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# Digital Imaging and Scanning

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# digital images

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- object graphics
  - pixel graphics
  - color modes
  - resolution
  - file formats
  - image resolution
  - scanning resolution
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# object graphics

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- mathematically calculated curves and lines that create surfaces and shapes.
  - sometimes referred to as vector graphics\*
  - easily scalable
  - crisp edges
  - logos, patterns, line stroke/fill, text, shapes
  - small file size
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# pixel graphics

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- photographic images
  - tiny squares of color
  - good for continuous tone/gradients
  - not easily scalable: fixed sizes based on “dots or pixels per inch” or resolution.
  - large file sizes for large ppi.
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# color modes

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- Line art (bitmap)
  - Grayscale
  - Duotone
  - RGB
  - LAB (Cielab)
  - CMYK
  - Index Color
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# File types

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## Layout

**INDD** - InDesign file extension. (InDesign Document.) Contains formatting, content, styles, and linked files. Used for Desktop Publishing to create books, magazines, newspapers, flyers, etc.

**AI** - For one page or two sided documents or packaging - Illustrator may be the preferred layout

## Photography - Bitmap/Raster

**PSD**- native Photoshop files of edited or editable images

**TIFF (Tagged Image File Format)** - high resolution raster files for bitmapped monochrome and color images this format is widely used and generally preferred by the printing industry. To save size, and lock changes, final images can be flattened.

## Illustrations - Vector/Object

**AI (Adobe Illustrator file)** - used for object-based images. The illustration/object is typically converted into an EPS prior to placing into InDesign or other application.

**EPS (Encapsulated PostScript)** - An EPS file can contain text as well as graphics.

## Portable Documents

**PDF (Portable Document Format)** - The defacto standard for viewing and printing files. Fonts are embedded.

**PDF/X** - is a standard PDF file, which restricts the information in the file to that needed for platemaking and printing and as such is more reliable than an ordinary PDF

Important aspects of PDF/X: no layers, no interactivity, no transparency, fonts included, PDF/X-1 CMYK or SPOT, PDF/X-3 can also contain RGB

# Image Resolution

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# Image Resolution

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## **Pixels per inch(ppi):**

An image with 300 pixels in width at 1” wide will have a resolution of 300 ppi.

An image with 72 pixels in width at 1” wide will have a resolution of 72 ppi.

Screen use	Between 72 and 96 ppi (pixel per inch)
newspaper	Between 85 and 150 ppi
laser printer	150 ppi
inkjet printer	Between 180 and 225 ppi
Commercial printer	300 ppi or more

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# Scanning tips

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Scanning in 16-bit, if your flatbed scanner allows, will give you more flexibility in the editing process because the file contains more information per pixel to work with.

A good original image is paramount to achieving good results.

The larger the better. Both the physical size of the original and the scan. Create alternate versions as needed.

Scan RGB. If color is super critical, scan with an ICC profile or using Adobe RGB(1998)

Descreen for items that are printed, especially magazine to avoid moire patterns.

Always keep an unedited version of your scanned image so you can revert back.

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