

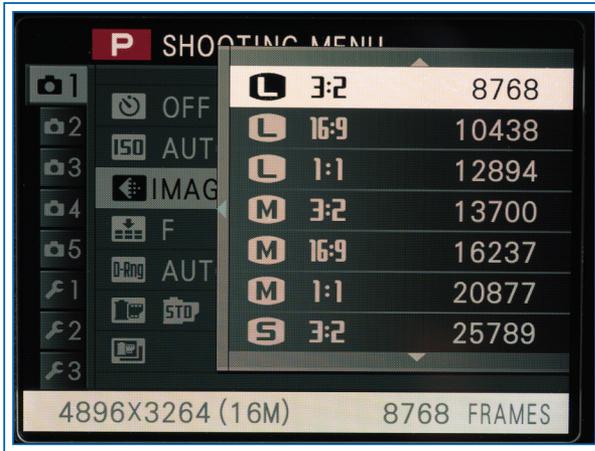
Finally, the Minimum Shutter Speed setting gives you some assurance that the shutter speed will not be reduced to such a slow setting that your images will be affected by blur from camera motion. You also can use this setting to increase the likelihood that the camera will use a shutter speed fast enough to capture action, if you are shooting moving subjects.

## Image Size

The next option on the Shooting menu, Image Size, works hand-in-hand with Image Quality, the option below it on the menu, to determine the overall resolution and quality of your images. This is one of the menu options that will be dimmed and unavailable for selection in some situations—namely, when you have selected Raw for Image Quality or Panorama for the Drive mode. (If the camera is set to Movie mode, this and many other menu options simply will not appear at all.)

With the X100S, Image Size actually has two components, which can be selected separately on some other cameras: resolution and aspect ratio. On the X100S, these two components are not named, but their numerical values are listed on the Image Size menu.

The resolution of the image is the number of pixels it has, given in a formula that contains the horizontal pixel count followed by the vertical pixel count. Therefore, the largest Image Size setting available on the X100S is 4896 x 3264, meaning the image has 4896 pixels horizontally and 3264 vertically. When you multiply these two numbers together, the result is about 16 million pixels, also written as 16 megapixels, or 16M. So, you will see the figure 16M at the bottom of the menu screen when you select this largest value for Image Size, as shown in FIGURE 4-13.



**Figure 4-13.** Image Size Menu Option with Largest Size Highlighted

Note that, when you select Image Size on the menu and move to the screen where you choose an image size, the number shown on the menu line is not related to the size of the image; rather, it is the number of images that can be taken with that setting. This can be confusing in some cases. For example, as I write this I have a 32 GB SDXC card in my camera—a card with a large capacity. On the Image Size menu, to the right of the first entry is the number 4267, which looks as if it might be the horizontal or vertical pixel count, but it actually means I can take 4267 more images with the current settings. The actual image size for each setting is shown at the bottom left of the menu screen. In this case, the actual size is shown as 4896 x 3264 (16M).

The sizes available for choice on the X100S become successively smaller, at 14M, 11M, 8M, 7M, 5M, 4M, and 3M. You can also determine the aspect ratio for each of these settings by examining the Image Size setting. For example, the 4896 x 3264 setting results in an image that is roughly 3 units wide for every 2 units tall, which means it has a 3:2 aspect ratio. That value is shown on the menu line. For example, as seen in FIGURE 4-13, the largest setting is listed as L 3:2, meaning Large, with an aspect ratio of 3:2. Three of the Image Size settings are in that ratio, which is a

standard one for digital images, being the same shape as a frame of 35mm film. Three other settings are in the 16:9 aspect ratio, often known as “widescreen,” which conforms to the shape of high-definition (HD) TV displays. The last three of the nine settings are in the 1:1 aspect ratio, which, of course, is a square shape. The 1:1 setting is becoming increasingly popular because of its usefulness for many sorts of subjects.

So, with the Image Size menu setting, you have two choices to make. First, you can choose your images' resolution, or number of pixels (megapixels). The larger the number of pixels, the larger you can make clear-looking enlargements on paper, and the more options you have for cropping the image to highlight particular details from the exposure. Second, you have the option of selecting an aspect ratio of 3:2, 16:9, or 1:1. Of course, you should bear in mind that you can always just decide to shoot with the maximum image size of 4896 x 3264 and then crop the image down later using software; in that way, you can create any aspect ratio you want, including 16:9, 1:1, 4:3, or any other. But, if you know you will soon be displaying your images on an HDTV set, for example, you can go ahead and select an image size with the 16:9 widescreen aspect ratio, and the desired result will come straight out of the camera. In addition, setting the aspect ratio when you are shooting lets you compose the image with that aspect ratio on the display screen, so you will know how much of the scene will be included in the final image.

For FIGURES 4-14 through 4-16, I took pictures of the same mural using the various aspect ratio settings, to illustrate how the various settings capture portions of an image. As you can see from FIGURE 4-14, with the 3:2 aspect ratio all possible pixels are captured. With the 16:9 aspect ratio used for FIGURE 4-15, some pixels are cropped away at the top and bottom. With the 1:1 aspect ratio, illustrated in FIGURE 4-16, some pixels are cropped away at the left and right.



Figure 4-14. Aspect Ratio 3:2



Figure 4-15. Aspect Ratio 16:9

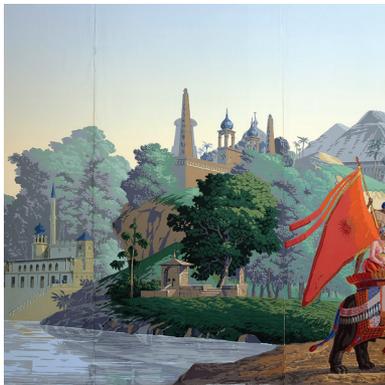


Figure 4-16. Aspect Ratio 1:1

## Image Quality

As noted above, the Image Quality setting is closely related to Image Size. This option lets you select how much digital “compression,” if any, the camera applies. That is, in some situations, the camera “compresses” data in image files by squeezing out a certain amount of information, preserving enough to recreate the image but reducing it so the file does not take up too much storage space. When image files are compressed in this way, they are known as JPEG files. (JPEG stands for Joint Photographic Experts Group, the body that develops industry-wide standards for digital image files.)

The five available options on the X100S are Fine, Normal, and Raw, as well as two combinations of those: Fine + Raw and Normal + Raw. The Fine and Normal options set the camera to record JPEG files. The Fine option uses less compression than the Normal option, resulting in higher quality for Fine files. With the Fine + Raw and Normal + Raw options, the camera records both a JPEG file and a Raw file for each captured image.

The Raw option, which leaves your files uncompressed, uses much more storage space than either of the JPEG options, and the Fine option uses substantially more storage space than Normal. For example, if you choose Raw for the quality setting, the camera can store about 230 images on an 8 GB memory card. If you choose Fine, it can store about 1200 of the largest images. If you choose Normal, it can store 1900 of the largest images. Of course, there is a trade-off of quality against storage space. If you are planning on making large prints, you should choose Fine or Raw.

You also may want to consider one of the combined selections, Fine + Raw or Normal + Raw. With those choices, the camera records two images—one Raw, uncompressed image at the largest size, and one image with whatever Image Size and Image Quality options you have selected. So, for example, you can choose Normal + Raw and set Image Size to the smallest choice of 1664

x 1664 pixels, or 3M. In that way, whenever you take a picture, the camera will record the full-size Raw file as well as a small, compressed image. This setup may be useful if you want to have the Raw files for later editing on your computer, but you want the much smaller files as proof copies that you can print out or view on a computer immediately without the processing that Raw files require. Also, some software may not be able to process Raw files at all, at least not until it is upgraded to a later version.

The Raw option is in a class by itself. As noted earlier, if you choose Raw for Image Quality, the menu option for Image Size becomes unavailable, because all Raw images are at the maximum size of 16 MP, and no other sizes can be selected. However, if you select the Fine + Raw or the Normal + Raw option, then you still can select an image size for the Fine or Normal component of the selection. The Raw format provides you with some very useful options for processing your images on the computer, which I will discuss in Chapter 9.

There is one other important point to note about the Raw setting. If you shoot using the Raw format, some menu options have no immediate, practical effect. For example, if you use Raw for Image Quality with Film Simulation set to Monochrome, the images will show up as black and white on the camera's display. However, when you look at them on a computer, they will appear in color, with all of the original information captured by the lens.

In other words, several of the camera's settings affect the appearance only of JPEG images—those shot with Fine or Normal quality. Of course, you have the option of shooting with Raw plus Fine or Normal, so you will have the benefit of the X100S's in-camera JPEG processing along with the ability to manipulate many of the image's parameters using the Raw file in your editing software. So, it is important to bear in mind during the discussion of the various settings for the X100S that not all of them have any immediate effect on Raw files. For those options, I will note that the setting affects only JPEG images.

Note, though, that I said such settings have no “immediate” effect on Raw files. The information is recorded in the Raw file, and, if you use the camera’s Raw Conversion feature, discussed in Chapter 6, settings like Film Simulation will show up in a JPEG image that is converted from the Raw file.

## Dynamic Range

This next menu option lets you choose the degree to which the X100S will apply its dynamic range processing to your images. Dynamic range, in general terms, is the range between the brightest and darkest parts of an image. If that range is too great, an ordinary digital image will not be able to show the details in both parts, because those details will either get lost in the shadows or be blown out by excessively bright highlights.

To deal with such situations, in recent years many photographers have made use of a technique known as high dynamic range (HDR) processing. With HDR, the photographer takes two or more shots of a scene that has a wide dynamic range, with some shots underexposed and others overexposed, and then merges them together using Photoshop or special HDR software to blend the best parts from all of the images. The end result is a composite HDR photo that can exhibit clear details throughout all portions of the image.

Because of the popularity of HDR, many camera makers have incorporated some degree of dynamic range processing into their cameras in an attempt to help the cameras even out areas of excessive brightness and darkness to preserve details. With the Fujifilm X100S, this feature takes the form of the Dynamic Range option on the Shooting menu.

There are four possible settings from the menu screen, as shown in FIGURE 4-17: Auto, 100%, 200%, and 400%. The Auto setting is available with the Program, Aperture Priority, and Shutter Priority shooting modes; it also is available with Manual exposure

mode, despite a notation to the contrary on the chart at page 126 of the Fujifilm owner's manual. The Auto setting is not available when the Drive mode is set to Multiple Exposure, and no Dynamic Range settings are available with Movie mode.



Figure 4-17. Dynamic Range Options Screen

When you choose Auto for Dynamic Range, the camera's metering system evaluates the scene and determines what level to use—100%, 200%, or 400%. The higher values are appropriate for use with scenes that exhibit increasingly stark contrast between light and dark, such as scenes that are partly in shadow and partly in bright sunlight. Essentially, what happens with this setting is that the camera underexposes the image somewhat to reduce excessive brightness in area of highlights. Then, to compensate, it boosts the details in shadowed areas. In order to accomplish these adjustments, the camera will boost the ISO setting if necessary.

To experiment with the Dynamic Range setting, I took a series of shots of a model truck that was partly in shadow, with a bright, sunlit area behind it. FIGURE 4-18 contains the three images, ranging from settings of DR 100% at the top to DR 400% at the bottom. As you can see, as the DR setting increased, the overexposure of the highlight areas decreased.