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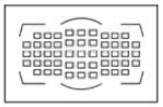
Spring 2010

DSLR Autofocus – A Primer

Autofocus (AF) is achieved using up to five to fifty small contrast sensors, called *AF Points,* depending on the sophistication of the camera. The approximate positions of these sensors appear in the viewfinder in some situations; the viewfinder may also show an outline of the area in which the autofocus sensors live. Different brands of DSLR cameras may have different names for various autofocus components and controls, and certainly different ways of accessing the controls. However, the general concepts discussed here are the same. ***To fully understand how autofocus works in your camera, be sure to read your owner's manual, or better still, an alternate book describing how your particular model works.***



FOCUS MODE or FOCUS METHOD

The Focus Mode Lever

Think of ***Focus Mode or Method*** as *HOW the camera focuses*.

Single Servo or "One-Shot" Autofocus: the camera *finds focus once and locks on that* as long as the shutter release is held half-way.

When you fully or partially press the shutter release the camera focuses the lens. On a full shutter release press, the shutter normally does not operate *until focus has been achieved*. This is called ***Focus Priority***.

When shooting off-center subjects, you compose with the focus sensor on your subject while pressing the shutter release button half-way, then *while still holding the shutter release button half-way down*, you recompose and take the shot.

➡*Use Single Servo Autofocus for static subjects (eg; nature (stills), landscapes, portraiture, product photography, etc).*

Continuous or AI-Servo Autofocus: the camera looks for focus the moment the shutter release reaches the half-way point and continues to monitor focus as long as the shutter release is held partway.

When you press or partially press the shutter release the camera focuses the lens. When you press the shutter release fully, the camera takes the picture *even if focus has not yet been achieved*. This is called ***Release Priority.*** Some cameras have a ***Focus Confirmation Indicator***. If this indicator lights up in the viewfinder (it's green in a Nikon), with the shutter release pressed half-way down, *focus follows the subject* until you release the shutter and take the picture or you let go of the shutter release button.

The big difference between this and the *Single* or *One-Shot Autofocus* is that if you continue to hold down the shutter button halfway, the camera will continue to adjust focus as your subject moves around the viewfinder.

On a safari, this is really helpful when your subject is charging right at you - if your camera is set on *Single* or *One-Shot Autofocus*, you'll NEVER get anything in focus in this situation.

➡*Use Continuous or AI-Servo Autofocus for all moving subjects (eg; sports, bratty children, charging rhinos, etc). Some cameras utilize* ***Predictive Focus Tracking*** *in this mode, which ensures more accuracy for moving subjects. This autofocus technology detects the camera subject's speed of motion and adjusts the focus by taking the shutter release time-lag into consideration.*

Manual Focus: The camera does not attempt to focus the lens and pictures are always taken immediately when the shutter release is fully pressed, no matter what.

➡*Use Manual Focus for special situations. Some examples include: shooting panoramas, studio and product photography, extreme closeup photography, night photography.*

AUTOFOCUS AREA MODES – AF POINT SELECTION

Different camera brands and models treat the actual selection of AF Points differently depending on several factors, including which Focus Mode you're in, and the placement of the subject (still or moving) in the scene. There are also different camera behaviors and expectations depending on how many sensors you have available to you.

This can get a bit complex to cover here in a primer. You should consult your owner's manual, or better still, get yourself one of those aftermarket books written specifically to explain how your particular camera model works.

RECOMMENDATIONS ON HOW TO LEARN TO USE AUTOFOCUS

1. Start in ***Single Servo Autofocus.*** Most modern DSLR cameras allow you to select which one of several AF Points is to be activated. This is straightforward: the camera only focuses on the spot you pick, and the camera won't shoot until focus has been achieved *(Focus Priority)*. Get acquainted with using the Multi-Selector feature of your camera to control the initial sensor for getting predictable focusing results. Remember to keep the shutter release halfway down after achieving focus if you reframe.

2. If your camera offers an ***Auto Area AF,*** try this: keep Focus Mode in ***Single Servo Autofocus,*** and set the AF Sensor Mode (AF Point) to ***Auto Area AF***. This combination doesn't allow you to pick a starting point – the camera does it all! You should start to notice how the camera recognizes objects and patterns.

3. As you gain more confidence, try setting camera Focus Mode to ***Continuous*** or ***AI-Servo Autofocus***, and set the AF Sensor Mode (AF Point) to ***Auto Area AF***, if your camera supports it. The camera is still picking focus, but now it's also using *predictive focusing* for moving subjects.

4. Finally, with the Focus Mode set to ***Continuous*** or ***AI-Servo Autofocus,*** if your camera has an AF Sensor Mode (AF Point) called ***Dynamic Area***, you tell the camera where to start focusing (*you* pick the initial sensor), and the camera follows moving subjects using it's predictive methods.

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WHEN AUTOFOCUS FAILS

Your camera's autofocus can fail to achieve focus with certain subjects. Depending on the camera brand and model, if yours has a *Focus Confirmation Light* in the viewfinder, it will either not light or will blink when focus cannot be achieved. The lens focus mechanism may also "rack" back and forth, looking for focus.

Subjects Difficult to Focus:

- Low-contrast subjects, such as solid-color walls or clear, blue sky, etc.
- Subjects in low light conditions
- Extremely backlit or reflective subjects
- When *both* near and far subjects are covering the AF points, such as animals in a cage
- Repetitive patterns, like skyscraper windows, computer keyboards, etc.

CONCLUSIONS

When considering using the *Single* or *One-Shot Autofocus* mode or the *Continuous* or *AI-Servo Autofocus* mode:

- In *Single* or *One-Shot* mode ***the camera will not take a photo until the focus is set.***
- In *Continuous* or *AI-Servo* mode, ***you can take photos even if the subject is not in focus!*** You will probably end up with LOTS of blurry photos ... but that's not necessarily a bad thing! When shooting moving/action subjects it's a far better to use *Continuous* or *AI-Servo Autofocus* and wind up with half your photos blurry, rather than using *Single* or *One-Shot* mode which might just result in ALL your photos turning out blurry.

PRACTICE, PRACTICE, and PRACTICE SOME MORE!