

Canon



EOS 7D Mark II

AF-Setting Guidebook

Detailed explanations of how to master the 65-point cross-type AF

EOS AF-Setting Guidebook

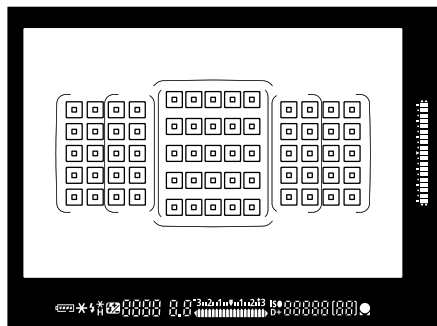
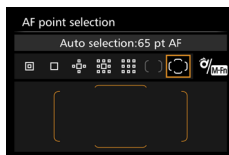
7D
Mark II

A powerful and flexible AF system, with 65 AF points* covering a greater area of the entire frame than any previous Canon EOS SLR

Sixty-five AF points, with a full range of AF Area options — work with anywhere from one single point to the entire 65-point array*

Leveraging the coverage of the 65-point AF system* are seven AF Area choices, including the new Wide Zone AF option. Each AF point is a *cross-type* AF point, with lenses $f/5.6$ or faster.* This means subjects with horizontal or vertical detail can be quickly acquired by the AF system, and doubles the potential of focusing on subjects with little detail or texture. Two important features of the center AF point — it'll continue to work with extenders, down to $f/8$ effective maximum apertures, and it also has high-precision diagonal cross-type coverage with $f/2.8$ or faster lenses.

** Number of available AF points, cross-type points, and Dual cross-type points vary, depending on attached lens.*



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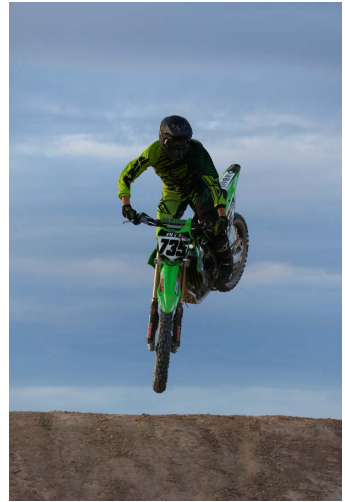
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The AF Configuration Tool: quickly tailor the AI Servo AF for almost any type of subject or subject motion



Blessed with the same AI Servo AF III focus-tracking system as the top-of-the-line EOS-1D X camera, the default AI Servo AF settings will handle most moving subjects with great success. But for challenging situations, critical users can turn to the AF Configuration Tool, in the AF menu. Six separate “Cases” there tailor the EOS 7D Mark II for different and specific types of subjects and subject movement. And, each can be further fine-tuned in three distinct ways, via the “Detail Settings” within the AF Configuration Tool menu. Whether the subject — sports, wildlife, birds in flight — AI Servo AF can be optimized for the action.



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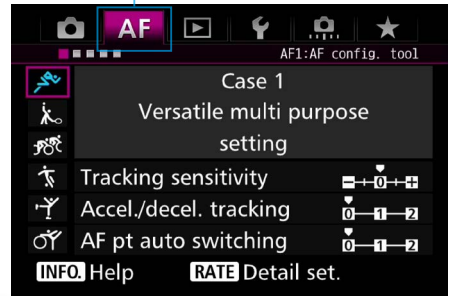
48 Recommended settings

One location for all AF-related settings and adjustments

New AF Menu, with five menu screens — like the EOS 5D Mark III and EOS-1D X



AF-related setting items in the AF menu



The AF1 tab: Canon's AF Configuration Tool

Rapid and concise tailoring of the EOS 7D Mark II's focus-tracking in AI Servo AF is done here, in the [AF1] menu tab with the AF Configuration Tool. Six "Cases" optimize the camera for different types of moving subjects, and are discussed on the following pages.

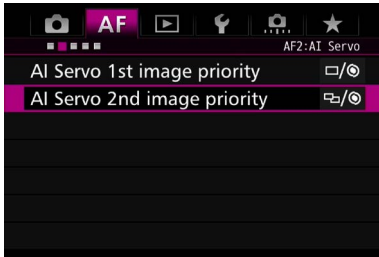
Even with unprecedented flexibility and control possibilities, AF adjustments with the EOS 7D Mark II are fast and intuitive. One reason is the dedicated AF Menu, with five separate menu "tabs" (screens) and AF functions organized so they're grouped with similar ones.

For many users, the first menu screen [AF1] will be one of the most important. It's here that the **AF Configuration Tool** menu appears. Six separate "Cases" can quickly be applied, changing focus-

tracking characteristics in AI Servo AF and tailoring the EOS 7D Mark II for different shooting situations and different types of moving subjects. An additional press on the INFO button allows further detailed adjustment to each, from three separate elements of AI Servo AF and its focus-tracking.

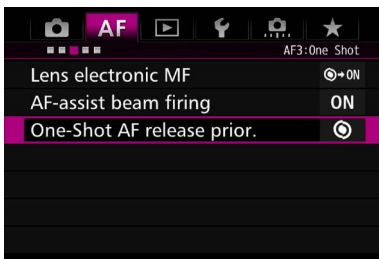
The AF Configuration Tool and each of the six AF Cases will be discussed in detail on the following pages. Four additional AF Menu tabs are also available, and they're discussed to the right on page 5.

Various settings for AF functions can be made with AF menu tabs [AF2] – [AF5]



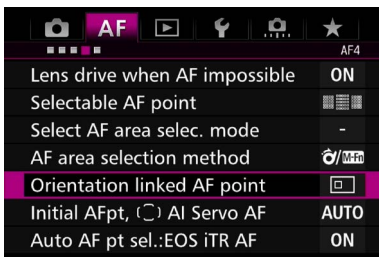
AF2: AI Servo AF shutter timing, fps rate *Fine-tuning of shooting speed and shutter release timing with moving subjects in AI Servo AF*

Two independent settings dictate how the EOS 7D Mark II responds in AI Servo AF. [AI Servo 1st image priority] controls response at first full press of shutter button — minimum possible lag time, or allow extra split-second (if necessary) for sharpest focus. [2nd image priority] is for sequences: fastest fps speed, or allow speed to slow (if needed) for sharpest possible frame-to-frame results.



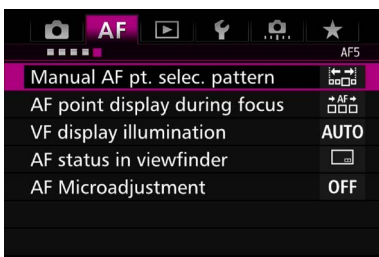
AF3: One-Shot AF; AF-assist beam; etc. *Settings related to focusing and shutter-release timing when using One-Shot AF release priority*

The third AF Menu tab [AF3] has a similar timing control, this time for One-Shot AF (don't fire shutter until sharp focus confirmed, or fire shutter with minimal delay). In addition, there are menu settings to control how manual focus operates in certain USM and STM lenses, and control the operation of a flash's AF-assist beam.



AF4: AF point management, etc. *Control of AF points, for both manual and automatic AF point selection*

AF Menu screen [AF4] houses settings related to control of the 65-point AF system — from how many AF point are available for manual selection, to which AF point is used to start focus-tracking in automatic AF point selection. Orientation Linked AF (auto switching of AF point for horizontal/vertical shooting), and how the AF system handles “bunting” [Lens drive when AF impossible] are also here.

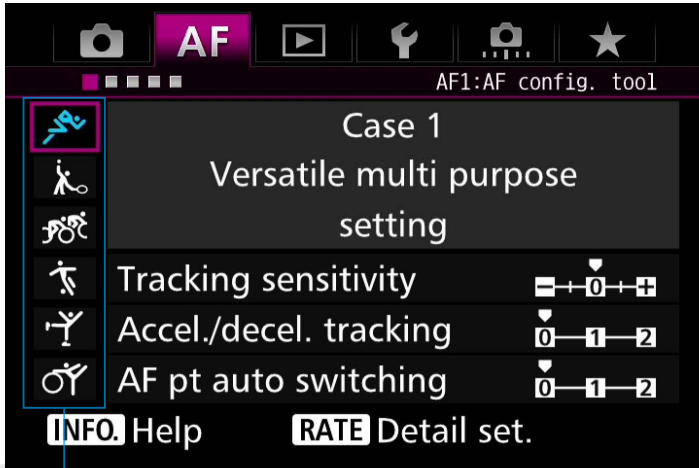


AF5: AF displays in viewfinder, etc. *How AF points are displayed in finder, and control of AF Microadjustment*

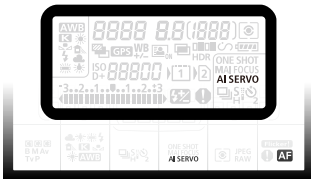
Choose whether all 65 points appear, or only the point you're working with [AF point display during focus], whether AF points stop at the end of a row or loop to opposite end on next button push [Manual AF pt. selec. pattern], and more. This is also where AF Microadjustment is performed.

The AF Configuration Tool — total AI Servo AF control

Six separate “Cases” to match AI Servo AF to different types of subject movement



The first AF Menu screen [AF1] is an important one for critical action shooters. This is where the AF Configuration Tool resides... six separate, easy-to-set options, each pre-setting the EOS 7D Mark II's AF for different types of subject movement.



The AF Configuration Tool is strictly for setting AI Servo AF characteristics. Therefore, its settings will have no function when using [One shot AF].

Canon engineers have identified three important aspects of AF when focus-tracking moving subjects. *The AF Configuration Tool's six Cases use different combinations of them to tailor AF to different types of subjects and subject movements.*

[Tracking Sensitivity]: if the active AF point is tracking a moving subject, and suddenly “sees” a new subject, how will it respond?

[Accel./decel. tracking]: set the AF system for a steadily-moving subject [0], or for one with more of a stop-and-start character to its movement [1 or 2].

[AF pt auto switching]: When using more than one AF point at a time (AF Point Expansion, Zone AF, or Auto AF Point selection), how quickly do we want the EOS 7D Mark II to switch from one AF point to another as a subject moves around the frame?

Sometimes, just setting to AI Servo AF isn't enough. Six pre-set "Cases" fine-tune the AF system for the subject at hand:



Case 1

Versatile multi purpose setting

Case 2

Continue to track subjects, ignoring possible obstacles

Case 3

Instantly focus on subjects suddenly entering AF points

Case 4

For subjects that accelerate or decelerate quickly

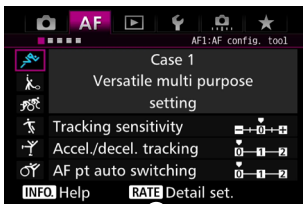
Case 5

For erratic subjects, moving in any direction

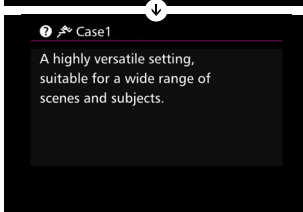
Case 6

For subjects that change speed and move erratically

Each of the six cases can be further fine-tuned by pressing the RATE button, and then adjusting any of the three important AI Servo AF parameters: [Tracking sensitivity], [Accel./decel. tracking], and/or [AF pt auto switching].



Press the INFO button



Content displays on the help screen

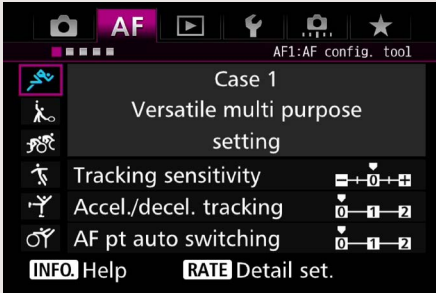
Hints & Tips

Push the INFO. button while any [Case] is selected, and a description of AF Setting Characteristics or Shooting Scene Example is displayed.

Want a quick reminder of what any particular Case in the AF Configuration Tool does? Select a Case (put the magenta-colored box over the icon on left of the Menu screen), and press the EOS 7D Mark II's INFO button. A description of that Case's function will appear on the menu screen while you have the INFO button depressed.

The starting point — a setting for many moving subjects

Versatile multi-purpose setting, especially suited to steadily-moving subjects



Parameter default settings

• Tracking sensitivity	[0]
• Acceleration/deceleration	[0]
• AF point auto switching	[0]

Case 1 is the basic AI Servo AF setting on the EOS 7D Mark II. As its name indicates, it's versatile and achieves a high level of tracking performance in a wide variety of scenes. *It's especially well-suited for subjects moving at a steady, continuous speed* — whether their actual speed is fast or slow, and whether toward or away from the camera.

Equipped with AI Servo AF III, the EOS 7D Mark II has improved flexibility in handling a variety of moving subjects, and superior prediction of movement for more accurate focusing. Even with a variety of difficult elements such as extremely fast movement, sudden changes in speed, and interruptions by obstacles, AI Servo AF III overcomes these and is able to capture the subject.

Case 1 is the recommend setting to start shooting action subjects, and is the camera's default setting when you take it out of the box. Case 1 will provide great results when shooting many types of sports and moving subjects. If subject movement is more challenging, it's time to consider moving to Case 2 thru 6, which are explained on the next pages.





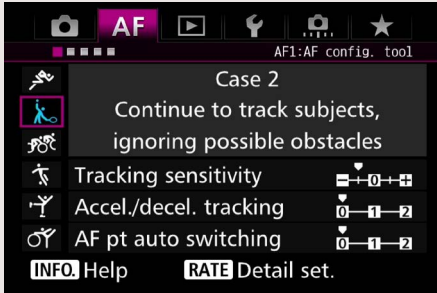
Endowed with the same underlying AI Servo AF III technology as the EOS-1D X, the EOS 7D Mark II's AF can handle many types of fast-moving subjects. Case 1 takes full advantage of this, but is particularly well-suited to continuous subject movement, like the cyclist shown here.

Single-Point

AI Servo AF III: incredibly fast, powerful AF processing and calculation technology for superior focus-tracking of moving subjects

Autofocus on the EOS 7D Mark II is equipped with a new focus tracking algorithm, AI Servo AF III. The same technology as the EOS-1D X, it supports an even greater variety of subject movement than before, and by utilizing this updated AF system, and Case 1 configuration setting, it can handle many different shooting conditions.

Resist focus changes if subject suddenly leaves AF point(s) *Continue to focus on an original subject, even when obstacles may quickly appear*



Parameter default settings

• Tracking sensitivity	[Locked on -1]
• Acceleration/deceleration	[0]
• AF point auto switching	[0]

Case 2 [**Continue to track subjects, ignoring possible obstacles**] is the go-to setting any time there's subject movement erratic enough that you may momentarily "lose" a subject and suddenly find the active AF point now on another subject, or the background. Likewise, it delays changing focus to

a new subject if an obstacle — anything from a tree in the foreground to a referee at a sports event — momentarily blocks the AF system's view of the subject you've been focus-tracking.

It's ideal for sports with many athletes, like US football, soccer, and similar events.

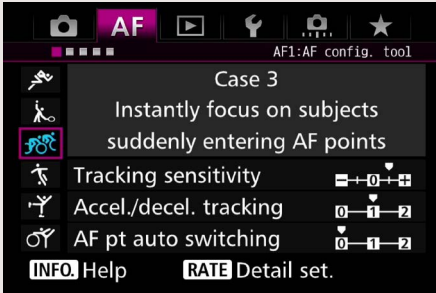


If a subject moves away from the AF points for an extended period (such as swimmers doing the butterfly stroke, or sports where the subject is hidden for intervals), even better performance may be achieved by manually setting the **[Tracking sensitivity]** parameter to **[-2]**, which locks AF on longer.

Any time subjects may move quickly from side to side (such as this badminton player), it's possible for the AF point to suddenly be upon something like the background. Case 2 delays any change to AF in these cases, tending to lock-on to the original subject even if the AF point momentarily leaves that subject.

Focus instantly on subjects that move into the AF points

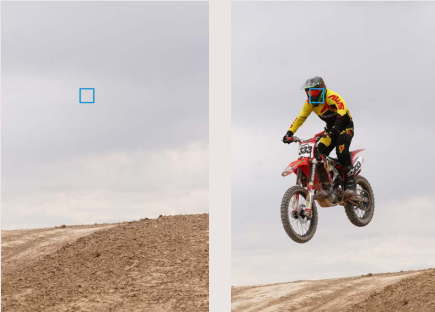
The opposite of Case 2 — instantly focus on any new subject at the active AF point



Parameter default settings

• Tracking sensitivity	[Responsive: +1]
• Acceleration/deceleration	[+1]
• AF point auto switching	[0]

A jump scene in motocross. [Case 3] was used to instantly focus when the bike and rider suddenly appeared in the frame. Case 3 is ideal in situations where the camera may be upon one subject, and you want it to be able to immediately re-focus on a new one. (The photo directly before the rider appeared was captured with manual focus for visualization purposes.)



By changing the AF Tracking sensitivity to [+1] (Responsive), Case 3 changes the character of AI Servo AF. It now makes significant changes to AF with less pausing, less delay. Case 3 is effective for scenes when subjects (for example, a wild bird suddenly jumping out from the shadow of a tree)

suddenly appear while you are waiting to shoot. Another instance where Case 3 can be extremely effective is when switching between different subjects you want to shoot (for example, at the start of a bicycle road race, when you want to shoot continuously and switch from cyclist to cyclist while focusing).

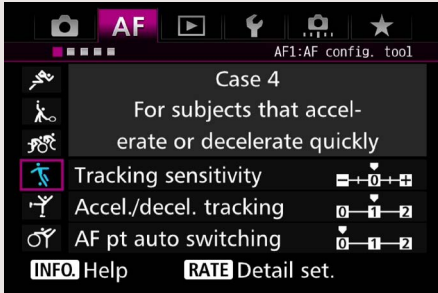


Accurately focusing on a wild bird that suddenly jumps into the frame

This is a situation where you anticipate a biding wild bird jumping out from a nearby nest. With Case 3, AF will respond immediately — wait for the moment the bird appears, you can quickly focus and shoot continuously.

When set to Case 3, if the subject moves away from the AF point(s), the camera will usually quickly re-focus on a different subject or background, in contrast to Case 2. Therefore, it is recommended that you use this setting only when you truly want AF to rapidly re-focus on any new subject at the AF point.

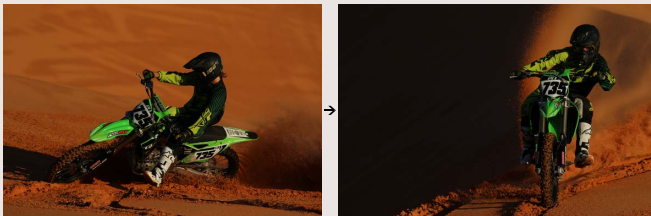
Optimize AF for subjects that move at an inconsistent speed *Set AI Servo AF to expect and react quickly to changes in subject speed*



Parameter default settings

• Tracking sensitivity	[0]
• Acceleration/deceleration	[+1]
• AF point auto switching	[0]

This is a cornering scene in motocross. With [Case 4], as the bike races at high speed and suddenly decelerates just before turning the corner, AF can adjust to the change in speed, and reliably focus-track the full sequence.



Continuously track subjects as they suddenly slow down and speed up

Wildlife, sports and other action photographers don't always have the luxury of shooting subjects that move at a consistent, steady speed. The EOS 7D Mark II is ready for such subjects, with Case 4. By

changing the **[Accelerate / decelerate tracking]** parameter set to **[+1]**, the AI Servo AF will respond more quickly to any changes in speed, including sudden stops and acceleration. This makes Case 4

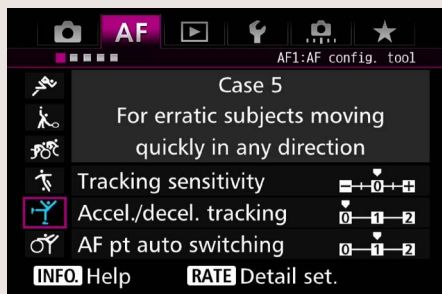


a very effective setting for sports like soccer, rugby, and basketball, or focusing on wildlife that may move inconsistently. Likewise, it's also effective for cornering during motor sports (sudden decelera-

tion and acceleration). [**Accel./decel. tracking**] can be boosted to [**+2**] via the Detail Settings menu (press the RATE button), for even more challenging stop/start types of subject movement.

Set the AF to cover erratic, side-to-side movement

Speed up the rate that AF points change, when using any expanded AF Area



Parameter default settings

• Tracking sensitivity	[0]
• Acceleration/deceleration	[0]
• AF point auto switching	[+1]

AF Area options let photographers change the size of an active AF point, from a single point to larger clusters which form the AF sampling area. With more than one AF point active, the EOS 7D Mark II normally will switch from one point to another, when necessary, to continue to focus on a subject as it moves laterally (side-to-side) in the frame.

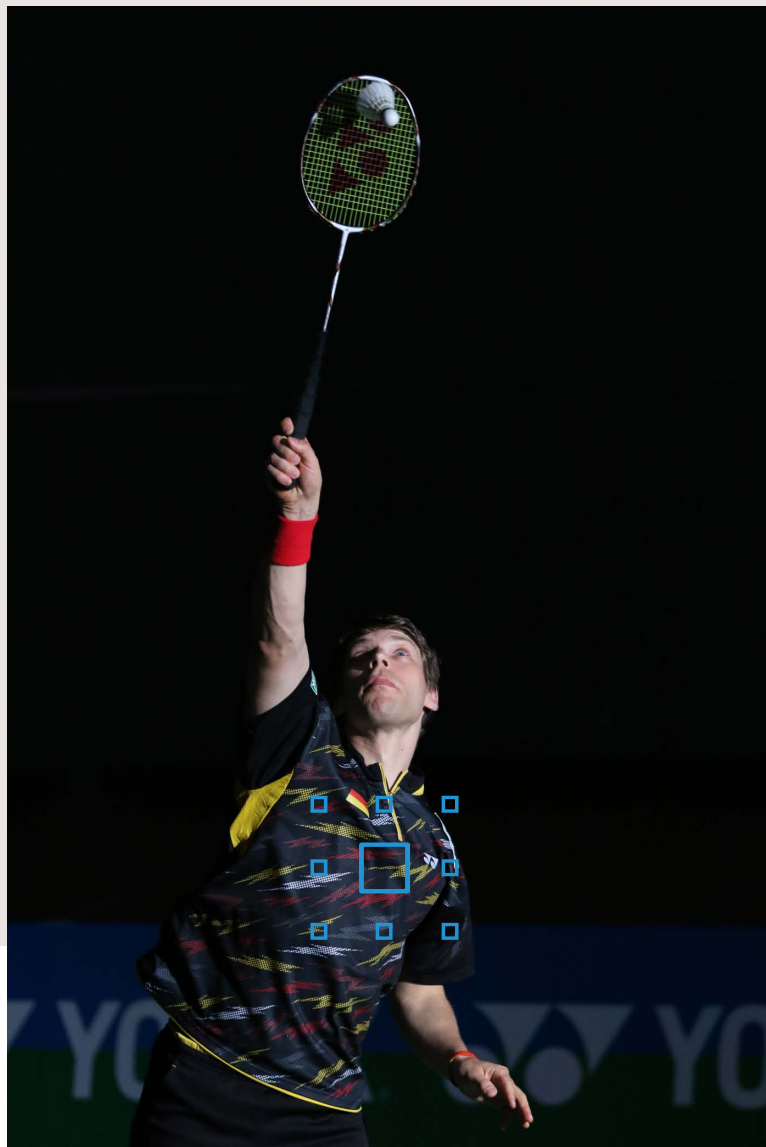
Case 5 modifies the speed at which AF points can change, fine-tuning the AF system to follow even fast, erratic-moving subjects. **[AF pt auto switching]** is moved to the **[+1]** setting to speed up this process.

Case 5 can be an excellent choice for maintaining focus on a single subject that may dart unpredictably around the frame — from the badminton players shown here, to birds in flight. It works in any of the following AF Area settings:

- *AF Point Expansion (4 surrounding points)*
- *AF Point Expansion (8 surrounding points)*
- *Zone AF*
- *(new) Wide Zone AF*
- *Automatic AF Point selection*

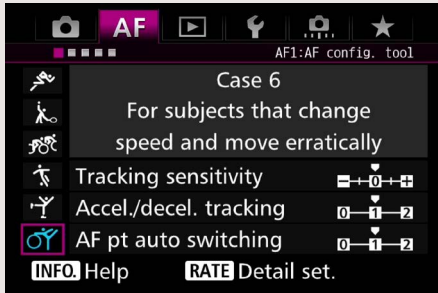


Any time there's a possibility of erratic subject movement, side-to-side or even up and down (as illustrated in this badminton shot), Case 5 works with a larger AF Area to speed up the changing of AF points, to more effectively cover the moving subject.



Cover erratic movement, and changes in subject speed

Two AF parameters combine, to focus-track the most challenging of moving subjects



Parameter default settings

• Tracking sensitivity	[0]
• Acceleration/deceleration	[+1]
• AF point auto switching	[+1]

Another go-to option when an AF Area is selected that expands the size of an AF point (and, with Auto AF point selection)

This kayak throws two challenges to the AF system: it's bouncing erratically around the frame, and it's also moving at inconsistent speed toward the camera. [Case 6] sets AI Servo AF to be ready for both, and is worth trying for similar types of subject movement.



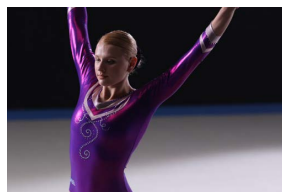
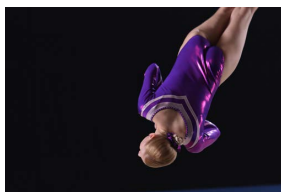
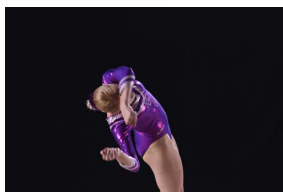
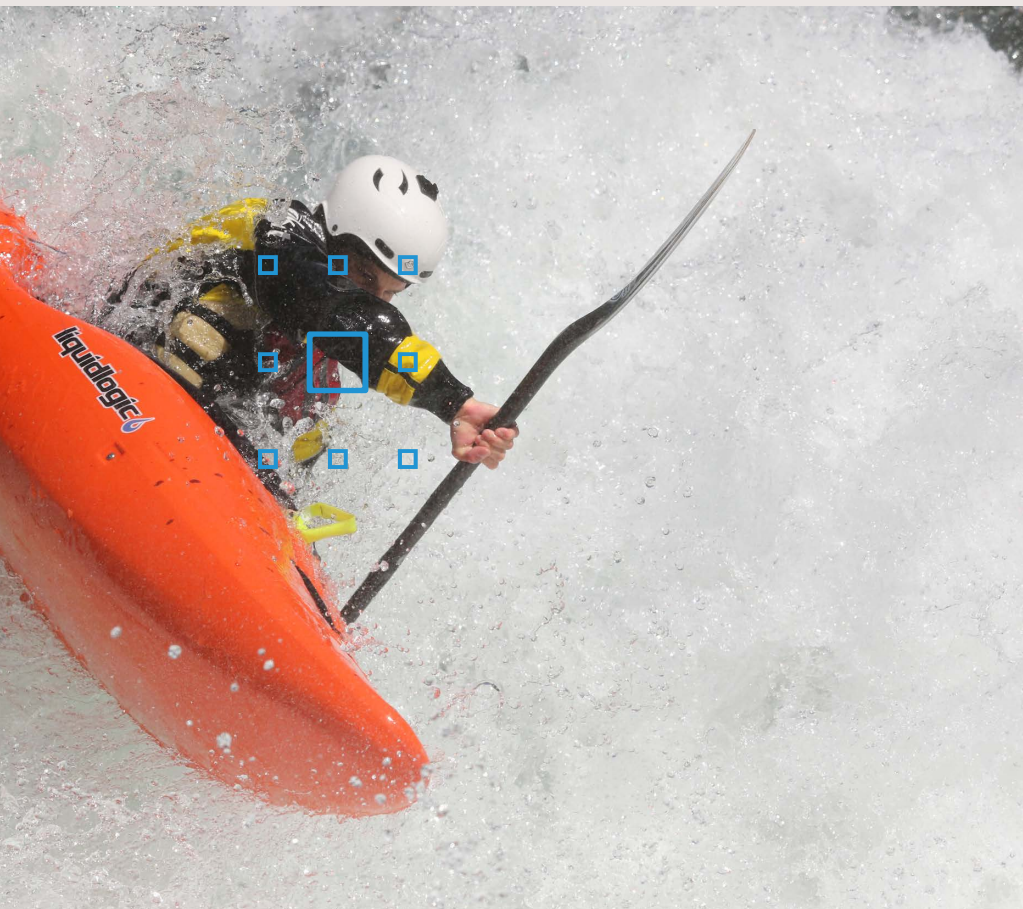
Case 6 is a setting that *combines features of both Case 4* (support for sudden changes in speed), *and Case 5* (support for erratic movement in any direction). [**Accel./decel. tracking**] and [**AF pt auto switching**] parameters are both [**+1**].

Therefore, Case 6 is an effective setting for subjects that stop and start suddenly, but also have erratic

movement which could happen in any direction.

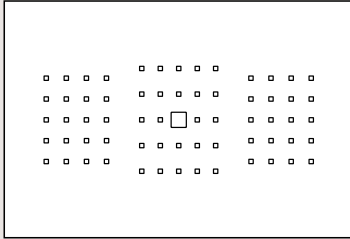
It works during Auto selection 65-point AF, the new Large Zone AF, Zone AF, and AF point expansion only.

Gymnastics is one example of where Case 6 could be effective, since it often includes large movements, rapid changes in subject speed, and complete stops.

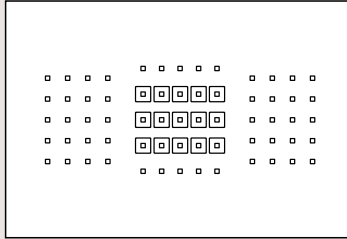


AF Area: change the size of your active AF point

Seven options let you define how large an area you use to focus



Using only one AF point



Using multiple AF points (Zone AF)

Use the new AF Area Selection lever, or M.Fn button, to change the active AF Area.

AF Area selection defines how many points in the array are used for AF. Larger AF Areas are especially useful for subjects that move erratically, and/or don't have a lot of detail and texture.









Press the  button



The mode is changed each time the M-Fn button is pressed

How to set the AF area selection mode

After pressing the  button, press  to the right, or each time the M-Fn button is pressed, the AF area selection mode will be switched. In the Menu AF4 tab, by setting [AF area selection method] to [ -> Main Dial], after pressing the  button, you can switch the mode with the Main Dial. Also, with [Custom Controls], when you assign [Direct AF area selection] to , you can switch modes simply by pressing , without needing to press the AF Point Select button first.

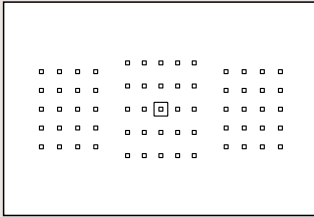
Not only can any AF point be selected individually, but AF points can be grouped to form larger areas for AF, or all 65 AF points can be active and the camera can automatically pick the point(s) for focus on the actual subject (Automatic AF Point selection).

[AF area selection] is the tool in the EOS 7D Mark II for changing the size of the area that will be sampled for AF.

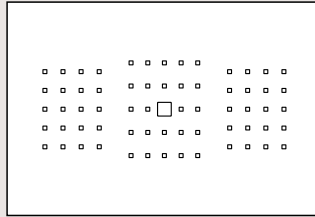
Two AF Area settings let you manually select a single AF point to focus with: [Single-point AF]

and [Single-point Spot AF]. Five settings *expand* the size of the focus area, and can switch points automatically within the cluster of AF points to maintain focus on subjects which move laterally: [AF point expansion (4 points)], [AF point expansion (8 points)], [Zone AF], [Large Zone AF], and [Automatic AF point selection] (during AI Servo AF). AF Area features are explained from p. 22~31, along with possible applications of each for different types of subjects.

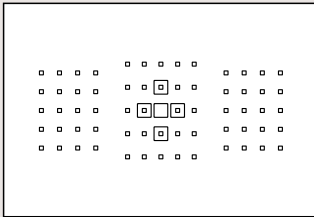
There are six AF area selection modes to choose from



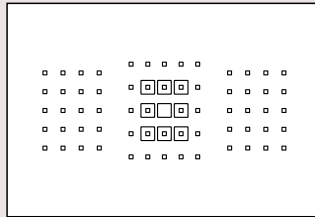
Single-point Spot AF (Manual selection)
Focus on very precise areas of a subject — the size of a single AF point is reduced



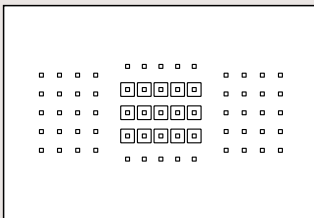
Single-point AF (Manual selection of zone)
The default setting for manual AF point selection. Work with any one of the 65 AF points.



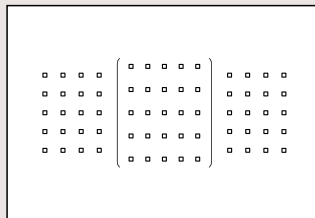
AF point expansion (Manual selection, 4 surrounding assist points)
Enlarged AF area, with one primary point, and four surrounding assist AF points.



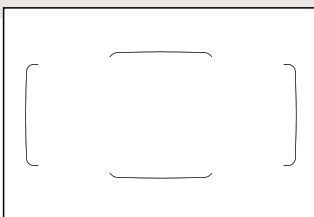
AF point expansion (Manual selection, 8 surrounding assist points)
Large AF area, with one primary AF point and eight surrounding assist AF points.



Zone AF (Manual selection of zone)
Nine available zones, each with a cluster of AF points that focus on nearest subject in that zone.



Large Zone AF (Manual selection of zone)
Extremely broad AF from any of three zones (left, center or right)... camera focuses on nearest subject in the zone.



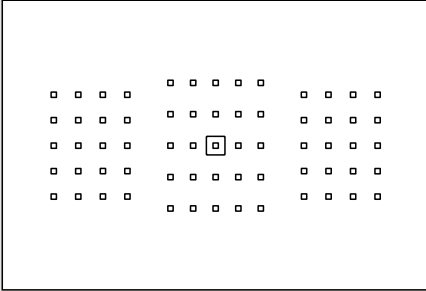
65-point automatic selection AF
All 65 AF points active; camera automatically picks point(s) to focus on subject.

Single-point AF: ideal AF Area setting for still life photos and stationary subjects in One-shot AF

Single-point AF is the basic, default setting for manual AF point operation, and is often the first setting experienced SLR shooters expect to work with for manual AF point selection. Single-point AF is especially well-suited for putting sharpest focus on a single part of a subject, and works very well in One-Shot AF mode for close-ups, portraits, landscapes, and similar stationary subjects.

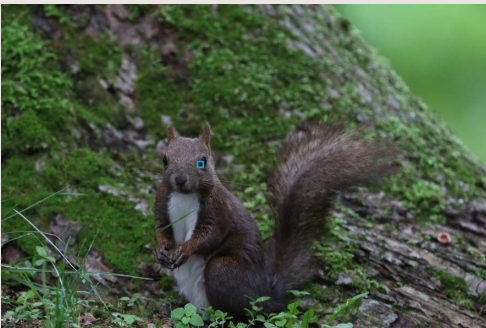


Reduce the size of an AF point, for even more precise focus *The smallest AF point option — ideal for careful focus on just one part of a scene*



Spot AF is readily identified: A single AF point is highlighted in the viewfinder, with a smaller “box” inside of it.

When shooting a close-up of a face in a portrait, it is important to focus on the eye closest to you. With Single-point Spot AF, focus can be truly pin-pointed on just one part of that eye, and will not accidentally lock on a point close to the eye (such as the eyebrow).



Spot AF also effective for when you want to focus on a small area of a subject

Here's another example of Spot AF: Its small sampling area lets you confidently put sharpest focus right on the eye of a subject like this small squirrel.

[Single-point Spot AF] is a great AF Area option for carefully and precisely placing sharpest focus on one part of a subject or scene. It's not just for portraits... it can work well for close-up and macro

shots, and also when shooting through foreground subjects (such as shooting a bird through the leaves of a tree). Helmeted subjects in sports are another potential subject where Spot AF can be helpful, to



avoid sharpest focus accidentally falling on a surrounding helmet area instead of the subject's eye.

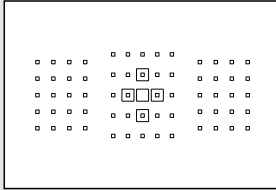
Since it reads a smaller area of the subject, it tends to be most effective where you can take your time

and carefully place the AF point over a critical area of the subject. Accordingly, Spot AF is usually *not* the best choice for action shots of moving subjects with AI Servo AF.

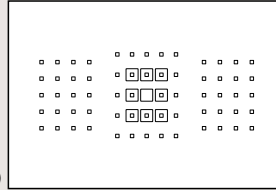


Increase the size and AF coverage of an AF point

Excellent AF Area choice for sports and rapidly-moving subjects



AF Point Expansion
(4 surrounding points)



AF point expansion
(8 surrounding points)

Viewfinder display of [AF point expansion]. One principal AF point appears, with 4 or 8 surrounding assist AF points.



AF point expansion is a versatile mode that can be used in a wide variety of situations, including sports competitions with intense movement. AF point expansion (4-point — up, down, left, right) is the perfect setting for tracking and shooting somewhat small subjects that move in a straight line, and down such as kayak drop scenes.

[AF point expansion] allows selecting any AF point, and adds either 4 or 8 surrounding “assist points,” for a broader area of coverage. It’s particularly well-suited to subjects that either move rapidly

(or unpredictably), and for subjects that don’t have a lot of inherent detail — so it’s definitely an AF Area to try for sports, and other action scenarios (birds in flight, fast-moving wildlife, etc.).

Hints and tips

[Up, down, left, and right] and [surrounding] options can be selected according to the difficulty of reading the movement, and the relative importance to the central AF point

When shooting subjects which might be difficult to determine movement, the 8-point AF Expansion option can be very effective; conversely, when you want to focus on the area covered by the central (manually selected) AF point and don't expect erratic, side-to-side movement, it's best to select the 4-point AF Point Expansion setting.



The [AF Point Expansion — 8 points] AF Area adds even more coverage, and increases odds of “staying on” a subject that moves unpredictably. With these kinds of unpredictable subjects, combining the 8 surrounding AF points AF Area setting with Case 5 or Case 6 from the AF Configuration Tool menu (see page 16 thru 19) can be very effective.

Both AF Point Expansion settings work similarly: AF is normally performed with only the central, primary AF point. But at any time, if it loses detail or falls off the actual subject, the surrounding AF

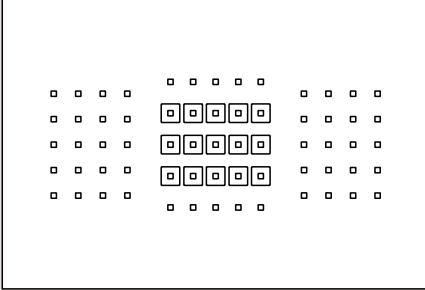
points are instantly activated, to increase chances of continuing a sharp sequence. The larger potential coverage of the 8-point setting makes it ideal for unpredictable moving subjects.



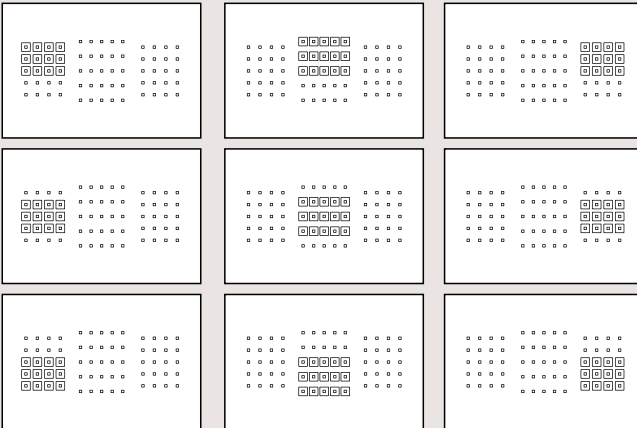
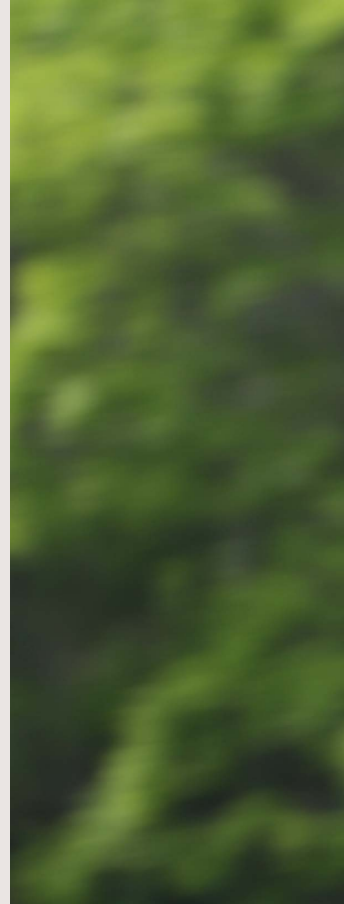
Full-time AF coverage, over a larger AF Area

A moveable “cluster” of AF points; camera focuses on nearest subject in the Zone

The selected AF points display in **[Zone AF]**.



This photo of a quick-flying bird was shot with Zone AF, and the user-selected a zone in the upper-center of the frame. Zone AF is effective for when you want to capture a moving subject within a specific area. All AF points within the Zone are always active.

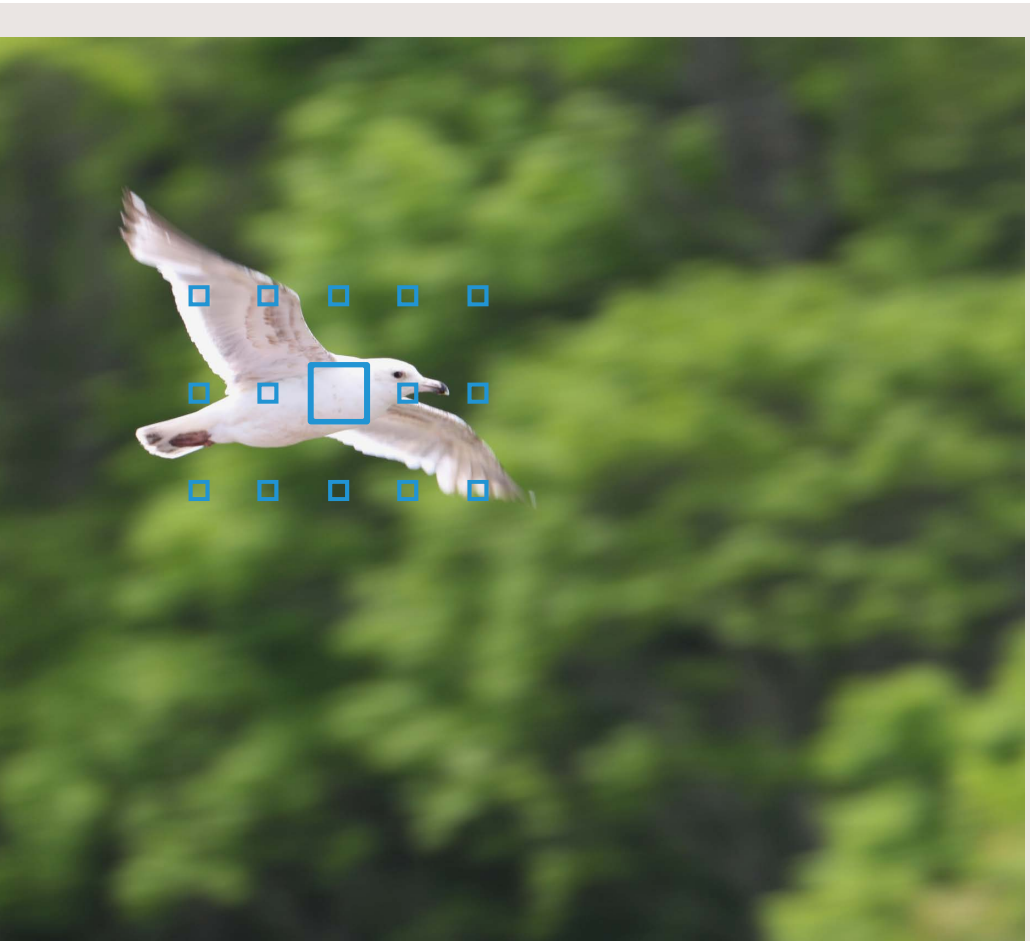


Selection can be made from nine focusing zones

The 65 AF points are divided into three blocks, left, center, and right, and each has upper, central, and lower zones, and the desired location can be manually-selected from any of these nine pre-determined zones.

[Zone AF] differs from AF Point Expansion, and provides yet another AF Area option for EOS 7D Mark II users. Once a Zone is selected (any of the nine areas above can be manually chosen by the

photographer), all AF points in that zone are active... *the camera will always focus on the **nearest** subject, or part of a subject, within the zone.* This is consistent, in both One-Shot AF and AI Servo AF.



With its broad coverage, Zone AF can be a useful AF Area choice any time you want expanded coverage with full-time activity of all points in the enlarged AF Area. And, it can be great for quick, run-and-gun

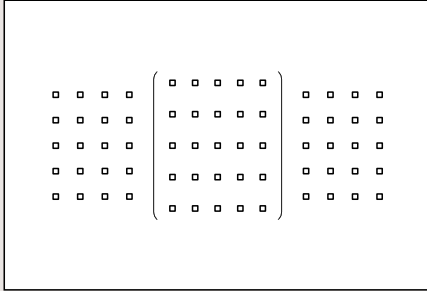
candid shooting at events and so on, since it tends to quickly focus on a nearby subject and resists focus on backgrounds. For truly precise AF placement, however, it's not always the right AF Area option.



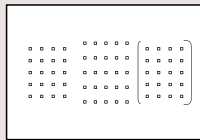
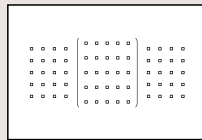
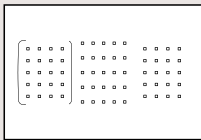
Large Zone AF

The Zone AF concept, on a larger scale

Select any of three zones, for broad-area AF and all points within the Zone active



New with the EOS 7D Mark II is [Large Zone AF]. Three zones (left, center or right) are available, and within each, the camera will focus on closest subject within the Zone



Select from three zones: Left, Center, Right

In each zone, automatic AF point selection occurs, with camera continually changing AF points to keep focus on nearest subject (or part of subject) to camera.

Whether in One-Shot AF, or following moving subjects in AI Servo AF, the new [Large Zone AF] will automatically switch AF points as needed to put sharpest focus *on the nearest subject* within the ac-

tive zone. It's easy to manually move the active zone to any of the three possible locations in the finder.

This can be an important AF Area option for keeping sharp focus on the nearest of several subjects,



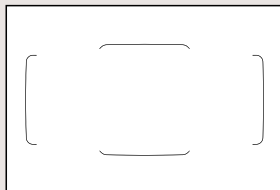
as well as for following very erratic-moving subjects. With the latter, consider applying Case 5 or Case 6 from the AF Configuration Tool menu — both speed up the process of automatic changing of AF points.

This is a photo of an airplane shot against the sky with Large Zone AF. The right zone is selected and you follow the plane and take the shot as the nose enters the zone. The AF point is automatically selected on the right side of the screen, and the camera will continue to focus on the front of the plane, even if it moves around the zone.

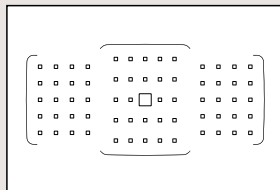


All 65 AF points active; camera selects the point for you

Effective shooting of centered and off-center subjects — moving and stationary

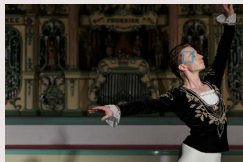
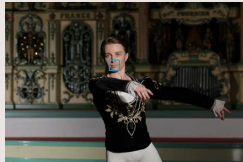
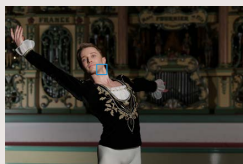


One-Shot AF



AI Servo AF

With **[One-Shot AF]**, the camera picks the point(s) to focus on the nearest detailed subject. When using **[AI Servo AF]**, AF starts from one manually selected AF point, and then can change points to follow it over the full 65-point AF array.



Automatic AF point selection starts with a user-defined AF point, toward the left of the viewfinder

In **[AI Servo AF]** setting, an AF point to the left of the screen is pre-selected. Once the AF system initially begins to track the subject, Automatic AF selection switches points, focuses, and shoots continuously. With EOS iTR AF color and face detection tracking, the AF system recognizes the initial subject, and follows it even more precisely as it moves around the AF point array.

Hints and tips

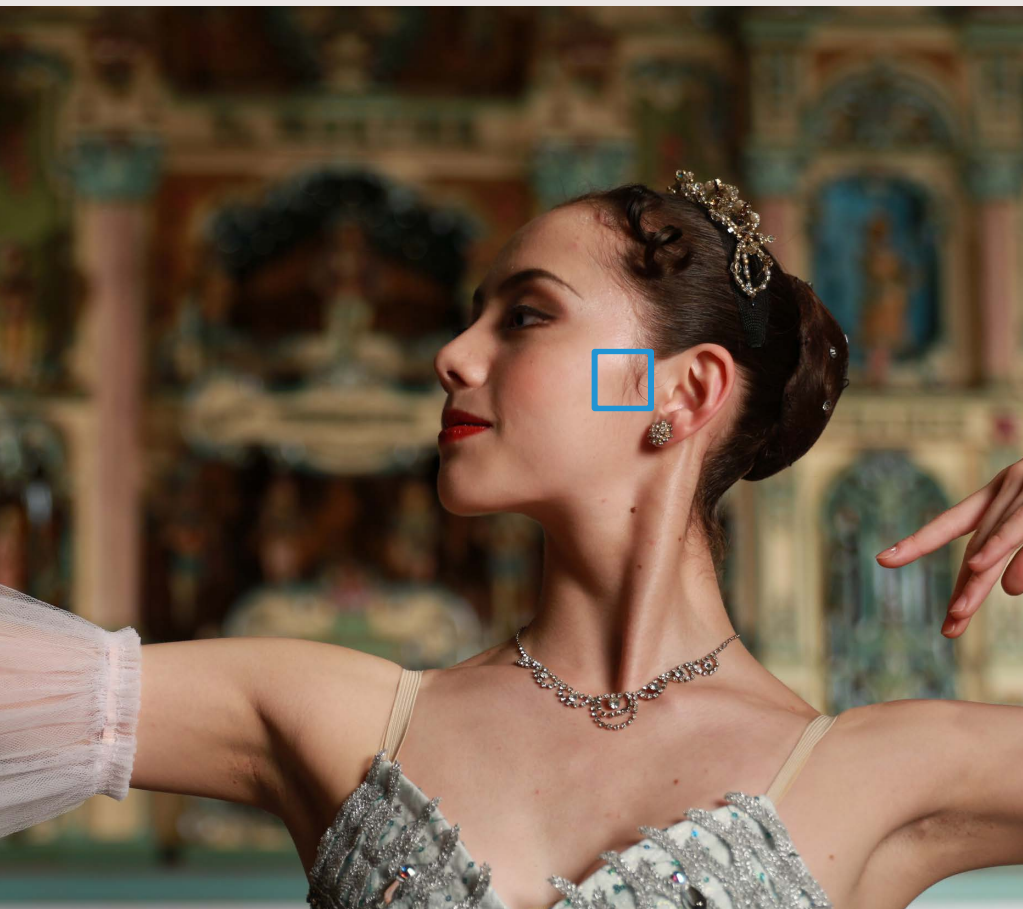
In **[AI Servo AF]** mode, Automatic AF point selection starts using a manually selected AF point covering the subject. From there, the AF system will change points to follow the subject. For convenience, it's possible to use the same start position that was in effect for manual AF point selection when the EOS 7D Mark II is switched over to Automatic AF point selection.



[65-point automatic selection] works in both One-Shot AF and AI Servo AF modes. In One-Shot AF, *Automatic AF point selection focuses on the nearest subject*, and the AF point(s) used appear in the viewfinder. AI Servo AF is different: the user manually selects a single starting point, and once focus-tracking starts, a moving subject can be

followed throughout the AF area, because the camera can quickly and automatically change AF points to keep focus on it.

Automatic AF point selection can be effective for quick candid-style shooting in One-Shot AF mode. In AI Servo AF, it's potentially useful for several scenarios, including very

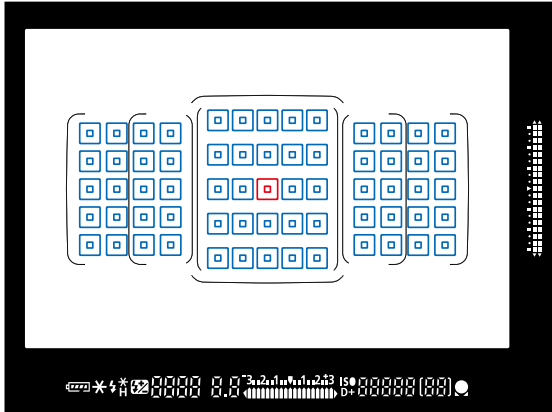


erratic-moving subjects (again, consider Case 5 or Case 6 if they move rapidly from side-to-side, or up and down). And, when you want to maintain one composition but follow a subject (such as a moving vehicle through a series of turns), Automatic AF point selection can allow continuous AI Servo AF without requiring the camera to be moved.

By default, when [**65-point Automatic selection**] is combined with AI Servo AF, the camera's 150,000-pixel RGB +IR metering system (EOS iTR AF) teams up with it, identifying subject color, size and shape at the initial AF point location, and uses that information to help the AF system follow it as it moves laterally throughout the AF area.

High-performance cross-type AF, at all 65 points

A guide to AF point characteristics, depending upon the lens being used



The coloring in the diagram is for explanation purposes. It differs from the color in the actual viewfinder.

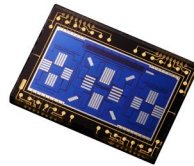
Totally new AF system: 65 cross-type AF points (with most EF and EF-S lenses)

*Cross-type AF points mean that each AF point has a horizontal **and** vertical pair of line sensors, and will be able to rapidly focus on subjects — even those without lots of detail, or if their detail is predominantly horizontal (like venetian blinds) or vertical in nature.*

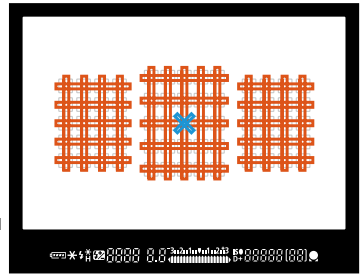
- **Center AF point:**
cross-type with f/5.6 or faster lenses, and high-precision, diagonal cross-type AF with most f/2.8 or faster lenses
- **Remaining 64 AF points:**
standard-precision, cross-type AF with most Canon lenses, f/5.6 and faster

Totally new, 65-point AF sensor

At the heart of the EOS 7D Mark II's powerful AF system is its new 65-point AF sensor. Highlights include AF with lens + extender combinations down to f/8 at the center point, staggered vertical line sensors at the central 5 AF points, and high-precision AF with f/2.8 or faster lenses at center point.



- ✕ f/2.8, high-precision, diagonal cross-type AF line sensors
- | f/5.6 line sensor; detects and focuses on horizontal lines & detail
- f/5.6 line sensor; detects and focuses on vertical lines & detail



The EOS 7D Mark II is equipped with a new 65-point AF system, arrayed over a wide area on the screen, allowing you to focus on subjects nearly up to the edges of the screen. Especially noteworthy is that every AF point is a Cross-type point (with most Canon lenses), which are better-equipped to quickly latch on to subjects with unusual patterns, or very plain subjects with little detail.

The center AF point is especially noteworthy: it allows AF with lens + Canon extender combinations down to f/8 effective maximum apertures, and

offers Dual Cross-type AF — extra high-precision AF from a diagonally-oriented pair of line sensors (with f/2.8 or faster lenses), as well as standard-precision AF when lenses f/5.6 or faster are used.

One important note: the availability of all 65 points, and whether points toward the outer edges of the AF array perform as cross-type AF points, varies depending on the lens mounted to the camera. Data for all current Canon EF and EF-S lenses is on pages 33 thru 35 of this guide.

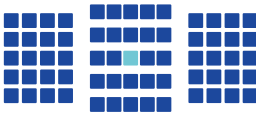
Lenses compatible with 65 AF points



EF-S 17-55mm
f/2.8 IS USM



EF 70-200mm
f/2.8L IS II USM



Group A

Full 65-point cross-type AF

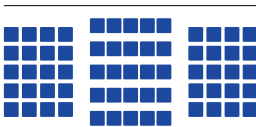
Cross-type AF at all 65 points. High-precision, diagonal cross-type AF at center with f/2.8 or faster lenses. All AF Area selection modes can be used.

- f/2.8 and f/5.6 cross-type points (Dual Cross points)
- f/5.6 cross-type points

*1: When combining these lenses and extenders, focusing may be inaccurate when using AF. For details, refer to the user guide supplied with the extender.

Major lenses

EF-S 24mm f/2.8 STM	EF-S 17-55mm f/2.8 IS USM	EF 14mm f/2.8L II USM	EF 20mm f/2.8 USM
EF 24mm f/1.4L II USM	EF 24mm f/2.8 IS USM	EF 28mm f/1.8 USM	EF 28mm f/2.8 IS USM
EF 35mm f/1.4L USM	EF 35mm f/2 IS USM	EF 40mm f/2.8 STM	EF 50mm f/1.2L USM
EF 50mm f/1.4 USM	EF 50mm f/1.8 II	EF 85mm f/1.2L II USM	EF 85mm f/1.8 USM
EF 100mm f/2 USM	EF 135mm f/2L USM	EF135mm f/2L USM + Extender EF1.4x	EF 200mm f/2.8L II USM
EF 300mm f/2.8L IS II USM	EF 400mm f/2.8L IS II USM	EF 16-35mm f/2.8L II USM	EF 24-70mm f/2.8L II USM
EF 70-200mm f/2.8L USM	EF 70-200mm f/2.8L IS USM* ¹	TS-E 45mm f/2.8* ³	TS-E 90mm f/2.8* ³



Group B

Standard-precision, cross-type AF at all 65 AF points

All 65 AF points available. Standard-precision cross-type AF at each point. All AF Area options can be selected.

- f/5.6 cross-type points

*2 also uses B type when using Extender EF1.4x
*3 Focus confirmation available when using manual focus (Tilt/Shift movements at "zero").

Major lenses

EF-S 60mm f/2.8 Macro USM	EF-S 15-85mm f/3.5-5.6 IS USM	EF-S 17-85mm f/4-5.6 IS USM	EF-S 18-135mm f/3.5-5.6 IS
EF-S 18-135mm f/3.5-5.6 IS STM	EF-S 18-200mm f/3.5-5.6 IS	EF-S 55-250mm f/4-5.6 IS II	EF-S 55-250mm f/4-5.6 IS STM
EF 50mm f/2.5 Compact Macro	EF 50mm f/2.5 Compact Macro + LIFE SIZE Converter	EF 100mm f/2.8 Macro (non-USM)	EF 100mm f/2.8L Macro IS USM
EF 135mm f/2L USM + Extender EF2x	EF 180mm f/3.5L Macro USM	EF 200mm f/2.8L II USM + Extender EF1.4x (or EF2x)	EF 300mm f/2.8L IS II USM + Extender EF1.4x (or EF2x)
EF 300mm f/4L IS USM* ²	EF 400mm f/2.8L IS II USM + Extender EF1.4x (or EF2x)	EF 400mm f/4 DO IS USM* ²	EF 400mm f/4 DO IS II USM* ²
EF 400mm f/5.6L USM	EF 500mm f/4L IS II USM* ²	EF 600mm f/4L IS II USM* ²	EF 8-15mm f/4L Fisheye USM
EF 16-35mm f/4L IS USM	EF 17-40mm f/4L USM	EF 24-70mm f/4L IS USM	EF 24-105mm f/3.5-5.6 IS STM
EF 24-105mm f/4L IS USM	EF 28-135mm f/3.5-5.6 IS USM	EF 28-300mm f/3.5-5.6L IS USM	EF 70-200mm f/2.8L IS USM + Extender EF1.4x (or EF2x)
EF 70-200mm f/2.8L IS II USM + Extender EF1.4x (or EF2x)	EF 70-200mm f/4L IS USM* ²	EF 70-300mm f/4-5.6 IS USM	EF 70-300mm f/4-5.6L IS USM
EF 70-300mm f/4.5-5.6 DO IS USM	EF 100-400mm f/4.5-5.6L IS USM	EF 200-400mm f/4L IS USM Extender 1.4x* ²	TS-E 17mm f/4L* ³
TS-E 24mm f/3.5L* ³	TS-E 24mm f/3.5L II* ³		

Lenses compatible with 65 AF points



EF-S 10-22mm f/3.5-4.5 USM



EF-S 18-55mm f/3.5-5.6 IS STM



Group C

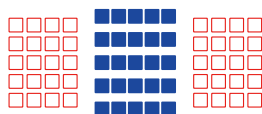
AF at all 65 points; cross-type AF at central 45 AF points

All AF points available with f/5.6 or faster lenses; vertical-line AF (sensitive to horizontal detail) at outer 20 AF points.

- f/5.6 cross-type points
- f/5.6 horizontal line detection line sensor

Major lenses

EF-S 10-22mm f/3.5-4.5 USM	EF-S 18-55mm f/3.5-5.6	EF-S 18-55mm f/3.5-5.6 USM	EF-S 18-55mm f/3.5-5.6 II
EF-S 18-55mm f/3.5-5.6 II USM	EF-S 18-55mm f/3.5-5.6 III	EF-S 18-55mm f/3.5-5.6 IS	EF-S 18-55mm f/3.5-5.6 IS II
EF-S 18-55mm f/3.5-5.6 IS STM	EF 20-35mm f/3.5-4.5 USM	EF 35-135mm f/4.5-6 USM	EF 75-300mm f/4.5-6 USM
EF 100-300mm f/4.5-5.6 USM			



Group D

AF at all 65 points; cross-type AF at central 25 AF points

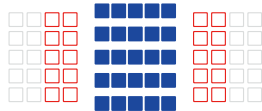
AF at all 65 points, with lenses f/5.6 or faster. Vertical-line AF (sensitive to horizontal detail) at outer 40 AF points.

- f/5.6 cross-type points
- f/5.6 horizontal line detection line sensor

Major lenses

EF 24-85mm f/3.5-4.5 USM	EF 35-350mm f/3.5-5.6L USM	EF 55-200mm f/4.5-5.6 USM	EF 55-200mm f/4.5-5.6 II USM
EF 80-200mm f/4.5-5.6	EF 90-300mm f/4.5-5.6	EF 90-300mm f/4.5-5.6 USM	EF-S 18-55mm f/3.5-5.6 IS II

Lenses compatible with 45 AF points



Group E

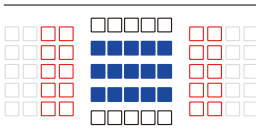
45 available AF points; central 25 are cross-type

With the following lenses in Group E, AF is limited to 45 points (the outer 20 are not available at all). Cross-type AF with any of the central 25 points.

- f/5.6 cross-type points
- f/5.6 horizontal line detection line sensor
- AF not possible with Group E lens

Major lenses

EF-S 10-18mm f/4.5-5.6 IS STM	EF 100mm f/2.8 Macro USM	EF 800mm f/5.6L IS USM	EF 1200mm f/5.6L USM
EF 28-70mm f/3.5-4.5	EF 28-70mm f/3.5-4.5 II	EF 28-80mm f/3.5-5.6	EF 28-80mm f/3.5-5.6 USM
EF 28-80mm f/3.5-5.6 II	EF 28-80mm f/3.5-5.6 II USM	EF 28-80mm f/3.5-5.6 III USM	EF 28-80mm f/3.5-5.6 IV USM
EF 28-80mm f/3.5-5.6 V USM	EF 35-70mm f/3.5-4.5	EF 35-70mm f/3.5-4.5A	EF 35-80mm f/4.5-6 PZ
EF 35-80mm f/4.5-6 II E	EF 38-76mm f/4.5-5.6	EF 80-200mm f/4.5-5.6 USM	EF 80-200mm f/4.5-5.6 II



Group F
45 available AF points;
cross-type AF at central
15 AF points

- f/5.6 cross-type points
- f/5.6 vertical line detection line sensor
- f/5.6 horizontal line detection line sensor
- Unavailable AF points

AF is possible at 45 AF points, with cross-type AF at the central 15 AF points. Single-line AF sensors at upper and lower row of 5 points in central area, and outer 10 to the left and right. All AF Area selection options are available.

Major lenses

EF 180mm f/3.5L Macro USM + Extender EF1.4x	EF 22-55mm f/4-5.6 USM	EF 28-105mm f/4-5.6
EF 28-105mm f/4-5.6 USM	EF 35-80mm f/4-5.6	EF 35-80mm f/4-5.6 USM
		EF 35-80mm f/4-5.6 III

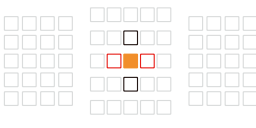
5 available AF points; includes lenses + extenders, effective apertures f/6.3~f/8



EF 300mm F4L IS USM



Extender EF2x III



Group G
Cross-type AF at center
point; surrounding four
AF points available with
AF Point Expansion

- Standard-precision, cross-type points
- f/5.6 vertical line detection line sensor (active during AF point expansion only)
- f/5.6 horizontal line detection line sensor (active during AF point expansion only)
- Unavailable AF points

AF with extenders, at f/8 and faster effective maximum apertures (and certain older, discontinued EF zoom lenses), is possible at the center AF point — which retains its cross-type

coverage. AF point expansion adds the four surrounding, single-line AF points. Spot AF is also possible (without the surrounding assist points).

Major lenses

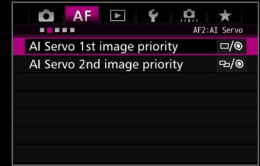
EF 35-105mm f/4.5-5.6	EF 35-105mm f/4.5-5.6 USM	EF 300mm f/4L USM + Extender EF2x	EF 300mm f/4L IS USM + Extender EF2x
EF 400mm f/4 DO IS USM + Extender EF2x	EF 400mm f/4 DO IS II USM + Extender EF2x	EF 400mm f/5.6L USM + Extender EF1.4x	EF 500mm f/4L IS USM + Extender EF2x
EF 500mm f/4L IS II USM+ Extender EF2x	EF 500mm f/4.5L USM + Extender EF1.4x	EF 600mm f/4L USM + Extender EF2x	EF 600mm f/4L IS USM + Extender EF2x
EF 600mm F/4L IS II USM + Extender EF2x	EF 800mm f/5.6L IS USM + Extender EF1.4x	EF 1200mm f/5.6L USM + Extender EF1.4x	EF 70-200mm f/4L USM + Extender EF2x
EF 70-200mm f/4L IS USM + Extender EF2x	EF 100-400mm f/4.5-5.6L IS USM + Extender EF1.4x	EF200-400mm f/4L IS USM Extender1.4x; With built-in Ext 1.4x+ Extender EF1.4x	EF 200-400mm f/4L IS USM Extender1.4x + Extender EF2x

AF operation and Image/Focusing Priority settings

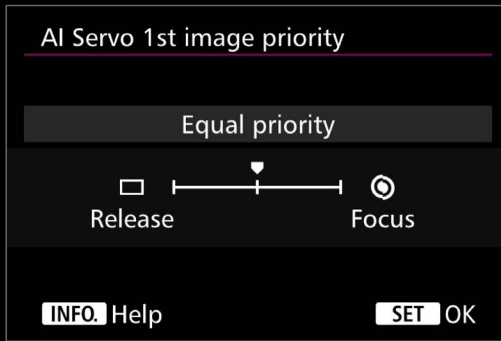
You determine whether focusing or shutter-release timing has priority

Faster shutter release vs. more time for AI Servo AF — the 2nd AF Menu

You can decide whether to put priority on focusing or shutter-release, during AI Servo AF



1 [AI Servo 1st image priority]: How will first shot in a sequence be fired?



Equal priority

This setting gives an equal priority to both focus and shutter-release

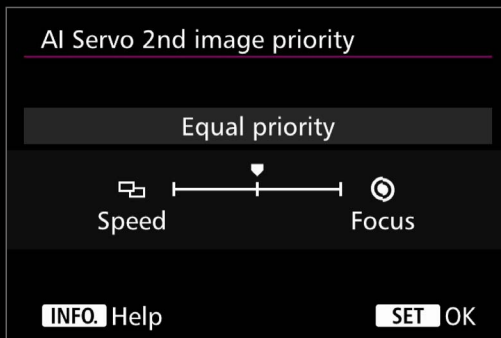
Release priority

Camera aims for fastest shutter firing, and will capture an image even if it hasn't confirmed focus. It's effective when you want to minimize any delay or shutter "lag time" for the 1st shot in a sequence.

Focus priority

For the initial shot in an AI Servo AF sequence, camera will allow extra time if needed to confirm sharpest focus before firing shutter. Use this setting when sharpest focus is most important.

2 [AI Servo 2nd image priority]: FPS speed vs. sharpest focus in continuous sequences



Equal priority

This setting gives an equal priority to both focus and shooting speed during continuous shooting. The speed of continuous shooting may slow down with dark or low-contrast moving subjects.

Shooting speed priority

This setting gives priority to fastest continuous shooting speed, rather than priority on focus. FPS speed won't slow down, even in difficult situations.

Focus priority

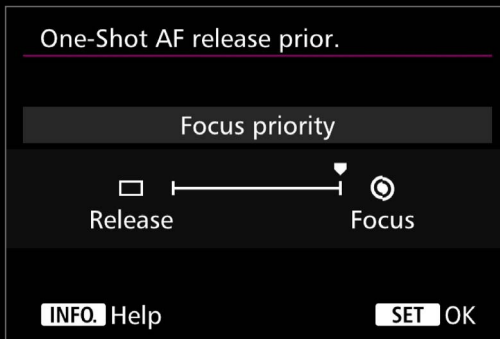
Camera will slow down continuous Drive speed as needed to insure sharpest possible AI Servo AF during a sequence. Focus, not speed, is priority.

Shutter timing in One-Shot AF [AF3 tab]

One-Shot AF with stationary subjects: Fastest possible shutter release, or allow extra time when needed for AF?



[One-Shot AF release priority]



Release priority

Priority is on fastest possible shutter firing, rather than focus. It is recommended only when split-second shutter timing is more important than allowing sufficient time for sharpest possible focus.

Focus priority

You cannot shoot a picture unless the AF system has confirmed sharp focus. The default One-Shot AF method with EOS SLRs, this minimizes the risk of shooting before AF has completed.

The [AF2] and [AF3] tabs include settings related to AF operation parameters and shutter-release timing. With these items it's possible to set which has priority — allowing more time, when needed, for sharpest focus, or fastest shutter release.

Separate adjustments are possible for AI Servo AF, and for One-Shot AF. In the 2nd AF menu, AI Servo AF shutter timing allows independent settings for the first shot in a sequence, and remaining continuous shots. With [Focus priority], shooting is delayed until after the camera has focus on a subject (this could be just a few milliseconds). With [Release priority/Shooting speed priority] shooting takes

place instantly without slowing for focus, resulting in faster response and FPS drive speed. The default [Equal priority] sets equal priority on both (attempting to focus without major delays to shutter release timings), ideal for most shooting situations.

Response time in One-Shot AF can be adjusted in the 3rd Menu tab. The priority of focusing and shutter-release can be altered in the same way as about during AI servo AF. [Focus priority] is the default setting.

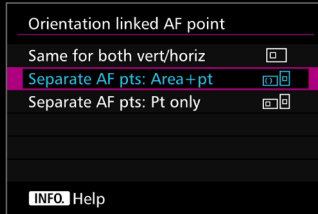
This menu screen also has settings to control the AF-assist beam for flash, and also to control how certain lenses (STM, etc.) behave with manual focus.

Change AF points automatically, when the camera is turned from horizontal to vertical

Orientation Linked AF: Use the power of off-center AF points, without any slow-down when moving from horizontal to vertical shooting

Set up steps

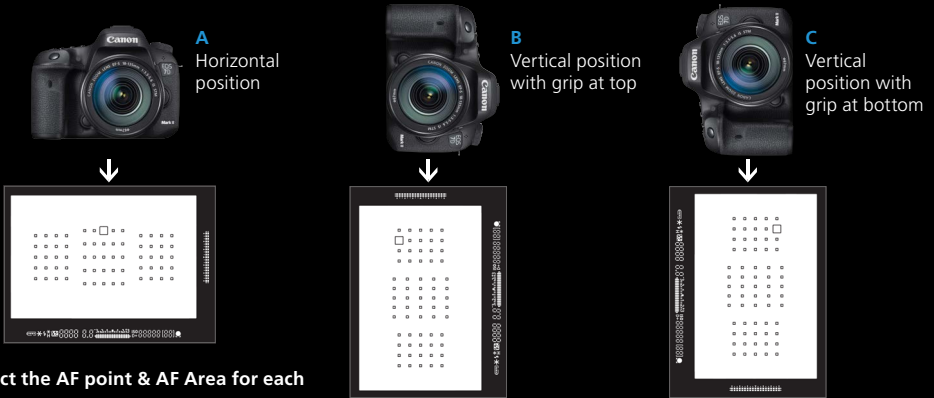
Use **[Orientation linked AF pts: Area + pt]** in the **[AF4]** tab to set the AF points for each orientation



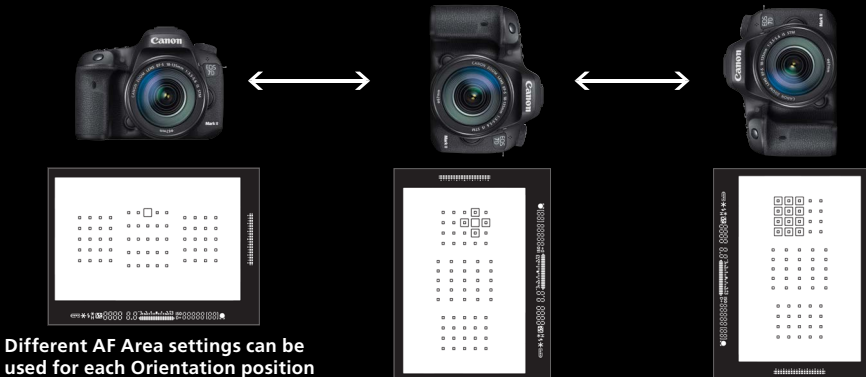
Orientation Linked AF is a revelation for any photographer who frequently finds him- or herself quickly moving from horizontal to vertical shooting. The first menu option, **[Area + pt]**, allows choosing not only different AF points but also different AF Area settings for horizontal vs. vertical shooting. Thus, it's possible (for instance) to combine Spot AF for vertical shots, and a broader AF Point Expansion Area setting for horizontals.

1 Select the **[Separate AF points]** option from **[Orientation linked AF point]**

2 Select an AF point/AF Area for horizontal shooting, then turn vertically and repeat.

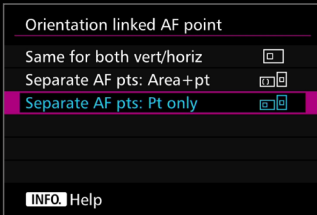


3 By changing the camera's orientation, the set AF points and modes will switch automatically



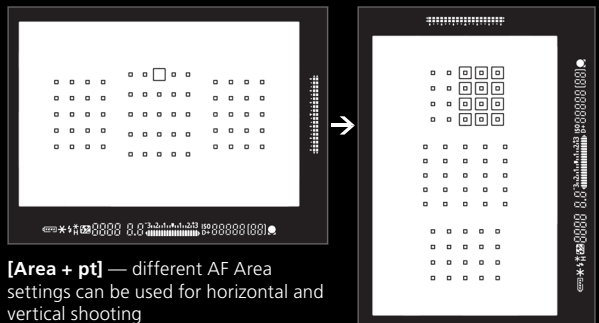
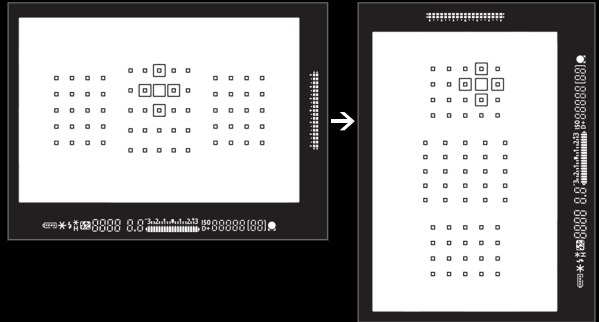
New: change AF point location, but keep same AF Area when camera turns horizontal to vertical

It's now possible to have different AF points but keep the same [AF Area selection mode]; whichever AF Area is set for one orientation will be the Area used for the other.



[Separate AF pts: Pt only]

In the **[Pt only]** setting, Orientation Linked AF still allows a separate AF point to be selected for horizontal and vertical shooting. But now, it maintains the same AF Area setting between the two. If the user changes one AF Area (for instance, with the camera held horizontally), the AF Area for the vertical AF point will change to match.



[Area + pt] — different AF Area settings can be used for horizontal and vertical shooting

More and more Canon photographers are seeing the benefits of manually selecting an off-center AF point, and the EOS 7D Mark II underscores this with the broadest AF coverage to date in an EOS camera.

However, it's common to quickly change from horizontal to vertical shooting (or vice-versa), and an AF point that was right on the eyes in a horizontal portrait now may be off to one side in a vertical shot. Orientation Linked AF is the answer.

This incredibly useful setting lets users select an AF point for horizontal shots, turn the camera vertically, and select a different AF point that's optimal for that shooting orientation. Now, when you start shooting,

the camera automatically selects the AF point pre-set when it's held horizontally, and instantly changes to the vertical point when the camera is turned to a vertical holding position. It's a perfect companion for many applications: portraits, sports, wildlife, fashion, and so many more.

Different AF Area settings can be chosen for the vertical and horizontal memorized AF points, when the **[Area + pt]** option has been selected. And it's easy to move one of these points to another location, any time shooting situations call for it.

Instantly recall an AF point using [Switch to registered AF point]

Store your preferred AF point for instant access at the touch of a button

C.Fn3:Disp./Operation	
Focusing Screen	Std.
Warnings  in viewfinder	-
LV shooting area display	
Dial direction during Tv/Av	
Multi function lock	-
Custom Controls	


Activate [Custom Controls] from the 3rd Custom Functions menu


Any of five controls on the EOS 7D Mark II (plus the lens AF Stop buttons on specific super-tele lenses) can be configured to instantly switch to a registered, or memorized, AF point. It's done in the Custom Controls menu, on the [C.Fn 3] menu tab.

Set up steps

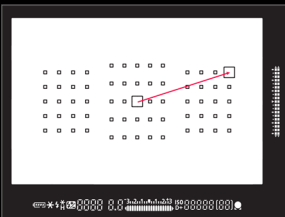
- 1 There are three options to customize the controls to recall an AF point:

A Assign [Metering - AF start] to the AF-ON button or the * button, then press INFO and from AF Start position, [Registered AF point] ("HP" icon)

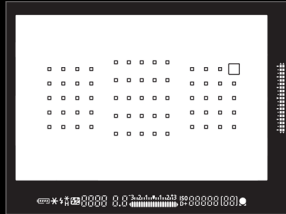
B Assign [Switch to registered AF point] to the  button, or LENS button. Press INFO to select if the option is applied only when the button is held or not


C Select either the Multi-controller or AF Area Select lever, Choose AF pt select, and press INFO to select 

- 4 Registered AF point will blink in viewfinder. Use any other AF point, and return to the memorized point via the button assigned in steps 1~3, above.




- 2 Navigate to the AF point you will want to memorize. (This is possible with all AF area selection modes except Zone AF)




- 3 Hold in the  button and press the illuminator button until you hear a beep.



When the AF-ON button or the * button are assigned [Metering - AF start], "back-button AF" is possible. Normally, the current AF point is used, but by pressing INFO, you can change this to  — the "HP" icon stands for Home Position, or a memorized AF point. In other words, you can immediately switch to a registered AF point while an assigned button is held in. Here are a few additional possibilities:

- **Two back-buttons for AF:**
One for a normally-used AF point, and the other for a memorized pt
- **Combine with Orientation Linked AF:**
Have normally-used pts. for horiz/vert. shooting. Add a 2nd registered point for horiz. or vert., and jump to it with a button.
- **Immediately jump to center AF point with Multi-controller:**
Assign [Direct AF point selection] to Multi-controller in [Custom Controls] menu; press INFO and choose [Switch to center AF pt]

How to cancel a memorized AF point:

Either repeat steps 1~3 (above) and select a new registered AF point, or Press  and ISO together to clear a memorized point completely.



One example of the value of being able to quickly move from one AF point to another. Simply using the center AF point for moving subjects locks them into a bulls-eyed composition — rarely the answer for great images.

Pre-setting a registered AF point on one side, and then moving to another location for initial use, lets the shooter photograph these vintage planes with their exhaust trail, leaving the frame to the left (above), and then to the right.

All that's needed is to press a button to momentarily switch to the memorized AF point. And, several buttons have further options, for even more control.

In many fast-paced shooting situations, the challenge to the photographer is how to quickly and seamlessly move from one AF point to another. EOS 7D Mark II answers the challenge with some innovative ways to do exactly that.

Orientation Linked AF (pages 38–39) is one way. Memorizing an AF point, and customizing a camera (or lens) control to instantly return to it, is another.

The procedures described here let you work with any AF point you normally prefer, but immediately change to another, with one finger. It becomes easy

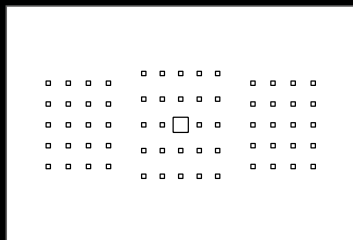
to change composition quickly, even in sports or action situations where continuous AI Servo AF is needed. A subject can be focus-tracked as it enters the frame on one side, and departs on the opposite.

And, it's possible to combine several of these features, as described on the previous page. Working in fast-paced situations, you can have several AF points literally at your fingertips. In fact, with either back-button, you not only can switch AF points, but can also change the AF Area or even AI Servo AF settings (press INFO in [**Custom Controls**]).

AF Area settings can be memorized and recalled, too

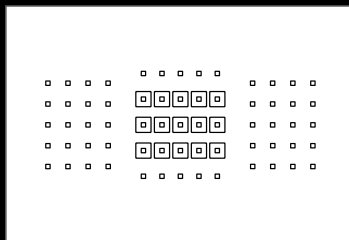
Two different options to instantly change size of AF point, by pressing a user-defined button: add [AF Area Selection] to a memorized AF point, or use the new [Register/apply shooting functions]

Perform multiple changes by pressing either “back-button:” Within [Metering + AF Start], change AF point location, AF Area, and even AI Servo AF settings when button is pressed



Original setting: Center AF point, AF Area at [Single point AF]

➔ **AF-ON**
By pressing the assigned button ➔

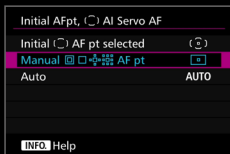


Instantly switch to Zone AF, by pressing AF-ON button

AF Area — the size of an AF point — can also be instantly changed with the press of either the AF-ON or * buttons. Select either in [Custom Controls], choose [Metering + AF Start], and press INFO, then [AF Area Selection].

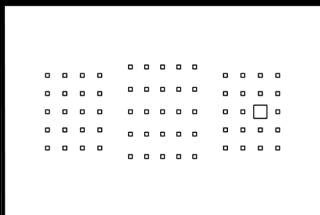
Memorize Automatic AF point selection (as shown above), and apply it instantly with a button push

Use same AF start point for Automatic AF point select (with AI Servo AF) that was used for manual selection

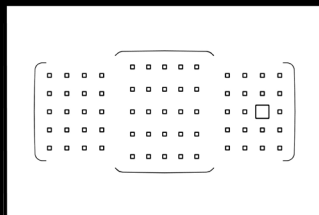


Choose where focus-tracking starts with Automatic AF point selection in AI Servo AF — including new [Manually set points in] option

Switch quickly to Automatic AF point selection, and have AI Servo AF start tracking from the same AF point you'd be using for a different AF Area setting previously.



Single AF point, manually selected




Same AF point is starting point when AI Servo AF is combined with Auto AF point selection

Initial AF pt. options for Automatic AF point select in AI Servo AF:

- **Initial Auto AF pt. selected:** manually choose any AF point as starting point for AI Servo AF tracking
- **Manual AF pt:** same AF point manually chosen will be starting point for Auto AF pt. select
- **Auto:** camera will select nearest subject as starting point for AI Servo AF with Auto AF pt. select


Buttons that can be assigned to switching AF area selection modes

There are the five buttons that can be assigned to switch AF functions. The AF-ON button and * button can be assigned with **[Custom Controls]** to the very comprehensive **[Register/apply shooting functions]**, and the LENS button and  button can be assigned with **[Switch to registered AF functions]**.

[Register/apply shooting functions]:

AF-ON AF-ON button * AE lock button

[Switch to registered AF functions]:

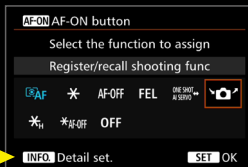
LENS lens AF stop button  depth-of-field preview button

Set up steps

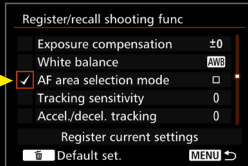
[Register/apply shooting functions]



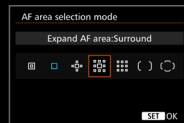
Assign to the AF-ON button, or the * button — **[Register/apply shooting functions]**



Press the INFO button



Select the **[AF area selection mode]**



Set up steps

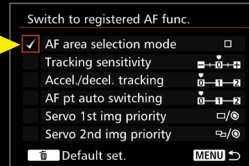
[Switch to registered AF functions]



Assign to the LENS or depth of field preview button




Press the INFO button



Select **[AF area selection mode]**

The new **[Register/apply shooting functions]** allows a comprehensive range of camera settings to be instantly changed. Among them are a host of AF settings. **[Register/apply shooting functions]** can be applied to the AF-ON or * buttons.

Another option for instant AF changes is **[Switch to registered AF function]**, which can be assigned to the LENS or  button, in **[Custom Controls]**. Press the INFO button to select a different AF Area, as well as change AI Servo AF characteristics — if desired.

AF Area settings bring power to the photographer, with the flexibility they offer to match the AF sampling area to the subject and its inherent detail (and its movement) you'll be shooting.

The EOS 7D Mark II now offers four different ways to instantly access this feature, and change the size of the AF point — *while you continue to shoot, and without ever pulling your eye from the viewfinder*. Several include the option to change the location of the active AF point, as well.

It's possible to dedicate four different controls, if you're shooting with a lens having AF Stop buttons, to instantly switch to a unique AF Area. In other words, anything from Spot AF to Large Zone AF can be right at your fingertips.

Among these tools is a tremendous new option: **[Register/apply shooting functions]**. Not only AF point characteristics, but entirely new exposure, WB, and AI Servo control settings can be pre-set, and instantly applied with the AEL or AF-ON buttons.

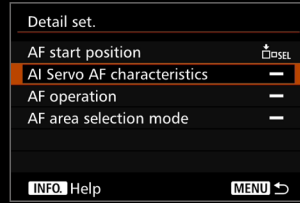
New possibilities for the AF-ON and AE Lock buttons

It's your choice — simply start AF, or change how AF operates when you push a back-button

1 Back-button AF [Metering + AF Start] can now be pre-set to change AF characteristics, as well as simply start AF when the AF-ON or * button is pressed



Press the **INFO** button when AF-ON/* button is active in Custom Controls menu →



Switch to a memorized AF point. Change to a different AI Servo AF "Case." Change AF from One-Shot to AI Servo AF, or vice-versa. Switch to a new AF Area. Add as much or as little as you like.

Dedicate one "back-button" to simply activating AF, as you have been using it. EOS 7D Mark II gives you the option to use the other to activate AF with totally different AF settings — anything from a change of AF Area to detailed changes in AI Servo AF (for instance, one button for steady movement, and another for erratic action).



AF-ON *
AF ON button AE lock button

This feature makes it possible to instantly switch between different AI Servo AF "Cases," using the two adjacent buttons

Assign [Case1] to AF-ON

Assign [Case2] to *



Functions that can be dedicated to the AF-ON button and * button:

- **AF start position:**
Back-button AF with same AF point, or switch to a memorized AF point
- **AI Servo AF characteristics**
Keep same AI Servo AF "Case," or switch to a different one
- **AF operation:**
Stay in same AF mode, or switch to One-Shot AF/AI Servo AF
- **AF Area select mode:**
Keep same AF Area, or change it when back-button is pressed



Example: when usually using the AF-ON button (Case 1) to shoot, use the * button (Case 2) to shoot when there are many obstacles

2 Another back-button option: [ONE SHOT ⇌ AI SERVO] to the AF-ON or * buttons



[ONE SHOT ⇌ AI SERVO]: Instantly toggle between One-Shot AF and AI Servo AF when a user-dedicated back-button is pressed

Use Custom Controls to set either button to immediately switch AF operation from One-Shot AF to AI Servo AF, or vice-versa — it's a temporary change, while the button is pressed. A great option for event, wedding and nature/wildlife shooters, especially for users who prefer activating AF from the shutter button.



Nearly 30 years ago, “back-button AF” revolutionized how AF was used by photographers. Custom Controls on the EOS 7D Mark II opens up a whole new realm of possibilities for instant control.

[ONE SHOT ⇌ AI SERVO] is only one of several possible AF-related short-cuts that can be applied to the rear AF-ON and AE Lock buttons.

It's so much more than just “back-button AE.” The EOS 7D Mark II and its Custom Controls make it possible for the AF-ON or AE Lock buttons to rapidly change how focus itself is carried out.

Example: set traditional back-button AF [**Metering + AF Start**], but add options like changing AI Servo AF “Case,” the AF Area setting, or switch over to One-Shot AF (or AI Servo AF) while that button is being pressed.

There's more. Turn either the AF-ON or * button into a focus-lock button [**AF-OFF**], or combine

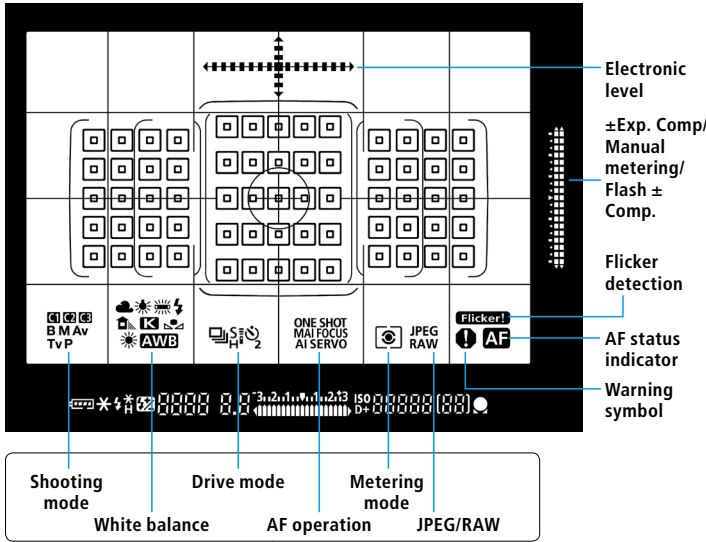
focus lock and AE Lock [***AF-OFF**] — a great option for users who shoot action with AI Servo AF, but prefer to use the shutter button for AF activation

Finally, there's the comprehensive [**Register/recall shooting function**], which allows pre-setting a large variety of exposure, white balance, and detailed AF settings, and instantly applying them. It's perfect for situations like when an athlete or wildlife moves from sun to shade, to allow virtually uninterrupted focus-tracking and shooting.

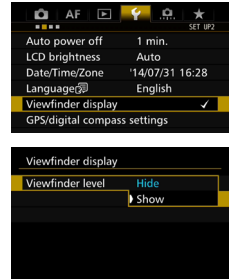
A truly full information, optical viewfinder

Comprehensive but totally adjustable — show as much or as little as you like

The EOS 7D Mark II's new Intelligent Viewfinder



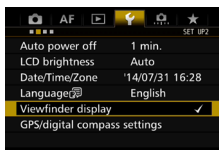
Electronic level in viewfinder



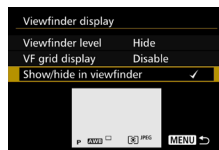
Set in [Q2] tab, [Viewfinder display] > [Viewfinder electronic level]

Canon's first electronic level display in the viewfinder that can be set for full-time activation. Disabled by default, it's easily activated in the Set-up Menu, as shown above.

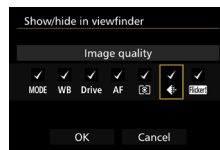
The new shooting info items (above) can be individually shown or hidden



Select [Q2] tab > [Viewfinder display]



Select [Show/hide in viewfinder]



Add a <> to items you want to display

For the first time ever in an EOS camera, detailed shooting info appears in the lower part of the viewfinder. Using [Show/hide in viewfinder], it's easy to display items you want, and disable those you don't need.

Using a sophisticated LCD overlay, the EOS 7D Mark II's Intelligent Viewfinder II displays more information than any previous EOS digital SLR. But using the [Viewfinder display] command in the 2nd Set-up Menu, as well as AF display settings in the 5th AF menu, it's easy to show as much (or as little) as you're comfortable with.

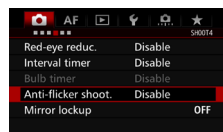
Especially noteworthy are the new shooting info icons toward the bottom of the finder. Since these correspond largely to the control buttons at the top of the camera, it becomes easy to change white balance, metering, drive modes, and more without removing the camera from your eye. There's separate control to illuminate the viewfinder, as well.

A Canon first: correction for flickering artificial lights with still images

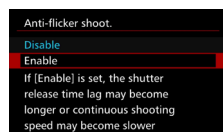
Especially effective with fast shutter speeds under certain artificial lights

Shoot with Anti-flicker shooting settings

Even pros encounter this vexing problem: erratic exposure and white balance, from shot to shot, in certain indoor images. The problem? Flickering artificial lights, which cycle through fast on-off-on operation. Now, EOS 7D Mark II provides a simple and easy-to-apply answer.



Select [Q] tab > [Anti-flicker shoot]



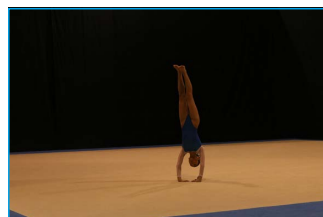
Choose [Enable]

When this function is used, the camera will detect flickering cycles in the light source and shoot at an appropriate time in order to reduce the effect of flickering on the exposure and color balance.

Anti-flicker shooting [Enable]



Anti-flicker shooting [Disable]



Shots that show exposure and color bias due to flicker effects

Flickering light sources are sometimes present in outdoor stadiums

When shooting under fluorescent (or similar) artificial lighting with a fast shutter speed, the rapid on-off-on cycling of the lights can result in uneven exposure on parts of the frame or across the entire image, and produce erratic color and white balance shifts. The EOS 7D Mark II is Canon's first-ever SLR with ability to detect this flickering of artificial lights, and adjust shutter and drive timing to fire the

shutter at the instant of "peak" illumination. This minimizes or eliminates the shifts in exposure and color balance.

[Anti-flicker shoot.] can be easily activated any time you find yourself in this type of lighting situation. It senses and adjusts shutter timing for lights flickering at rates of 100Hz (100 times per second) and 120Hz.

* When [Anti-flicker shoot.] is active and you shoot under a flickering light source, the shutter-release time lag may become slightly longer. Also, the continuous shooting speed may become slightly slower, and the shooting interval may become irregular.

Summary: Recommended AF settings for different shooting situations

Recommended AF mode and AF Configuration Tool combinations

Still life/landscape

Use **[Single-point AF]** to focus on the optimal location in the composition

AF mode	ONE SHOT AI SERVO
Drive mode	Single image High-speed continuous shooting
AF area selection mode	Single-point Spot AF Single-point AF AF point expansion (Manual selection \rightarrow) AF point expansion (Manual selection, surrounding points) Zone AF Large Zone AF 65-point automatic selection AF
AF Configuration Tool	(Not used for ONE SHOT AF)

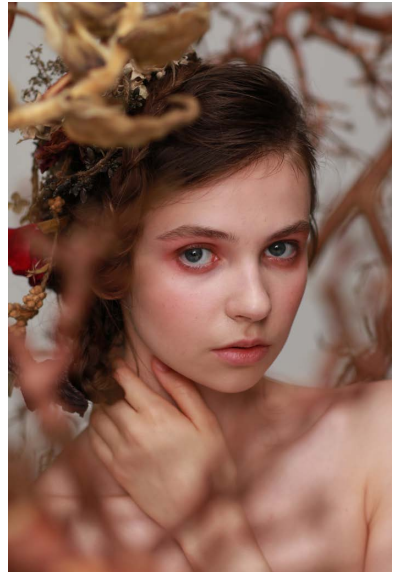


For stationary subjects such as landscapes, a single AF point makes it easy to place focus precisely on one part of the scene. **[Single-point AF]** or **[Spot AF]**, with Drive set to single-frame advance, make careful focus and composition easy.

Portrait

[Single-point Spot AF] is especially effective for focusing on eyes.

AF mode	ONE SHOT AI SERVO
Drive mode	Single image High-speed continuous shooting
AF area selection mode	Single-point Spot AF Single-point AF AF point expansion (Manual selection \rightarrow) AF point expansion (Manual selection, surrounding points) Zone AF Large Zone AF 65-point automatic selection AF
AF Configuration Tool	(Not used for ONE SHOT AF)



When shooting close-up portraits, it's important to focus on the eye closest to you. This is an instance where **[Spot AF]** allows even more precise focus on just a small part of the scene.

Fast-moving subjects that approach in a straight line

Case 1 is a standard setting for use in a wide variety of situations

AF mode	ONE SHOT AI SERVO
Drive mode	Single image High-speed continuous shooting
AF area selection mode	Single-point Spot AF Single-point AF AF point expansion (Manual selection \pm) AF point expansion (Manual selection, surrounding points) Zone AF Large Zone AF 65-point automatic selection AF
AF Configuration Tool	Case 1



For situations where you are shooting an athlete from head on, Single point AF and AF Configuration Tool Case 1 setting can be used to accurately capture the movement of a subject that comes right by your position. Don't forget about AI SERVO and high-speed continuous shooting.

Sports scenes with intense movement

Continue to track subjects with [AF point expansion] and [Case 2].

AF mode	ONE SHOT AI SERVO
Drive mode	Single image High-speed continuous shooting
AF area selection mode	Single-point Spot AF Single-point AF AF point expansion (Manual selection \pm) AF point expansion (Manual selection, surrounding points) Zone AF Large Zone AF 65-point automatic selection AF
AF Configuration Tool	Case 2



For sports with a lot of intense movement, such as kayaking, soccer, and rugby, where other subjects (obstructions) may block the subject you are aiming for, the combination of AF point expansion and Case 2 is effective. AF Point Expansion (4-point or 8 surrounding points) allows added flexibility to track subjects that move across the frame.

Sports with sudden speed changes

Use [Case 4] to deal with changes in speed.

AF mode	ONE SHOT AI SERVO
Drive mode	Single image High-speed continuous shooting
AF area selection mode	Single-point Spot AF Single-point AF AF point expansion (Manual selection \rightarrow) AF point expansion (Surrounding) Zone AF Large Zone AF 65-point automatic selection AF
AF Configuration Tool	Case 4 or Case 6



For moving subjects with sudden deceleration (or sudden acceleration), such as cornering in motor sports and running long jumps in track and field, [Case 4] is effective. [Case 6] is also recommended for subjects that include a lot of movement in the up, down, left, right directions.

Sports with up and down movement and jumping

Capture up and down movement with [Case 5] and [AF point expansion].

AF mode	ONE SHOT AI SERVO
Drive mode	Single image High-speed continuous shooting
AF area selection mode	Single-point Spot AF Single-point AF AF point expansion (Manual selection \rightarrow) AF point expansion (Surrounding) Zone AF Large Zone AF 65-point automatic selection AF
AF Configuration Tool	Case 5 or Case 6

[Case 5], combined with an expanded AF Area, is recommended for capturing up and down and side to side movement in badminton smash shots, and jumping scenes in gymnastics competitions. [Case 6] is also recommended for sudden changes in subject speed, combined with these side-to-side movements.



Large subjects such as airplanes

Capture the surface of a subject by using [Large Zone AF].

AF mode	ONE SHOT AI SERVO
Drive mode	Single image High-speed continuous shooting
AF area selection mode	Single-point Spot AF Single-point AF AF point expansion (Manual selection \rightarrow) AF point expansion (Surrounding) Zone AF Large Zone AF 65-point automatic selection AF
AF Configuration Tool	Case 1



To follow-focus a large subject, especially to insure focus on the nearest subject (or part of subject), consider the new [Large Zone AF] AF Area option.

Small subjects such as wild birds

Use **[Zone AF]** and capture the surface of the subject from a somewhat narrow angle.

AF mode	ONE SHOT AI SERVO
Drive mode	Single image High-speed continuous shooting
AF area selection mode	Single-point Spot AF Single-point AF AF point expansion (Manual selection \rightarrow) AF point expansion (Surrounding) Zone AF Large Zone AF 65-point automatic selection AF
AF Configuration Tool	Case1



When shooting small, quick-moving subjects such as wild birds, etc., use **[Zone AF]** to put a larger AF Area on the subject, and lessen the risk of AF "losing" it as it moves.

Subjects moving around freely; For framing utilizing space

Use **[65-point automatic selection AF]** and follow subject movement across the AF array

AF mode	ONE SHOT AI SERVO
Drive mode	Single image High-speed continuous shooting
AF area selection mode	Single-point Spot AF Single-point AF AF point expansion (Manual selection \rightarrow) AF point expansion (Surrounding) Zone AF Large Zone AF [65-point automatic selection AF]
AF Configuration Tool	Case 1 or Case 2



[65-point automatic selection AF] is especially effective for single subjects that move laterally, when you want to preserve an original composition and not continually move the camera to keep a single AF point upon it. EOS iTR metering teams-up with the AF system to shift AF points and follow the subject.

There's so much potential to photographers who are willing to go beyond simply picking a single AF point in the center, and switching to AI Servo AF to begin shooting moving subjects.

These four pages outline some possible preliminary starting settings that help optimize the EOS 7D Mark II's AF system for different types of moving subjects. No one setting is right for every situation;

the camera's ability to change AF Area settings, select different Cases in the AF Configuration Tool menu, and combine this with the camera's drive speed (up to 10fps, with AI Servo AF) make this a truly versatile tool for the serious working photographer.

Use this guide to understand the fundamentals available, and then experiment with them to see what works best when the camera is in your hands.