

## About bitmap images

Bitmap images—technically called *raster images*—use a rectangular grid of picture elements (pixels) to represent images. Each pixel is assigned a specific location and colour value. When working with bitmap images, you edit pixels rather than objects or shapes. Bitmap images are the most common electronic medium for continuous-tone images, such as photographs or digital paintings, because they can more efficiently represent subtle gradations of shades and colour.

Bitmap images are resolution-dependent—that is, they contain a fixed number of pixels. As a result, they can lose detail and appear jagged if they are scaled to high magnifications on-screen or if they are printed at a lower resolution than they were created for.



Example of a bitmap image at different levels of magnification

Bitmap images sometimes require large amounts of storage space, and often need to be compressed to keep file sizes down

Note: In Adobe Illustrator, you can create bitmap effects in your artwork using effects and graphic styles.

### Image resolution guidelines for final output

Bitmap images contain a fixed number of pixels, usually measured in pixels per inch (ppi). An image with a high resolution contains more, and therefore smaller, pixels than an image of the same printed dimensions with a low resolution. For example, a 1-inch-by-1-inch image with a resolution of 72 ppi contains a total of 5184 pixels (72 pixels wide x 72 pixels high = 5184). The same 1-inch-by-1-inch image with a resolution of 300 ppi would contain a total of 90,000 pixels.

For imported bitmap images, image resolution is determined by the source file. For bitmap effects, you can specify a custom resolution. To determine the image resolution to use, consider the medium of final distribution for the image. The following guidelines can help you determine your requirements for image resolution:

**Commercial printing:** Commercial printing requires 150 to 300 ppi (or more) images, depending on the press (dpi) and screen frequency (lpi) you're using; always consult your prepress service provider before making production decisions. Because commercial printing requires large, high-resolution images, which take more time to display while you're working with them, you may want to use low-resolution versions for layout and then replace them with high-resolution versions at print time.

In Illustrator and InDesign, you can work with low resolution versions by using the Links panel.

**Web publishing:** Because online publishing generally requires images with pixel dimensions that fit the intended monitor, the images are usually less than 500 pixels wide and 400 pixels tall, to leave room for browser window controls or such layout elements as captions. Creating an original image at screen resolution — 96 ppi and 72 ppi — lets you see the image as it will likely appear when viewed from a typical web browser. When you're publishing online, the only times you're likely to need resolutions above those ranges are when you want viewers to be able to zoom in for more detail in a PDF document, or when you're producing a document for printing on demand.