

Adobe Illustrator

for Print



Adobe Illustrator for Print

July 2002

Information in this manual may change without notice and does not represent a commitment on the part of Interactive Fun!, LLC.

No part of this publication may be reproduced, transmitted, or translated in any form or by any means, electronic, mechanical, photocopying, manual, optical, recording, or otherwise, outside the license agreement accompanying these materials, without the prior written permission of Interactive Fun!, LLC.

Interactive Fun!, LLC. claims copyright in this program and documentation as an unpublished work, revisions of which were first licensed on the date indicated in the foregoing notice. Claim of copyright does not imply waiver of other right of Interactive Fun!, LLC.

July 2002

Interactive Fun!, LLC
5605 Seventy-Seven Center Drive
Suite 285
Charlotte, NC 28217
704-665-9441

■ **Table of Contents**

1.1 Lesson I / Welcome to Illustrator

- 1.2 Section A / Exploring the Illustrator Environment
- 1.4 Section B / Exploring Artwork Types
- 1.5 Walkthrough 1-1 / Examining a Client Supplied File

2.9 Lesson II / Logo Recreation and Multiple Uses

- 2.10 Walkthrough 2-1 / Practicing with the Pen Tool
- 2.15 Walkthrough 2-2 / Preparing the Document
- 2.17 Walkthrough 2-3 / Building the “V” Element
- 2.20 Walkthrough 2-4 / Creating the Flames
- 2.22 Walkthrough 2-5 / Inventing the Wheel
- 2.23 Walkthrough 2-6 / The Final Banner
- 2.26 Walkthrough 2-7 / Preparing it for Use in Other Applications
- 2.30 Walkthrough 2-8 / Setting Up a Stepped Business Card

3.32 Lesson III / Manual Trapping with Illustrator

- 3.35 Walkthrough 3-1 / Common Trapping Issues

4.41 Lesson IV / Intergrating Raster Art and Creating PDF files from Illustrator

- 4.42 Walkthrough 4-1 / Importing Raster Artwork





Lesson I

Welcome to Illustrator

Illustrator is one of the most versatile graphics programs on the market today. It has become the industry standard for vector-based print graphics and enjoys tremendous integration with Adobe's other graphics suite programs such as InDesign and Photoshop.

This curriculum is designed for the basic to intermediate Illustrator user who is familiar with the basic vector-based graphics concepts, but is looking to expand their knowledge of the concepts and workflow efficiencies. The course is designed to teach concepts and techniques by doing hands-on exercises. Although the exercises are structured to reach a specific goal, students are encouraged to experiment and work outside the curriculum lessons for a fuller understanding of the program's capabilities.

While the class features a general overview of Illustrator, this class is designed to teach Illustrator with an emphasis on print graphics. As such, web graphics, multimedia usage and capabilities outside of print will not be discussed in great detail.

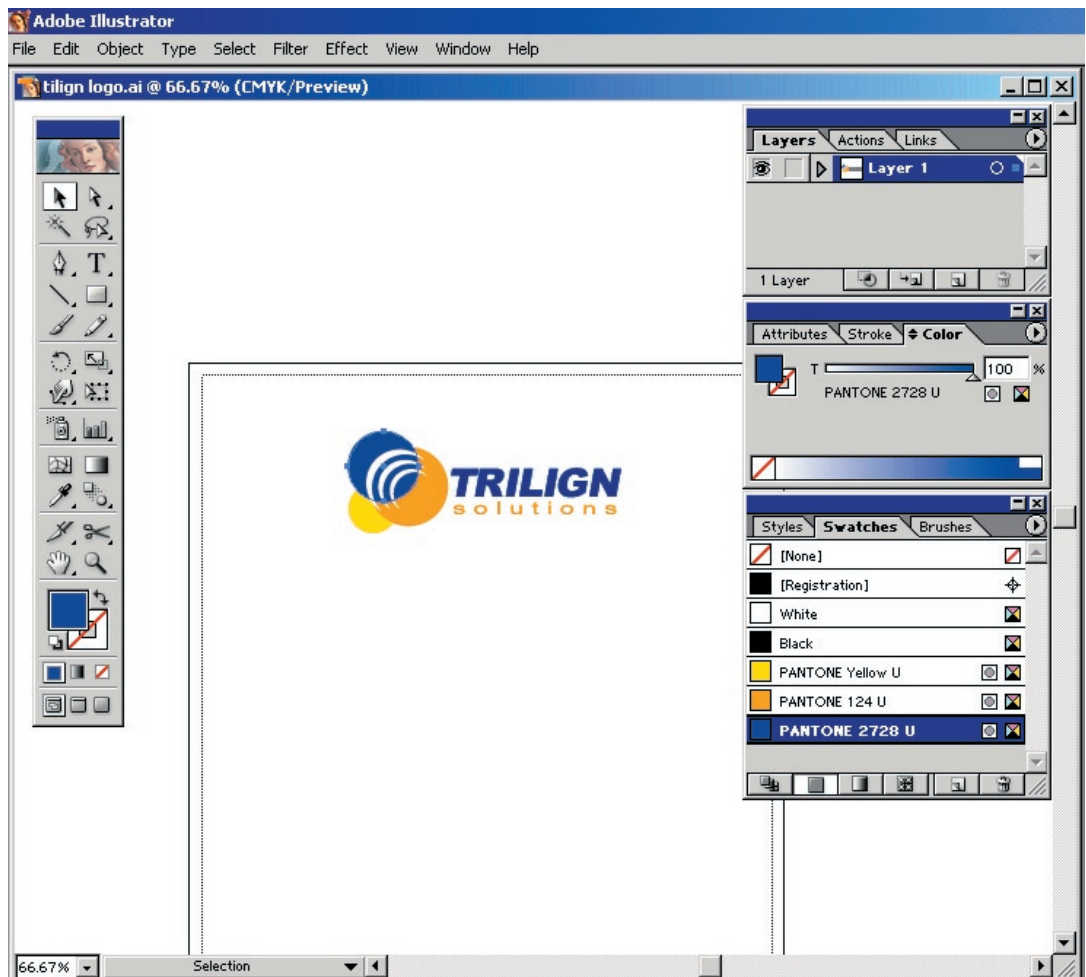
Included with this curriculum will be a CD containing all the files used during the course of our Lessons. The CD works with both Mac and PC operating systems and includes fonts and print drivers for both systems.



Section A

Exploring the Illustrator Environment

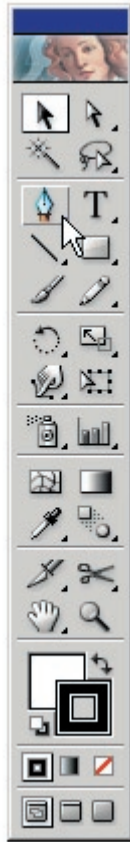
Before we begin working on our class files, let's take a moment to familiarize ourselves with the Illustrator environment.



As you can see from the illustration, Illustrator consists of 5 main areas, the Menu, the Toolbar, the Document Window, the Status Bar and Floating Palettes. Illustrator's Toolbar consists of over 60 tools designed to make your life easier.

The toolbar is arranged in a logical fashion, with selection tools, drawing tools and transformation tools all located in their own areas. The toolbar also has tool sets which allow the user to "tear" of frequently used tools such as the shape tools. The toolbar also contains a quickly accessible Fill and Stroke color selection boxes. These allow the user to switch fill and stroke colors,

- change colors and switch back to default colors without using the menu or floating palettes.



The document window is marked by the artboard (also known as the document dimensions), the scratchboard (the area outside of the artboard) and a dotted line indicating the printable area. The artboard is expandable to 227" x 227" but sadly does not support multiple pages. The printable area is defined by the print driver and can be moved as needed.

The Status Bar is located at the bottom of the document window and contains information about the current document. To the bottom left of the window is the current magnification of the document. This can be changed by typing a new setting into the window or by choosing a new setting from the pull-down menu. To the right of that is a status bar that can display the current tool, the date and time, free memory, number of undoes and the document color profile. The user just selects a choice from the pull-down menu. Alt clicking on the menu will provide alternate, if not entirely useful, status bar items.

By default, the Floating Palettes appear to the right of the document window, although the user is free to move them wherever she so wishes. The palettes display an incredible amount of information and options, ranging from the color mixer, to character formatting, transformations, layers and many more. The palettes are initially grouped with other, similar palettes, but the user is free to dock and undock the palettes at will. Palettes can be turned on or off by selecting them from the Window menu option.

The majority of all actions inside of Illustrator will be done from the toolbar or a floating palette.





Section B

Exploring Artwork Types

Illustrator by default creates Vector graphics. Illustrator's support of Raster based graphics continues to grow with each release, so I think it is appropriate to explain the difference between the two and how Illustrator deals with each type. When working with client files or creating new artwork, knowing these differences can make a huge difference in determining how to work with a certain file.

Vector Graphics are graphics described by mathematical expression. Because of this, vector graphics are typically sharp and clean and are what we refer to as Infinitely Scalable. This refers to the fact that vector graphics do not lose their crispness when scaled up or down.

Raster Graphics, or bitmapped graphics, are built from a grid of pixels. These square pixels each have a color value. When combined, they come together to form a single image. This approach allows graphics to have incredibly subtle tonal shifts. As such, they are generally used for photographs and other continuous tone images. Raster-based graphics tend to lose definition and sharpness when scaled.

When deciding which format is best for your file, consider how the graphic is to be used, the number of colors involved, and the possible modifications that you might need to make to the object.

Vector graphics are native to Illustrator, so it can create and edit them with ease. Raster-based graphics are another story. While Illustrator can perform limited image editing tasks on raster graphics, it is better to edit such images in a program like Photoshop.

Illustrator does, however, excel at managing and combining vector and raster graphics together.





Walkthrough 1-1

Examining a Client Supplied File

One of the most common tasks for a prepress technician to printing client supported files. Due to the inconsistent nature of client ability, this is often a difficult task. While every file is unique and offers its own challenges, there are certain common errors that you can look out for in Illustrator.

When examining client files, look closely at the following items:

I first look for placed images. A majority of print errors can be tied to incorrectly or improperly prepared imported graphics. For example:

- Are the images linked or embedded? If they are linked, was the image supplied?
- Are the images a high enough resolution or proper file type?
- Are the images CMYK, RGB or are they supposed to contain Spot colors?

Next I examine the fonts in the document.

- Are the fonts included with the file?
- If needed, are fonts converted to outline?
- Has a substitute font been specified if the original file is not available?

Color is also a critical area that clients often lack knowledge of:

- If the document is spot, are all objects given the proper color, or, for example, are there four greens instead of one being applied?
- Are the colors CMYK, RGB or Spot?
- Are the gradients built correctly?

As a general rule, I also always check the following things:

- Does the file need trapping, and will I do it manually or by using automatic trapping?
- Are the paths or objects unnecessarily complex (i.e. too many nodes created when autotracing a graphic)
- Is the file using items like the gradient mesh or transparency which can cause certain operations to not print correctly?
- Is the bleed on the document correct?



- By maintaining a similar checklist, you can identify and trouble-shoot the majority of your customer supplied Illustrator files fairly easily. For our first walkthrough, we'll examine a customer supplied flyer announcing their open house. We'll identify a few problems, correct some and then let the client make creative decisions on others that threaten the project.

The client, Trilign Solutions, has submitted a flyer to be printed for their upcoming open house. The file was created in Illustrator 10 and has one imported Photoshop file. The artist believes everything is ok, but admits to not knowing that much about Illustrator or printing. The client wants a special run, the PMS colors in its logo are very important to their brand, so they are willing to run two of the three PMS colors (PMS 2728 and PMS 124) in their logo as well as the CMYK needed to print the photograph. That makes this a six color job, and one that is going to cause some problems.

1. Open the file 01_Flyer.

*TIP -
The easiest way to get a thorough overview of a document is to access the "Document Info Palette" under "Window>Document Info". Here you can browse through the document's fonts, linked images, spot colors and more.*

2. A message will appear describing a missing graphic. When the designer saved the graphic to their disk for submittal, they changed it by placing it inside of another folder. The link back to the graphic was broken. To fix this, you will need to replace the graphic and find its new location. You will find the graphic in the Images>:Linked Graphics folder. Browse out and find the link.

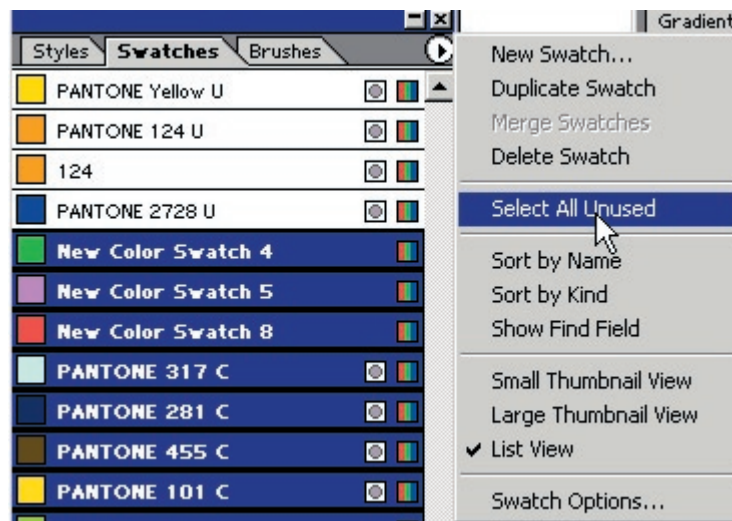
3. Another message appears telling you that you are missing the font Vannes (unless, of course, you have this on your system). Replacing fonts is something you should only do with client approval. We'll pretend you called the client and got approval to use Arial beforehand. Change the font to Arial.

4. Once the file is opened, there are a few things that should immediately catch your attention. First is the word "Party" screened into the background of the flyer. It's using a transparency setting that won't work with spot colors. We'll talk about it with the client later; let's turn our attention to the color palette.

- 5. If it is not open, open the Swatches palette by going to Window>Swatches. The Swatch palette will show all colors, styles and gradients at once, but we're only interested in the colors at the moment. Click

- on the Show Color Swatches option at the bottom of the palette, this will cause the swatch palette to display only colors.

6. As we can see, the designer might only be using three colors, but it is obvious they experimented with many more than that. The palette is a mess, and there is no way to tell which colors are being used. Fortunately, Illustrator gives us a quick and easy way to eliminate any unused swatches. In the Swatch panel, click on the Palette Options pullout menu and choose Select All Unused.



7. With the unused swatches now selected, click on the trash can in the lower right section of the swatch palette. All unused colors will now be deleted.

8. After deleting the unused swatches, it is clear that too many spot colors are being used. There are two blues and two PMS 124s being used. Rather than select each color and change it to just one of the two options, Illustrator has a feature called Merge Swatches that allows us to merge the colors together. This option ensures that everything will print on the correct plate.

9. Click the PMS 2728 color and then hold the Ctrl key down to also select the Blue spot color. The first color selected will be the color that is merged into, so it's important that the properly named color is selected first.



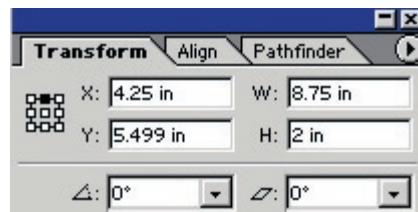
- 10. In the palette options menu, choose Merge Swatches. The Blue color will disappear and the only color left will be PMS 2728. What's more, all colors that used to be the Blue are now changed to the PMS color.

11. Repeat the procedure to merge the PMS 124 colors.

13. We can also notice by looking at the color symbol beside each color that the document is set up in RGB mode. Since we're printing in CMYK, this could cause color shifting if not changed. To change the color mode, go to File>Document Color Mode>CMYK color. Notice how the colors have all changed to the CMYK color model.

14. The last thing to tackle before our transparency problem is the bleed. Or lack of it. We need .125" bleed around our file for the Yellow box and currently we have none. We could manually measure the correct bleed and place guides on the page to help us resize the box, but using the transform palette can make our life easier.

The Transform Palette allows us to change the X and Y coordinates of an object, the width and height of an object and the angle of rotation and skew of objects. We can also set the transformation axis along one of 10 points.



15. Select the yellow box. We need to add .125" bleed to the sides and the bottom, so we'll transform the width and the height of the object to provide the bleed.

16. Change the registration point (the small boxes to the left of the X and Y coordinates) to the upper center point. This will force the Height to only be added to the bottom of the object.



- 17. Add .25" to the width to bring the box to 8.75." Since the registration point is set to the top center, the additional width will be added equally to both sides giving us our horizontal bleed.

18. Add .125" to the Height, bringing our total to 2.875." Since our registration point is in the top center, the additional height will only be added to the bottom of our box. Our bleed is now correct.

19. Save the file.

Our main problem with the file is one that can't be solved the way the client would like. The designer used a transparency setting to fade the word "Party" into the background, while at the same time multiplying its color value by the object underneath it. The result is a darker yellow where the word "Party" overlaps with the box. Since Spot colors can't print at over 100%, this technique would never work when printing to spot. The client only has one option, print the file as CMYK, which would allow for the transparency, or change the file to reflect another, similar technique. We could, for example, change the word "Party" to the Blue PMS color, screen the color back to say...30% and then overprint the text. This would create a darker area in the overlapped area as well, just a different color. In the end, the client decided to print the entire file as a CMYK. Transparency is still not 100% reliable, so you would need to closely monitor this area after printing film or creating plates. The only thing left to do to the file now is trap it. We will discuss trapping during a later lesson.

Lesson II

Logo Recreation and Multiple Uses

One of the most difficult and common requests that clients make is to recreate supplied artwork. Usually the client asks you to recreate a logo or business card from an existing item. Recreating logos from customer-supplied artwork can be a nightmarish task, especially considering the poor quality of most client artwork. Often the only copy a client will have of their logo is a business card. From this they will often make requests such as recreating the business card, designing new letterhead and creating point of purchase displays larger than scanning the logo will allow.



- Often scanning the logo will produce acceptable results. However, in cases where spot colors are involved, or situations where repurposing the logo at various sizes is required scanning is not the best option. In those instances recreating the logo using Illustrator’s powerful drawing tools will give you the highest quality results and the greatest flexibility when creating new art for the client.

In this lesson we will recreate a logo supplied by the fictitious client “V-Twins.” V-Twins is a custom motorcycle shop, and they need new business cards. The trouble is that the only thing they have to supply to you is an existing business card. The logo is a three-color logo and they will also want new letterheads and other items created, meaning scanning the logo is out of the question. As we recreate the logo, we will examine several concepts of creating vector artwork and examine many of Illustrator’s tools. Before we create the logo, we will first do a brief walk-through to familiarize ourselves with the pen tool.

Walkthrough 2-1

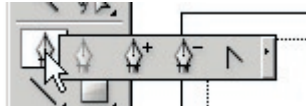
Practicing with the Pen Tool

The pen tool is the most precise tool available for drawing straight lines, bézier curves, and complex shapes. While it might take a while to master, it is well worth the effort. Almost every vector-drawing program has some version of the pen tool, and all of Adobe’s programs use the exact same pen tool. So once you have the pen tool mastered, you’ll be much more efficient in all programs.

The pen tool creates two basic lines, the straight line and the curved line. Line segments are joined using anchor points. When an anchor point is joined with the original anchor point, a complex shape is created, allowing you to give it a stroke and a fill. Through the use of bézier points, anchor points can also be used to create curves. These can be created as you draw, or by converting the anchor points to curved anchor points at a later time. Looking at the expanded pen tool set on the toolbar, we see that the pen tool is in



- fact made up of several different tools. These consist of the pen tool, the add anchor point tool, the delete anchor point tool and the convert anchor point tool.



TIP -

You will become much faster and more efficient if you learn the hotkey for various tools. This makes it easy to switch back and forth on the fly, eliminating the need to go back and forth to the toolbar. You can learn a tool's hotkey by hovering over it with your cursor.

During this brief practice walkthrough, we will create straight lines, curved lines and lines that use a combination of the two types of lines.

1. Open the file 02_Pen.ai. This file will be located in the Lesson_01 folder.
 2. Make sure you are drawing on the "Practice" layer. This should be the only unlocked layer.
 3. Select the pen tool from the toolbar. If you wish to draw with precise cursors, press the Caps Lock key. Change your fill color to none and your stroke color to a bright red.
 4. Beginning at point A, click once to create and anchor point. Move your cursor over point B and click once again. Notice how a line segment is created between point A and B. Continue creating line segments through point E.
 5. To move on to the next shape, you must first deselect the pen tool and then select it again. If you continue to draw with the pen tool you will merely extend the first shape. To quickly deselect and reselect the pen tool, use the hot keys for the selection tool and the pen tool. Press "V" to select the selection tool and then "P" to reselect the pen tool.
 6. Now move your cursor over point "F" on the triangle. Starting at F, click around the triangle until you return to F.
 7. As you move your cursor over F again, notice that the cursor now has a small circle in the lower right-hand corner. This means that you are about to reconnect to the original point, creating a closed shape. Click on the original point again to complete the triangle.
- Next we'll begin drawing the curved lines. Curved lines are a little harder to

- master, but offer the most control when drawing precise shapes. Curved lines are made up of anchor points and bézier handles. These bézier handles are created by holding the mouse down and dragging in various directions while drawing your shape. Once created, you can change the direction and size of your curved line by moving these handles. Understanding the difference between bézier handles and anchor points is crucial to drawing curves. Anchor points appear as squares, filled when selected and empty when not selected. Bézier handles appear as circles at the end of the direction lines. The position and length of the direction line determine the size and shape of the curved line. Bézier handles will only appear while drawing or when an individual anchor point along a curve is selected.

1. Place your cursor over point "I" in the curved lines segment (Remember to deselect and select your pen tool again to begin drawing a new shape). Click and hold your mouse down.

2. While holding your mouse down, drag straight up until your directional line is over the red directional line guide. If you hold the shift key down while dragging, you will be constrained to a straight vertical line. Notice that two directional lines are created; this is known as a Continuous Curve, as line segments attached to either side of the anchor point will be curved. Once your cursor is over the red dot, release your mouse. Notice that the directional lines remain in place. NOTE: These directional lines should NOT be confused with line segments. These directional lines are to aid in drawing curves only; they will not print or show on the final shape.

3. After releasing your mouse, move the cursor over point J, click and hold the mouse down on point J. As you hold the mouse down, drag the cursor down towards the red bézier handle guide. Notice how the curved line segment drawn after clicking and moving your mouse moves in relation to where you position the bézier handle. With a little practice, you'll be able to draw precise curves by knowing where to position the bézier handle. Notice how the curve moves in an inverse relationship with where you are positioning the bézier handle. After you have the cursor over bézier handle guide, release the mouse. Your line segment should match the line guide.



- 4. Repeat the procedure for points “K” and “L.” Remember to hold the mouse down as you position your bézier handles and remember that holding the shift key down as you move will constrain you to a straight line.

5. Now draw the next curved shape using the same technique. Notice how you can create complex line shapes with just two anchor points. As you become more comfortable with the pen tool, you should attempt to draw shapes with the fewest anchor points possible. Anchor points add to file size and make objects more complex. Fewer anchor points create shapes that are smaller and less likely to cause limit check errors when printing.

For our last practice exercise, we’re going to combine using straight and curved lines. When you click to draw an anchor point, you automatically get a straight-line segment, to create a curved line segment, you must hold down the mouse and position your bézier handles where needed. You may have noticed when drawing curved line segments that any new line segment drawn after a curve is also a curve. When you position bézier handles to describe a curve the next line segment drawn will finish that curve, whether you describe the next anchor point as a curve segment or not. At times this is not the desired result. Very complex shapes often have curved lines that suddenly change direction or become straight lines. To draw these segments you will need to convert anchor points from curved anchor points to straight anchor points. An anchor point can have two bézier handles for continuous curves, just one bézier handles for a corner point (a point that has both a curved and straight line segments) or no bézier handles for a straight line segment. To convert a curved anchor point to a straight line segment or corner point, you can either convert the point as you draw the shape or by converting it later. To convert as you draw requires a little practice and will seem odd at first. After some practice it becomes second nature and will greatly increase your efficiency and control over complex shapes. To convert a point as you draw you first draw a curved segment by clicking, holding the mouse down and dragging a bézier handle to the desired location. Then after releasing the mouse you position your cursor over the new point. By clicking ONCE on the point you convert it from a curved segment to a corner point. Now the anchor point only has one bézier handle and the next line segment drawn will be drawn as if from a straight-line segment. You can also change the position of a bézier handle as you draw by holding down the alt key after positioning the initial handle. This will change the direction of the next curve

- segment. We'll practice both of these techniques in the next two shapes we draw.
 1. Position your cursor over point "O." Click and hold your mouse down, dragging a bézier handle to the red bézier handle guide.
 2. Next, move your cursor over point "P" and click and hold your mouse down to position the bézier handle over the bézier handle guide that is down and to the right. This will complete your first curved segment.
 3. Now we need to do some fancy footwork. Again, this won't seem intuitive at first, but after some practice you'll be amazed at how quick this technique is. We need our next curved segment to mirror our first one, but in a different direction. Unless we convert our anchor point, we'll never be able to do this, as it would finish the arc of our first curve. To make the next segment curve in the right manner, we need it to have anchor points that are not related to each other, meaning that each one can move independent of the other. To do this, once you've positioned your bézier point in the lower right position to form the first curve segment, do not let go of the mouse. With the mouse still held down, hold the ALT key (Option for Mac) down and move the bézier handle to the upper right location indicated by the red bézier guide. Using the Alt/Option method allows you to convert bézier handle direction on the fly, without having to convert the points later.
 4. To finish the line, draw a new anchor point at point "Q," moving a bézier handle to the specified location.

The last shape goes from a straight line to two curved lines before returning to a straight line.

1. Create an anchor point at point "R." Be sure to click only once, we don't need a bézier handle for a straight-line segment.
2. Next we'll create the bézier handle necessary for our upcoming curved segment. Notice that if we were to click and hold our mouse down, it would create a curved segment from our first anchor point, something we don't want. To avoid that, we'll use the Alt/Opt technique. Click on point "S" and hold your mouse down, but before you drag a bézier handle to the guide



- position, hold the Alt/Opt key down. Notice that a bézier handle appears, but the previous line segment does not curve. When the bézier handle is in position, let go. We have now created a corner point.

3. Next create an anchor point on point “T” and move a bézier handle to the specified location. This should create the necessary curved segment. Our problem now is that we need to back to a straight line instead of drawing another curved segment. Because of this, repositioning the bézier handle with the Alt/Opt technique will not work. For the next step, we will need to convert then next segment from a curved line to a straight line.

4. After moving the bézier handle to its position, let go of the mouse and move your cursor back over the anchor point you just drew. Notice how the cursor changes to include a “>” symbol in the lower right corner of the cursor. This symbol indicates an anchor point conversion. In this case, we’re going to convert the anchor point to a straight line from a curved segment. With the cursor directly over the anchor point, click once. The anchor point is converted to a straight-line segment.

5. To finish the segment, click on point “U” to create the last line segment. Holding down the shift key will ensure a straight line.

Next we’ll put these skills to the test when we recreate our logo. As we recreate our logo, we’ll walk through different techniques you might employ to create original art. The goal of any logo recreation is to build an identical logo. Anything less will probably be unacceptable for the client.

Walkthrough 2-2

Preparing the Document

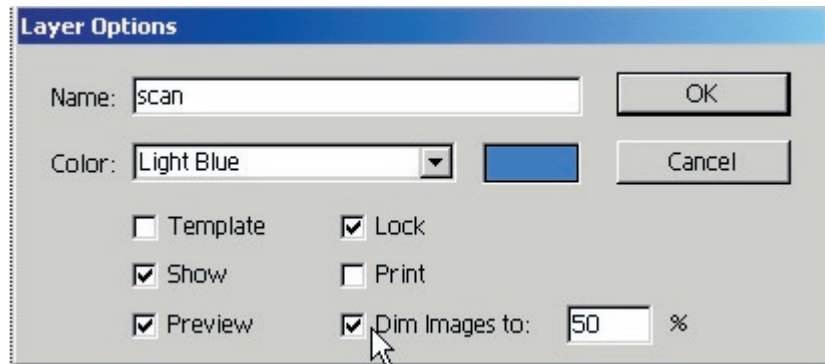
The first thing we have to do when recreating our logo is to determine how the logo will be built and plan how to set the file up. When creating new artwork in Illustrator, a great deal of time and effort can be saved by planning properly before actual file creation.

- In this case we need to set up our color palette, plan out how to build each logo element, and determine how the logo will be used in the future, so
- you will know if you need to create separate file types for the logo. Instead
- of importing our scanned logo into a new file, we will directly open the

- Photoshop EPS file in Illustrator. Opening the file directly allows us to see a high-resolution version of the scan, instead of a low-resolution header. By isolating the scan on its own layer, we can lock the layer and dim its contents allowing us to use it as a guide as we draw.

We will begin by setting our document up.

1. Open the file "02_scan.eps" save the file as "V-Twins_Master.ai"
2. Rename Layer 1 "Scan."
3. Double click on the Scan Layer to open up the Layer options dialog box.



4. In the Layer options box, check the Lock option, turn off the Print option, and check the "Dim Images to" option and type in 50%.

The layer that now contains our sample scan is now locked and dimmed to 50%. This will allow us to easily reference the logo without confusing it with the objects we are drawing.

5. Open the Swatches panel if it is not already open. You can open the Swatches panel by going to Window>Swatches

6. Click on the Show Color Swatches option to view only the color swatches. Delete any unused swatches.



7. Our logo uses three colors, Black, PMS 185, and PMS 124. To place the two

- PMS colors into our swatch palette, we'll open the PMS library swatch and copy those swatch colors to our swatches. To open the PMS library swatch, go to Window>Swatch Libraries>Pantone Coated. From the newly opened swatch, find the two PMS colors and drag and drop them onto your color swatches. The three colors needed should now appear in your swatch panel. Close the PMS library.

Before we can go further, we need to establish the order in which we want to build our artwork. It is usually better to build from the bottom up, although there are always exceptions to the rule. You should first identify how many elements the artwork has, how they might trap to each other and to other artwork, and what the most efficient use of shapes for the objects, keeping in mind that you may need to modify the artwork at a later date.

Looking at the V-Twins logo, we can easily identify four elements; the V, the flames, the wheel and the banner. Although some of these elements are in turn made up of multiple objects, we'll use these main four elements as the starting point for our logo.

Walkthrough 2-3

Building the "V" Element

At first glance the V appears to be nothing more than the letter V from a regular font. Close inspection of different font faces and logotypes show that this is instead a custom built V. We are now left with the difficult task of determining how to recreate the letterform. Instead of redrawing the V with the pen tool, we will modify an existing letterform to look like this V.

1. Create a new layer above the Scan layer. Name this layer V. Change its color to blue.
2. Zoom up so that the logo is centered and large enough to fill most of the screen. Select the Type tool and type a capital "V" over the logo.
3. With the V selected, change the font to Garamond Semibold. Normally this would take a good deal of experimentation. Call it a lucky guess.



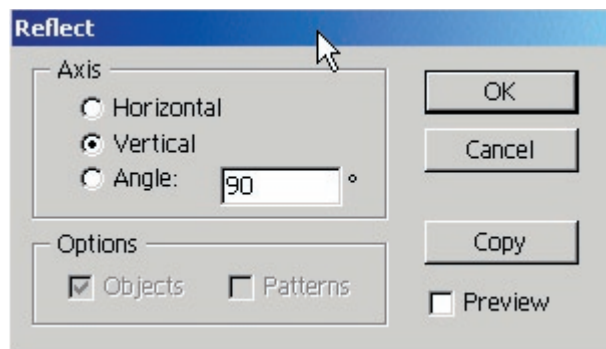
4. Using the bounding box, resize the V until the left ascender is the exact size as the left ascender in the logo. You may need to scale the letter

- horizontally and vertically to achieve a similar size. Position the V so that the left ascender is in the exact same position as the scanned logo.

5. Change the fill to PMS 185 and the stroke to a 1pt Black stroke.

6. Now that we've got one half of the V looking correct, we need to split the letter in two, copy it and join the halves together to get one shape. First we need to convert the V to outlines; so go to Type>Create Outlines. You can also right click to get this option.

7. We need two Vs to help us build our final shape. With the V shape selected, double click on the Reflect tool (which can be found grouped with the Rotate tool). When you double click the Reflect tool, the Reflect dialog box appears. Change the Axis to Vertical and click copy. An exact duplicate of our shape appears, reflected along its vertical axis. Move the copy to the left until the right ascender of your new shape matches the right ascender for the scanned logo.



TIP -

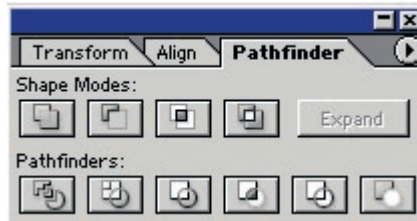
To see your placed images while in outline mode, choose "Show Images in Outline" in the "Document Setup Window"

8. To allow us to cut the V shape precisely, we will now switch to Outlines mode, a mode that allows us to see just the outline of an object and ignore the fill. Go to View>Outline.

We could add anchor points at places the two shapes intersect, cut the object by hand, and then rejoining it at the cut anchor points. This option is tedious and can be confusing. Another option is to perform Path Operations on the shapes to trim off what we don't need and merge the rest into one shape. In this instance we will use two Path Operations, Divide and Merge to achieve our finished shape.



- 9. Open the Path Operations panel by going to Window>Pathfinder. This panel is usually grouped with the Transform and Align panel. With both objects selected, click on the Divide button. This creates an individual shape everywhere our two shapes overlap.



10. We need to now remove any unwanted overlapping areas. Delete the unneeded areas to the left and right of our shapes. Also notice that small overlapping shapes have been created at the top of each ascender. Delete these smaller overlaps.

11. You should now have a shape that looks roughly like the V we need. Unfortunately, it is still in more than one piece. To join these pieces into one shape, we'll use the Merge operation. With all the remaining shapes selected, hold down the alt key (or Option for the Mac) and click on the Merge key. This will merge all shapes into one shape with one outline.

12. Although we're almost done, we haven't quite got the V looking right yet. With the Direct Selection Tool selected, click on the V shape to highlight the anchor points. At the base of the V you will notice three points, we need only one for the pointed look of the V. Move your cursor over the bottom leftmost point and press the "-" key. This will change your tool to the delete anchor point tool. Click on the point to delete it. Delete the bottom right point as well, leaving the middle point the only point left at the base of the V.

13. Make any other minor adjustments to the V that you need to have the size and positioning correct.

14. Once the V is correct, lock the V layer, turn off its visibility and save the file.

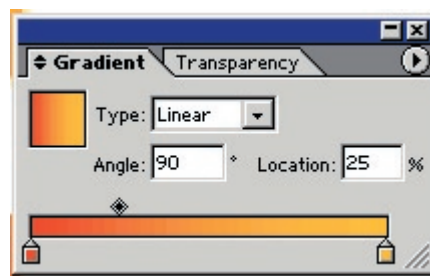


Walkthrough 2-4

Creating the Flames

Next we need to create the flames. We turned the V layer off so that we could see the flames in the logo unobstructed. Notice that the flames are mirror images of each other. That makes our job easier, since we only have to draw one, and then move a copy of it over the second flame's position. To create the flame we'll use the pen tool and then create the gradient out of the two PMS colors.

1. Create a new layer and name it Flame.
2. Using the pen tool, set the fill to none and the stroke to PMS 185. This will help you as you draw by showing you the path without covering up the scan underneath.
3. Draw the left flame shape with the pen tool, being careful to observe the curves and points of the flames. If you don't get a curve exact, remember that you can come back and adjust the directional handles later. Notice that while it looks like there are two flame shapes on the left, you can easily draw it as one shape. This will make applying the gradient easier and make modifying later easier. Since some of your shape will be behind the tire, you don't have to take great care there as to how the shape looks.
4. After the shape is finished, switch the stroke color and the fill color so that the object has a red fill and no stroke. Using the direct selection tool, adjust any areas or anchor points that are not positioned right or curves that don't follow the right shape. You want to make sure all curved areas are smooth.
5. Now we need to create the gradient for our flame. With the flame shape selected, open the Gradient Panel. During this exercise it's a good idea to



- have the gradient, color and swatch panels all open at the same time and not grouped together.
6. Click on the black and white gradient to apply that to our flame. Now we need to adjust the gradient to reflect the PMS colors.
 7. Click on the color chip underneath the black color. Notice that in the color panel, the color changes to black. From the swatch panel, drag and drop the PMS 185 color onto the color chip on the gradient panel. Notice how the gradient changes. Do the same thing for the other end, changing it to PMS 124.
 8. The yellow is a little brighter than the original was. Click on the PMS 124 color chip and change the Percentage in the Color Panel to 70%. Notice how the Yellow end of the gradient lightens.
 9. Next grab the midpoint slider over the gradient bar, notice that by moving it back and forth you can effect where the colors begin to blend together. Placing the slider at 25% makes the gradient break in about the same place as the scanned logo. After you are done with your gradient, drag the gradient from the gradient panel to your swatch panel and name it "Flame." This will keep a copy of this gradient in your swatches for future use.
 10. To flip the gradient so that it runs vertically, change the angle to 90 degrees.
 11. Next, using the Reflect tool, make a reflected copy of the flames and position them over the right hand sided flames.
 12. Lock the Flames layer and turn off its visibility.
 13. Save your file.



Walkthrough 2-5

Inventing the Wheel

Next we'll tackle the wheel, which is actually really easy to do. We will use the Rounded Rectangle tool to create the main wheel, and then use two more to create the hub. A quick copy and repositioning of the hub and we'll move on to the banner.

1. Create a new layer and name it Wheel.
2. From the toolbar, choose the Rounded Rectangle tool, which is grouped in the simple shapes group. Change your fill color to black and set the stroke to none.



TIP -

Tool groups like the shape group can be "torn" off to act as floating tool groups.

3. Place guides on the page outlining the wheel. Don't worry about the smaller bottom of the wheel; we'll adjust our shape later.
4. Draw the rounded rectangle using the guides to help you draw the correct size. Hitting the arrow keys up or down as you draw will change the amount of curve of the corner radius. Before you let go of the mouse, make sure the corner radius is correct.
5. Select the wheel and then click on the Direct Selection Tool. Position the cursor at the lower left-hand anchor point and click on the anchor point. Then, before moving the point, hold down the Ctrl+Shift+Alt/Opt keys. Holding down these keys will distort the image, constrain the angle of distortion, and distort from the center point. Now move the cursor to the right until the wheel distorts to resemble the scan.
6. Deselect the wheel and select the rounded rectangle tool again. Set the fill color to white and the stroke to a 1 pt Black stroke. Then draw a rectangle over the left hub approximately the same size as the larger part of the hub, be sure to match the corner radius.



- 7. Notice that the hub has a slight rotation to it. With the new rectangle selected, double click on the rotation tool. This will bring up the rotation dialog box...try a few angle and see if any of them look correct. I used 3 degrees.
8. Now make a duplicate of your hub. Position it slightly to the left and scale the inner hub using its bounding box until it is the same size as the inner hub on the scan. Position it and send both the inner and outer hub to the back, positioning the wheel on top, the inner hub just below the wheel and the outer hub behind everyone.
9. Using the reflect tool, create a mirror-image copy of the inner and outer hub and move them to complete the wheel.
10. Lock the layer and turn off the visibility.
11. Save the file.

Walkthrough 2-6

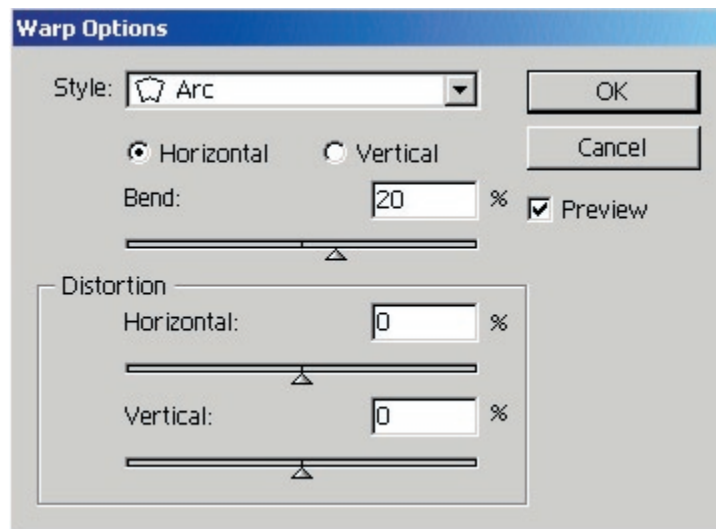
The Final Banner

The final element that we need to create is the banner. The banner actually has three elements, the banner ends, the banner itself and the curved text. We will draw the banner ends with the pen tool, the banner itself with the rounded rectangle tool and we will then place the text along a path.

1. Create a new layer and name it Banner.
2. Select the pen tool and trace over the banner end on the left hand side. Give it a 1 pt stroke with a Black fill. Adjust the black fill so that the black is at 40%.
3. Reflect a copy of the banner end and move into position on the right side.
4. To avoid changing or affecting the banner ends while drawing the rest of the banner, we will lock them down. To lock the banner ends select both of them and choose Object>Lock>Selection or press the hot key of Ctrl + 2.



- 5. With the ends locked, we're free to recreate the banner itself. Select the rounded rectangle tool; change the fill to white and the stroke to black. We will apply an envelope to the rectangle, so it's important that it has the correct properties before we create it.
- 6. Draw a rectangle the approximate size needed and adjust the corner radius to match the scanned banner. This may take some experimentation, but should be relatively easy to do.
- 7. Position the rectangle above the scan in place. With the rectangle selected, choose Object > Envelope Distort > Make with Wrap from the menu. This will bring up the Warp Option dialog box.



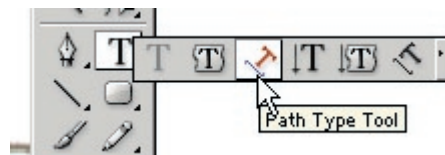
- 8. With the preview button turned on, you can experiment with warps until you find one that works. Use the Horizontal Arc setting. I chose 20%, with no distortion. You may need to adjust the settings to get it to match the arc in the scan.
- 9. Scale and reposition the arc to the correct size. Lock the arc using the Ctrl+2 hotkey

- The last step in creating our logo is to create the curved text on the banner.
- At first glance this appears to be yellow text with a black stroke. Upon closer examination we see that is not the case. Strokes in Illustrator are center-line strokes, meaning half a stroke is on the outside of the object and half is

- inside. If regular text was stroked with a stroke this thick, parts of the letters would be obscured. Because of this, we'll have two pieces of text, one with a heavy black stroke, and one on top of the first line, with a PMS fill but no stroke. We'll first create an arc for the text to travel along.

10. Using the pen tool, create a curved arc that runs just above the bottom of the banner. It should mimic the curve of the banner. Use the position of the original type to aid you in drawing the arc. Make sure the arc has no fill.

11. From the type tools, select the Path Type Tool. This tool allows us to create type along paths. Position the cursor over the path and you'll notice the cursor change. Click once and type in the word "TWINS" in all caps, format it as Garamond Semibold and 16pts in size.



TIP -
If you want to change the position of text along the path, select the "I-Beam" icon at the beginning of the text and drag to the desired position. If you drag across the path, you will flip the type.

12. The type should follow the path of the arc. If it doesn't, undo the type tool and try again until you highlight the path. Look at the type in outline mode and make sure it is positioned over the original type. If it isn't adjust it by moving it into place or rotate it slightly to make sure you have the same angle.

13. Give the type a black fill and a black stroke of 2 points. In the stroke options, set the options to a butt cap and a bevel join.

14. We now need to create a copy of the text on top the black text and give it a PMS 124 fill. To create an exact duplicate of our original text, select the black text and choose Edit>Copy and then Edit>Paste in Place. The hot key for this feature is Ctrl+C followed by Ctrl+F.

15. With the duplicate text selected (which it should be by default), change the fill to PMS 124 and the stroke to none.



16. Group the two lines of text.

- Next we need to make sure the logo looks correct and make any additional tweaks required.

17. Turn the visibility of all layers back on, unlock all layers except for Scan and unlock any locked objects (Ctrl+Alt+2).

18. Select all elements of your logo (Ctrl+A).

19. With the entire logo selected, move it to the right so that you can see the original scan and the rebuilt logo side-by-side. Make any minor tweaks needed now.

20. Save the file.

Walkthrough 2-7

Preparing it for Use in Other Applications

Now all we need to do is save the logo for use in other programs. It is a good idea to save two logos...one that retains the original file structure in case you need to modify it later, and a slimmed down version that is grouped and optimized for use in other programs. We named the file with a "master" in the title to signify this is the source document for use when modifying. Any logos built off the master will need to be recreated if the master is modified.

We will save the file out for four different uses. One for use with other Illustrator documents, another for PageMaker, Quark or InDesign, a high-res TIFF file for when a raster file is needed, and a .gif file for use on the web.

We will begin by creating a streamlined Illustrator file for future use. Native Illustrator files can be imported into Photoshop, Flash and InDesign and are sometimes the best file to use.

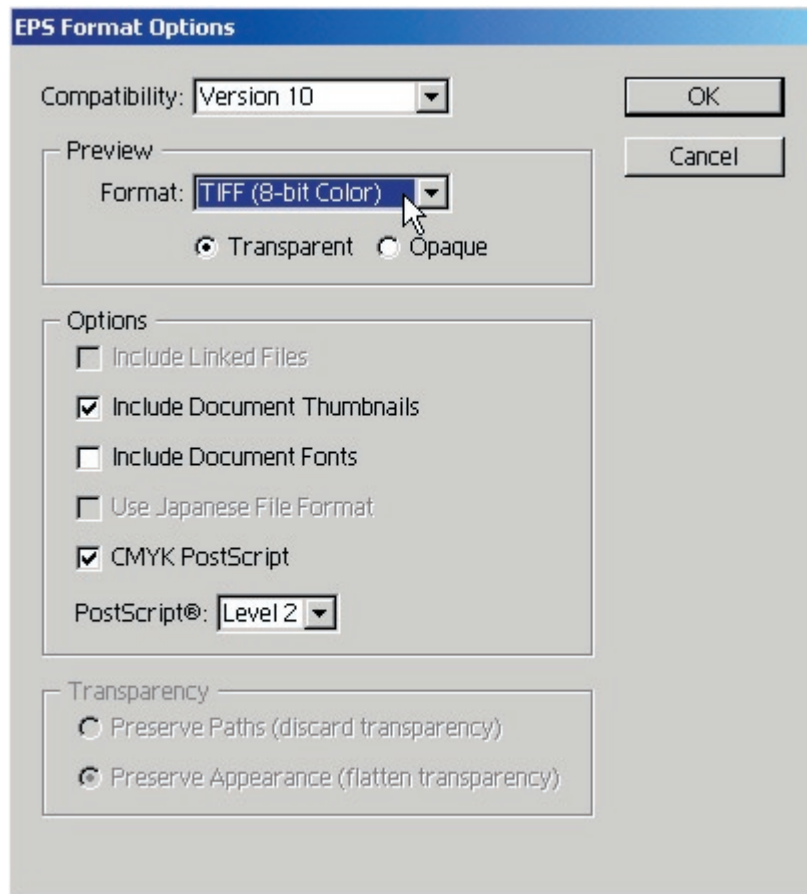
1. Delete the Scan layer.
2. Select all objects and group them together. Grouping the objects moves all objects to one layer. Delete all the other layers.
3. Go to File>Save As. Save the file as "V-Twins.ai"



- By removing the extra layers and unneeded artwork, you have created a smaller file that will print quicker and cause fewer PostScript errors.

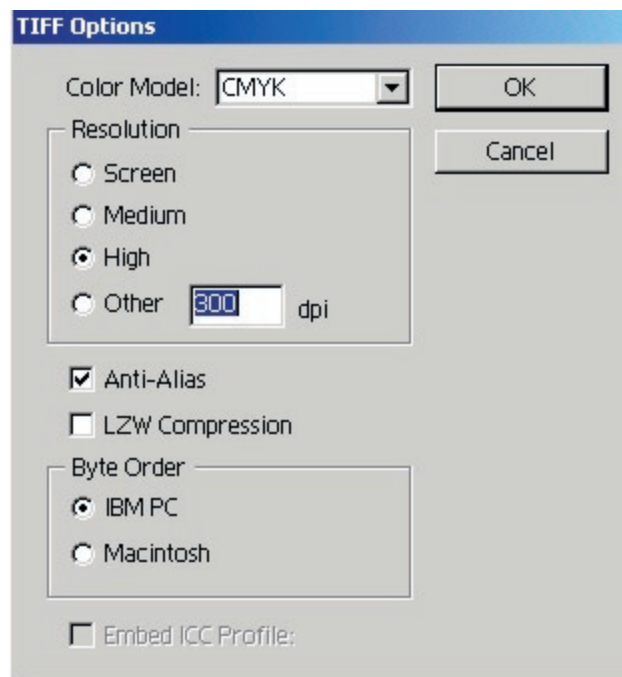
Now we will save an EPS file for use in other applications. If you cannot import a native Illustrator file into the application you will be using, try importing an EPS as your second option. The artwork remains vector, giving you a smoother printout and less chance of error.

1. Go to File>Save As and choose Illustrator EPS. Name the file “V-Twins.eps”
2. In the EPS Format Options dialog box, choose the version you wish to save to (some applications require older version files to work) and choose a TIF 8-Bit preview for a header. You will probably want to choose the Transparent option as well. Choose Include Document Fonts if you wish to embed the font files into the EPS. This will increase file size but eliminate the need for another system to have the font installed to print properly.



- Next we will save the file as a TIFF file. This will require us to Rasterize the file in Illustrator. To be honest, while Illustrator does an ok job of rasterizing the file, it isn't the best in the world at doing it. Many people prefer to rasterize the file by directly opening it in Photoshop.

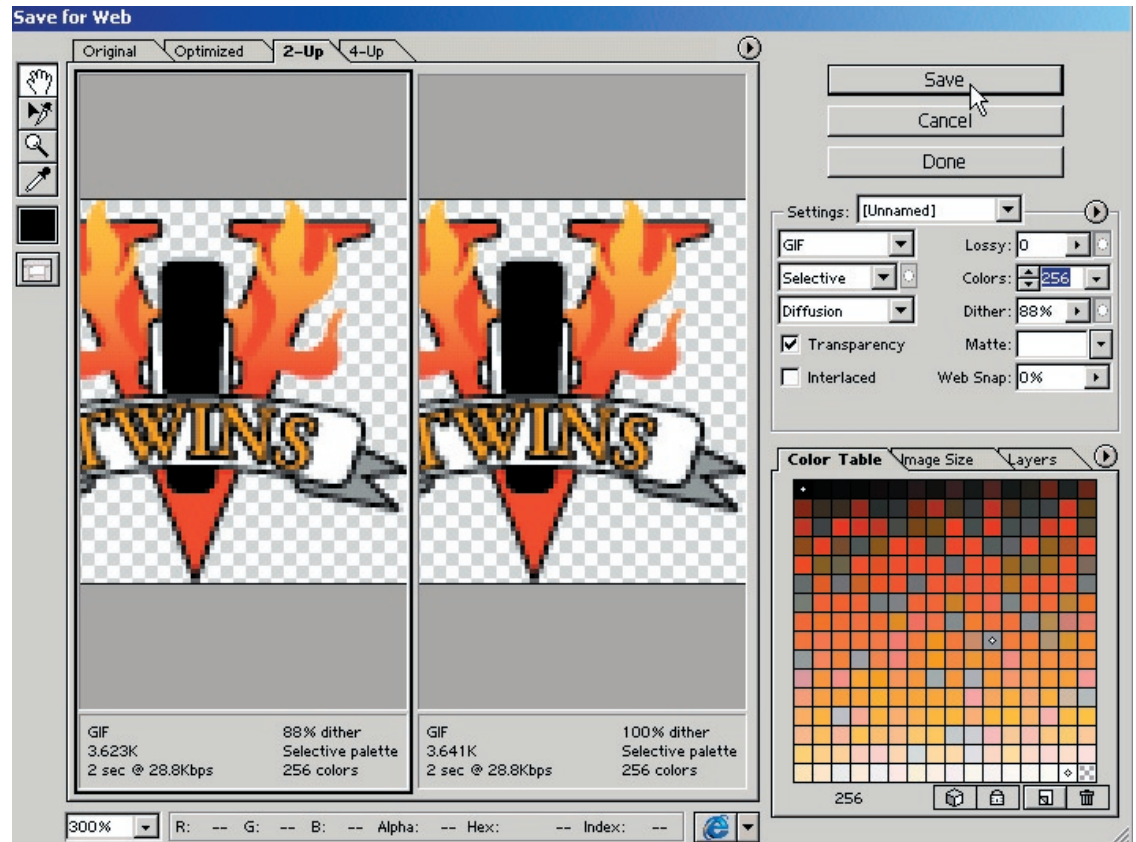
1. Select the logo.
2. Choose File>Export and choose TIF from the pull down menu. The file will automatically title itself "V-Twins.tif"
3. In the TIFF Options dialog, choose CMYK as the color model (NOTE: TIFF does not support spot colors), set the Resolution to High (300 Dpi), make sure Anti-Alias is turned on and that LZW Compression is not checked. Select the proper Byte Order depending upon which system you are working on.



4. Click OK. You can test the TIF file by opening it in Photoshop and looking at the results.

- Next we'll save the logo for use on the web. Illustrator 10 has a special option for saving web graphics, much like Photoshop has.

- 1. First, resize the logo to be the size graphic you need it on the web. Never resize a JPG or GIF if you don't have to.
- 2. Choose File>Save for Web. This will bring up the Save for Web dialog box, which is an interface into itself.



- 3. Click on the 2-up tab to see both the original and the new file. From the pull down menu, choose the GIF 128 Dithered option. Notice that you can customize your export settings for whichever file type you choose. Click Save.
- 4. Save the file as "V-Twins.gif"

You now have four separate files to use in almost any situation you need with the logo. Keeping a master file will make modifying the logo easier. You just need to remember to recreate all the separate versions if you modify the original.



- Next we will use the logo to recreate the business card and then use the move command to easily build an eight-up sheet for printing.

Walkthrough 2-8

Setting Up a Stepped Business Card

1. Open the file V-Twins.ai. This is the streamlined version of the file you saved earlier.
2. Open the file 02_BusinessCard.ai. This is a business card that has been previously set-up. Since it's missing the logo, we'll copy and paste it from the V-Twins file.

Usually I don't advocate copy and pasting any art from one file to another. In the case of Illustrator files, however, it is actually preferable. Importing the EPS file would embed a PS file inside another PostScript file, which could cause problems. Copy and Pasting VECTOR art is permissible and will not result in any lost resolution or image quality problems.

3. From the V-Twins file, copy the logo and paste it into the 02_BusinessCard file. Close the V-Twins file.
4. Inside the Business Card file, reposition the logo so that it is in the middle of the negative space to the left of the text; resize it as needed to fit in the space.

In this exercise, we are going to use the Move command to precisely step and repeat our business card. Our file needs to be eight up, so we will position it in two columns by four rows. To do this we'll first draw a box to create trim marks for the file and then step and repeat the cards in their proper position.

5. Illustrator allows you to create trim marks by modifying an existing rectangle. Choose the rectangle tool from the toolbar, and change the fill and the stroke to none.

6. Click once with the tool anywhere on the document. This will open the Rectangle dialog box. Because we know that business cards are 3.5" x 2", our box size will be 7" x 8." Enter these values in the dialog box and Illustrator will create a box with those precise dimensions.

- 7. Go to View>Hide Bounding Box to turn off the bounding box. Select the new rectangle by the upper left hand corner, and making sure that Snap to Point is turned on, snap the upper left hand corner of the new rectangle to the upper left hand corner of the business card.
- 8. Make sure the new rectangle has no stroke or fill, make sure you have only it selected and choose Filter>Create>Trim Marks. A precise set of trim marks appears on the page. The trim marks are by default given a registration stroke. Registration is a swatch that prints on every separation, ensuring the trim marks will appear on every plate.

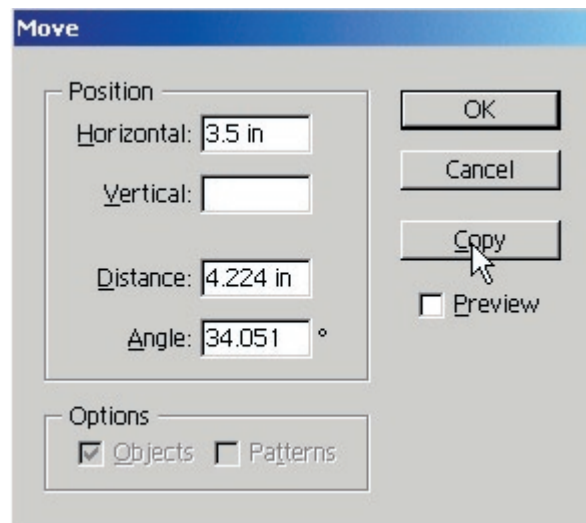
Now we need to step and repeat the business card. To do this we'll use the Move command.

- 9. Select the black box outlining the business card, we don't need this or want this to print, so delete it.

- 10. Group all the objects in the business card together, text and logo. This will make the business card easier to repeat.

*TIP -
After selecting an object
hit the "Enter" key to bring
up the "Move" dialog box*

- 11. To access the Move command, go to Object>Transform>Move, or choose the hot key Ctrl+Shift+M.



- 12. In the Move Dialog box, choose 3.5" Horizontal, nothing for Vertical and choose the Copy option instead of OK, this will place an exact duplicate 3.5 inches to the right of the original.

- 13. To step the cards down, shift select to select both cards. Hit Enter again to access the move dialog box and choose nothing for horizontal and -2" for vertical. Again, choose the Copy action.

- 14. Now that we've stepped one row down, we need to do this twice more. This would be easy enough using the Move command, but there is actually an easier way for us to do this. Clicking the hot key Ctrl+D will duplicate your last action. Hit Ctrl+D twice to add two more rows of cards.

- 15. Now we need to add trim marks to the middle of the cards and down the sides to indicate where the trim is for individual cards. Select the trim marks and ungroup them.

- 16. Using the Move command with the copy option, move two vertical trim marks 3.5" away from the left edge. This will put two trim marks in the middle of our cards.

- 17. Use the same technique of combining the Move command with the Duplicate command to add three trim marks on the sides. You should now have trim marks for each card.

- 18. If needed, center the artwork and trim marks on your page.

The file is now ready to be printed to separations.

Lesson III

Manual Trapping with Illustrator

- As we all know, the process of adding a slight overlap between adjacent areas of color to avoid gaps caused by registration errors is called trapping. Due to plate variations and materials, some presses may need more trapping than others. Even the best pressman on the best press will occasionally
- have registration errors which require trapping to correct. Because of this,
 - trapping is one of the most important responsibilities of the prepress area.
 - Unfortunately it is also one of the most neglected.
 -

- Trapping is accomplished by intentionally overlapping colors so that minor problems with alignment are not noticed. In Illustrator we can accomplish this by using the auto trapping tool, or by manually trapping the file ourselves. While the auto trapping method is very popular and most of the time produces satisfactory results, it is not always reliable. Nothing can beat properly created manual traps. Files trapped in Illustrator can retain their traps when imported into other applications. This can be a real time-saver, allowing you to trap a logo once and never have to trap it again.

Before we begin our trapping exercise, I've listed some common questions about trapping and how Illustrator applies to them.

How many types of trapping are there?

Although this may seem like oversimplification, there are really only two ways to trap colors, spreading or choking. Spreading a color means extending the color out into the surrounding color. This is usually done when a lighter color is on top of a darker color. Choking a color occurs when a darker color is on top of a lighter color, and the lighter color is "choked" underneath the darker shape. In Illustrator, choking and spreading are accomplished by overprinting strokes, fills or a combination of the two.

How much do I need to trap?

The amount of trap needed for jobs varies depending upon the printing process and the press. As a general rule offset presses need about .004" - .008" of trap. This usually translates into a .5 point stroke overprinting an object. There are 72 points in an inch, when you multiply .004 by 72, you get .288. Rounded down that would be a .25 point stroke. This is where a very common error occurs. Strokes in Illustrator are center-line strokes, meaning half the stroke prints inside the object, and half outside the object. Since only the outside half would create a trap when overprint, you need to stroke an object by twice the amount needed for the trap. Ask your pressman what your press tolerance is, he or she should be able to tell you how much trap is required.

- How do I decide which color to trap to which?
- That's actually trickier than you'd think. As a general rule, lighter colors trap to darker colors. Sometimes though, the darker color is not as easy to spot.

- Some blues and reds have almost the same luminance. In those instances you'll need to figure out the luminance yourself. How should you do that? Well, just find the RGB value for the color and then apply this handy formula: (note: RV stands for Red Value, GV for Green Value and BV for Blue Value...but you knew this...didn't you?) $(RV \times .3) + (GV \times .59) + (BV \times .11) = \text{Luminance}$. Just calculate the luminance and trap accordingly.

Is there a time when I shouldn't trap?

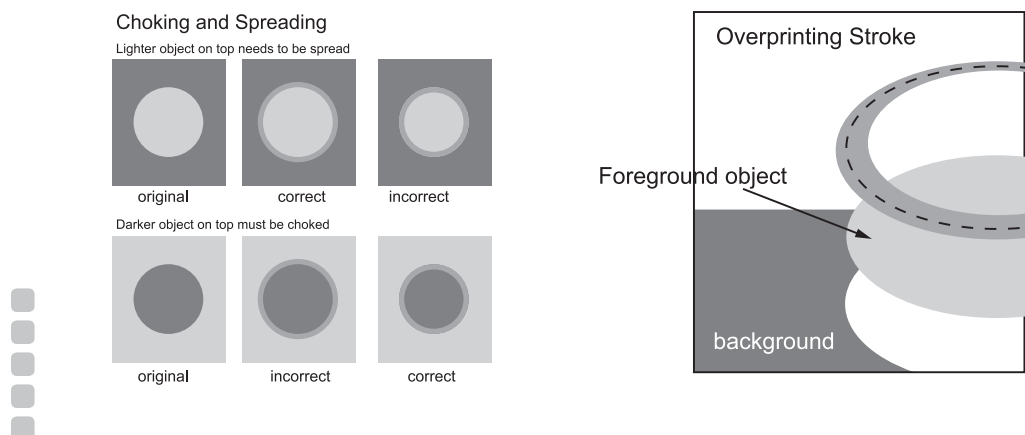
Sure! When text or objects are so small that spreading or choking them would cause them to look distorted, don't trap. In fact, most people don't trap type smaller than 24 points. Usually you can overprint the text with no ill effects. Only rarely will this get you in trouble (the red .vs blue argument again)

Should I trap process color?

It depends. Process color is just like spot color...they print out on their own separate plates. If the two colors in question have significant percentages of the same colors, no trap is needed. However, if you have a yellow with very little cyan or magenta next to a black...it's going to need trapping.

How does Illustrator trap?

By nature, when we print separations objects on top of other objects "knockout" those objects underneath. If they did not, colors would overprint each other and create colors different than intended. In Illustrator, we can choose to overprint the fill or the stroke of an object. Overprinting a fill allows us to choke colors underneath objects while overprinting strokes allows us to spread colors into the background.



Walkthrough 3-1

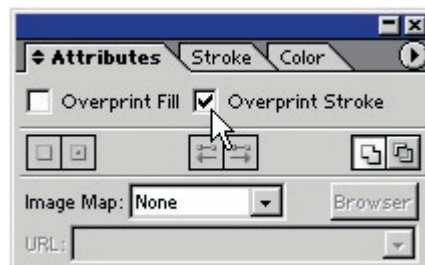
Common Trapping Issues

In this walkthrough we will trap a series of graphics, ranging from simple traps to more complex traps. We will explore how Illustrator's stroke and fill attributes panel can aid us in trapping files and how we can use path operations and custom shapes to complete more complex traps. We will then trap a gradient so that we avoid the dreaded "50%" line and save the file so that trap information will be retained when imported into other applications.

1. Open the file 03_trapping.ai
2. Save the file as "mytrap.ai"

We'll do trapping exercise 1 first. In this exercise we need to trap two pieces of text. One has yellow type on a black background and the other black text on a yellow background. We'll add a stroke and overprint it for the yellow text and overprint the text itself to choke the yellow under the black text.

1. Zoom up on the first box in Trapping Exercise 1 so that you can clearly see the text.
2. Select the yellow text "Simple Trap" in the first box.
3. We need to spread the yellow, so we'll stroke the text and overprint the stroke. Give the text a yellow stroke (use the same spot yellow as the fill) of 2 points. A 2 point stroke is obviously too big for a normal trap. We just want to make sure we can see the results.
4. To trap the file, we now need to overprint the stroke. The text will knockout as usual, and the stroke will overprint the black area, giving us the needed spread. To overprint the stroke, go to the Attributes palette (Windows>Attributes), it is usually docked with the stroke and fill palettes.



- 5. With the text selected, check the “overprint stroke” option.

You’ll notice the stroke is so big, that the text is no longer legible...there’s nothing wrong with this; I just want to prove my point. Illustrator 10 has a really cool feature that allows us to preview how our overprints will look when printed. By using this option, we can actually “see” the trap before we print it. Once we preview the file using this option, you’ll be able to read the text again. Overprint preview also tries to take into account how inks will look on paper stock. Because of this the yellow color will appear to dim somewhat.

*TIP -
If you are using color
management, you can use
“Proof Setup” to proof
your colors by output
device.*

- 6. To view the overprint preview, go to View>Overprint Preview. This may take a moment while your computer processes the trap information. Notice that you can now read the text again and that the overprinting stroke is spreading into the black. To turn the preview option off, select the option again from the menu.

Next we need to trap the black text over the yellow background. The yellow background color needs to choke under the black text. Since the text is only 12 points, there is no need to trap the text; we can just “flood” the yellow color underneath the text by overprinting the text. The black color will “kill” the yellow, meaning that it is so dark that mixing the color with yellow will not produce a new color or shade the color.

- 7. Select the black text on the second box. In the attributes panel, choose “overprint fill” for the text. The text will no longer knock out of the yellow background.

Our next exercise will focus on spreading or choking colors when the two objects are not totally overlapping. When two objects only overlap each other in certain areas, stroking the object won’t work, due to the fact that the stroke will cause the object to “swell” once it gets outside of the other object. We will also focus on how to choke an object when the object is too big to totally overprint the background.

- The first pair of objects presents us with a problem. We could easily trap the yellow circle to the black box by overprinting a stroke. The problem with that is that where the circle is outside of the box, the circle would appear bigger.

- To combat this, we will create a custom line that will only appear where we need to trap.
 1. Create a duplicate yellow circle by copying and pasting in front. Change the circle so that it has a 2 point yellow stroke, but no fill. To aid us in tracking our work, send the original circle to the back and lock it.
 2. Zooming up on the circle, switch to Outline mode by going to View>Outline or hitting Ctrl+Y. We'll cut the circle at the points of intersection with the box and delete the outside part of the stroke.
 3. If the bounding box is visible, turn it off for this next step. Select the outlined circle and notice the four anchor points that make up the circle. We will cut the circle on the two points that intersect the box. If the circle were in a different position, we would have to create anchor points with the pen tool where the two shapes intersect.
 4. Select the scissors tool and click on the two points where the shapes intersect. The scissors tool "cuts" the anchor points, creating two shapes, one inside the box and one outside.



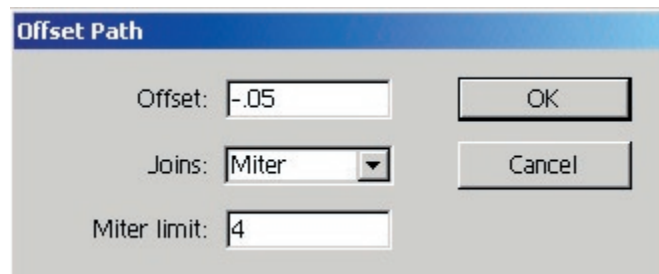
5. Select the Direct Selection tool and deselect the object by clicking off of it. Take the Direct Selection tool and click on the line segment outside of the box. With just that line segment selected, hit delete twice. The first delete deletes the line segment, the second the stray points created by the line segment deletion.
6. You should now have a half circle outline inside the box. Turn the outline view off, set the stroke to overprint and send the black box to the back. You can now unlock the circle. View the file in overprint preview to see the trap.



- We now need to trap the black circle overlapping the yellow background. This is significantly easier than spreading overlapping shapes since all we need to do is run the yellow color underneath the black circle. To do this we'll take advantage of Illustrator's ability to overprint the fill color. By creating a "knockout" circle that is slightly smaller than the black circle, we can knock out a smaller amount of black and overprint the rest. This is possible due to one unbending rule...white always knocks out of the color underneath it. We'll create a smaller circle of white under our black circle that will knock out the yellow, overprint the black circle and examine the resulting trap.

1. Select the black circle. We need to create a smaller circle for the knockout. We could do this by copying the black circle and scaling it down, but there is an even easier and more precise method of creating our white circle.

2. From the menu, choose Object>Path>Offset Path. The offset path feature allows us to offset our current shape by a precise measurement, creating a new shape smaller or larger than the first. Enter -0.025 in the amount box. Again, this is far too much trap, you'd enter the actual numerical value of trap you would need. Notice a second smaller circle is now atop the original.



3. Change the fill color of your new circle to white. Select the original circle, bring it to front and overprint the fill.

4. View the file using the overprint preview option, examine the trap.

In the next exercise, we'll look at combining trap methods when multiple objects need trap.

- Let's take a moment to examine our first example. A yellow circle sits atop two boxes, a red box and a black box. The two boxes butt up against each other, necessitating a trap between them. The yellow circle needs to spread

- to both the red and the black boxes while the red box needs to spread to the black box.

1. Select the yellow circle, apply a 2 pt stroke to it and overprint the stroke, lock the circle.

2. Notice that the red box is larger than the black box and goes underneath it. We'll alter the amount that the two overlap, and then overprint the black box over the red. Select the black box, change the fill to overprint and lock the box.

3. Switch to Outline view.

4. Zoom up tight so that you can see both the edges of red and black boxes closely. Use the direct selection tool, select just the left edge of the red box (be careful to select ONLY the left edge) and line the left edge of the red box up with the right edge of the black box. With the left edge of the red box still selected, hit the ENTER key to access the move dialog box. Move the red edge -0.025 ". This will create $.025$ " of trap underneath the black box.

5. Zoom back out to see all the objects again and turn off outline mode. View the overprint preview to examine the trap.

The next group of objects presents us with something of a problem. A red circle sits atop a black and yellow background. The yellow background needs to spread to the black background, but the red circle is trickier. It must spread to the black background, but choke to the yellow background. We'll do that by modifying an earlier technique.

1. First let's take care of trapping our backgrounds. Set the black background to overprint and lock it.

2. Using the same technique we used for the red shape, move the left edge of the yellow shape -0.025 " into the black shape. Lock the yellow box.



3. Make a duplicate of the red circle by copying and pasting in front. Change

- the new circle to a red stroke and no fill. Overprint the stroke and lock the original circle.
4. Switch to outline mode. Using the scissors, cut the red outline where it intersects the boxes. Select the Direct Selection tool, choose the right side of the stroke and change its color to yellow. Now we have a red stroke spreading to the black and a yellow stroke choking under the red. Make sure that the end caps are set to square (butt cap) on the stroke palette.
 5. Leave outline view and view the overprint preview to examine the trap.
 6. Save the file.

Our next exercise is not exclusively a trapping issue, but one that plagues printing nonetheless. Gradients, especially ones made up of colors with high degrees of varying luminosities, tend to have a hard “line” at the 50% mark. This is caused by the colors fading out to 0% at the halfway mark on the gradient. This can be combated by flooding the lighter color as a solid underneath an overprinting gradient of the darker color. The overprinting gradient should go from 100% of the color to a value of no less than 3%. By fading down to 3% instead of 0%, you are ensured of some dots at the end of the gradient, preventing hotspots.

1. Take the gradient box and duplicate it. The duplicate version should get a solid yellow fill and then be sent to the back. Lock the yellow box.
2. Change the original box from the yellow and black gradient to a new gradient that goes from 100% black to 3% black. Overprint the fill of the gradient.
3. Preview the gradient using the overprint preview option. Notice how visually the gradient doesn’t change.





Lesson IV

Integrating Raster Art and Creating PDF files from Illustrator

For our final lesson, we'll take an unfinished client file add some scanned images or stock photography that we have created for the client. As we add the raster artwork, we'll look at importing different types of files, the differences between linking and embedding images inside Illustrator and apply some raster-based effects. Then we will save the file as a PDF file and examine how to save the file as a PDF to ensure proper output at high resolution.

When importing files into Illustrator, it's helpful to know what it will and will not accept. It is also helpful to know that Illustrator will accept darn near anything. Among the file formats you can import: AutoCad DWG & DXF, BMP, CGM, CDR (versions 5, 6, 7, 8, 9 & 10), EPS, EMF, FLM, FH (versions 4, 5, 7, 8, 9, 10) GIF, JPG, PCD (photo CD), PICT, DOC, PCX, PSD, PXR, PNG, SVG, TGA, TIFF, and WMF just to name a few. In fact, it might be easier to name the files that you can't import into Illustrator. With such a wide variety to choose from, it's easy to see how people can import the wrong type of file for print and think that it's going to print fine. Unfortunately, the general public doesn't know about "headers" in graphics. They think that what they see on screen is what is going to print.

That leads to long talks over the phone, since once a JPG gets into an Illustrator file, there's no way to suddenly make it a high-resolution TIFF file. I usually told my clients that as long as they stuck with TIFF files or EPS files that they would probably be ok. Not much has changed since then as that still applies today.

Once a file has been imported into Illustrator, the general impression is that not much can be done with it. While it's true that you should do all serious edits to raster art in a program like Photoshop, we'll see in this lesson that there are certain things you can do to images to integrate them with the surrounding vector artwork. Like Photoshop, Illustrator allows you to adjust the transparency of objects. Not only can you adjust transparency, you can adjust how the colors of the top object blend with the objects underneath it. This technique creates very complex print files and, if done incorrectly, can produce files that will not print correctly to high resolution. Unfortunately designers find these functions and take to them like drunken sailors at



- Mardi Gras. So instead of ignoring them, learn as much as you can to prevent them from not working.

Blending colors together via transparency follows a very simple rule. Depending upon the blending method, a calculation is performed between the top color and the bottom color. The result of that calculation is then displayed in place of the top color. This allows Illustrator to support “transparency” as well as Photoshop’s native blending modes. For example, the “multiply” command multiplies the luminosity of the top color with the luminosity of the bottom color; the resulting value (almost always darker) is then displayed.

The biggest problem is when people try to use these blending modes and transparency with spot colors. As we saw in the flyer, a spot color can never be darker than 100% of itself unless being mixed with another color. Therefore a transparent version of itself on top of itself would blend to a value greater than 100%. Illustrator would display the resulting value, even though it is impossible to print the color.

As a rule of thumb, ALWAYS convert spot colors to CMYK BEFORE applying transparency or blending options. If the client has to have spot colors, suggest some alternatives to the blending modes...such as blending more than one color together. You can usually find a work around, but sometimes it just isn’t possible to get the desired results.

Walkthrough 4-1 **Importing Raster** **Artwork**

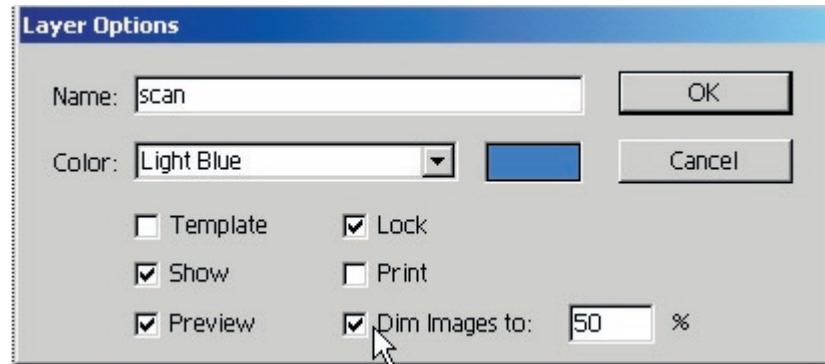
1. Open the file `trilign_onesheet.ai` in the Finished Files folder. Notice how the images are cropped within oval shapes, how they integrate with the vector artwork and how they blend into the background. Note the drop shadow and glow applied to artwork within Illustrator. Close the file and open `04_Onesheet.ai`

2. Save the file as `myonesheet.ai`



3. If it is not open, open the layers palette by going to `Windows>Layers`.

- Notice the multiple layers in the file. When working with complex artwork, you want to organize the content and make it easier to work with. The best way to do this is to organize the artwork on layers. As we place artwork in our file, we will place it on its own layer.



TIP -

In the “Layer Palette” you can prevent yourself from working on the wrong layer by locking all other layer content except for your currently active layer. To do this click on the “Layer Palette Menu Options” and choose “Lock Others”.

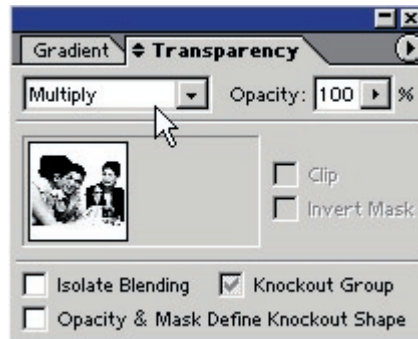
4. Highlight the background layer to make this your active layer. Always pay close attention to the layer highlighted when working with multiple layers. The active layer will be the layer that all edits take place on.

5. Once on the background layer, choose File>Place to import the background graphic. Most programs call this function import, but Illustrator uses “Place.” Why? Who knows? Browse to the images subdirectory and find the file “meetingb&w.eps.” Choose “Place” to import the image.

6. Once the image is imported, move it so that it is lined up exactly with the blue box underneath the image. Try various techniques to do this, such as outline mode or using the x and y coordinates of the box.

7. You’ll notice the image covers up the blue background. We’ll use a blending technique to integrate the two together. With the meeting image selected, open the transparency palette. On the palette, you should see a thumbnail of your selected image. Just above that, in the blending method pulldown menu, choose “Multiply.” This method multiplies the top color by the background color, in this case black on blue. The resulting value is displayed. Where the image is white, the background value is multiplied by a value of 1. Since any number times one is itself, the white areas are unchanged, remaining blue. Feel free to experiment with other blending methods and adjust the opacity settings as well, to see how adjusting

- opacity affects the image. Return to the multiply method with an opacity of 100%.



Next we'll import an image above the background and clip it using a circle to mask the image out. Clipping masks are very helpful, since they allow us to clip placed images without the use of native clipping paths or file transparencies.

8. Highlight the "Look" layer to make that layer active. We'll place a graphic on the page and use the circle to clip it.
9. Go to File>Place and find the file "Look.tif." Choose Place. This file is a TIFF file, and since TIFF's cannot contain clipping paths or transparency, we'll have to use Illustrator to mask the image.
10. After the image has been imported, select the image and choose Object>Arrange>Send to Back. The hot key for this is Shift + Ctrl + [.
11. With the image now behind the circle, move the image until only the portion you wish to see is inside the circle. Make sure none of the edges are inside the circle, you don't want to have any flat edges inside the mask.
12. Select the circle and change the stroke to none. You should always set clipping paths to no stroke and no fill before you mask with them. Hold the shift key down and select both the circle and the image.
13. With both items selected, choose Object>Clipping Path>Make (Ctrl + 8). The image should now appear masked by the circle.

- Next we will import an image, clip it into an oval shape and apply a blending mode to integrate it with a vector shape. To give added punch to the vector shape, we'll apply an effect to it that gives it the illusion of having a drop shadow.

14. Highlight the Smile layer to make it your active layer. Since we need a clipping mask the same shape as the circle on the layer, we will copy and paste the circle and remove its stroke and fill.

15. Select the circle on the smile layer, duplicate the circle and remove the fill and stroke from the duplicate copy. Make sure the copy is in exactly the same position as the original. Lock the original circle.

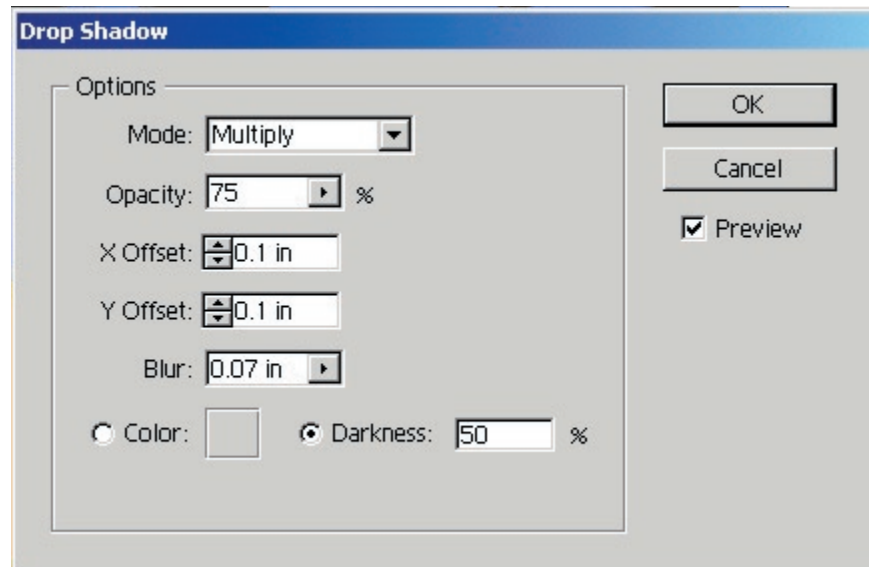
16. From the Images folder, import the smile.eps file into the document. Position the image so that the portion you want masked appears inside your circle. You may need to add a stroke to the circle briefly to determine where the image should be placed. Once positioned, make sure the circle has no stroke or fill and that it is on top of the placed image.

17. With both the circle and the image selected, mask the image by going to Object>Clipping Mask>Make. Select the masked object and apply a blending mode to it. A "multiply" mode was used for the finished file, but feel free to use one of your own choosing.

18. Unlock the original circle and lock the clipped image.



- 19. With the original circle selected, choose Effect>Stylize>Drop Shadow from the menu. If you wish, check the preview button on the dialog box and experiment with the settings. The finished file uses the default settings.



*TIP -
“Effects” allow you to control the settings through the appearance panel and alter the effect later. Applying a filter changes the object permanently and does not allow you to edit the settings later.*

- 20. Highlight the Group layer to make that your active layer. Select the circle on the group layer and duplicate it. Remove the stroke and fill from the copy and lock the original circle.

- 21. Import the group.eps image from the images folder. Position the image inside the copied circle and create a clipping mask. Apply a blending effect (multiply was again used in the finished file). Lock the masked image.

- 22. Unlock the original circle. Apply an Outer Glow effect by going to Effect>Stylize>Outer Glow in the menu. Again, experiment with the settings until you find a setting you like. Lock the circle.

- 23. Save the file.

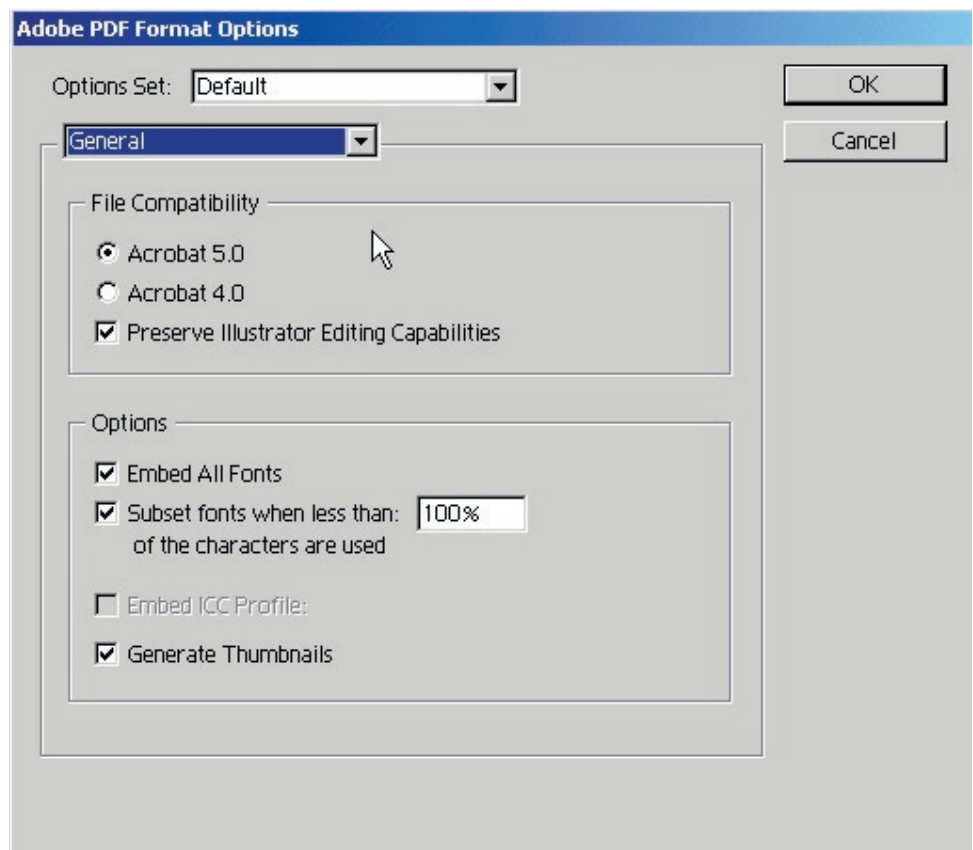
PDF files are growing in popularity among both printers and designers for their portability and ease of use. One of the main complaints I hear from prepress professionals is the lack of client understanding of how to save PDF files for print. We will now save this one sheet as a PDF file for printing.



- 1. To save the file as a PDF file, choose File>Save As in the menu. In the Save As dialog box, choose PDF from the pull down menu. Name the file Onesheet.PDF.

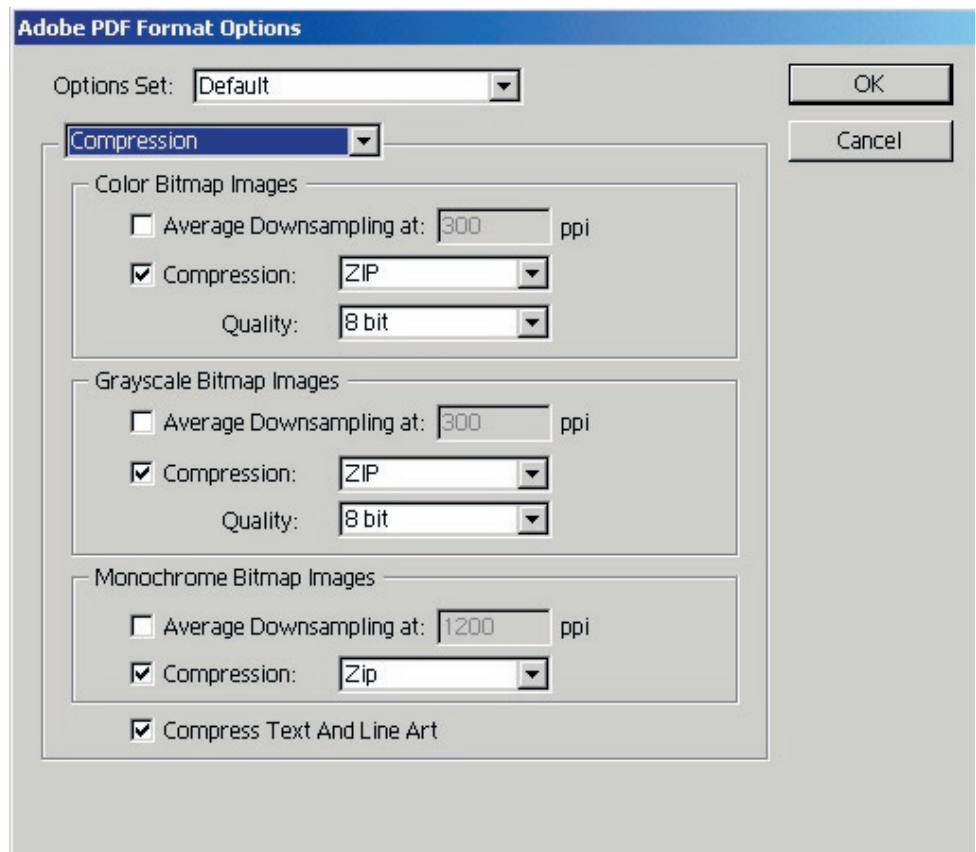
- 2. The Adobe PDF Format Options dialog box comes up. The default settings are geared for printing, not web, so if clients accept the defaults, the file will more than likely be OK. Keep in mind that the file may contain errors before saving, which saving the file to PDF will not prevent.

- 3. There are only two sets of options for our PDF file. The first is General. Here we will choose whether to save the file as a Acrobat 5 or 4 compatible file. The checkbox "Preserve Illustrator Editing Capabilities" will allow you to edit the PDF file later in Illustrator. Deselecting this box will create a smaller PDF file, but will not be editable later in Illustrator. Make sure that Embed all Fonts is checked. If it isn't the file will not be printable on any system that does not have all fonts in the document installed. Subsetting the fonts allows the user to save only the characters used in the document, saving file space. Generating a thumbnail will also increase the size of the PDF, but generates a thumbnail that can be viewed in the desktop.



- 4. Set your General settings to whatever setting you desire and then choose Compression to view compression options.

5. This dialog box is where most people get in trouble. Many people think that they must set the desired DPI for their images here. In actuality, you should only set Downsampling if you want the images sampled down from their original settings. By default, images will be included in the PDF at their original size and DPI. You should downsample ONLY if you wish to resample the images down from their original size. Choosing a downsampling setting higher than your original DPI will not increase image quality. If you do need to downsample, you also need to choose the compression method used. ZIP compression is lossless, but works best for images with large areas of similar color. JPEG compression works better for images with subtle tonal shifts. Checking the Compress Text and Line Art box will apply ZIP compression to both text and line art in the file. Since text and line art are usually monochromatic, this option results in lower file sizes without damaging image quality. Choose your compression settings and save the file.



Student Notes

Student Notes

Student Notes

About the Author

James Williamson is the Director of Training at Interactive Fun! and has over 9 years of print design, web design and digital prepress experience. James has a BA in Graphic Design from the University of South Carolina.

His work experience includes Art Director, Public Relations Director, Production Manager, as well as extensive freelance web and print design work. James has also taught Graphic Design at the University of North Carolina at Charlotte and has performed corporate training for various clients.

During his career, James has earned several awards, including a PICA and the NCUA's National Diamond award for Design Excellence.

About Interactive Fun!

Since 1998, Interactive Fun! has been providing quality consulting and training services for digital media including web design, print, 3D, digital video and multimedia. When a change in technology is affecting your business, Interactive Fun! is there to provide support and guidance.

Our focus at Interactive Fun! is to provide the best training for new media - that's the bottom line. The way this is accomplished is through an extensive curriculum that not only teaches individual applications, but how multiple programs can be integrated in a real-life production environment.

Once you finish a class, we will keep you informed when new programs are released, and other changes that would impact your job. Interactive Fun! wants to be your training partner not for one class, but for your entire career!

Interactive Fun!, LLC

5605 Seventy-Seven Center Drive

Suite 285 • Charlotte, NC 28217

Phone: 704-665-9441

Toll Free: 866-665-9441

Fax: 704-665-9442

e-mail: training@i-fun.com

web page: www.i-fun.com

