

Scanning Guidelines & Tips

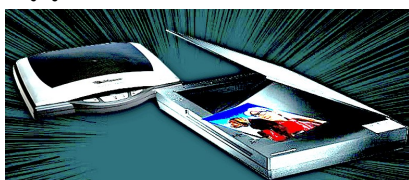
Converting photographs to a digital file is not that difficult. Typically, this process is done using a scanner and computer. There are many types of scanners on the market that can easily reproduce good quality digital files.

There are specific scanning guidelines to consider, for example, what DPI (dots/inch) resolution is best, what color depth, etc.

In the absence of a scanner, a good quality digital camera or newer model smartphone could also be used. The only drawback relates to camera movement and lighting shadows when using these.

Ask around, as it is very likely that a friend has a scanner that you could use as well.

Types of Scanners



Flatbed scanners are the most common type of scanner. The photos are placed on a glass scanning bed where they are then converted into a digital image on the computer, and then stored to the computer hard drive.

Other **non**-flatbed scanners may come with what is called an ADF or automatic document feeder, where a stack of pictures or documents can be scanned as a batch. Scanning a multipage document into a PDF (Portable Document File) is best accomplished with this type of scanner. This is also a much quicker method of scanning individual photos to digital images, as these types of scanners can scan up to 50 images/minute. Double sided documents can also be quickly scanned as well.



Slide Scanners offer a good way to get your old slides into a digital format. The slides, typically mounted in a tray, are easily scanned into the computer. There are some flatbed scanners that can also scan slides.

Scanning Resolutions to Consider

General background information about "resolution" or size of your picture:

Let's say you want to view your scanned images on your TV or monitor. If you have a HDTV (high definition), the screen resolution is typically 1080 (vertical) X 1920 (horizontal). HDTV computer monitors would be the same. The total # of pixels on the screen is just a little over 2 million pixels (1080x1920).

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However, technology changes, and the newest TVs / monitors are now 4K or 3840 X 2160 screen resolution. These TV / monitors have FOUR times greater screen resolution. That is equivalent to almost 8.3 million pixels on the screen. The new iMac screens are now at 5120 X 2880 or almost 15 million pixels. The more pixels you have on your screen will display your photographs with a much better clarity than those of a lower resolution screen.

- Examples of different image sizes and scanner resolution settings.
 - **Scan 1:** Image size of 4" X 6" scanned at 300 dpi (dots per inch) would yield a final scanned resolution or size of **1200 X 1800** (Take 4" x 300 dpi = 1200 and 6" x 300 dpi = 1800)
 - **Scan 2:** Image size of 8" X 10" scanned at 600 dpi would yield a final scanned resolution or size of **5400 X 6000** (Take 8"x 600 dpi = 5400 and 10" x 600 dpi = 6000)
 - **Scan 3:** Image size of 1" X 2" scanned at 100 dpi would yield a final scanned resolution or size of **100 X 200** (Take 1" x 100 = 100 and 2" x 100 = 200)
- Why does image size and scanned dpi matter? Display your photos on that HDTV with the 1080 X 1920 screen resolution.
 - **Scan 1** (1200 X 1800) will essentially fill the whole TV screen.
 - **Scan 2** (5400 X 6000) will NOT fit on an HDTV screen, since the image is almost 4X larger than the TV screen.
 - **Scan 3** (100 X 200) will only fill about 15% of the TV screen.
- The **newest** TV sets and computer monitors are now up to 5120 X 2880 resolution or 4-5 X greater resolution.
 - **Scan 1** will now fill only ~40% of your monitor or TV screen.
 - **Scan 2** will still be too large to see all the image on the monitor or TV
 - **Scan 3** will now fill about .01% of the whole TV or monitor screen or will essentially not even be noticeable.

As technology changes, it's **always best** to err on the side of higher resolution output. It's better to have MORE pixels than too few.

Current standards suggest that you shoot for a **3600 X 5400** resolution size.

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Practical Guidelines For Scanning Photographs

Using these current 3600 X 5400 standards, how would you calculate appropriate scanner settings for your pictures you want to scan?

• Photos:

- Let's say you want to scan a 2"H X 3"W photo, but want that HD quality.
- Take the suggested 3600 vertical resolution and divide by 2 (the vertical height of the picture). You would use a scanner setting of **1800 dpi**.
- What about a 4"H X 6"W photo scanned to HD quality? Divide the 3600 vertical resolution by 4 (the vertical height of your photo). Your scanner settings would be 900 dpi.
- You have a large 8"W X 10"H family photo. What scanner settings would you use? 3600 divided by 10 would suggest setting your scanner dpi settings at 360.

• Slides or Negatives:

- 35 mm slides or negatives are typically 0.94" X 1.42" in size. What scanner dpi settings would you then use to create an HD photo? 3600 divided by 1 would give you a 3600 dpi scanner setting.

• Posters:

- Let's say you want to scan a 4" X 6" photo and take it over to a commercial printing place (CostCo, Staples, etc) to create a 24" X 36" poster. What scanner resolution (dpi) would you scan at?
- There is a handy little Scan Tip webpage that will help you with this. Click [HERE](#) to access it. It's actually fairly easy.
- To create this poster size, the image needs to be scanned to a size of 7,200 X 10,800 for the poster to print at a minimum of 300 dpi.
- Take 7200 divided by 4 (photo height).
- You would need to set your scanner setting to 1800 dpi.

• Photos for Books:

- If you are planning to print the photos out to a book, use **at least** 300 dpi scanner settings for your photos.
- Most general use scanners will allow you to set the number of dpi that you want to scan at. The Kodak multi-scanner at the Family History Library allows only for 300, 600, and 1200 dpi. The flatbed scanner however does NOT support dpi greater than 600 dpi unfortunately.

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Should I save my scan as a JPEG, TIFF, PNG?

There are many different formats that you can save your scans in. The most common format is JPEG and generally the reason for this, is that the photograph can be compressed into smaller files without much loss of photo quality. PNG files are more typically used for internet graphics, and generally not used to save photos with. If you do not need to do any editing of the photograph, then saving them as a JPG or JPEG type file is fine. TIFF & JPEG will be long term file standards, others may not be.

If you are going to edit your photos, and most photos will need some photo editing, save the file as a TIFF, which is a uncompressed format type. What happens with JPEGs and editing, is that each time you open your photo, do some editing, and then save the file again, you will lose picture data. In reality, editing once or twice is probably not going to be that noticeable, but more edits will result in degradation of your photo. Try to save the JPEG files, after editing, in "high quality" (minimal compression) format if you are going to keep your final photo in JPEG format.

Realize that high resolution photos are going to result in BIG file sizes, at times in excess of 25-50 mb in size. That's why learning what dpi scanner settings are best for different photo sizes is important. If your resulting JPEGs are around 4-7 mg in size, that should be a good target goal.

Another VERY important point!! If you are planning on editing your photo, ALWAYS use a COPY of the photo, NEVER THE ORIGINAL! If you mess up on your edits, you always have the original to go back to and start over with another copy.

Before you scan photos, also review what type of format and compression level the scanner software is going to save your photo in. Make sure that "compression" is set to the very lowest level if it is saving in JPEG format. TIFF is a "lossless" file format, and again is the preferred format especially if you are going to do any editing.