

DEPTH OF FIELD

The 'Depth of Field' in a photograph is described as how much of the image, front to back, is in acceptably sharp focus. (It is sometimes called 'Depth of Focus'.) The image does not suddenly go out of focus, it just gradually gets softer the further away from the 'Focus Distance' (sometimes called 'Focus Point') it gets. The 'Focus Distance' is distance from the camera to the subject being photographed.

As a very general, often broken rule, we use a small Depth of Field with portraits, a large one for landscapes and the largest one possible close-up/macro photography.

The Depth of Field is controlled by the 'Aperture' (f stop), but the Focus Distance has a major influence on it.

With a large Aperture (f stop), $f3.5$ for example, you will get a small Depth of Field. With a small Aperture (f stop), $f22$ for example, you will get a larger Depth of Field.

The Focus Distance also affects the Depth of Field. If the subject being photographed is a long way from the camera, the Depth of Field is quite long. The closer the subject is, the shorter the Depth of Field becomes. With extreme close-up/macro photography it becomes very short, maybe only $\frac{1}{8}$ inch.

Here are some examples. If the subject is 15 feet from the camera and you have set an Aperture of $f8$ the Depth of Field will go from 8' to infinity. Still focused at 15 feet but with a wide Aperture of $f3.5$ set the Depth of Field now goes from 11' to 24', only 13' long.

If we set the Aperture back to $f8$ but the subject is now closer at 7 feet, the Depth of Field goes from 4' 6" to 14', some 9' 6" long. Still focused at 7 feet but with $f3.5$ set the Depth of Field would go from 6' to 8' 6", just 2' 6" long, only a quarter of what we had at $f8$.

Focused at 2 feet with $f3.5$ set the Depth of Field is only about 2¼" long.

These figures are for a high quality compact camera with a 23mm zoom set, the equivalent to 50mm on a film SLR camera.

A further, less significant affect on Depth of Field is the zoom in use. Zooming in (telephoto) gives a shorter Depth of Field. Zooming out wide will give you a longer one.



Shot at $f3.5$

This picture was taken using a wide $f3.5$ aperture. Only the central AAA battery and the two AA batteries either side of it are in sharp focus.



Shot at $f22$

This picture was taken using a narrow $f22$ aperture. All the batteries are in sharp focus.

In both photos the camera was focused on the central AAA battery giving a Focus Distance of 2ft.

So in simple terms,

- 1 A wide Aperture e.g. $f3.5$ (small number) gives a smaller Depth of Field. A narrow Aperture e.g. $f22$ (large number) gives a larger Depth of Field.
- 2 Shorter Focus Distance e.g. 2ft, smaller Depth of Field. Larger Focus Distance e.g. 25ft, larger Depth of Field.
- 3 Zoomed in (telephoto) gives a smaller Depth of Field. Wide zoom gives a larger Depth of Field.

These are the main factors but, to a lesser extent, other factors such as camera design, print size and viewing distance all affect Depth of Field.