

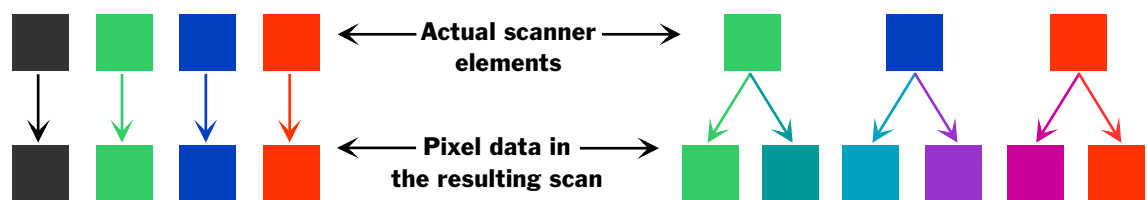
What is the difference between optical and maximum scanner resolution?

Buying a new scanner can be a specification nightmare. The customers see numbers for optical resolution, hardware resolution, interpolated resolution and maximum resolution—what do they all mean?

- ▶ **Optical/hardware resolution:** is the actual number of pixels read by the image sensor. This is the actual data taken directly from the image that is being scanned as directly sensed by elements on the scanning sensor. Most professional users are only interested in this resolution number since it is **the most accurate** resolution specification.
- ▶ **Maximum/interpolated resolution:** is a method to artificially increase the resolution of an image. It uses a mathematical formula to "add" data to an image based on the surrounding pixels. Maximum resolution does not increase the image quality of a full-color image. Scans using maximum, interpolated resolution settings are **never** as sharp nor as true as scans made at the optical or hardware resolution of the scanner.

Did You Know?

- ▶ Optical resolution is a one-to-one correlation between the original image and the scanned data:
- ▶ Maximum resolution is an "educated guess" based on the surrounding pixels.



- ▶ All scanners list an interpolated or maximum resolution, but some new scanners list "unlimited" as their maximum resolution. Since all maximum resolution scans use mathematical guesses about data that is not directly sensed by the scanner, unlimited maximum resolution does not give better image quality than a scanner that lists a specific hardware resolution.

Notable Quotes

"Interpolated resolution uses mathematical computations to increase the number of pixels scanned. In effect, the scanner guesses at what pixels would look like if they were squeezed in between the pixels already being scanned. For most purposes, optical resolutions are a more reliable indicator of a scanner's true resolution capacity." (*BuyerZone.com, BusinessWeek online*)

"Unlike optical resolution, which measures how many pixels the scanner can see, interpolated resolution measures how many pixels the scanner can guess at. This process almost always diminishes the quality of the scan, and should therefore be avoided." (*ScanSoft Guide to Scanners*)