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Understanding aspect ratios

[Frame aspect ratio](#)

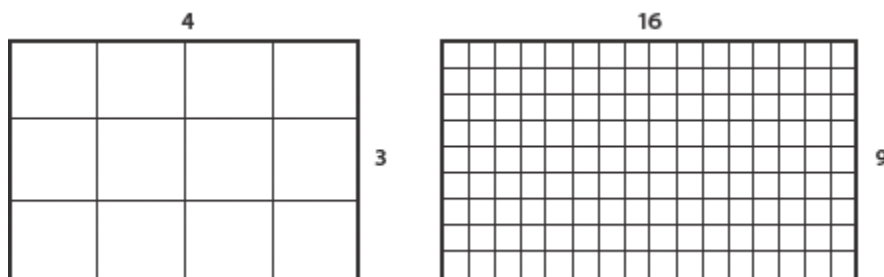
[Pixel aspect ratio](#)

The aspect ratio specifies the ratio of width to height. Video frames have an aspect ratio (frame aspect ratio) as do the pixels that make up the frame (pixel aspect ratio). Some video camcorders can record a variety of frame aspect ratios, and the NTSC and PAL video standards use different pixel aspect ratios. If your added files appear distorted—for example, if an image you know to be a perfect circle appears oval-shaped—you may have a conflict between the image's aspect ratio and the aspect ratio of your project.

Adobe Premiere Elements automatically attempts to detect and compensate for the pixel aspect ratio of source clips so that distortion doesn't occur. If a clip appears distorted in Adobe Premiere Elements, you can manually change its pixel aspect ratio. It's important to reconcile pixel aspect ratios before reconciling frame aspect ratios because an incorrect frame aspect ratio is often caused by misinterpreting a source clip's pixel aspect ratio.

Frame aspect ratio

Frame aspect ratio describes the ratio of width to height in the dimensions of an image. For example, DV NTSC has a frame aspect ratio of 4:3 (or 4.0 width by 3.0 height). For comparison, a typical widescreen frame has a frame aspect ratio of 16:9; many camcorders that have a widescreen mode can record using this aspect ratio. Many films are shot using even wider aspect ratios.



A 4:3 frame aspect ratio (left), and a wider 16:9 frame aspect ratio (right)

When you add clips into a project with a different frame aspect ratio, you must decide how to reconcile the different values. For example, there are two common techniques for showing a widescreen movie with a 16:9 frame aspect ratio on a standard TV with a 4:3 frame aspect ratio. You can fit the entire width of the 16:9 frame into a black 4:3 frame, a technique called **letterboxing**, which results in black bands above and below the widescreen frame. Or, you can fill the 4:3 frame with only a selected area of the 16:9 frame, a technique called **pan and scan**. Though this technique eliminates the black bars, it also eliminates part of the action. Adobe Premiere Elements automatically letterboxes any 16:9 footage that you add into a 4:3 aspect ratio project.

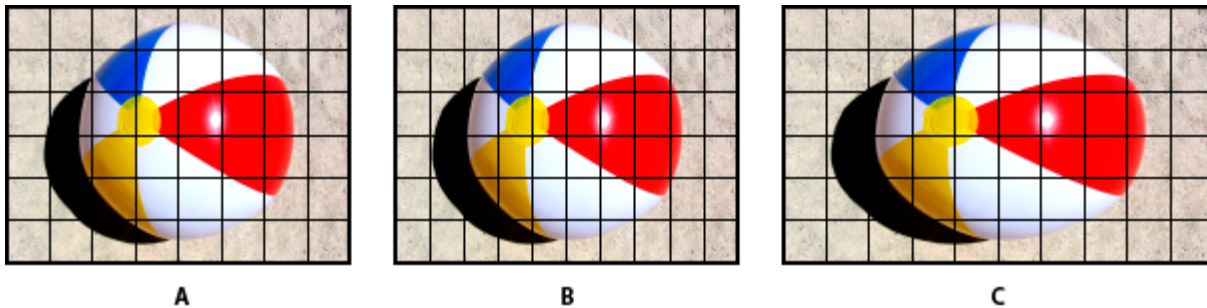
Pixel aspect ratio

Pixel aspect ratio describes the ratio of width to height in a single pixel of a frame. Pixel aspect ratios vary

because different video systems make different assumptions about the number of pixels required to fill a frame. For example, many computer video standards define a frame that has a 4:3 aspect ratio as 640 x 480 pixels. Pixels that are square, which have an aspect ratio themselves of 1:1, perfectly fill the horizontal and vertical space defined by that frame. However, video standards such as DV NTSC, which is the standard followed by most consumer DV camcorders (sold in the U.S.), define a 4:3 aspect ratio frame as 720 x 480 pixels. Consequently, to fit all of these pixels in the frame, the pixels must be narrower than the square pixels. These narrow pixels are called rectangular pixels, and they have an aspect ratio of 0.9:1, or 0.9 as they are commonly called. DV pixels are vertically oriented in systems producing NTSC video and horizontally oriented in systems producing PAL video. Adobe Premiere Elements displays a clip's pixel aspect ratio next to the clip's image thumbnail in the Project view.

If you display rectangular pixels on a square-pixel monitor, images appear distorted, for example, circles distort into ovals. However, when displayed on a broadcast monitor, the images appear correctly proportioned because broadcast monitors use rectangular pixels. Adobe Premiere Elements can display and output clips of various pixel aspect ratios without distortion because it attempts to automatically display them with the pixel aspect ratio of your project. You may occasionally encounter a distorted clip if Adobe Premiere Elements interprets pixel aspect ratio incorrectly; if this happens, you can correct the distortion by manually specifying the source clip's pixel aspect ratio.

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Pixel and frame aspect ratios

A. Square pixels and 4:3 frame aspect ratio **B.** Nonsquare pixels and 4:3 frame aspect ratio **C.** Nonsquare pixels displayed uncorrected on a square-pixel monitor



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