Digital Art Requirements

Software • File Formats • Resolution • Color • Scaling & Dimensions • Terminology • Helpful Hints

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At Miratec Systems, we take great pride in the quality of our work. We're committed to meeting customer expectations in both our products & services. Our employees have years of experience in graphics and sign face production; however, their experience and knowledge can only go so far in satisfying your needs. In our quest for "perfect production" we need your help & input.

It's critical that you provide precise specifications relative to your unique application. Oftentimes, we may need to know specific colors, the size of specific elements within a layout, bleeds that may be required, dimensional data, etc. that will insure that you get exactly what you want. It's the details that you provide that will insure that you get exactly what you need and that your installers will have exactly what they need to complete a great looking job.

When providing us with artwork for production, please note the following:

1. Dimension:

The first and most critical dimension is a graphics Visible Opening (V.O.). This is that portion of the graphic that is visible within a framework. This is important in order to assure that no elements of the graphic are hidden behind the framework & that all elements fit comfortably within the framework so that the overall appearance of the graphic is pleasing to the eye.

The next dimension that is required, for both estimating & for production, is the dimension of Color Bleed necessary to accommodate a framework, if any. This is critical even if the background color is white & will insure that when your graphic is installed that there will be no "light leaks" between the graphic and its frame.

The third dimension that may be required is the Overall (O.A.) size of the graphic. In the case of graphics applied to a substrate, this will be the size of the substrate to which the graphic is applied. In other cases, this dimension may be the same as the V.O. plus any Color Bleed. Please make sure that these dimensions are accurate as this will insure that the installation will go smoothly.

2. Color:

In the case of vinyl film graphics, the colors are limited to those readily available, or in some cases custom colors. Ask your sales representative for details on the available colors and/or samples. Since film colors can vary slightly from lot to lot we strive to only use vinyl film from the same lot on any given project.

In the case of digital graphics, produced through inkjet or electrostatic printing, the variables are much greater. In most cases we can produce high quality, full color, continuous tone graphics with good results, provided that the artwork is clear, sharp and has good contrast. Images that are made up of pixels are treated differently than those made up of line or vector art.

Pixel art has continuous color gradations and a proof is necessary for us to reference if a color match is required. If color is a critical part of an overall graphics appearance, you must provide us a color proof that we can match. If you cannot provide a color proof, we'll run your graphics "as provided" with your knowledge that the color may not match exactly what you wanted. If you do not have access to a color proof, perhaps the end user can provide one. A proof, for color, from a typical desktop printer is not acceptable since different machines render color differently. The same can be said for color monitors. What looks great on your monitor may not translate, acceptably, to our printers. See comments below related to color & file prep. Desktop prints are good for showing dimensions and overall layout, but not for accurate color reproduction. Examples of color proofs are Matchprints, Iris, Fiery, etc. Remember, if color is critical for a pixel image, you must provide us with a proof.

Line art is different from pixel art. Line art is usually created in software such as Adobe Illustrator, Macromedia Freehand, Corel Draw or similar programs. These images are created with vector based shapes that are filled with solid colors or gradations between solid colors. For digitally printed graphics that are made up of line art or vector based art, in which color is critical, we ask that you provide us with either color chips, Pantone numbers, or a common vinyl color that we can use to color match solid fill areas. We can produce these graphics without a color reference; however, the results may not be acceptable.

Oftentimes, a graphic is made up of a combination of pixel and line art. In this case, both of the above conditions apply and should be considered before submitting your art.

When preparing art files for production we strongly encourage you to work in CMYK format as opposed to RGB. Work exclusively in the CMYK format & far fewer problems will result since virtually all printers use CMYK colors for production. While there still may be some differences, the color you see on your monitor will be much closer to that which we print. We can accept RGB files; however, differences in color will occur when they are converted to CMYK.

If you have questions regarding the preparation of artwork, we'll be glad to assist you in any way possible. Our primary goal is to help you get what you expect, in a timely fashion and at a reasonable price.

3. Resolution:

Pixel images are, by their nature, made up of many small squares called pixels. Resolution is defined by the number of pixels in a given area of an image. Pixels per Inch (PPI) is the most common measure of resolution. Because there is a relationship between the number of pixels in an artwork image, and the final size at which the image is to be printed, there are factors to be considered.

If the final size of the image is to be too large, or inversely, if the pixel count in the artwork is too small, the final output will begin to reveal the actual pixels. For example, you may see "stair steps" on the edge of characters & this is rarely acceptable. In ideal circumstances, the human eye cannot detect the pixels that "build" an image. Remember that every time you double the image size, you also double the *size* of the pixels & halve their number. For example, if you have an image that is 10"x10" @ 600 ppi and you want to output the image at 60"x60", the final resolution will be 100 ppi. As the physical size of an image doubles, the pixels per inch are cut in half. In the previous example, the 600 ppi @ 10"x10" would print at 300 ppi @ 20"x20"; at 150 ppi @ 40"x40", etc. The need for resolution is related to the application & higher resolution is not necessarily better. A billboard viewed from a highway 500' away may only need to be at 25 ppi. Whereas, an image in an airport concourse viewed from a few feet away may need to be at 400 ppi or more.

While there are methods for increasing the resolution of an image, know that information not contained in original art cannot be "created". We can increase the pixel count of an image but we cannot produce high resolution graphics from low resolution artwork. When an image is "res-ed up", or had its pixel count increased, it only serves to hide the pixels by making them smaller. It may soften the appearance but it does not make an image clearer or sharper. Also, if you are having difficulty getting the resolution you need, we can provide a scanning service and we'll be glad to create hi-resolution scans of your photography.

4. File Formats:

Adobe Photoshop, a pixel based program, is an industry standard for image manipulation. We can accept all Photoshop files regardless of type; however, when we save them we do so as EPS files, in CMYK color mode with an 8 bit pixel depth. Sending us files in the above settings will eliminate problems & result in better production.

Another consideration for Photoshop files is resolution. Selecting "image size" from the "image" menu will give you the information you need to determine the size of your file. The size is based on an image's physical size, in inches, & the number of pixels in each square inch of the image. Remember, the relationship between an image's size & resolution is always inverse…as you double the image size, you halve the resolution. For this reason, you're always better off to work at full scale. If you're creating an image that will be printed at 48"x96", set your Photoshop Image Size to this size & then determine the appropriate resolution based on final viewing distance. Your Miratec Systems sales representative can offer advice on appropriate resolution.

Adobe Illustrator & Macromedia Freehand are vector based graphic programs commonly used for type or "line art" drawings either alone or in conjunction with "pixel" images. When including type in your graphic all fonts should be converted to outlines. This can be done by selecting all elements of the graphic, then going to the "Type" menu & selecting "Create Outlines" for Illustrator files or the "Text" menu & selecting "Convert to Paths" for Macromedia Freehand files. This eliminates the need to

include fonts & reduces the chance of problems with your files. We also recommend having all elements in CMYK when using either of these programs.

Quark-X-Press is also a vector based program, similar to Illustrator; however, it gives the user a high degree of control over text elements. When saving an EPS file from Quark, the documents output will be based on the size of the "document set-up". Because Quark sees the page that you're working on as the entire document, if you have a 6"x 6" logo in the middle of an 8.5"x 11" page, the EPS file will be 8.5"x11" with the 6"x6" logo floating in the middle. This can make scaling difficult. When sending Quark documents, we encourage you to send the "native" Quark files along with the EPS files & be sure to go to the "Usage" page under the "Utilities" menu to verify that all placed photos & fonts are included with your files & are in CMYK.

Corel Draw is a popular program for desktop publishing; however, we do not recommend it for large format output. These files can be difficult to RIP because some of the effects available eg.; shadows, shading, pattern fills, etc. can be misinterpreted by some RIP software. Further, saving Corel Draw files to an EPS format can yield unexpected results such as missing elements, color banding etc. So, while we do accept Corel Draw files, we ask that you have all elements in CMYK mode & that you include a JPEG file that you know accurately represents the desired look of your graphic. This will enable us to confirm that no elements are missing as we go to production. Lastly, when type is included in your graphic, all fonts should be converted to paths. This can be done by selecting all elements & then going to the "Arrange" menu & selecting "Convert to Curves". This eliminates the need to include fonts & reduces the chance of problems with your files.

In conclusion, good quality art is required for the best output. Images that are already printed in halftone (i.e. magazines, catalogs, brochures etc.) are rarely acceptable sources for artwork. There is no substitute for good quality professional photography. Hi-resolution digital photography is also acceptable, but remember that even a 10 mega-pixel camera will only make an image roughly 32" x 32" @ 100 ppi. Techniques can be used to further enhance images, but there are always limits to what can be done, and the larger the output dimensions become the more clarity and pixle count matter.

5. Communicating with Miratec Systems:

Artwork files can be sent as attachments to an e-mail. This method works well for files that are not too large in megabytes (under 100mb). They should be sent to **sales@miratecsystems.com**. In addition to your attachments, please make mention of the name of your sales representative and the project the files represent. We have also set up an FTP (File Transfer Protocol) site to assist you in uploading larger files directly to our design center. This method requires that you have an upload utility like FTPSurfer or Fetch. FTPSurfer is available as freeware online and is used primarily by Windows computers. We will also be glad to send you this utility via an e-mail attachment. FTPSurfer is an .exe (executable) file that installs itself simply by clicking on the icon. Once the program is launched, go to "create new FTP site profile" and enter our information. Fetch is run primarily by Macintosh users and is just as simple to install. Trial versions of Fetch are available online at **http://fetchsoftworks.com/downloads.html**. Once you have a utility up and running, simply enter our FTP address: **70.90.77.109** Our user ID: **msftp** and a password, which can be obtained by calling your sales representative or our design center at ext. 23. Of course sending CD's and DVD's through conventional ground mail works as well!