

## Rules of thumb for digital files:

### *Born Digital:*

Born Digital are images created with a digital camera. We recommend that your files be kept or converted to 16-bit mode (16-bit grayscale or 48-bit RGB). If you are using a color-managed system or have a professional retoucher, you may send us the retouched file without interpolating the file to a specific ppi. We will scale the file as necessary when printing.

You can use your own scaling software, such as Genuine Fractals. We do not recommend that this be used to enhance details that, in reality, were not captured in the image. There is no software that can create detail where it does not exist. The only solution is to return to the scene or event and re-photograph it in a higher resolution.

Large prints may print beautifully when they are scaled up from 72 ppi to 300 ppi, depending on the subject matter. When the subject matter is soft with broad tones and no fine details, it is more likely to meet the best visual standards, even when printed with significant scaling. Conversely, an image with fine details may not print with acceptable quality if the original resolution falls below 200 ppi for a given print size regardless of how you scale the image to 300 ppi (printing level). A finely detailed subject photographed with a 12 mega pixel (MP) camera, can be expected to produce a maximum print size of 15 x 20 inches (not including a border). If the subject matter is, for example, in a Pictorialistic style with soft tones and no fine details, the same 12 MP camera might produce a perfect 42 x 56 inch image (or a 4 x 5 foot print with 2-3 inch border).

You can capture a scene in high resolution with a 12 MP camera by taking several photographs to cover the scene and then using software (e.g., Kolor's Autopan (<http://www.autopano.net/en/>)) to stitch the images together, creating a single image with a much higher resolution.



The image above illustrates eleven 12 MP images combined to create a 90 MP file, a much higher resolution file than can be produced with the largest pro digital back currently available. While we do not suggest using this technique for portraiture, landscape scenes can be quite dynamic with dramatic results. This technique is used by many artists to create large format, realistic-looking collages.

The sensor in all single shot digital cameras has an RGGB (Red, Green, Green & Blue) color filter overlaid on the chip, which allows the camera to interpolate color. Each pixel captures only one color of the three color file (RGB). This limits color and spatial quality, and can cause color moiré artifacts in the image. Some medium-format backs (e.g., Sinar and Hasselblad) use a micro-stepping or piezoelectric motor to move the sensor in a 4-step pattern. This allows the device to capture RGGB data for each pixel, increasing color and spatial resolution in addition to eliminating color moiré artifacts. Please note that this technique works only on still subjects.

### ***Artwork Reproduction Scans:***

Fine artwork can be reproduced in several different ways: flatbed scanning, digital camera copying, scanning film copies, or drum scanning. Whichever of these methods you decide on, we recommend the following best-practice to anyone making digital reproductions:

- Calibrate the system you are using.
- Scan at the highest color quality (48-bit RGB) with a spatial resolution sufficient to capture as much of the detail of the original as possible.
- Do not adjust the tone, white point, or black point in the scanning or camera software. Use a "linear curve." The scan may appear flat, but it is the most accurate.
- For best results, the contrast should be adjusted when the print is made. If there are particular colors that are problematic and you want to edit the file before sending it to us to print, edit the color profile or, if you edit the file directly, leave the edits as layers so they are reversible.
- If you are ordering scans request 48-bit files, unedited, at the highest resolution.

### ***Photographic Film Scans:***

We also recommend that film scans be made in 16-bit grayscale or 48-bit RGB mode with enough resolution to capture the finest details in the subject matter – or down to the grain level, depending on your preference.

### ***Resolution to Print Size Guide***

<b>Mega-Pixels (MP)</b>	<b>Approximate Pixel Dimensions</b>	<b>Highest Detail</b>	<b>Normal Detail</b>	<b>Soft Pictorial, Low Detail</b>	<b>8x10 scan ppi</b>
<b>8</b>	3,264 X 2,448	8 X 11 " print	12 X 16 " print	34 X 45 " print	330 ppi
<b>10</b>	3,888 X 2,592	9 X 13 " print	13 X 19 " print	36 X 54 " print	390 ppi
<b>12</b>	4,000 X 3,000	10 X 13 " print	15 X 20 " print	42 X 56 " print	400 ppi
<b>15</b>	4,752 X 3,168	11 X 16 " print	16 X 24 " print	44 X 66 " print	480 ppi
<b>18</b>	5,184 X 3,456	12 X 17 " print	17 X 26 " print	48 X 72 " print	520 ppi
<b>21</b>	5,616 X 3,744	12 X 19 " print	19 X 28 " print	52 X 78 " print	570 ppi
<b>30</b>	6,496 X 4,872	16 X 22 " print	24 X 32 " print	68 X 90 " print	650 ppi
<b>33</b>	6,726 X 5,040	17 X 22 " print	25 X 34 " print	70 X 93 " print	680 ppi
<b>45</b>	7,216 X 5,412	18 X 24 " print	27 X 36 " print	75 X 100 " print	730 ppi
<b>56</b>	9,288 X 6,000	20 X 31 " print	30 X 46 " print	83 X 129 " print	930 ppi