Resolution Scaler Chart

We've created 2 charts to help illustrate how a scan's physical size can be scaled up or scaled down by simply adjusting the Scan Resolution (Input). For this exercise, we've maintained a 1:1 scan ratio (100%), for all of the examples shown. Here's how they work:

Choose an Original Size first. This is the size of the print or art you want to scan. We've given you two choices, a 4"x6" or and 8"x 10" print.

Let's look at the first chart; scanning an 8"x 10" print.

Start by looking at the Resulting Resolution Output column across the top.

The Resulting Output refers to the resolution you'd like your final digital file to be. Let's assume you want to print your file on an inkjet printer that requires a minimum of 300 ppi for high-quality prints. Go to the Resulting Output Resolution column 300 ppi and look down the column. (It's highlighted in blue) The first set of numbers you see is 32" x 40"– 9600 x12,000 pixels.

Now look to the left and note the Scan Input Resolution of 1200 ppi.

What does this tell you?

In order to produce a 32" x 40" print on your inkjet printer you'll have to scan your 8" x 10" print at 1200 ppi.

It's not likely that you'll want to produce a 32" x 40" print on your inkjet so let's look at a more realistic example.

Let's say that you want to scan an 8 x 10 print, retouch some imperfections, and then output an 8 x 10 print on your inkjet printer at 300 ppi.

Again, find the Resulting Output Resolution value that matches your printers optimum resolution, 300 ppi, and follow that column down and find 8" x 10". Follow that column to the left and note the Scan Input Resolution of 300 ppi.

In order to produce an 8" x 10" photo-quality print on your inkjet printer you'll have to scan your 8" x 10" print at 300 ppi.

You can look at this chart in a number of different ways.

Notice how the resolution of any digital image can be adjusted to suit the needs of many output methods while maintaining the exact same pixel dimensions. The highlighted area is a good example of this.

An 8" x 10" print scanned at 300 ppi at 100% yields a digital image with a pixel dimension of 2400 x 3000 pixels. This time start in the Scan Input resolution column, and go down to 300 ppi and then look across to the right.

As you can see, in each of these examples, the pixel dimensions never changes they're always 2400 x 3000 pixels.

The same exact scan can also be a 4" x 5" scan at an output resolution of 600 ppi or a 16" x 20" scan at an output resolution of 150 ppi without modifying any of the existing pixels.

What does change here is the physical dimensions of the file. That's because in each example the pixels are re-distributed within the space of an inch. The pixel size of the pixel changes but image quality is not affected.

As long as you match the Scan Output Resolution with the resolution necessary for your Output device (ie. an inkjet printer) your results will be good.

When we begin to use Photoshop in Unit Three, we will show you how to re-distribute pixels for a variety of uses with the Image Size Dialog Box.

By using this chart, you can ensure that you set an appropriate Scan Resolution in your scanner software that will capture enough pixels to satisfy the needs of your output device (as defined by the Resulting Resolution).whether it be an inkjet printer, monitor or film recorder.

Understanding Scanner Resolution

The chart below should help you understand the concept of the scaling a digital image.
You may want to print this out and keep it near your scanner for handy reference

RESOLUTION SCALER CHART

EXAMPLE

ORIGINAL SIZE – 8"x 10"
Scanned at 100%

(AVG. PRINTER SETTING)

SCAN RESOLUTION (INPUT)	RESULTING RESOLUTION (OUTPUT)				
	@ 1200 ppi	@ 600 ppi	@ 300 ppi	@ 150 ppi	@ 75 ppi
1200 PPI	8" x 10" 9600 x 12000 pixels	16" x 20" 9600 x 12000 pixels	32" x 40" 9600 x 12000 pixels	64" x 80" 9600 x 12000 pixels	128" x 160" 9600 x 12000 pixels
600 PPI	4" x 5" 4800 x 6000 pixels	8" x 10" 4800 x 6000 pixels	16" x 20" 4800 x 6000 pixels	32" x 40" 4800 x 6000 pixels	64" x 80" 4800 x 6000 pixels
300 PPI	2" x 2.5" 2400 x 3000 pixels	4" x 5" 2400 x 3000 pixels	8" x 10" 2400 x 3000 pixels	16" x 20" 2400 x 3000 pixels	32" x 40" 2400 x 3000 pixels
150 PPI	1" x 1.25" 1200 x 1500 pixels	2" x 2.5" 1200 x 1500 pixels	4" x 5" 1200 x 1500 pixels	8" x 10" 1200 x 1500 pixels	16" x 20" 1200 x 1500 pixels
75 PPI	.5" x .625" 600 x 750 pixels	1" x 1.25" 600 x 750 pixels	2" x 2.5" 600 x 750 pixels	4" x 5" 600 x 750 pixels	8" x 10" 600 x 750 pixels

ORIGINAL SIZE – 4"x 6"
Scanned at 100%

(AVG. PRINTER SETTING)

SCAN RESOLUTION (INPUT)	RESULTING RESOLUTION (OUTPUT)				
	@ 1200 ppi	@ 600 ppi	@ 300 DPI	@ 150 ppi	@ 75 ppi
1200 PPI	4" x 6" 4800 x 7200 pixels	8" x 12" 4800 x 7200 pixels	16" x 24" 4800 x 7200 pixels	32" x 48" 4800 x 7200 pixels	64" x 96" 4800 x 7200 pixels
600 PPI	2" x 3" 2400 x 3600 pixels	4" x 6" 2400 x 3600 pixels	8" x 12" 2400 x 3600 pixels	16" x 24" 2400 x 3600 pixels	32" x 48" 2400 x 3600 pixels
300 PPI	1" x 1.5" 1200 x 1800 pixels	2" x 3" 1200 x 1800 pixels	4" x 6" 1200 x 1800 pixels	8" x 12" 1200 x 1800 pixels	16" x 24" 1200 x 1800 pixels
150 PPI	.5" x .75" 600 x 900 pixels	1" x 1.5" 600 x 900 pixels	2" x 3" 600 x 900 pixels	4" x 6" 600 x 900 pixels	8" x 12" 600 x 900 pixels
75 PPI	.25" x .375" 300 x 450 pixels	.5" x .75" 300 x 450 pixels	1" x 1.5" 300 x 450 pixels	2" x 3" 300 x 450 pixels	4" x 6" 300 x 450 pixels