

Scanning Vocabulary

Alpha channel

An alpha channel describes an area of transparency in a picture. This area of transparency allows a background to show through. An alpha channel allows more than 64,000 levels of transparency, which makes it possible to use semitransparent effects and blended effects.

CCD

The core component of the scanner is the CCD array. CCD is the most common technology for image capture in scanners. CCD is a collection of tiny light-sensitive diodes, which convert photons (light) into electrons (electrical charge). These diodes are called photosites. In a nutshell, each photosite is sensitive to light -- the brighter the light that hits a single photosite, the greater the electrical charge that will accumulate at that site.

The image of the document that you scan reaches the CCD array through a series of mirrors, filters and lenses. The exact configuration of these components will depend on the model of scanner, but the basics are pretty much the same.

Color depth

The color depth is the number of colors in your picture. Color depth is categorized by bit depth. If you use a deeper color depth, there are more colors in the picture, but a deeper color depth also increases your file size.

- 1 bit - Black and white only
- 8 bit - 256 shades of grayscale, or 256 colors
- 16 bit - High Color, 65,536 colors
- 24 bit - True Color, 16,777,216 colors
- 32 bit - True Color, 4,294,967,296 colors

Compression

Compression is a mathematical scheme that makes a picture file smaller by removing redundant information. There are two types of compression: lossless and lossy.

Compression, lossless

Lossless compression is a compression scheme that emphasizes maintaining the integrity of the original picture. When the picture is uncompressed, it maintains the same resolution and picture quality of the original, uncompressed picture.

Compression, lossy

Lossy compression is a compression scheme that emphasizes producing a small picture file, even at the cost of picture quality. Lossy compression can produce smaller picture files than lossless compression; however, when you uncompress the picture, some of the original picture data is lost and cannot be recovered.

File size

File size is the ultimate limiting factor when you work with picture files. File size is the most common cause of problems when you work with pictures in Microsoft Office. File size is determined by the following factors: picture size, resolution, file format, compression, and color depth.

Gamma correction

This is a method to correct the lightness or darkness of pictures, so that the pictures appear with the same brightness on any monitor.

Hue

Hue describes the relative amounts of red, green, or blue in a color. For example, both pink and crimson have a red hue.

Interlaced

Interlacing is a method to send picture data over the Internet. When a picture is interlaced, the following occurs: After one sixty-fourth of the picture is downloaded, you can see a general image of what the picture looks like. As more of the picture is downloaded, the resolution improves until the whole picture is displayed.

Metafile picture

A metafile picture usually contains vector picture information. A metafile picture can contain any kind of picture data, such as a raster picture.

Palette

A palette is a list of the colors that are available to a particular picture. Different picture file formats have a different maximum number of colors. If your picture contains more colors than are available in a specific picture format, the extra colors are replaced with colors in the color palette. The colors in the resulting image may look distorted. This is known as a "paletted effect."

Pixel

A pixel is a fundamental unit of measurement in a raster-based picture or on a monitor. Both raster pictures and monitors are defined by rows of dots that can be individually assigned a color. These dots are called pixels.

Raster picture

A raster picture is a picture that is displayed by defining rows of colored dots that are placed next to each other. Each dot is assigned an individual color.

Resolution

Resolution is the amount of picture data in a specific area of a picture. Resolution is usually defined in pixels per inch. The higher the resolution, the more precise and clear the picture is. However, when you increase the resolution, the file size of a picture also increases.

Transparency

Transparency is a method that allows areas of a picture to appear transparent, therefore revealing the background. There are several methods of transparency, including alpha channel transparency.

Value

This property describes the lightness or darkness of a color. For example, pink and baby blue have a similar value, although they have different hues.