AEB. *See* Automatic Exposure Bracketing
- AF. *See* autofocus
- AF Point Selection button
 - autofocus points, choosing, 125–127
 - display magnification (Live Mode), 135–136
 - overview, 13
 - playback magnification, 200
 - thumbnail viewing, 194, 213, 217
- AF-assist beam
 - enabling/disabling, 237
 - external flash controls, 238
 - infrared AF-assist, 238
 - overview, 65, 237
- AI (artificial intelligence), 128
- AI Focus mode (autofocus), 128
- AI Servo mode (autofocus)
 - AE Lock button customization, 237
 - overview, 128
- anti-shake. *See* Image Stabilization
- Aperture button, 13
- aperture setting (f-stops)
 - Advanced Exposure modes, 94–95, 104–105
 - Av mode, 36–37
 - Close-up mode, 71
 - depth of field control, 60, 69, 71, 137–138
 - display time adjustment, 25
 - Exposure Compensation versus manual, 13
 - exposure stop adjustments, 239
 - Landscape mode, 70
 - landscape pictures, 168
 - Manual mode, 13
 - outdoor flash, 60
 - overview, 87, 239
 - picture data display, 203, 205
 - Portrait mode, 69
 - shutter speed versus, 93
 - viewfinder/monitor displays, 95–96

- aperture-priority autoexposure (Av) mode
 - exposure alerts, 97
 - exposure controls, 100–103
 - flash options, 52, 54–56, 61
 - image quality settings, 40–42
 - meter options, 96–97
 - overview, 94, 104
 - artifacting, 47–48
 - artificial intelligence (AI), 128
 - aspect ratio
 - adjusting, 228
 - movies, 180–181
 - photos, 160
 - still photos during video recording, 186
 - audio recording (Movie mode)
 - menu options, 184
 - playback volume control, 188
 - volume meter, 183
 - Wind Filter menu, 184
 - Auto ISO mode
 - action shots, 166
 - exposure compensation, 109
 - overview, 101
 - Auto Lighting Optimizer
 - adjusting, 114
 - disadvantages, 112–113
 - Highlight Tone Priority versus, 111
 - landscape pictures, 170
 - Move mode, 180
 - Movie mode, 185
 - overview, 111
 - post-capture application, 114
 - Auto mode
 - exposure settings, 66
 - Live View photography, 67–68
 - overview, 63–64
 - viewfinder photography, 64–67
 - viewfinder versus Live View, 64
 - Auto Power Off option, 10, 19, 192
 - Auto Rotate, 19
 - Auto White Balance (AWB) setting, 25–26
 - autoexposure (AE)
 - Advanced modes, 94–95
 - AE Lock button, 13, 117–118
 - button customizations, 236–237
 - Custom Functions menu, 17
 - flash options, 56–58, 61–62
 - autofocus (AF)
 - AF mode settings, 128–129
 - AF Point Selection, 13, 124–127, 129
 - AI Servo/AI Focus modes, 128–129, 237
 - Auto mode, 65, 67
 - autofocus points, 64–65, 71, 124–127
 - button customization, 236–237
 - Close-up mode, 72
 - Custom Functions menu, 17
 - Face Detection, 133–134
 - Flexizone Single mode, 67, 132
 - focus points, 64–65
 - Landscape mode, 71
 - Live View mode, 130–135
 - manual focus warning, 28
 - motion-related issues, 65
 - Movie mode settings, 179–180
 - Night Portrait mode, 74
 - One Shot mode, 128
 - Portrait mode, 70
 - Quick Control screen, 131
 - Quick mode, 134
 - Scene modes, options for, 68
 - shutter button use, 27
 - shutter release issues, 66
 - Sports mode, 73
 - viewfinder use, 124–125
 - Automatic Exposure Bracketing (AEB)
 - enabling/disabling, 119–121
 - HDR photography, 118
 - landscape pictures, 170
 - overview, 118
 - single versus continuous mode, 121–122
 - Av (aperture-priority autoexposure) mode
 - exposure alerts, 97
 - exposure controls, 100–103
 - flash options, 52, 54–56, 61
 - image quality settings, 40–42
 - meter options, 96–97
 - overview, 94, 104
 - AWB (Auto White Balance) setting, 25–26
- **B** •
- Background Blur feature, 82
 - backlight control, 173
 - banding, 49

- Basic Zone (exposure modes), 36–37
 - battery
 - Image Stabilization warning, 28
 - installation, 8
 - Movie mode/Live View issues, 21
 - status monitor, 23
 - Beep Disable option, 125, 132, 238
 - Beeps
 - setting/displaying, 19
 - Shutter button, 11
 - bit depth (image files), 49
 - blinking spots (picture data displays), 209
 - blown highlights, 206
 - blurring. *See also* Image Stabilization
 - action shots, 163–165
 - Background Blur feature, 82
 - camera shake, 73, 90
 - Close-up mode use, 71
 - depth of field control, 137–140
 - flash issues, 53, 62, 82
 - ISO issues, 91–92
 - landscape pictures, 169
 - Portrait mode, 69
 - remote-control use, 15–16, 173
 - shutter button issues, 173
 - shutter speeds, 55, 62, 89–93, 126
 - Sports mode, minimizing with, 72
 - subject movement, 28, 165
 - tripod warning, 21, 28, 66
 - zooming, 71, 82
 - bounce lighting, 162–163
 - bracketing
 - automatic exposures, 118–122
 - landscape pictures, 170
 - picture data display, 205
 - white balance shifts, 19, 148–150
 - brightness histograms, 206–207
 - Bulb mode
 - AEB disabled, 121
 - histogram display disabled, 24
 - landscape pictures, 169
 - M mode use, 55
 - burst mode, 37
 - button customization
 - autoexposure (AE) button, 237
 - autofocus (AF) button, 236–237
 - Flash button/ISO button toggling, 102
 - Flash Exposure Compensation, 58
 - Set button function, 235–236
 - shutter button, 236–237
 - buttons. *See also individual buttons by name*
 - blue versus white icons, 12–13
 - names/locations, 13–16
- C •
- camera
 - 18-55mm lens, 7, 9
 - back-of body controls, 12–14
 - basic settings, 158–159
 - Beep Disable option, 238
 - button customization, 235–237
 - buttons, icon colors explained, 12
 - buttons, multiple purpose reminder, 13
 - buttons, names/locations, 13–16
 - Date/Time settings, 33
 - default settings, adjusting, 35
 - default settings, restoring, 63
 - Drive mode setting, 37–40
 - electronic owner's manual, 259
 - exposure mode settings, 36–37
 - Feature Guide option, 34
 - firmware updates, 34
 - front-left features controls, 15–16
 - lens registration, 116
 - overheating warning/shutoff, 21
 - shutter release issues, 66
 - topside controls, 10–12
 - unpacking/assembling, 7–10
 - Camera Raw files. *See* Raw files
 - Camera Settings screen
 - DISP button usage, 18
 - exiting from, 19
 - overview, 18–19
 - Canon
 - lens choices, 7
 - SLR history, 1
 - website, 259
 - Canon Digital Photo Professional
 - Auto Lighting Optimizer, 114
 - Dust Delete Data feature, 245–247
 - installing, 219
 - lens correction options, 228

- Canon Digital Photo Professional (*continued*)
 - metadata viewing, 219
 - noise reduction, 228
 - overview, 218, 219
 - Peripheral Illumination Correction,
 - adding with, 116
 - Picture Styles, 155
 - Raw image conversion, 115, 226–229
 - read-only file editing, 214
 - RGB corrections, 227–228
 - updating, 219
 - white balance correction, 227
- Canon EOS Utility
 - downloading files, 221–223
 - installing, 219
 - updating, 219
- Canon ImageBrowser EX
 - downloading files, 223–225
 - installing, 219
 - overview, 218
 - updating, 219
- Carr, Pete, 119
- clipped highlights, 206
- Close-up mode
 - autofocus issues, 72
 - overview, 71
 - red-eye reduction, 71
- close-up shots
 - depth of field, 170–171
 - lens choice, 170
 - macro lens/diopter choices, 171–172
 - shutter speeds, 171
 - zooming, 171
- color channels
 - color theory, 208
 - RGB histograms, 207–208
 - RGB images, 207
 - sRGB versus Adobe RGB color modes, 243–244
- color controls. *See* histogram display; Picture Styles; white balance
- Color Space display
 - Digital Photo Professional use, 225–226
 - overview, 19
 - sRGB versus Adobe RGB color modes, 243–244
- composition
 - action shots, 167
 - autofocus issues, 134
 - landscape pictures, 167–169
 - portraits, 160
- connection ports
 - Digital terminal, 16
 - HDMI terminal, 16
 - port access door, 15
 - remote-control terminal, 15–16
- controls. *See individual controls by name*
- Copyright Information feature
 - disabling, 248
 - enabling/entering information, 247–248
 - overview, 247
- Creative Auto mode
 - flash options, 54, 82
 - options, 82
 - overview, 81
- Creative Filters
 - overview, 249
 - Playback Menu 1, 251–252
 - Q (Quick Control) button, 250–251
 - special effect choices, 249–250
- Creative Zone (exposure modes), 37, 54
- crop factor, 29
- cropping
 - Aspect Ratio option, 228
 - composition tips, 160
 - Image Quality settings, 186
- cross keys
 - AF mode, 14
 - book terminology for, 14
 - bracketing, 121
 - camera menu selection, 17
 - Custom Functions menu usage, 18
 - Drive mode setting, 14, 39
 - erasing files, 212
 - focus adjustments, 39, 127, 134–135
 - ISO setting, 14
 - Jump feature, 196
 - overview, 9, 14
 - picture playback, 188, 192
 - Quick Control screen use, 25–26, 194
 - white balance setting, 14, 144–146

- Custom Functions menu
 - AE Lock button customization, 236–237
 - overview, 17–18
 - Set button customization, 235–236
- **D** •
- Date/Time
 - camera settings display, 19
 - displaying, 19
 - menu settings, 33
 - picture data displays, 204–205
 - setting, 19
 - Setup Menu 2, 205
- Daylight Saving Time, 19
- default settings, 34
- Delete button, 13, 212
- deleting files, 212–213
- depth of field
 - aperture setting, controlling with, 137–138, 160
 - background blurs, 71
 - Close-up mode, 71
 - close-up shots, 170–171
 - Creative Auto mode, 81
 - focal length, controlling with, 138–139
 - group portraits, 93
 - Landscape mode, 70
 - landscape pictures, 168
 - outdoor flash use, 60
 - overview, 137
 - Portrait mode, 69
 - portraits, 159–160
 - previewing, 140, 236
 - Set button customization, 236
- diffusers, 162
- Digital Photo Professional
 - Auto Lighting Optimizer, 114
 - Dust Delete Data feature, 245–247
 - installing, 219
 - lens correction options, 228
 - metadata viewing, 219
 - noise reduction, 228
 - overview, 218, 219
 - Peripheral Illumination Correction, adding with, 116
 - Picture Styles, 155
 - Raw image conversion, 115, 226–229
 - read-only file editing, 214
 - RGB corrections, 227–228
 - updating, 219
 - white balance correction, 227
- Digital Print Order Format (DPOF), 249
- digital SLR (dSLR), 1
- Digital terminal, 16
- diopeters, 171–172
- Disp button
 - Camera Settings screen access, 18
 - display mode cycling, 24
 - movie views, cycling, 178
 - overview, 14
 - picture data displays, 201, 204
- downloading files
 - memory card use, 223–225
 - USB connection, 220–223
- DPOF (Digital Print Order Format), 249
- Drive mode
 - Auto mode, 66
 - Close-up mode, 71
 - Custom Functions menu, 17
 - Landscape mode, 71
 - Night Portrait mode, 74
 - overview, 14
 - Portrait mode, 70
 - self-timer settings, 38
 - single-frame versus continuous capture, 37–38
 - Sports mode, 73
 - viewfinder versus Quick Control screen, 39–40
- dSLR (digital SLR), 1
- Dust Delete Data feature, 245–247
- **E** •
- EF (electro focus) lenses, 9
- Effect level settings
 - overview, 75
 - previewing, 78–80
- EF-S (short back focus) lenses, 9
- electro focus (EF) lenses, 9

EOS Utility

- downloading files, 221–223
- installing, 219
- updating, 219

erasing files

- overview, 212–213
- read-only files, 214

exposure. *See also* aperture setting

- Advanced Exposure modes, 94–95, 97
- AE Lock button, 117–118
- aperture setting (f-stop), 87–89
- Auto Lighting Optimizer, 111–114
- autoexposure modes, 94–95
- automatic exposure bracketing, 118–121
- exposure meter, 96–100
- Highlight Tone Priority feature, 109–111
- ISO controls, 100–103
- ISO settings, 91–93
- landscape pictures, 168–170
- Movie mode settings, 179–180
- overview, 85
- picture data display, 203, 205
- shutter speed settings, 89–91
- silhouette shots, 173–174
- viewfinder/monitor displays, 95–96

Exposure Compensation setting

- adjusting, 107–109
- Movie mode, 185–186
- overview, 13, 105–106

exposure control

- AE controls, 13
- Custom Functions menu, 17

exposure mode settings

- autofocus display, 66
- Basic Zone versus Creative Zone, 36–37
- focus choices versus, 37
- overview, 36

Exposure Simulation, 24

Eye-Fi memory cards, 31, 205



Face Detection (Live View), 133–134

fast forwarding movies, 188

FE Lock. *See* Flash Exposure Lock

Feature Guide option, 34

file types. *See also* Raw files

- bit depth, 49
- JPEG, 47–48
- MOV, 177
- overview, 46

files

- Canon Digital Photo Professional usage, 114–115, 155
- Date/Time information, 33
- deleting, 212–213
- downloading risk, 155
- downloading via card reader, 223–225
- downloading via USB, 220–223
- editing photos, 114–115, 151, 155
- JPEG versus Raw, 46–51
- lossy compression, 42, 47, 50, 228
- metadata viewing, 218–219
- movie-camera icon, 187
- music download utility, 188
- numbering, 31–32
- overview, 211
- picture data displays, 202–203
- protecting/unprotecting, 213–216
- quality versus size, 44, 50, 66, 182
- raw converters, 49, 225–229
- size limits, 177, 182
- still photos versus movie, 191, 196
- storage folders, 32, 241–242
- tagging, 155, 198, 213

filters (special effects). *See* Creative Filters

firmware updates, 34, 259

flash

- adjustments warning, 58
- AF-assist beam settings, 237–238
- autoexposure (AE) options, 56–58, 61–62
- automatic, 53
- Av mode, disabling in, 160
- Background Blur issues, 82
- backlight control, 173
- bounce lighting, 162–163
- Close-up mode, 71
- close-up shots, 171
- Creative Auto mode, 54, 82
- diffusers, 162
- disadvantages, 166
- effective ranges, 51–52

- enabling/disabling, 53–55
- Exposure Simulation disabled, 24
- external, 162
- external flash controls, 62, 238
- fill lighting, 54, 62
- Flash button, 11
- Flash Exposure Compensation, 56–59
 - glass, shooting through, 172
 - histogram display disabled, 24
 - hot shoe, 11
 - indoor issues, 171
 - Landscape mode, 71
 - mode dial setting, 36
 - outdoor use, 60, 161
 - picture data display, 205
 - Portrait mode, 70
 - recycling notice, 52
 - Red-eye reduction, 10, 19, 55–56
 - Set button customization, 58
 - Shooting menu options, 61–62
 - shutter speeds, 52–55, 60–62
 - Sports mode, 73
- Flash button
 - enabling and disabling flash, 54, 161
 - Flash button/ISO button toggling, 102
 - raising flash, 11
 - reprogramming to ISO settings, 102
- Flash Exposure Compensation
 - adjusting, 57
 - Flash Exposure Compensation,
 - customizing for, 58
 - overview, 56–57
 - Set button customization, 58, 235–236
- Flash Exposure Lock (FE Lock)
 - overview, 13, 59
 - portrait use, 61
 - using, 59–61
- Flexizone Single mode (autofocus), 67, 132
- focal length
 - depth of field control, 138–139
 - overview, 29, 138
 - zoom lens indicator, 28
- focus
 - action shots, 166–167
 - AE Lock button customization, 237
 - AF mode settings, 128–129
 - autofocus points, 64–65, 71, 124–127, 129
 - Beep Disable option, 125, 132
 - exposure mode settings versus, 37
 - glass, shooting through, 172
 - landscape pictures, 167–169
 - lens choice, 170
 - lens mode setting, 124
 - Live View mode, 28, 135
 - manual, 28, 125, 135
 - Movie mode, 22, 135, 176–177
 - portraits, 159–161
 - viewfinder adjustment, 9–11
 - zooming for focus check, 135–136
- folder options
 - custom folders, 241–242
 - overview, 32
- formatting memory cards
 - overview, 30
 - protected file warning, 214
- frame-rate (video)
 - options, 181
 - playback quality, 182
- Freespace display, 19
- f-stops
 - Advanced Exposure modes, 94–95, 104–105
 - Av mode, 36–37
 - Close-up mode, 71
 - depth of field control, 60, 69, 71, 137–138
 - display time adjustment, 25
 - Exposure Compensation versus manual, 13
 - exposure stop adjustments, 239
 - Landscape mode, 70
 - landscape pictures, 168
 - Manual mode, 13
 - outdoor flash, 60
 - overview, 87, 239
 - picture data display, 203, 205
 - Portrait mode, 69
 - shutter speed versus, 93
 - viewfinder/monitor displays, 95–96

• G •

- GPS (Global Positioning Satellite) terminal
 - device settings, 34
 - overview, 16
- grid displays (Live View), 24

• H •

- HD video choices, 182
- HDMI cable
 - camera port location, 259
 - HDTV requirements, 258
- HDMI terminal, 16, 259
- HDR (high dynamic range)
 - photography, 118
- HDTV
 - cable requirements, 258
 - compatibility issues, 258
 - HDMI CEC camera compatibility, 258–259
 - playback options, 258–259
- high dynamic range (HDR)
 - photography, 118
- Highlight Tone Priority feature
 - Auto Lighting Optimizer versus, 111
 - backlight control, 173
 - landscape pictures, 170
 - Move mode, 180
 - overview, 109–110
- histogram display
 - blinking spots, 209
 - brightness histograms, 206–207
 - brightness/RGB swapping, 208
 - Bulb mode, disabled for, 24
 - M mode, disabled for, 24
 - overview, 24, 202, 206
 - picture data display, 201, 204
 - RGB histograms, 207–208
 - thumbnail blinking, 206

• / •

- ICC (International Color Consortium), 229
- icons (camera)
 - blue versus white icons, 12–13
 - menu system colors, 16–17
 - menu system dots, 17

- icons (menu system), 16–17
- icons, used in book, 3
- Image Browser EX
 - downloading files, 223–225
 - installing, 219
 - overview, 218
 - updating, 219
- Image Quality settings
 - compression settings, 42
 - file type recommendations, 51
 - JPEG, fine versus normal, 47–48
 - picture data display, 206
 - resolution and pixel dimension display, 41
 - resolution choices, 42–46
 - Set button customization, 235–236
- Image Review settings, 191–192
- Image Stabilization
 - camera shake compensation, 66–67, 90
 - overview, 28
 - tripod warning, 28
- Image Zone modes. *See* Scene modes
- ImageBrowser EX, 218–219
- images. *See also* tagging files
 - action shots, 163–167
 - car window shots, 173
 - close-up shots, 170–172
 - downloading software, 219
 - downloading via card reader, 223–225
 - downloading via USB, 220–223
 - erasing, 212–213
 - experimenting, 4, 19
 - folder options, 241–242
 - glass, shooting through, 172
 - highlight issues, 206
 - histogram displays, 24, 202, 204
 - image quality/playback number, 202
 - Image Review settings, 191–192
 - Jump feature, 195–197
 - landscape pictures, 167–170
 - metadata viewing, 218–219
 - online sharing issues, 230–231
 - picture data displays, 201–206
 - portraits, 159–163
 - printing, 248–249
 - protecting/unprotecting files, 213–216
 - rating methods, 216–217
 - red-eye reduction, 19, 55–56, 162
 - resizing, 230–231

- rotating pictures, 198–199
- searching, 195–196
- shooting information display, 202
- silhouette shots, 173–174
- slide shows, 252–255
- special effects, 249–252
- spot removal, 245–247
- tonal range, 207
- video recording, still photos during, 186
- zooming (playback), 200–201
- Index button, 13
- Index display mode (thumbnail viewing)
 - AE Lock button use, 192
 - image selection, 193
 - overview, 192
 - reducing display number, 194
 - screen scrolling, 194
- infrared (IR) AF-assist Beam, 238
- interlaced video, 183
- International Color Consortium (ICC), 229
- IR (infrared) AF-Assist Beam, 238
- ISO setting
 - Advanced Exposure mode choices, 100–102
 - controls, 102–103
 - noise issues, 73
 - overview, 14, 100
 - picture data display, 205
 - recommendations, 93

• J •

- JPEG files
 - advantages, 47, 228
 - converting from Raw files, 219, 228–229
 - fine versus normal quality, 47–48
 - lossy compression issues, 47
 - Peripheral Illumination Correction, 115–116
 - sRGB versus Adobe RGB color modes, 243–244
- Jump feature
 - image selection, 197
 - method selection, 196–197
 - options, 195–196
 - overview, 195

• K •

- Kelvin scale, 141–142

• L •

- Landscape mode
 - autofocusing, 71
 - depth of field control, 70
 - Drive mode setting, 71
 - flash, 71
 - Portrait mode versus, 70
- landscape orientation, 198
- landscape pictures
 - bracketing, 170
 - depth of field control, 168
 - exposure choices, 168–170
 - magic hours, 170
 - neutral density filters, 169
 - noise issues, 169
 - remote-control use, 168
 - shutter speeds, 168–169
- LCD monitor
 - battery issues, 21
 - LCD control options, 33
 - Movie mode usage, 22
 - on/off toggle, 236
 - picture settings display, 22
 - Set button customization, 235–236
 - still photography usage, 20–21
 - viewfinder versus, 20, 22
- lens mounting index, 8
- lenses
 - acceptable types, 7
 - Canon, 7, 9
 - crop factor versus focal length, 29
 - depth of field control, 138–139
 - Digital Photo Professional correction options, 228
 - diopters, 171–172
 - EF versus EF-S, 9
 - focal length indicator, 28
 - focus mode setting, 124
 - focusing, automatic, 27
 - focusing, manual, 28

lenses (*continued*)

- IS (image stabilization) feature, 9
- lens mounting index, 8
- lens-release button, 15
- macro, 171
- mounting/removing, 8, 15, 28
- non-Canon choices, 7
- portraits, 160
- registering your lens, 116
- STM (stepping motor technology) feature, 9
- terminology, 7, 9
- wide angle versus telephoto, 29
- light fall-off. *See* vignetting
- lighting. *See also* flash; Scene modes
 - backlight control, 173
 - bounce lighting, 162–163
 - camera damage warning, 21
 - diffusers, 162
 - ISO setting, 51
 - neutral density filters, 60, 105
 - Sports mode issues, 73
 - viewfinder seeping, 21, 39
 - white balance setting, 60
- Live View button
 - disabling, reasons for, 20
 - enabling in menus, 20–21
 - movie-recording function, 177
 - overview, 13
- Live View mode. *See also* Auto mode
 - Auto mode differences, 64
 - autofocus issues, 130, 134
 - autofocusing, 67–68, 130–135
 - battery issues, 21
 - display mode cycling, 24
 - exiting from, 21
 - exposure-data shutdown time, adjusting, 25
 - Face Detection, 133–134
 - Flexizone Single mode, 67, 132
 - grid displays, 24
 - manual focus, 135
 - Movie mode, 22
 - overheating warning/shutoff, 21
 - Quick Control screen, 102, 131
 - “Shoot by” previews, 78–80
 - still photography, 20–21

- viewfinder versus, 20
- zooming for focus check, 135–136
- Live View Shooting display, 19
- lossy compression, 42, 47, 50, 228

• M •

- M (Manual exposure) mode
 - AEB disabled, 121
 - Bulb setting, 55
 - exposure controls, 100–103
 - histogram display disabled, 24
 - meter options, 96–97
 - overriding settings, 105
 - overview, 94, 104
- macro lenses, 171
- magnification (playback), 200–201
- Magnify button, 13
- Main dial
 - camera menu selection, 17
 - overview, 11
 - Quick Control (Q) button use, 25–26
- Manual exposure (M) mode
 - AEB disabled, 121
 - aperture setting (f-stop), 13
 - Bulb setting, 55
 - exposure controls, 100–103
 - histogram display disabled, 24
 - meter options, 96–97
 - overriding settings, 105
 - overview, 94, 104
- manual focus
 - AF setting warning, 28
 - Live View/Movie modes, 135
 - overview, 28
- margin art, explanation, 2
- maximum burst frames, 23
- megapixels (MP), 43
- memory buffer, 23
- memory cards. *See also* SD (Secure Digital) cards
 - acceptable types, 8
 - access light warning, 14
 - downloading files, 223–225
 - Eye-Fi cards, 31
 - formatting, 30
 - image capacities, 50

- installing, 8–9
 - locking/protecting, 30–31
 - overview, 30
 - printing from, 220, 223, 249
 - removing, 30
 - shutter release issues, 66
 - status monitor, 23
 - storing/handling, 30
- Menu button, 14
- menus
- camera menus, 2, 14, 17–19
 - custom menu creation, 239–241
 - icon colors explained, 16–17
 - Live View, enabling, 20–21
 - Quick Control (Q) button versus, 25
 - Setup Menu 1, 31–32
 - Setup Menu 2, 33–34
 - Setup Menu 3, 34
 - software, accessing, 2
- metadata viewing, 218–219
- Metering Timer (Live View), 25
- microphone location, 15
- mirror, 20
- mode dial, 10, 17
- monitor
- battery issues, 21
 - LCD control options, 33
 - Movie mode usage, 22
 - on/off toggle, 236
 - picture settings display, 22
 - Set button customization, 235–236
 - still photography usage, 20–21
 - viewfinder versus, 20, 22
- monochrome photos, 152
- MOV file format (movies), 177
- Movie Menu 1
- AF Method option, 131
 - AF mode settings, 131–132
 - folder options, 32
 - recording options, 179–180
- Movie Menu 2
- grid displays, 24
 - Metering Timer option, 25
 - recording options, 180–184
 - Video Snapshot feature, 255–257
- Movie Menu 3
- Custom White Balance option, 145
 - Picture Styles, 152–154
 - recording options, 185
- Movie mode. *See also* Video Snapshot feature
- AF settings, 179–180
 - audio level meter, 183
 - audio recording options, 183–184
 - background music, enabling, 188
 - battery issues, 21
 - default settings listing, 177
 - default settings, recording with, 176–177
 - Disp button, cycling views with, 178
 - exposure settings, 179
 - fast forwarding, 188
 - focusing, 176–177
 - frame viewing controls, 188
 - HD video choices, 182
 - Jump feature use, 196
 - Live View safety tips/warnings, 21
 - Live View usage, 22
 - manual focus, 135
 - maximum recording lengths, 177, 182–183
 - mode dial setting, 10, 177
 - MOV file format, 177
 - Movie Menu 1, customizing, 179–180
 - Movie Menu 2, customizing, 180–184
 - Movie Menu 3, customizing, 185
 - overheating warning/shutoff, 21
 - PAL versus NTSC Video Systems, 181
 - pausing, 188
 - Playback controls, 187–188
 - progressive versus interlaced video, 183
 - Quick Control button, 179
 - recording settings, viewing, 178
 - recording size options, 181–183
 - rewinding, 188
 - searching, 195–196
 - slow motion, 188
 - starting/stopping recording, 177
 - still photos, capturing during video
 - recording, 186
 - video editing, 188
 - volume control, 188

Movie Uploader for YouTube, 219

Movie-record button, 13, 177

movies

downloading via card reader, 223–225

downloading via USB, 220–223

editing, 257–258

erasing files, 212–213

Jump feature, 195–197

metadata viewing, 218–219

playback controls, 187–188

protecting/unprotecting files, 213–216

rating methods, 216–217

searching options, 195–196

single photo/movie, 214

trimming, 257–258

MP (megapixels), 43

music download utility, 188



neutral density (ND) filters

flash use, 60

graduated, 169

overview, 105, 169

Night Portrait mode, 73–74

noise (photos)

Auto Lighting Optimizer, 113

definition, 103

Digital Photo Professional correction options, 228

external flash controls, 238

Highlight Tone Priority issues, 110

ISO issues, 73

Live View/Movie modes, 21

long exposures, 169

reduction options, 103

noise issues (mechanical), 132, 238

NTSC, 181



One Shot mode (autofocus), 128

online content. *See* websites

online sharing, 230–231

on/off switch, 10

Operation Settings (Custom Functions menu), 17

overheating warning/shutoff, 21



P mode. *See* programmed auto mode

PAL, 181

panning, 165

pausing movie playback, 188

Peripheral Illumination Correction

non-Canon lenses, 116

overview, 115–116

Photobook Set-up option, 252

photos. *See also* flash; tagging files;

white balance

action shots, 163–167

basic settings, 158–159

car window shots, 173

close-up shots, 170–172

downloading software, 219

downloading via card reader, 223–225

downloading via USB, 16, 220–223

erasing, 212–213

experimenting, 4

Exposure Compensation button, 13

exposure mode settings, 10, 13–14, 36–37

Exposure Simulation, 24

file numbering, 31–32

file type recommendations, 51

file types, 46–51

folder options, 32, 241–242

glass, shooting through, 172

highlight issues, 206

histogram displays, 24, 202, 204

Image Quality settings, 40–42

image quality/playback number, 202

Image Review settings, 191–192

Jump feature, 195–197

landscape pictures, 167–170

magnification adjustment, 13

metadata viewing, 218–219

noise issues, 21, 73

online sharing issues, 230–231

overview, 55–56

picture data displays, 201–206

Picture Styles, 151–155

portraits, 159–163

printing, 248–249

protecting/unprotecting files, 213–216

rating methods, 216–217

red-eye reduction, 10, 19, 55–56, 162

- resizing, 230–231
- resolution choices, 42–46
- rotating pictures, 198–199
- searching, 195–196
- self-timer setting, 14
- shooting information display, 202
- shots remaining display, 22–23
- silhouette shots, 173–174
- single-frame versus continuous capture, 14
- slide shows, 252–255
- special effects, 249–252
- spot removal, 245–247
- still portraits, 159–163
- thumbnail viewing, 13
- tonal range, 207
- video recording, still photos during, 186
- white balance setting, 14
- zooming (playback), 200–201
- PhotoStitch, 219
- PictBridge, 249
- picture data displays
 - aperture setting (f-stops), 203, 205
 - Basic Information mode, 202–203
 - blinking spots, 209
 - bracketing, 205
 - brightness/RGB histogram swapping, 208
 - Date/Time, 204–205
 - exposure, 203
 - exposure information, 205
 - exposure mode, effect of, 202, 204
 - Eye-Fi cards, 205
 - file information, 202–203
 - flash, 205
 - Frame information mode, 203
 - Image Quality setting, 203, 206
 - information row explanation, 204–205
 - ISO setting, 205
 - overview, 201–202
 - Picture Styles, 205
 - Shoot by Ambience feature, 204
 - Shoot by Lighting or Scene Type options, 204
 - Shooting Information mode, 204
 - shutter speeds, 205
 - white balance, 205
- picture orientation
 - camera options, 198
 - overview, 198
 - playback options, 199–200
- Picture Style Editor, 219
- Picture Styles
 - Movie mode, 185
 - overview, 151, 155
 - picture data display, 205
 - Picture Style Editor, 155
 - Quick Control button versus Shooting Menu, 152
 - Raw files versus, 151, 154–155
 - settings, changing, 142–143
- pictures. *See* photos
- Playback button, 14
- Playback Menu 1
 - Creative Filters, 251–252
 - Photobook Set-up option, 252
 - printing from card/camera, 248–249
 - resizing images, 231
 - rotating pictures, 199
- Playback Menu 2
 - Jump feature use, 197
 - rating pictures/movies, 216–217
 - Slide Show option, 252–255
- Playback mode (movies)
 - control options, 188
 - overview, 187
- Playback mode (photos)
 - AE Lock button use, 192
 - data display options, 192
 - erasing files, 212–213
 - Image Review settings, 191–192
 - overview, 191
 - Q button use, 194–195
 - rotating pictures, 199–200
 - thumbnail viewing, 192–194
 - zooming options, 200–201
- Portrait mode
 - autofocusing, 70, 134
 - depth of field control, 69
 - flash control, 70
 - ISO control, 100
 - Landscape mode versus, 70
 - night portraits, 73–74
 - white balance control, 78

portraits

- autofocus recommendations, 161
- background position, 163
- bounce lighting, 162–163
- composition, 160
- depth of field choices, 159–160
- flash options, 160–161
- focusing, 161
- indoor lighting, 160
- lens focal length, 160
- night portraits, 73–74, 162
- red-eye reduction, 162
- shutter speed issues, 162

ports

- Digital terminal, 16
- HDMI terminal, 16
- port access door, 15
- remote-control terminal, 15–16

posterization, 49

Print Order option, 248–249

printing

- Color Space choices, 243–244
- cropping options, 160
- image quality settings, 230
- ISO considerations, 91–92
- JPEG choices, 47–48
- memory cards, 220, 223, 249
- Output Resolution setting, 229
- Raw file conversions, 49
- Raw file disadvantages, 228
- resolution choices, 43–46
- TIFF format advantages, 228
- USB connections, 249

programmed auto (P) mode

- aperture/shutter speed settings, 104
- exposure alerts, 97
- exposure controls, 100–103
- flash options, 52, 54–56, 61
- image quality settings, 40–42
- meter options, 96–97
- overview, 94

progressive video, 183

protecting files

- formatting warning, 214
- multiple photos/movies, 214–216
- overview, 213–214



Quick Control (Q) button

- AF mode settings, 129, 131, 134
- aperture/speed settings, 104
- Auto Lighting Optimizer, 114
- Automatic Exposure Bracketing (AEB), 121
- Creative Filters, 250–251
- Drive mode settings, 39–40
- exposure compensation, 107
- image playback options, 194–195
- ISO setting, 102
- Jump feature, 196
- menus versus, 25
- movie recording settings, 179
- picture settings adjustment, 14
- Picture Styles, 152
- Quick mode (autofocus), 134
- rating pictures/movies, 216–217
- resizing images, 231
- rotating pictures, 199–200
- Shooting Settings screen toggle, 158
- Video Snapshot enabling/disabling, 256
- viewfinder settings, 25
- white balance adjustments, 144–145



Raw files

- advantages, 49
 - converting to JPEG/TIFF, 219, 228–229, 230–231
 - disadvantages, 49–51
 - ICC Profile embedding, 229
 - Monochrome options, 151–152
 - overview, 48
 - raw converters, 49
 - White Balance Bracketing versus, 151
 - white balance settings, 154–155
- read-only files, 214
- red-eye reduction
- Creative Auto mode, 81–82
 - display (Camera Settings screen), 19
 - enabling/using, 55–56

- Full Auto mode, 66
 - overview, 10, 55–56
 - portraits, 162
 - Shooting Menu 1 access, 70–71, 82, 162
 - Reduce button, 13
 - registering
 - custom menus, 240
 - lenses, 116
 - Remember icon, explained, 3
 - reminder tips, 25
 - remote-control
 - blur reduction, 173
 - landscape pictures, 168
 - terminal location, 15–16
 - remote-control terminal, 15–16
 - resizing, 230–231
 - resolution choices
 - effect on photos, 43–44
 - megapixels, 43
 - online sharing issues, 230
 - quality settings table, 43
 - recommendations, 45–46
 - resizing, 230–231
 - rewinding movies, 188
 - RGB color mode
 - Digital Photo Professional controls, 227–228
 - histograms, 207–208
 - overview, 243
 - sRGB versus Adobe RGB color modes, 243–244
 - rotating pictures
 - camera options, 198
 - overview, 198
 - playback options, 199
- S •
- Scene Intelligent Auto mode
 - exposure settings, 66
 - Live View photography, 67–68
 - overview, 63–64
 - viewfinder photography, 64–67
 - viewfinder versus Live View, 64
 - Scene modes
 - autofocus options, 68
 - Close-up mode, 71–72
 - Creative Auto mode, 81–82
 - Effect level settings, 75
 - Landscape mode, 70–71
 - overview, 68
 - Portrait mode, 69–70
 - selecting, 68–69
 - Shoot by Ambience options, 74–77
 - Shoot by Lighting or Scene Type options, 77–78
 - “Shoot by” previews, 78–80
 - Sports mode, 72–73
 - Scenic pictures. *See* landscape pictures
 - screen options, 2
 - SD (Secure Digital) cards. *See also* memory cards
 - formatting, 30
 - overview, 8, 29
 - speed class designations, 29–30
 - UHS-1/UHS-2 memory cards, 30
 - searching (photos), 195
 - Self-Timer Drive mode
 - Beep Disable option, 238
 - settings, 39–40
 - self-timer function
 - Beep Disable option, 238
 - cross key controls, 14
 - Drive mode settings, 39–40
 - overview, 10
 - sensor cleaning, 245–247
 - Set button
 - customizing, 235–236
 - Flash Exposure Compensation, customizing for, 58
 - overview, 14
 - Quick Control (Q) button use, 25–26
 - settings adjustments
 - cross keys, 9
 - curved arrow, meaning of, 23
 - Setup Menu 1
 - Auto Power Off option, 10, 192
 - custom folder options, 241–242
 - Eye-Fi upload option, 31
 - image rotation adjustments, 198–199
 - memory card formatting, 30
 - overview, 31–32

Setup Menu 2

- Date/Time settings, 19, 205
- overview, 33–34
- reminder tips, toggling, 25

Setup Menu 3

- camera defaults restoration, 64
- Copyright Information feature, 247–248
- Flash button/ISO button toggling, 102
- Highlight Tone Priority feature, 110
- overview, 17, 34

sharpening (photos), 152**Shoot by Ambience feature**

- Creative Auto mode, 81
- overview, 74–77
- picture data display, 204
- previewing, 78–80

Shoot by Lighting or Scene Type feature

- options, 204
- overview, 77–78
- previewing, 78–80

Shooting Information display. *See* picture data displays**Shooting Menu 1**

- AF mode settings, 131–132
- Beep Disable option, 125, 132, 238
- flash control options, 57–58
- Image Quality settings, 41–42
- Peripheral Illumination Correction, 116
- Red-Eye Reduction, 56, 70–71, 82, 162
- Release Shutter without Card option, 66, 238

Shooting Menu 2

- Auto Lighting Optimizer, 114
- automatic exposure bracketing, 118–121
- Color Space options, 227, 243
- Exposure Compensation setting, 107
- exposure indicators, 121
- grid displays on/off, 24
- Image Review option, 191
- Live View enable/disable, 20
- Metering mode access, 99
- Picture Styles, 152–154
- white balance adjustments, 145–148
- white balance bracketing, 148–151

Shooting Menu 3

- Copyright Information feature, 247–248
- Dust Delete Data feature, 245–247
- ISO setting, 101

Shooting Menu 4

- AF mode settings, 131–132
- Live View enable/disable, 20, 67
- Metering Timer option, 25

Shooting Settings screen

- AF Mode display, 128
- Auto ISO settings indicators, 101
- Auto Lighting Optimizer indicator, 113
- battery/memory card monitoring, 23
- creative adjustments, 81
- Drive mode icon, 38–39
- example, 158
- Exposure Compensation value indicator, 107–108

exposure meter display, 95–97**exposure shift indicators, 121****flash compensation display, 58–59****flash settings, 54****f-stop display, 160****Highlight Tone Priority indicator, 111****Image Quality display, 40****ISO display, 101, 165****metering mode icons, 97–98****overview, 22–23, 158–159****Picture Style display, 152****Q button, shifting displays with, 26, 158****Quick Control button use, 25–26****Set button customization, 236****shots remaining display, 22–23****shutter button on/off control, 23, 33****shutter speed display, 160, 165****viewfinder versus Live View, 22****White Balance Bracketing display, 147, 150****White Balance setting display, 143****short back focus (EF-S) lenses, 9****shutter button****Auto mode use, 65****autofocus issues, 66****autofocus/autoexposure use, 11, 126, 236–237****customizing, 236–237****exiting menus with, 19****manual versus automatic, 125****menu options, 33****overview, 11**

- Release Shutter without Card option, 66, 238
 - Shooting Settings display on/off, 23
 - viewfinder display wake-up, 23
 - shutter speeds
 - action shots, 163–165
 - Advanced Exposure modes, 104–105
 - aperture setting versus, 93
 - aperture/shutter speed settings, 104–105
 - blurring, 55, 62, 89–93, 126
 - burst mode (continuous), 37
 - close-up shots, 171
 - flash options, 52–55, 60, 62
 - flash recommendations, 52–53
 - Night Portrait mode, 73
 - picture data display, 203, 205
 - portraits, 162
 - recommendations, 93
 - Sports mode, 72–73
 - Viewfinder photography, 64
 - viewfinder/monitor displays, 95–96
 - shutter-priority autoexposure mode.
 - See Tv mode
 - silhouette shots, 173–174
 - Slide Show option
 - background music, 255
 - choosing photos, 253–254
 - overview, 252
 - playback controls, 255
 - repeat, enable/disable, 254
 - thumbnail selection, 253
 - timing settings, 254
 - transitions, 255
 - slow motion option for movies, 188
 - software
 - Canon EOS Utility, 219, 221–223
 - Canon ImageBrowser EX, 218
 - Dust Delete Data feature, 245–247
 - installing, 219
 - Movie Uploader for YouTube, 219
 - PhotoStitch, 219
 - Picture Style Editor, 219
 - updating, 219
 - speaker, 11, 12
 - Sports mode, 72–73
 - sRGB color mode
 - Adobe RGB color mode versus, 243
 - disadvantages, 243
 - file names, 244
 - overview, 243
 - STM (stepping motor technology)
 - feature, 9
- T •
- tagging files
 - camera orientation, 198
 - Copyright Information feature, 247–248
 - erasing images, 213
 - Photobook Set-up option, 252
 - Picture Styles, 155
 - Technical Stuff icon, explained, 3
 - telephoto lenses, 29
 - thumbnails
 - AE Lock button use, 13, 192
 - Digital Photo Professional use, 225–226
 - erasing files, 212
 - histogram blinking, 206
 - image selection, 193
 - overview, 192
 - picture data displays, 204
 - reducing display number, 194
 - screen scrolling, 194
 - TIFF files
 - advantages, 228
 - converting from Raw files, 219, 228–229
 - converting to JPEG, 230–231
 - printing quality, 228
 - Time Zone setting, 33
 - Tip icon, explained, 3
 - trimming movies, 257–258
 - tripod
 - action shots, 165
 - blur warning, 21, 28, 66
 - camera shake issues, 21
 - landscape pictures, 168
 - Night Portrait mode, 73
 - portraits, 162
 - socket location, 16
 - Tv (shutter-priority autoexposure) mode
 - aperture/shutter speed settings, 104
 - exposure alerts, 97
 - flash options, 52, 54–56, 61
 - image quality settings, 40–42
 - meter options, 96–97
 - overview, 94

• U •

UHS-1/UHS-2 memory cards, 30
 unprotecting files, 213–216
 USB connections
 downloading files, 220–223
 overview, 16
 printing from, 249

• V •

vibration compensation. *See* Image Stabilization
 video. *See* Movie mode
 Video Snapshot feature
 album saving options, 256
 audio recording, 257
 autofocusing, 257
 enabling/disabling, 256
 playback options, 257
 video album requirements, 255–256
 viewfinder. *See also* Auto mode
 adjusting, 9–11
 autofocusing, 64–65, 124–125
 cover usage, 21
 display wake-up (shutter button), 23
 framing photos, 14
 light issues, 21
 Live View mirror action, 20
 Live View, returning from, 21
 manual focus, 125
 monitor versus, 22
 movie recording, disabled for, 20
 Shooting Settings screen, 22
 vignetting
 definition, 114
 Peripheral Illumination Correction, 115–116
 volume control (playback), 188

• W •

Warning! icon, explained, 3
 web pages. *See* websites

websites

 Canon online, 259
 Eye-Fi cards, 34
 firmware updates, 34, 259
 online book content, 3
 tutorials, 259

white balance

 adjusting, 227
 AWB setting, 25–26
 bracketing shots, 148–150
 checking settings, 143
 cross key controls, 14
 Custom White Balance option, 145–146
 Digital Photo Professional controls, 227
 DISP button usage, 19
 mixed lighting issues, 162
 Movie mode, 185
 outdoor flash use, 60, 162
 overview, 141–142
 picture data display, 205
 Raw image settings versus, 151
 “Shoot by” features versus, 142
 Shoot by Lighting or Scene Type options, 77–78
 viewfinder adjustments, 14
 WB button use, 144
 White Balance Correction adjustments, 147–148
 White Balance setting, 77–80
 White Balance Shift/Bracketing display, 19
 wide angle lenses, 29
 Wind Filter (Movie mode), 184

• Z •

zooming

 background blurs, 82
 close-up shots, 171
 focus check usage, 135–136
 overview, 28
 playback options, 200–201

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Dedication

For my family,

Robert

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