Nikon D7100 Experience

The Still Photography Guide to Operation and Image Creation with the Nikon D7100

an e-book by:
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Full Stop. *good writing for better photography*

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1. INTRODUCTION

The introduction of the Nikon D7100 brings about a worthy upgrade to the popular and well-respected D7000. Boasting an improved 24.1 megapixel DX format image sensor, a sophisticated 51 point autofocus system with 15 central cross-type points, and the rapid 6 frames per second continuous shooting speed in DX mode, the D7100 will enable photographers of every level to consistently capture sharp, clean, and well-exposed images in most any shooting situation. Its upgraded features make it particularly well-equipped for photographers capturing action and movement including sports, wildlife, and birds.

With this new image sensor, Nikon has done away with the optical low pass filter - a choice which potentially delivers higher image resolution when using high-quality lenses in controlled situations (though at the risk of increased *moiré* when capturing fine pattern details). And its high ISO capability will result in decreased digital noise in low-light situations. The optional 1.3x crop mode of the D7100 will allow you to use a 15 megapixel portion of the sensor to "extend" the reach of your telephoto lenses in order to get closer to the action, as well as fill the active frame with the 51 Focus Points. This will allow you to more accurately track moving subjects across nearly the full width of the frame. And the continuous shooting speed even increases from 6 frames per second (fps) to 7 fps when working in the 1.3x crop mode.

Figure 1 - Detail of the Nikon D7100 digital SLR

The versatile D7100 autofocus system works hand-in-hand with the 2016 pixel RGB metering sensor for accurate exposure metering, subject tracking, white balance, and iTTL flash metering. While an added [i] Button allows quick access to the Information Display screen in order to access and change numerous important shooting settings, as well as access relevant functions during Live View shooting or Image Playback.

All of these features are contained in a ruggedly built body with a magnesium alloy frame, dual SD memory card slots, a big and bright 100% Viewfinder, a high resolution 3.2" LCD monitor to accurately view your images and Live View scenes, remote Speedlight flash control, full HD video capabilities, fast Expeed 3 processor, and numerous customization options to set up the camera to best work for you. In fact the rear LCD Monitor has been significantly upgraded from an RGB to an RGBW (white) screen that is brighter, clearer, and with better colors. The screen's new integrated structure now has no gap between elements, in order to further reduce reflections. Plus Nikon has added wireless capabilities for image sharing and camera control through a smart phone or tablet with the use of the optional *WU-1a Wireless Adapter*. The Nikon D7100 is clearly a powerful, advanced tool for digital photography and is fully capable of capturing professional quality images in most any situation you wish to use it.

But it is merely a tool. It is up to you to make use of its features and capabilities to create the images you envision. While the camera's manual can tell you about all the settings and controls, how to change them, and their intended function, this guide will build upon that and tell you when and why you want to use them. Every button, menu item, and Custom Setting of the D7100 is there for a reason: to help you capture the images you want. Some of them are more useful to different types of photographers and shooting situations and you don't necessarily need to learn and use them all immediately, but this guide should help to give you the knowledge to confidently use the ones that turn your Nikon D7100 into an image capturing tool that works best for you.

Figure 2 - Flower, Cambridge, MA - Autofocus modes, exposure metering mode, aperture, shutter speed, ISO, and white balance all considered even in creating this simple image. Shutter speed 1/320, aperture f/4.5, ISO 100.

1.1 Take Control of Your Camera

Since the camera is a tool to take the images you want to take, you obviously can't always allow the camera to make decisions for you. You have to take control of the camera to ensure that you capture exactly the images you seek - by autofocusing precisely where you intend, setting the aperture or shutter speed that you want, and obtaining the exposure you desire. While the D7100 is an intelligent camera, it cannot read your mind and your intentions and does not know that you wish to focus on and properly expose the yellow flower in the foreground, while making the background appear out of focus, and the flower petals to be caught still and not be blurred from the motion of the wind, on this bright, sunny day (see *Figure 2*). You have to tell the camera to do all of this, through the various controls and settings, such as the Autofocus Mode and AF-Area Mode (lock focus on the center of the flower), the exposure metering mode (properly expose the petals), the aperture setting (the out-of-focus background), the shutter speed (freezing the motion of the flower from the wind), the ISO (bright day) and the white balance (sunny day). Taking control of all of these functions and settings will enable you to consistently create the dramatic and compelling images you envision.

Learning to use and get the most out of an advanced digital SLR (dSLR) camera like the D7100 takes time, practice, patience, mistakes, and experimentation. If you have upgraded from a previous dSLR such as the D90 or D300 (or one of their

predecessors), or from the D5100 or D3100 to the D7100, you are in for a treat. Its 24.1 megapixel sensor will deliver extremely high quality images and its features and controls will help you to successfully capture scenes and situations that you may have been limited in consistently attaining before. Its versatile and accurate autofocus system coupled with its fast continuous shooting speed, plus its exposure metering system and high ISO capabilities will help you get sharp images of subjects and moments that previously you may have missed, especially in action and low light scenes.

If you are relatively new to dSLR photography and are still in the process of learning all the controls of a dSLR and the exposure concepts of digital photography, you have perhaps jumped right into the proverbial deep end of the pool by choosing the advanced D7100! But don't worry, this book will help guide you through its features, controls, and capabilities. Be sure to take it slowly and patiently as you learn the features and concepts that I will explain. With practice and experience you will soon be shooting with confidence and can begin to take advantage of the camera's more advanced functions. Even if you are an intermediate photographer, don't expect to just pick up all the new information at once, in one or two readings of a single book. (In fact, you wouldn't want to, as the never ending journey of learning and mastering photography is a big part of what it's all about!) Try not to become frustrated if you don't quite understand something or aren't always getting the results you desire. Instead learn the controls, functions, settings, and concepts bit by bit, try them out in real life shooting situations, and return to this guide, the *Nikon D7100 User's Manual,* and other photography books to address questions and problems you encounter. Continue to learn and to photograph often and it should all begin to come together, sometimes slowly and sometimes in rapid bursts of discovery and understanding.

1.2 Using This Guide

There are many different ways to use a dSLR camera and its controls to capture images, and many diverse situations in which photographers work. I'm going to concentrate on the techniques that I believe are the most practical, useful, and effective for the majority of enthusiast photographers using the D7100. The settings and techniques I discuss can apply to various types of photography including general photography, action, portrait, and travel photography. Once you have a firm grasp of the controls, settings, and basic techniques you will have the tools and knowledge to address different issues, specialized situations, and challenging scenes. I encourage you to then experiment and continue to learn, and to find the techniques that work best and are most comfortable or intuitive for you.

Since this guide is intended to help you get the most out of your D7100, I will not go into detail about all of the automatic features or Auto and Scene Modes. The D7100 is a highly sophisticated tool that deserves to be used to its full potential, and that involves taking control of the camera and its functions, which means taking it off Auto, off Program, and off automatically selected autofocus points (when not needed). While this may be more challenging at first, these are the techniques that are necessary to take full advantage of the capabilities of any dSLR including the D7100, and will lead you to

having more control and consistency over your image making. Hopefully this will inevitably lead to better images!

This guide is intended to be used with the camera in your hands. That is the best way to directly follow and understand the controls, functions, and settings as they are being explained. It is also intended to be used in conjunction with and in addition to the camera's manual, not to completely replace it, so every bit of information in the *Nikon D7100 User's Manual* will not be repeated here. Among the official manual's often brief descriptions and sometimes frustratingly incomplete and disjointed explanations, there is some very valuable information, as well as the basics for buttons, controls, and how to access and change all the settings. Note that the *D7100 User's Manual* can also be obtained as a PDF file from the Nikon website:

http://support.nikonusa.com/app/answers/detail/a_id/18247

As you can see, there is a lot to make sense of regarding terminology and controls, so I recommend that you familiarize yourself with the controls and displays of the camera body, as shown on pages 2-12 of the *D7100 User's Manual* (and explained in the **Camera Controls** chapter below), as well as read through the manual at some point and attempt to understand or absorb as much as possible. Yes, much of it may be complicated and confusing at first, but this guide will explain and clarify the numerous buttons, controls, menus, and settings and explain when and why you will want to use them in your photography. Also be sure to read the safety warnings and notices in the *Nikon D7100 User's Manual,* including pages xxi-xxvi, 160, 168, and 318-320.

Various settings of the Nikon D7100 can be controlled in multiple ways including using the buttons and Command Dials on the camera body while reading the settings on the top Control Panel, in the Viewfinder, or on the rear Information Display. Or through the menus accessed with the Menu Button and Multi Selector thumb pad and read on the rear LCD Monitor. Explore the options (which will be explained throughout this guide) and find the ways that work most quickly and intuitively for you.

Figure 3 - Detail of the Nikon D7100 digital SLR

Any time I capitalize something in the text it is a proper term that can be looked up in the *Nikon D7100 User's Manual*. I will capitalize the names of actual buttons, controls, camera parts, and menu items, such as Function (Fn) Button, Main Command Dial, Monitor, and Format Memory Card. Again, please review the camera body and display diagrams in your *D7100 User's Manual* and in the **Camera Controls** chapter of this text to familiarize yourself with the names of the various parts, controls, and displays, as I will use these proper names in this text. Words that are capitalized and bold refer to chapters and sections within this guide, such as **Menus and Custom Settings**. Turn on the bookmarks or contents navigation panel in your PDF viewer or access the Table of Contents of your e-book reader to quickly navigate to these different sections.

Many of the functions and controls of a dSLR such as the D7100 are closely inter-related, such as the shooting mode, exposure settings, and the metering mode. As a result of this I must sometimes refer to previous or upcoming sections of the text for further explanation of a related function. It is best to read through the entire text, in the order it is organized, before returning to specific sections for further study. It may take multiple readings followed by experimentation to fully understand both the individual functions and the relationships between functions.

3. MENUS and CUSTOM SETTINGS

3.1 Setting Up the D7100

The Menus and Custom Settings of the Nikon D7100 allow you to have greater, more precise control over how your camera functions. They are an important part of what makes the D7100 a much more powerful and exacting tool than the D3200 or D5200, and they allow you to customize the camera to work for you, to work how *you* work. Using them you can also fine-tune settings and operations including white balance, metering, exposure, and autofocusing. I highly recommend that you carefully go through these menus and change the settings to the options that allow you to use the camera in the manner that works best for you.

Some of the Menu items are only used when shooting, reviewing, or processing images, but several of them should be set up in advance. Below are explanations and recommended typical settings for the Menus and Custom Settings of the Nikon D7100. Please note that this guide will go into further detail about most of these settings and functions later in the applicable sections (such as **Autofocusing** or **Metering Modes**, etc.) so don't get overwhelmed if you don't yet understand the settings or terminology used to describe the Menu and Custom Settings and their options. You will likely wish to return to them later after you have begun to better understand your camera and its controls and start to determine how you want to work. Also, if you don't yet understand some of the settings or why you might wish to change them, leave those on the default settings for now as you set up your camera. If you have worked with a Nikon D7000 or D600 body before using the D7100, you will find that many of these Menus and Custom Settings options are similar, and you may wish to continue to use most of the same settings that you have determined work best for you.

Important Note: As with most current dSLR cameras, the D7100 has a couple menu settings and function "quirks" or conflicts that may drive you crazy if you are not aware why they are occurring. Most notably, some settings will be greyed-out or inaccessible in the menus and you will not be able to select them when working in one of the auto shooting modes, if not using an optional accessory, or if a "conflicting" setting is enabled. An example includes HDR shooting, which is not accessible when the camera is set to capture files in the *(NEF) RAW* or *(NEF) RAW+JPEG* image formats. Or, since White Balance Bracketing and RAW format are incompatible, if the camera is set for White Balance Bracketing and *(NEF) RAW* or *(NEF) RAW+JPEG* image formats, the BKT Button will not allow you to access bracketing. These are actually not arbitrary quirks, but are typically logical conflicts. I will mention these conflicts in the applicable settings.

Place your Mode Dial on A (Aperture-Priority Auto Mode) before you go through these settings because they all may not be accessible in the Menus if your camera is set on one of the Auto, Scene, or Effects Modes.

3.2 Playback Menu
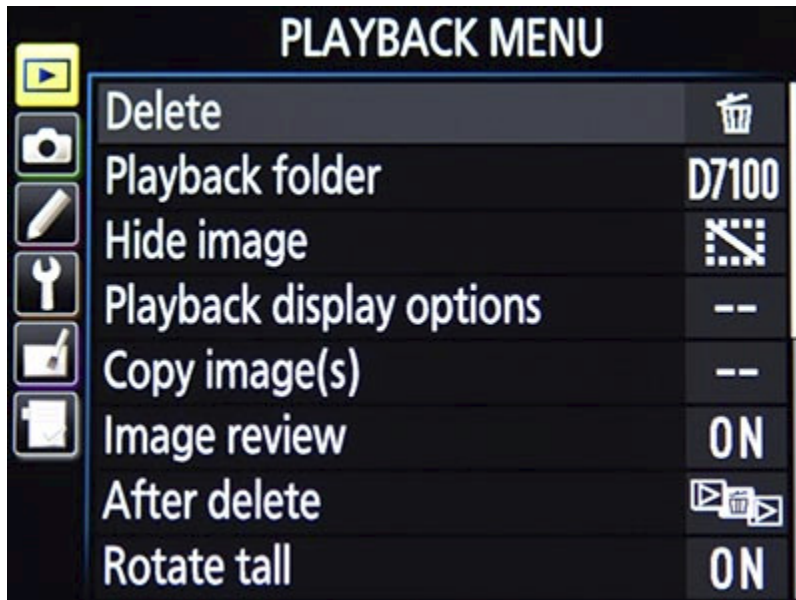
Figure 19 - Playback Menu.

Delete
Use this to delete a single image or selected group of images (*Selected*), all images taken on a specific date (*Select date*), or all images in the current playback folder on the selected memory card (*All*) (see *Figure 20*). If you choose *Selected,* you can press and hold the BKT Button and press up on the Multi Selector to switch between memory cards, as you can only access the images on one memory card at a time. If you select *All* and you have two memory cards inserted, you will be prompted to choose which memory card to delete by selecting *Slot 1* or *Slot 2*. Set the Playback Folder menu item (explained next) to determine which images are included in the current playback folder for when you use the *All* option.

However, if you are deleting a single image or just a few, you can more easily do this using the Delete Button on the rear of the camera. If you are deleting all the images on a card, it is better to use Format Memory Card (see **Setup Menu** below). Use large enough memory cards so that you don't need to worry about deleting images in-camera while working, and instead it may be best to manage them on your computer after downloading all the images and viewing them full size.
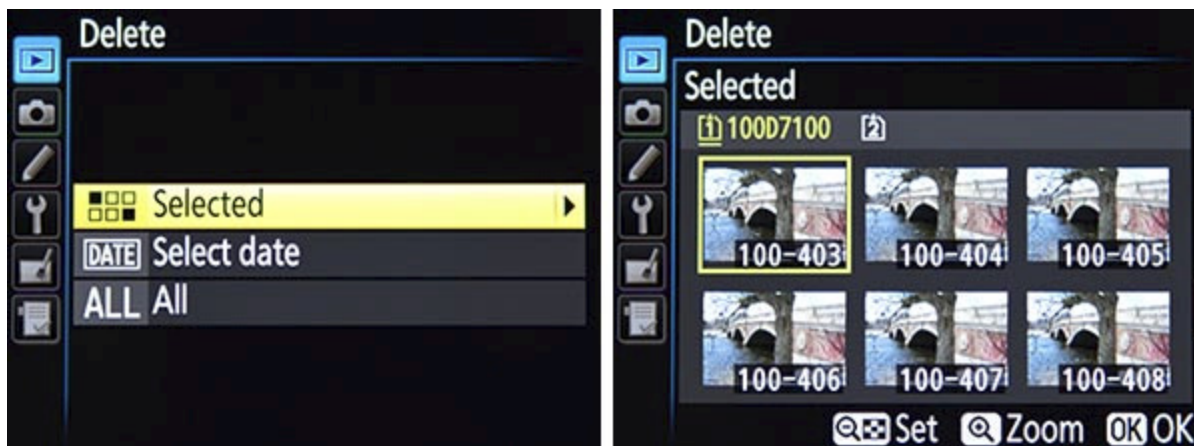
Figure 20 - Delete menu options (left), and selecting the image or images to delete (right). Press and hold the BKT Button and press up on the Multi Selector to choose the active memory card. Memory card slot 1 is shown as the active card here.

Playback Folder
This sets which images will be visible during Playback (see *Figure 21*). Leave on the default setting, *D7100* and all the images taken with this camera will be visible. If you are sharing memory cards between different cameras (which is not at all recommended as it may lead to confusion and file management headaches) then you can select *All*, and all images in all folders will be shown. If you just wish to view only the images in the current folder, select *Current*. You can select and create individual folders for organizing your photos in the Storage Folder item in the Shooting Menu. Most users will likely wish to leave this set for *D7100*.
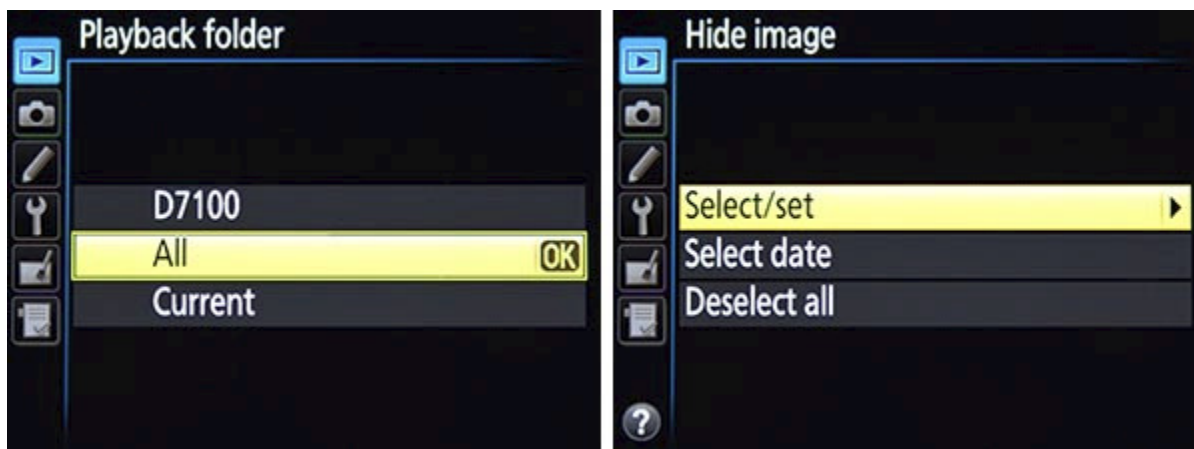
Figure 21 - Playback Folder options (left), and Hide Image options (right).

Hide Image
This is used to hide images from view during playback, which could help prevent accidental erasing of that image. You can select the images to hide using *Select/set*, or choose to hide all images taken on a specific date by using *Select date* (see *Figure 21*). Be aware that hidden images will be deleted by formatting the memory card. View all the previously hidden images by choosing *Deselect all*, which will also remove

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protection from images that you previously chose to Protect. It is typically best not to use this feature so that you don't lose track of any of your images and accidentally erase hidden images when formatting a memory card.

Playback Display Options
During image playback on the rear LCD Monitor you can scroll through various information displays in order to view your images either full screen or with various shooting data or histograms (see *Figure 22*). This menu item is used to select which of these optional views will be available during playback. I recommend that you select all of the *Additional photo info* options, at least initially. Then after some use you can determine which information views you prefer and deselect the ones you don't need.
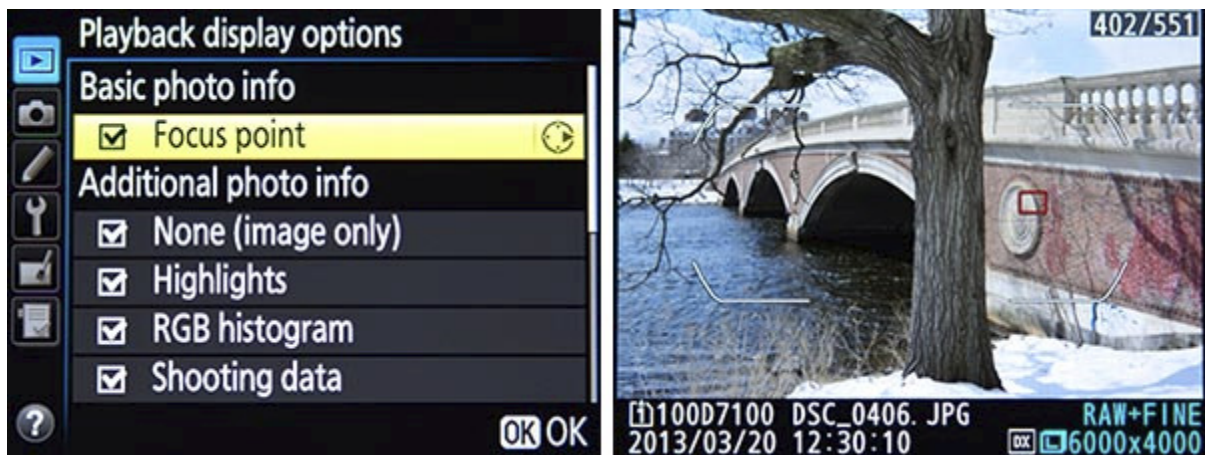
Figure 22 - Playback Display Options, allowing you to select which information and displays are available to view during image playback (left). Focus Point display option shown enabled (right), as seen by the small red square and the autofocus brackets displayed on the image during Playback.

These will be explained and illustrated in the **Image Playback** section, but here is an introduction to the various views:

None (Image only) will display a full screen image with no information, which helps you to inspect the image. *Highlights* will display blinking areas to alert you of where the image has been overexposed, which can help you determine the proper exposure for the subsequent shots. *RGB histogram* will display histogram graphs of the various color channels to also assist you in determining proper exposure (see *Figure 23*). This one may actually be optional if you do not yet make use of individual color channel histograms. *Shooting data* displays additional information including the lens and focal length used, flash information, and Picture Controls settings (see *Figure 23*). This screen is not necessarily very informative immediately after taking the shot since you already know most of these settings, but can be handy when later reviewing an image in-camera.

Figure 23 - RGB Histogram view during image playback (left). By pressing the Zoom-out Button and pressing right or left on the Multi Selector you can view the blinking highlights of the separate R, G, or B channels. The R-Red channel histogram is shown highlighted here. Right: Shooting Data view.

Overview displays a thumbnail of the image along with the RGB histogram and shooting information (see *Figure 24*). This is perhaps the most important and useful information screen to use while shooting to help determine that you obtained the proper or desired exposure of an image. All the pieces of displayed information in these various information screens and why they are important will be discussed and explained throughout the guide, particularly in the **Exposure** chapters and in the **Histogram** section.
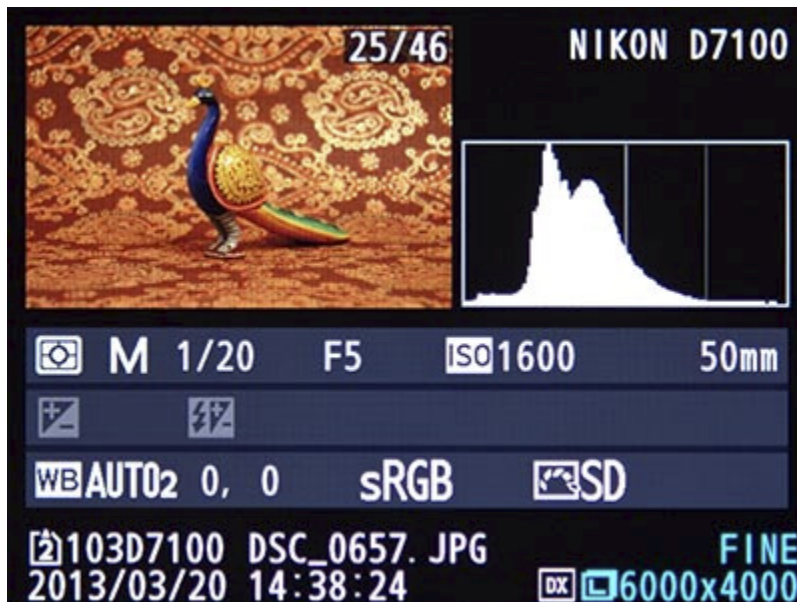

Figure 24 - The Overview information display screen during image playback, showing a thumbnail of the image along with the RGB Histogram and shooting and file information.

Focus point will show you which Focus Point was used when capturing an image, and will thus verify if you properly focused where you intended (unless you recomposed

c5: Remote on duration (ML-L3)
If you are using the optional *Nikon ML-L3 Wireless Remote Controller* you will need to set how long you want the camera to be on standby and the exposure meter to remain active (see *Figure 64*). You can set for *1, 5, 10,* or *15* minutes. Although shorter times will save battery life, 5 minutes (or more if necessary) will most likely prove to be a more reasonable time for setting up shots and working with the remote.

d - Shooting/Display
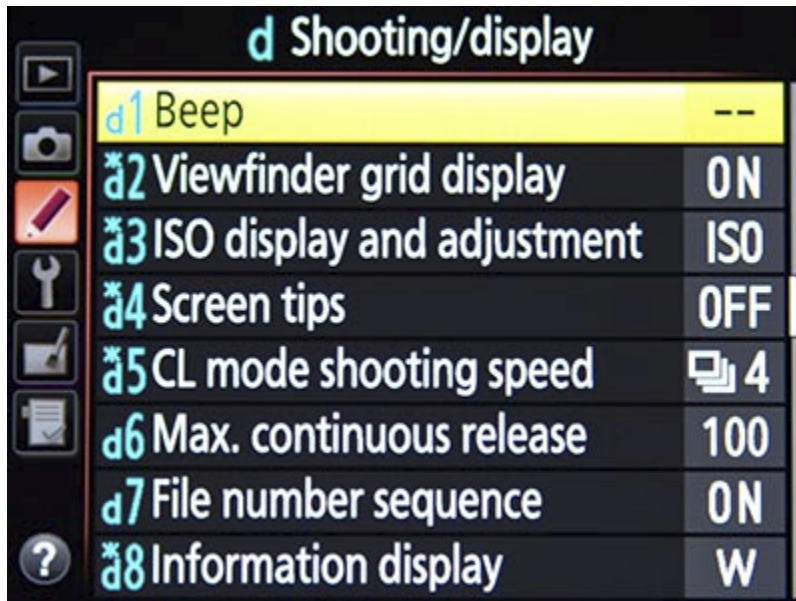
Figure 65 - Shooting/ Display Custom Settings Menu.

d1: Beep
This is used to customize the *Volume* (*1, 2,* or *3*) and the *Pitch* of the beep (*High* or *Low*) that the camera makes for various operations such as focus lock, self-timer countdown, and remote shutter release. You may prefer to set this for *Off* if you find the beeps unnecessary or distracting in certain shooting situations.

d2: Viewfinder grid display
This setting is to display grid lines in the Viewfinder (see *Figure 66*). These can be very helpful for keeping your framing and your horizons straight and level. However, note that it is not exactly a "rule of thirds" grid, so make sure it doesn't throw off your compositions (more about the rule of thirds in the **Composition** chapter). If you turn this on, you may find the Viewfinder to look busy with information and distracting at first but you should soon see that your eye typically looks past the grid and is not distracted by it, and can make use of it when needed. You could also set the Fn Button or Depth-of-Field Preview Button to turn on and off this *Viewfinder grid display* if you wish, using Custom Setting f2 or f3.

Figure 66 - Simulated view of Nikon D7100 Viewfinder, showing the optional Viewfinder Grid Display as well as a selected single Focus Point. Background image of Nikon F shown at 50% opacity to better see Viewfinder elements.

d3: ISO display and adjustment
This setting is used to choose if you want either the ISO setting or the frame count (remaining exposures) displayed on the top Control Panel (see *Figure 67*). It is often more important to be aware of your ISO setting than your frame count, especially if you are using larger capacity memory cards and/ or two cards, so the *Show ISO sensitivity* option is typically recommended. Choose *Show frame count* if you prefer the number of remaining exposures to be shown, but note that the frame count can be viewed on the Information Display screen.

If you prefer to directly change the ISO setting with a Command Dial without having to also press the ISO Button, then select *Show ISO/Easy ISO* here. Note that you cannot simultaneously make use of both this setting (d3) and Custom Setting *b3: Easy Exposure Compensation*. Adjusting one will reset the other. If you wish to make use of one of the "Easy" options, determine which setting you prefer to access and change more quickly while shooting. Know that setting either *Easy ISO* or *Easy Exposure Compensation* could also easily result in you sometimes changing that setting accidentally with a turn of the dial, so you may wish to avoid either of the "Easy" options and instead require yourself to also press a button when making the adjustment, at least when first using the camera.
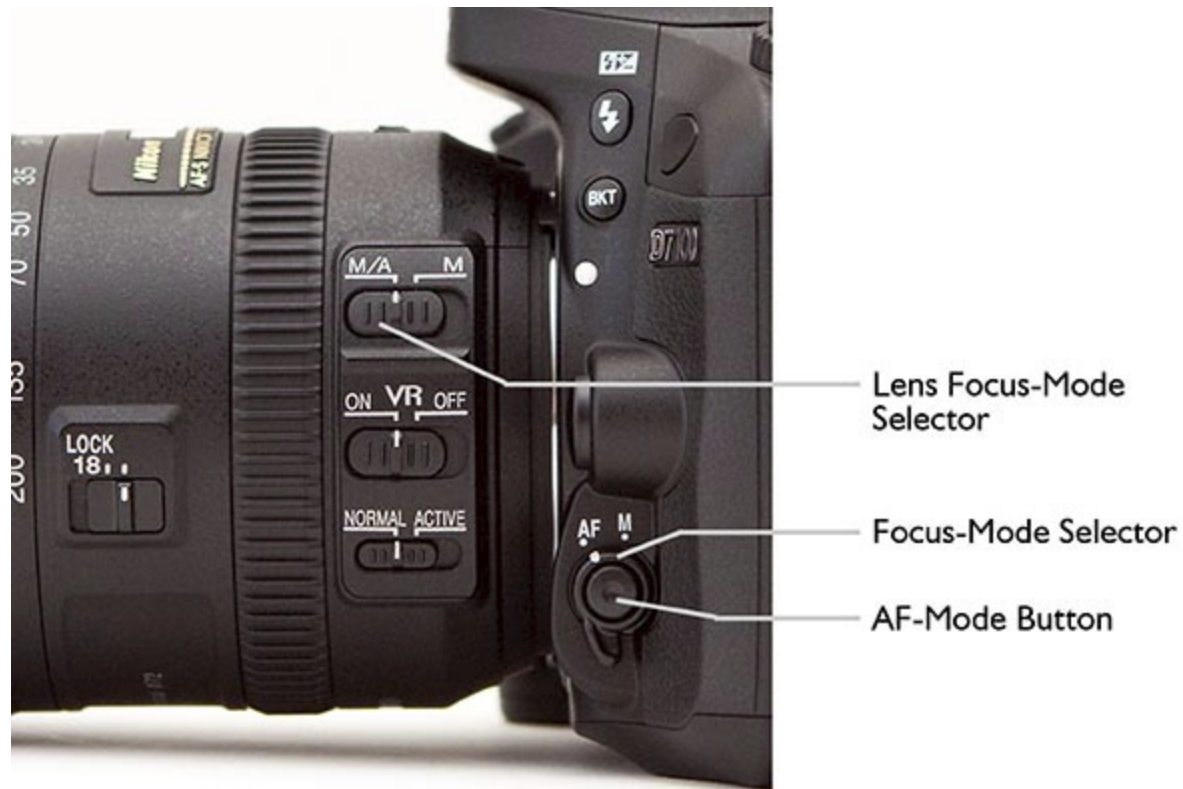
Figure 135 - Additional autofocus controls of the D7100.

1. Set the Mode Dial to P (Program).

2. Tap the Shutter Button with a half-press to wake up the camera and start the exposure metering.

3. Looking through the Viewfinder, use the Multi Selector to select the Focus Point that is nearest to where you want to focus.

4. Place that point over your intended subject.

5. Press and hold the Shutter Button halfway down and see that point blink red. The Focus Indicator should light up in your Viewfinder. You have locked the focus.

6. Keeping the Shutter Button pressed halfway, recompose if necessary, and take the shot by fully pressing the Shutter Button.

If the In-Focus Indicator does not light up and the camera does not take the photo, the camera may not be finding something to focus on, may not be finding enough contrast to lock in on, or you may be too close to your subject for the lens to focus.

There are reasons to make use of all the Focus Points and not just the center one all the time, which will be discussed. It may sound difficult to manually select the Focus Point each time, but it is actually very quickly done and will become instinctive. You may even start to set your AF point as you approach a scene before even bringing your

camera to your eye, using your thumb on the Multi Selector. But if you wish, you can start by always using the center point and recomposing before taking the shot. And remember that Custom Setting *a6: Number of Focus Points* allows you to limit the number of selectable points to *11 Points* to perhaps make this process more manageable.

5.2 Autofocus Modes

The D7100 has three different Autofocus Modes to choose from, typically depending on if your subject is still or if it is moving and you wish to track its movement and remain continuously focused on it. It also has four different autofocus AF-Area Modes (discussed in the next section) to specify how many of the Focus Points are active and how they follow or track a moving object. You can set these two functions in various combinations. First the Autofocus Modes. Select the Autofocus Mode by pressing the AF-Mode Button (the button located inside the Focus-Mode Selector switch that says *AF M* on the camera body near the base of the lens) and rotating the Main Command Dial (the rear dial) while monitoring the settings on the top Control Panel or in the Viewfinder. If the Information Display is turned on by pressing the Info Button, you can also view the setting on the Information Display (See *Figure 136*).

Single-Servo AF (AF-S)

Use this mode when your subject is stationary, or is still and not going to move, or if your subject is not going to move very much, or if the distance between you and the subject is not going to change between the time you lock focus, recompose, and take the shot (see *Figure 136*). Lock focus on the subject by half-pressing the Shutter Button and recompose if necessary. This mode can even be used for moving people or subjects if you quickly take the shot after establishing or locking focus. When using AF-S, you can select from two AF-Area Modes, either Single-Point AF where you select the Focus Point, or Auto-Area AF, where the camera selects the AF point(s) for you. I suggest you nearly always select your own desired Focus Point so that the camera autofocuses exactly where you want it to.

Figure 136 - Viewing and changing the Autofocus Mode and Autofocus AF-Area Mode on the rear Information Display, by pressing the AF-Mode Button and turning the Command Dials. AF-S and Single-Point AF shown here.

As noted above, focus on your subject by pressing the Shutter Button halfway. The active AF point will illuminate (blink), and the Focus Indicator light at the lower left in the Viewfinder will illuminate as well. Continue to press the Shutter Button all the way to take the shot. If you half-press the Shutter Button to lock focus on your subject, the camera will remain focused at that distance as long as you keep half-pressing the Shutter Button. You can recompose the shot as you wish and then fully press the Shutter Button to take the photo. Again, if the Focus Indicator light does not light up and the camera does not take the photo, the camera may not be finding enough contrast to focus on, you may be too close to your subject for the lens to focus, or the lighting may be too dim for the AF system to work well.

However, if you are photographing a subject that is approaching or receding from view at a relatively constant rate, or photographing fast or erratic or unpredictably moving subjects, or photographing sports, action, or wildlife you will usually want to use Continuous-Servo AF (AF-C) Autofocus Mode.

Continuous-Servo AF (AF-C)

This mode, used in conjunction with the various AF-Area Modes, can help you to capture sharp images of action and motion (see *Figure 137*). To take full advantage of this mode you will need to also understand the AF-Area Modes, as described in the **Autofocus AF-Area Modes** section just below. Continuous-Servo AF mode is used for tracking and focusing on moving subjects, and is ideal for capturing sports and wildlife including birds. If the subject is moving towards you or away from you, the camera will keep evaluating the focus distance. And if the subject is moving from side to side or throughout the frame, the camera can track it as it passes from one AF point to other ones (depending on the selected AF-Area Mode). Custom Setting *a3: Focus tracking*

with lock-on will even allow you to tell the camera exactly how fast to react to changes in focus distance, such as new subjects that come into the frame or pass between you and your subject.
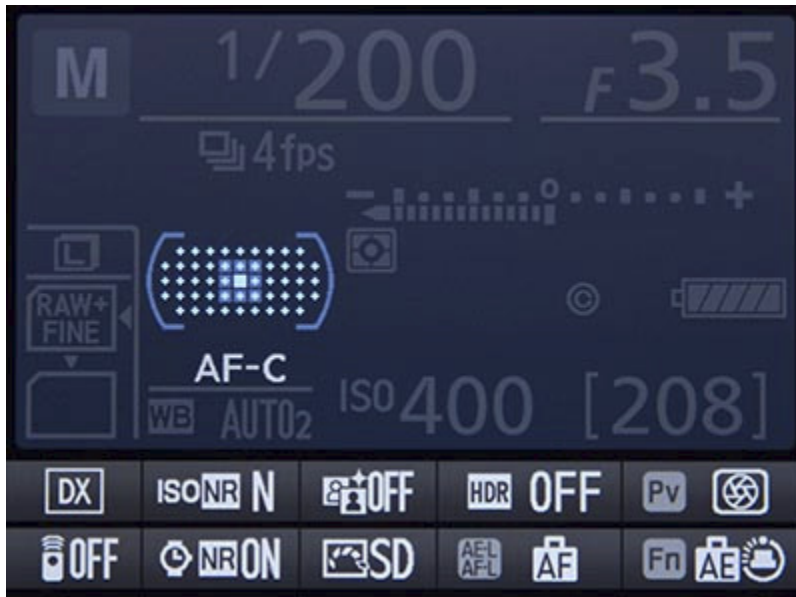

Figure 137 - Viewing and changing the Autofocus Mode and Autofocus AF-Area Mode on the rear Information Display, by pressing the AF-Mode Button and turning the Command Dials. AF-C and 9-Point Dynamic-Area AF shown here.

You first need to select which Focus Point the camera uses to start tracking the subject, place that point over the subject, and press the Shutter Button half-way. Then as long as you keep the selected AF point on the subject and the Shutter Button pressed half-way, the camera will continuously evaluate the focus distance to the subject so that it will be in focus when the shot is taken. If the subject is going to be difficult to follow or keep located as a single AF point, you can make use of the Dynamic-Area AF Area Modes so that some or all of the surrounding points will help retain focus if the subject moves away from the selected Focus Point (see *Figure 138*). If the subject will be moving across your field of view as you keep the camera relatively still, you can make use of the 3D-Tracking mode (to be explained in the **Autofocus AF-Area Modes** section next). The Focus Indicator light in the Viewfinder will illuminate when using AF-C mode when the subject is in focus, or the triangles surrounding the Focus Indicator dot will illuminate to show that focusing operation is in progress.

Figure 138 - Tracking a moving subject with AF-C Autofocus Mode and 9-Point Dynamic-Area AF. Note that only the selected, active AF Point will be shown, not the surrounding "helper" points as shown here. Shutter speed 1/1600, aperture f/5.6, ISO 400.

This subject tracking will even work in conjunction with continuous shooting. If you keep the Shutter Button fully pressed and continue to take photos, even at 6 frames per second, the camera will keep focusing on the moving subject. As you can imagine, this is ideal for tracking a player running across a field, a dog running toward you, a toddler in action, or a bird moving across the frame. Note that when shooting with Continuous High Speed not every shot may be in sharp focus as the camera sometimes can't keep up and accurately predict the subject's speed or location. But you should be able to capture more sharp images than previously possible with an older camera.

As you will see, when using AF-C mode your compositions will be partially dictated by the positions of the autofocus points in your Viewfinder. The subject needs to be at one of these AF points in order for the camera to maintain focus on it, as will be explained in the **Autofocus AF-Area Modes** section next. That is why making use of all 51 Focus Points is important with moving subjects. And also why in certain situations, when your subject is located away from the Focus Points as viewed in the Viewfinder, becoming skilled at quickly using AF-S mode - even for action scenes - will sometimes give you more ability to control your compositions.

Auto-Servo AF (AF-A)

This mode makes use of the previous two focus modes (AF-S and AF-C), with the camera deciding which mode is appropriate for the situation. The camera begins in Single-Servo AF (AF-S) mode then automatically changes to Continuous-Servo AF (AF-C) mode if your subject starts moving. Why shouldn't you use this all the time, then? Well, it is typically not the best of both worlds. If you are focusing and then recomposing, as you may often be doing, your movement of the camera may fool it into thinking that the subject is moving and then activate subject tracking AF-C mode, and your resulting focus may not be where you intend it to be or may not be as accurate as it could have been with Single-Servo AF (AF-S) mode. And in this hybrid AF-A Mode the camera may not be as quick to respond to a moving subject as it would in Continuous-Servo AF (AF-C) mode. Typically you know if your subject is still or moving so it is better to select one of the other two Autofocus Modes. Plus that way you always know which AF Mode you are working in and can either lock focus where you want it or begin tracking a subject without wondering what mode the camera is in and if it will suddenly change. But there may be situations that call for this combination mode such as a still bird or animal that may start moving unexpectedly, so keep it in mind.

Manual Focus

Sometimes you may be taking several photos of the same subject from the same distance, or for other reasons want to keep the same focus distance and not have to keep re-focusing and re-composing. Or you may be taking multiple photos for a panorama. In these situations, turn off the autofocus by switching from *AF* to *M* with the camera's Focus-Mode Selector switch, and set to *M* with the *A-M* or *M/A-M* switch on the lens itself. Just remember to switch them back when you are finished. You may also wish to do this if you want to precisely manually focus with the focus ring on your lens. For lenses with "full time manual focus" however, you don't need to switch to *M* on the lens in order to manually override the autofocus with the lens focus ring. These lenses will have *M/A* and *M* on the lens focus mode switch instead of simply *A* and *M*.

Figure 139 - Llama Figurines - Combine precise autofocusing with shallow depth of field to call attention to the desired subject - here, the front figurine, and below (Figure 140) the middle figurine. Both images: Shutter speed 1/50, aperture f/2.8, ISO 2000.

__What Readers are Saying About Doug's Previous Guide,__ **Nikon D7000 Experience:**

__All You Need__ - This book, together with the manual that came with your camera, is all you need to start discovering the full potential of the D7000.
-Max M.

__Really practical and tremendously helpful__ - Readers of this e-book can expect to benefit from a more rewarding photographic experience using this superb camera, and be better able to exploit its potential to match their personal objectives and photographic style. Highly recommended.
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It's the first guide I've read which has taken me through all the settings in an understandable way. I now feel that I have control over the camera.
-Peter S.

__It's clear, concise and gets to the heart__ of the camera's multiple and often confusing options. Very highly recommended - for experienced user and beginner alike.
-G.S.A.

__Focuses on the "Why"__ - I found the Nikon manual good for understanding how to set things up but not much on the why - this book really focuses on the WHY.
-Benoit A.

I would recommend this to anyone who wants to get a quick start to using the D7000. Manuals are nice, but this e-book highlights the important information and gives a quick easy to understand explanation of most all of the functions and controls.
-Ray M.

__This manual is a clearly written, concise and useful explanation__ of the rationale for the seemingly infinite and often confusing settings options for the D7000. Used in conjunction with the Nikon manual I feel more confident in understanding how to at last proceed in getting better photographs.
-W.L.S.

__A well written, professional helpful guide__ - Just what I was looking for! A manual for the D7000 that was exciting, clear to follow, had examples and was used by a professional who gave just the right amount of technical with explanations of why you use those settings, when to use those settings and so on, all properly explained. The book is a revelation, a joy to follow, well thought through and well written. Nikon should be employing Doug to write every one of their cameras manuals.
-R.D.C.

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