

# GRAPHTEC

## **Graphtec Studio User's Manual**

# About this Software

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## About this Software, continued

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### Using this Manual



#### Graphtec Studio versus Graphtec Studio Pro

This manual covers both Graphtec Studio and Graphtec Studio Pro. To differentiate between the two versions, this icon indicates that this function is only available for the Graphtec Studio Pro version.



#### TAKE NOTE

This Icon indicates to TAKE NOTE of this. Each of these notes may indicate information that may impact your cutting.

### Terminology

**Cutter or Plotter**, unless otherwise specified, refers to one of the Graphtec roll feed or flatbed cutters.

**Cutting Tool** refers to the blade holder with a blade loaded.

**Images** refers to bitmaps and photos.

**Media and Material** both refer to the material used to plot or cut.

**Media Page** refers to the white space within the Preview Area

**Open Shape** refers to a shape that is open ended; where the start and end points are not connected.

**Closed Shape** refers to a shape with no opening.

**Tool Icon** refers to a “button” within a toolbar group.

**GPL** refers to the command language of the Graphtec Cutter. Graphtec Studio communicates with GPL.

## About this Software, continued

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### Model Name in This Manual

In this manual, “FC8600” collectively refers to FC8000 and FC8600 series.

### Use of Software

Do not use multiple cutting software applications at the same time.

Doing this may lead to unstable operation or malfunction.

- Do not use Graphtec Studio and Cutting Master 2 <sup>\*1</sup> at the same time.
- Do not use Graphtec Studio and Cutting Master 3 at the same time.
- Do not use this software with third party cutting software.

<sup>\*1</sup> Cutting Master 2 is an older version of Cutting Master 3.



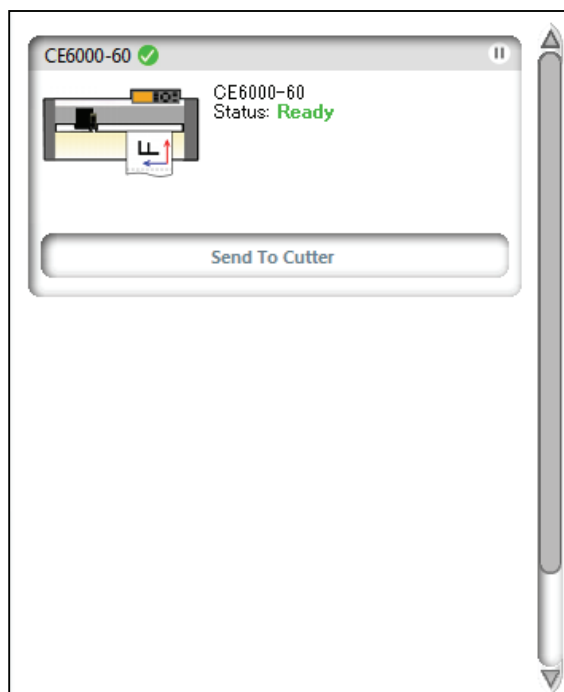
# Screen Display in the Simple and Normal Modes

The CE6000 series can be switched between the simple mode and the normal mode using the setting on the main unit.

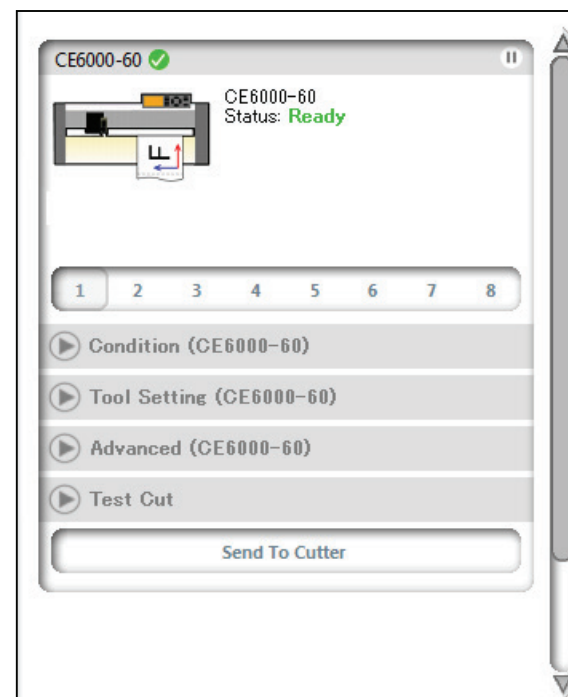
In the simple mode, you can send data to your cutter with simple operations from the predefined menu screen.

In the normal mode, you can set up all the functions to send data to your cutter at a higher definition.

The contents of the menu screen displayed in this software differ depending on the mode (simple or normal) enabled in the CE6000 main unit.



Menu Screen when the Simple Mode Is Enabled



Menu Screen when the Normal Mode Is Enabled




This manual assumes that the normal mode is enabled.

Therefore, the contents of the menu screen used in this manual are those displayed on the screen in the normal mode.

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# Introduction

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Graphtec Studio is an easy to use design software that has been developed exclusively for Graphtec to create original designs to be used for a variety of graphics applications such as signs, banners, print and cut decals, apparel decoration, and other two-dimensional projects.

## Features

Graphtec Studio has all the tools and features for making cut designs. These features include:

- Intuitive drawing tools for making lines, arcs, circles, squares, rectangles, polygons, free-hand, and curved lines.
- Text tools with all the control of a word processor.
- Grouping, ungrouping, and object alignment.
- Move, edit, or delete points to reshape objects to create a unique look.
- Manipulate objects by resizing, rotating, mirroring.
- Advanced design features such as Shadows and Outlines to objects.
- A unique Erase tool to remove object sections or elements.
- Modify objects shape by merging them with Weld, Subtract, Crop, and Divide.
- Copy objects by using Replicate, with innovative ways of making patterned copies.
- An easy-to-use bitmap tracing feature for creating outlined versions of bitmap logos as well as contour cut lines.
- Automatically generated registration marks makes the decal print and cut process accurate and simple.
- Elements can be filled with custom colors, gradients, and pattern fills.
- Connecting several cutters at once
- Having more control of the connected cutter settings.

# Installation and Setup

## Items to Check Before Installing Graphtec Studio Software

### ✓ Check the Recommended System Requirements

Before you begin installing the software, look at the hardware requirements shown at the right. Make sure that your hardware meets these recommended requirements. These requirements are suggested for optimal performance. Keep in mind that systems with faster processors, more memory (RAM), and larger and faster disk drives will keep the processing time to a minimum. This will allow you to work with more complex and larger files.

| System Requirements  |   |   |
|----------------------|---|---|
|                      | Windows   | Macintosh   |
| Processor            | Processor with 1 GHz or faster.<br>2 GHz is preferable                              |   |
| RAM                  | 1 GB. 2 GB preferred  |   |
| Install Space Needed | 100 MB  |   |
| Operating System     | Windows 8, Windows 7, Vista, XP (sp 3)  | Mac OS X 10.5.8 Intel or later. (PPC not supported) |
| Video                | 800 x 600 resolution monitor with 32 bit color or better.<br>(1024 x 764 preferred) |   |
| Other                | CD/DVD drive and / or high speed Internet connection                                |   |
|                      | USB or Serial Port  |   |
|                      | Ethernet Connection (If needed)   |   |

### ✓ Install the Drivers that came with your cutter

While Graphtec Studio doesn't need or use the Windows drivers that came with your cutter, it is always a good idea to install the drivers. This will avoid plug & play messages.

### ✓ Set up your plotter

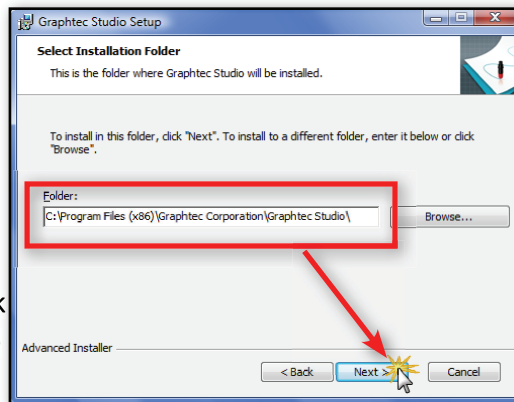
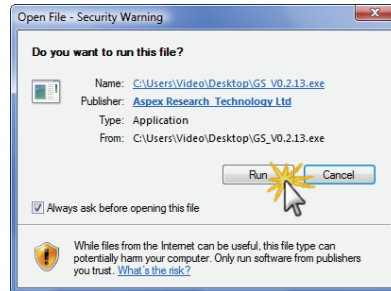
Since Graphtec Studio outputs to Graphtec's cutter language, known as GPGL, the cutter will need to be set to Automatic or GPGL mode.

GPGL has 4 resolution settings, therefore verify that the STEP SIZE or RESOLUTION of your cutter matches what is set in the Graphtec Studio software. See your cutter documentation for instructions on how to verify this.

# Installation and Setup, continued

## Installing Graphtec Studio - Windows

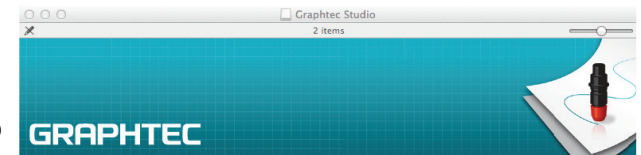
1. Uninstall any previous versions of Graphtec Studio on your computer.
2. Insert the Installation DVD into your computer's CD/DVD disk drive.
3. A window may appear that will ask if you would like to run this installation program. Click RUN.
4. On the Setup Wizard Setup Welcome screen, click NEXT.
5. Select the folder or location in which you would like to install the software. In most cases, the default location will suffice. Click NEXT.
6. Click INSTALL to begin installing the software.
7. A progression bar will begin indicating the status of the installation.
8. Click on the "Launch Graphtec Studio" check box if you would like to open Graphtec Studio immediately after installation, and select FINISH.



Your software is READY to use

## Installing Graphtec Studio - Macintosh

1. Insert the installation DVD into the CD/DVD drive of your computer.
2. This will bring up a window displaying a Graphtec Studio icon and the Applications folder. Click, hold, and drag the Graphtec Studio icon to the Applications folder.



To install, drag Graphtec Studio to the Applications folder.

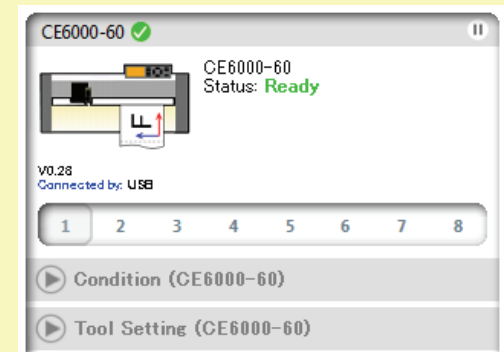
### Testing the Connection

After installing the software it is a good idea to test the connection following the steps below:

Make sure the plotter is connected, turned on, and in READY mode.

Click on the Cutter pull down menu and select Show Cutters.

This will open the Connected Cutters side panel. Your cutter model should be displaying and showing Ready in green.



# Basic Software Overview

## Opening Graphtec Studio

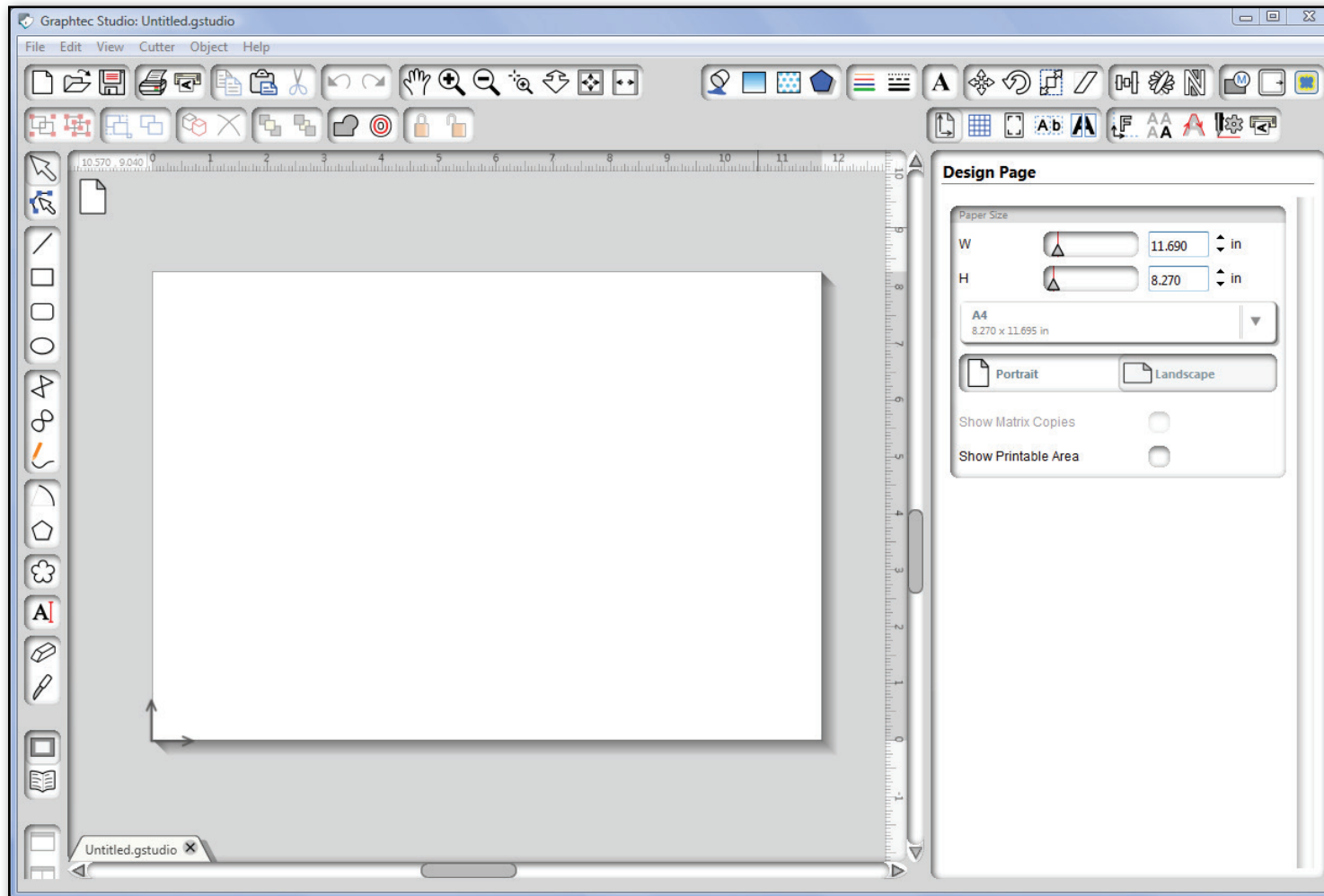
To open the software on a PC, locate the desktop icon and double-click on it, or click on the Windows Start menu, select All Programs, Graphtec Studio folder, and then Graphtec Studio.

To open the software on Mac, open the Applications folder and launch Graphtec Studio.

Once opened, the software should show an available starting document and workspace as shown below:



**Graphtec Studio  
Icon**





# Basic Software Overview, continued

## The Software Layout

To become familiar with Graphtec Studio, a brief overview is necessary for each component. Details pertaining to the function of each tool icon or specific operations are discussed in later chapters.

### General Layout

The layout is broken into five different sections.

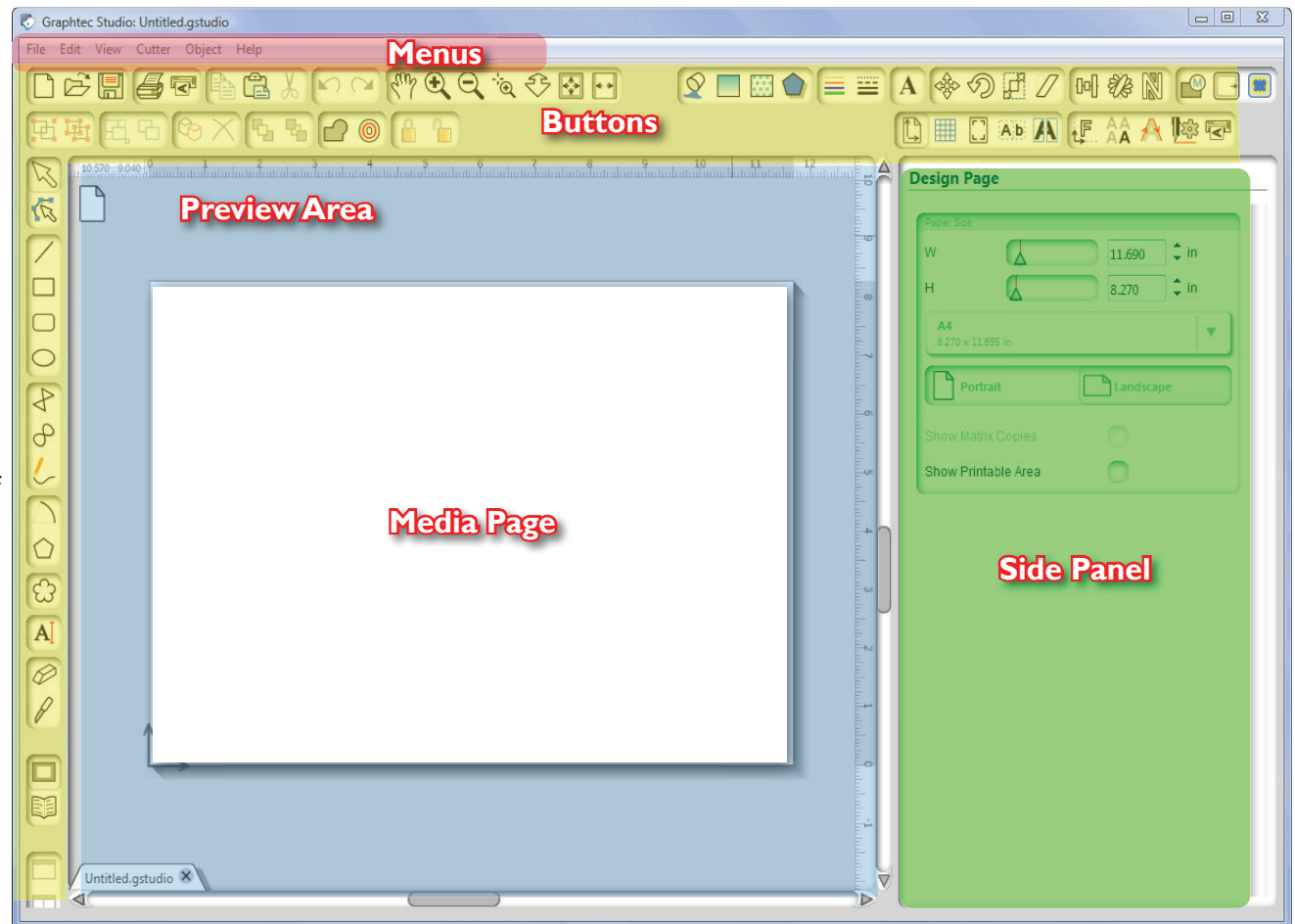
The **Pull Down Menus** contain the different functions available in Graphtec Studio. They work similarly to other pull down menus that are found in other programs. They are grouped according to similar functionality.

The **Preview Area** is where the design is viewed either when designing or cutting. See [Preview Area Modes](#).

The **Media Page**, the white space within the Preview Area, is where the main design is placed.

The **Side Panel**, the area just to the right of the Preview Area, will display options for different functions.

The **Buttons** surrounding the Preview Area and side panel, when clicked, will either perform a specific action, or is a function and will display options in the side panel. They are grouped by similar functionality.



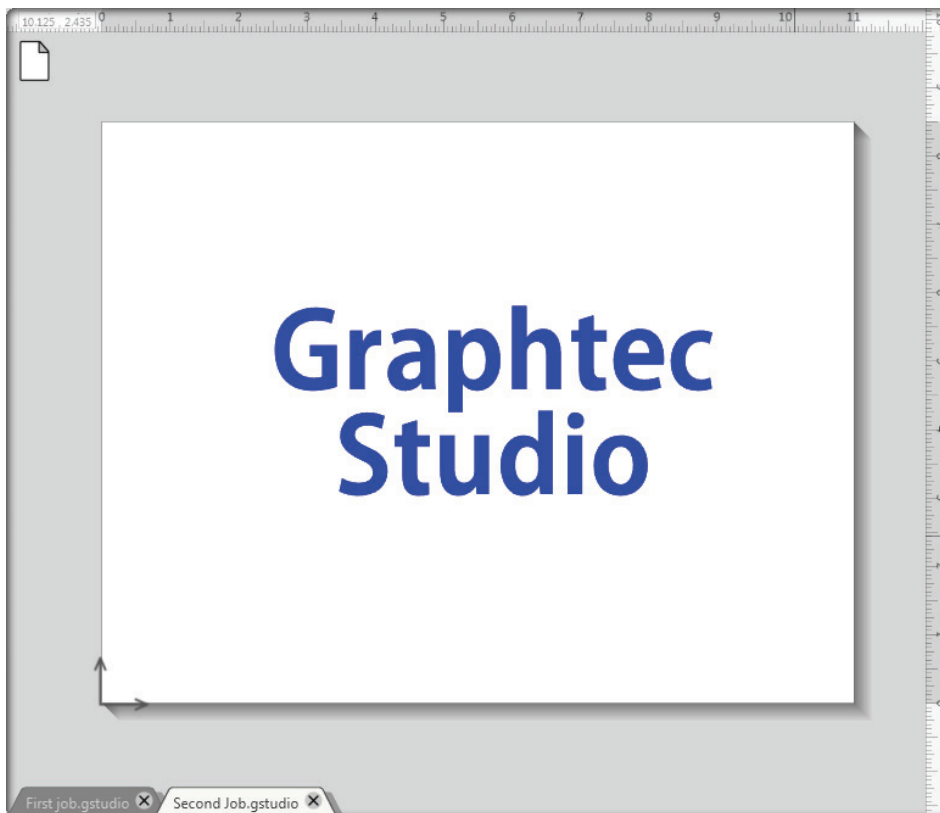
## Basic Software Overview, continued

### Preview Area Modes

The **Preview Area** has two modes: *Design* and *Cutting Preview* modes. Graphtec Studio will switch between the two modes automatically depending on the operation. For instance, when drawing objects, the software will switch the Preview Area to the Design mode. When using an operation to cut such as Cut Simulation, the Preview Area will switch to Cutting mode.

The **Design** mode is set up for designing. When in this mode, the Media Page becomes a drawing area. As mentioned, the software will switch to this mode when any drawing tools are selected for creating text, shapes, registration marks, or the tile pattern.

The **Cutting Preview** mode is set up for previewing the job prior to cutting. The Media Page becomes a representation of the media to be cut. It will show the orientation of the job design and how it will layout on the media that is being used, or planning to be used, in the cutter.



This is an example of how a design looks in the Design Mode of the Preview Area.



Here is the same design in the Output Mode of the Preview Area. Notice that it is given an outline showing how it is to be cut.

## Basic Software Overview, continued

### Preview Area Elements

There are four different elements to the Preview Area: the Media Page, the Grey Holding Area, Open Job Tabs, and the Rulers.

### Media Workspace and the Grey Holding Area

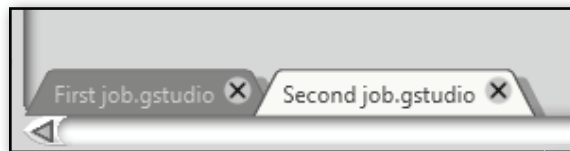
The white area is the **Media Page**. It is the active document area representing either a drawing area to create designs, or the media being used to cut. When the Preview Area is in Design mode, this area may be used to place or draw objects. Objects placed or drawn outside the Media Page, the grey area, will not be output to the printer, nor the cutter. They are 'invisible' when it is time to output the job. This is convenient when you need to place objects off to the side temporarily to use later for design development.

### Rulers Pro

When using the Graphtec Studio Pro, rulers will be located at the top and right side of the **Preview Area**. They provide size orientation to the design. The darkened grey area within the rulers represent the size of the Media Page.

### Open Jobs Tabs

At the bottom of the **Preview Area** are tabs representing the jobs that are currently open.

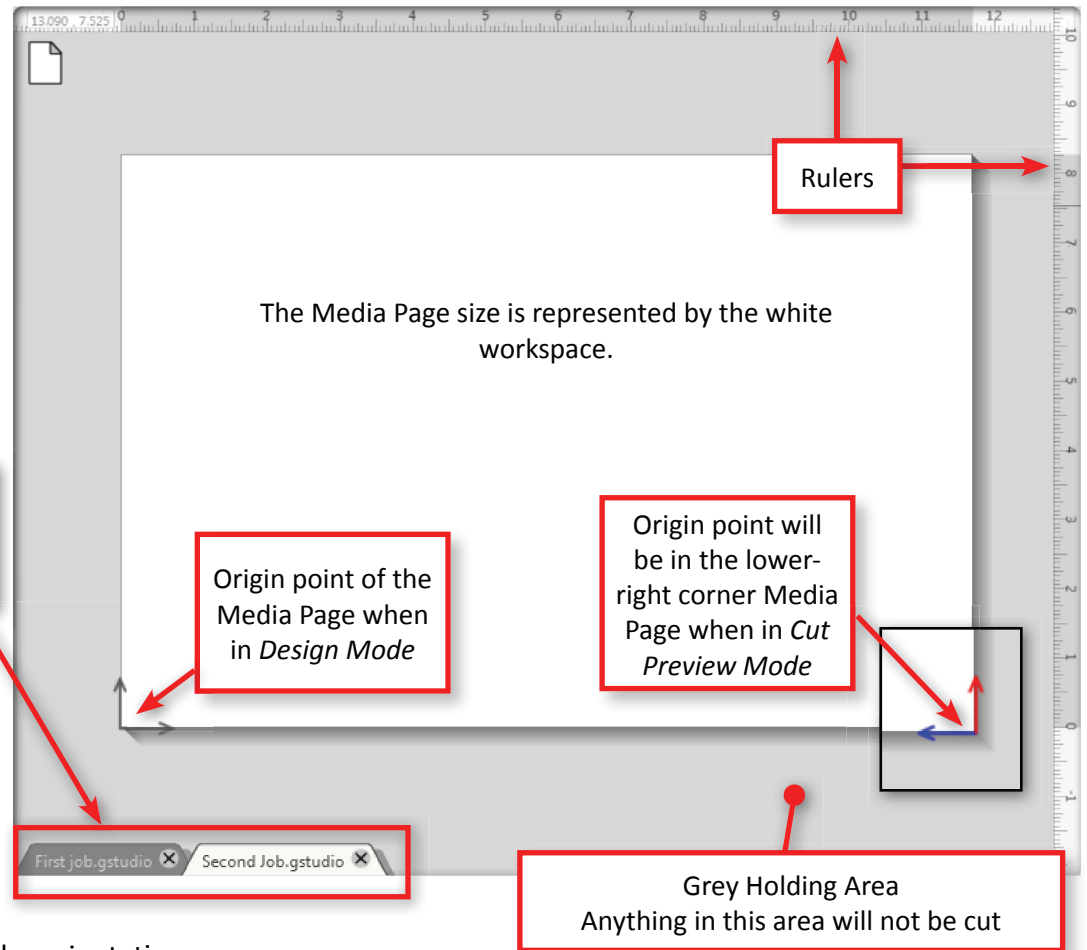


Open Job Tabs

Because several documents or files can be open at one time, this makes it convenient to switch between documents.

### Job Origin

When the Preview Area is in Design mode, the origin point with the two arrows are at the lower-left corner of the **Media Page**. If the Preview window is in Cutting Preview mode, then the orientation arrows will change to the lower-right hand side of the Media Page.



# Basic Software Overview, continued

## Tool Bars

Buttons are grouped by similar functionality.

### General File Management

This toolbar along the top left-hand side of the screen is for general file management functions, such as opening, saving, and sending documents to a printer or a Graphtec cutter.



### Standard Editing Tools

This toolbar along the top left-hand side of the screen is for basic copy/paste/cut and undo/redo actions commonly found in many programs.



### Zooming Tools

This toolbar along the top left-hand side of the screen is for basic zoom-in or zoom-out functions to view parts of the document from a closer perspective or at a more distant range.



### Style Tools

This toolbar along the top center of the screen is for changing styles of objects such as filling images, altering lines, adding drop shadows (pro only), and adjusting text attributes.

Clicking on any one of these will open their options in the side panel.



### Maneuvering Tools

This toolbar next to the **Style** toolbar, is for repositioning, rotating, resizing, and shearing. Clicking on any one of these will open the options for that tool in the side panel.



### Manipulation Tools

This toolbar at the top right of the screen next to the Maneuvering tools are for aligning, replicating, and nesting. Clicking on any one of these will open the options for that tool in the side panel.



### Reshaping Tools

This toolbar is for reshaping, outline offset, and tracing objects. Reshaping would include welding, subtracting, trimming, and cropping your shapes.



### Quick Edit Tools

This tool set is for quick editing. The tool set contains grouping and selecting images, duplicating and deleting items, object order (such as bringing images to the forefront or sending them to the back behind other images), quick welding and outlining, and object lock/unlock.



### Page Setup

These two buttons are for the page size and grid settings.



### Cutting Preparation Tools

This tool set is for preparing the job design for cutting such as tiling, registration mark settings, weed border and more. The first three will set the Preview Area mode to Design, whereas the last five buttons will set it to the Cut Preview mode.



## Basic Software Overview, continued



### Drawing Tools

The group of tools along the left-hand side of the screen are the Drawing tools. These tools range from selecting objects, drawing object shapes, lines, and arcs, to creating text directly into your Preview Area.

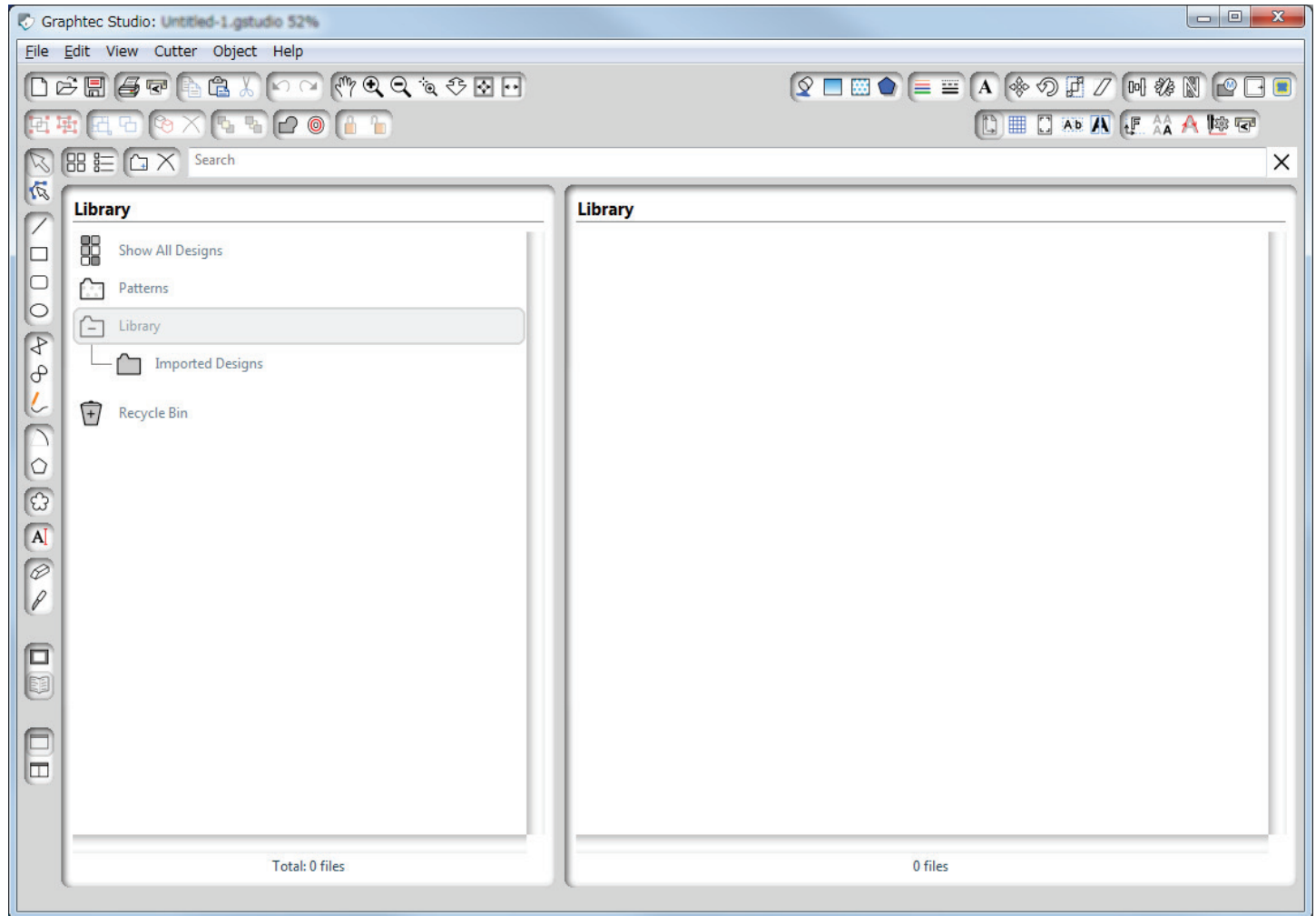
There are editing tools, such as an eraser tool, as well as a knife tool for slicing objects.

Some tools will have options that will display in the side panel for adjusting the shape.

### The Library Buttons



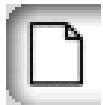
At the bottom left are the two library buttons. The two buttons simply switch between showing the library and showing the Preview Area. When the Library panels are displayed, a new set of buttons that pertain to the library, will appear. (See [The Library](#))



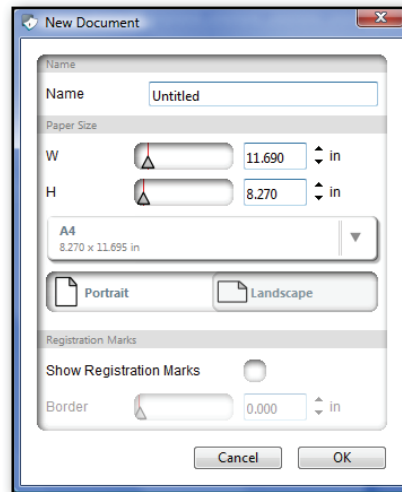
Library Panel

## Basic Software Overview, continued

### Creating a New Drawing



To start a new drawing document, either select New from the File pull down menu, or click the New tool icon. This will open the new document window with different options for the new drawing such as the Media Page, the orientation of portrait or landscape, and whether registration marks should be placed on the corners of the Media Page. Keep in mind that this only applies to the Design mode.



Options for a New Drawing

### Saving a Design



To save a design, click on the File pull down menu and select Save, or click on the Save tool icon.

Saving a design will save the file under the current name. If it is the first time the drawing is saved, you will be prompted to enter a name and to click OK.

To save a design to a different name, click on the Save As option. Once again, you will be prompted to enter a name and to click OK.

### Opening an Existing Drawing



To open an existing file, use the Open option from the File pull down menu, or click on the Open icon. You will then be prompted to navigate to the folder where your drawing file is located.

The Graphtec Studio software has the ability to open both vector files and bitmap files. (See the box on Compatible Files)

Bitmap files can be opened or merged for Print and Cut applications and tracing.

### Opening Recent Drawings

To open recently used designs, click on the **File** menu and select **Open Recent**.

### Merging an Existing Drawing into a Current Drawing

Existing drawings and compatible file types can be Merged or imported to the current drawing by selecting the File pull down menu and then Merge.

You will then be prompted to navigate to the folder where your drawing file is located.

Click on the file to be merged and click OK

This will place the contents of the file onto the current Preview Area

Compatible file types and drawings may also be merged onto the current drawing by dragging the file from your computer files directly onto your workspace in the software.

### Compatible Files

Listed below are the compatible files types that Graphtec Studio can OPEN or MERGE.

#### Vector Files

GSTUDIO (*Graphtec Studio*), GSD/GST (*Graphtec ROBO Master*), and DXF

#### Bitmap Files

PNG, JPEG, BMP, GIF, TIFF, PCX, CG4, RAS, CIT, EPS

#### **Pro** Pro Version only

AI, PDF, SVG

## Basic Software Overview, continued

### Adjusting the Media Page Size

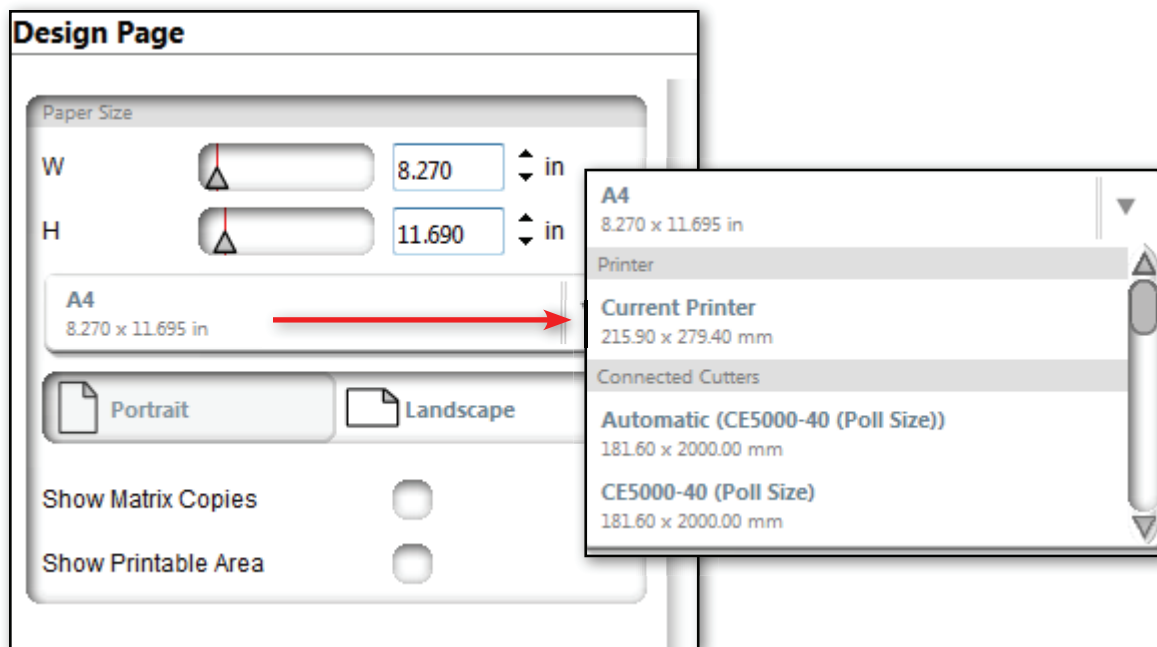
The Media Page can be adjusted for both the Design mode as well as the Cutting Preview mode\*. To adjust the size of the Media Page in the design mode, click on the Design Page tool icon. This will display the Design Page options in the side panel.

The size of the page can be set using the Width (W) and Height (H) sliders. The Sliders are for sizing the media visually. Next to the sliders are where values can be entered for a more accurate sizing.

Just below the sliders are pre-set choices. These choices range from standard document sizes to sizes taken from cutters that are currently connected to the computer. When a cutter is connected to the computer, the software polls or gathers size information from the cutter. The **Poll Size** will have the drawing area match the media size loaded in the cutter.

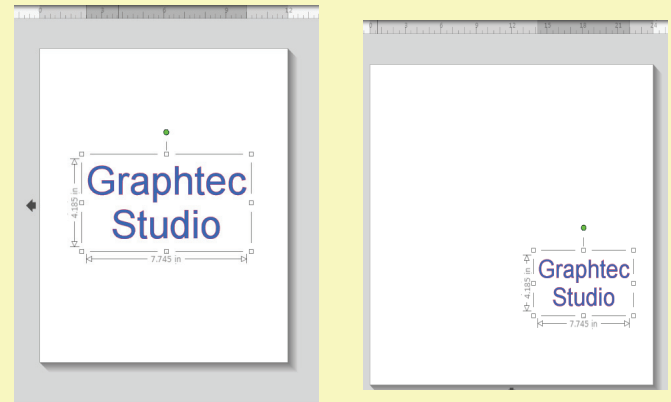
**Show Matrix Copies** will show the copies that are set up in the matrix window.

**Show Printable Area** will display a thin outline of the Media Page. This reflects the area your printer will allow. Any object outside this line will not print.



### Resizing the Media and Job Size

Resizing the media will not affect the size of the design even though it may seem like it does. The reason for this is Graphtec Studio will always grow or shrink the design to keep the size in relation to the Media Page size.



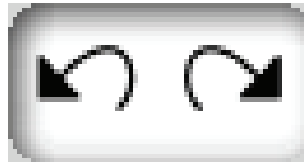
\* Generally the Cutting Preview mode is automatically set to the Polled size of the cutter. To adjust this, see the chapter on [Cutting a Design](#).



## Basic Software Overview, continued

### Undo/Redo

**UNDO** the last action. This can also be done by holding the Control key down on your keyboard and pressing the Z key, or what is also known as Control-Z. On the Mac, it is Command-Z.



**REDO** the last action. This can also be done by holding the Control key and SHIFT key down on your keyboard, and then press the Z key or Control-Shift-Z. On the Mac, it is Command-Shift-Z.

The undo / redo is limited only by available memory.

### Zoom Tools

Often as you view your workspace, you may either wish to zoom in to get a closer look at the design, or parts of a design, that may be more difficult to see or work with. The zoom tool group provides several methods of zooming, either to zoom in to get a closer look, or to zoom out, providing an overall, broader look of the design. Below displays the function of each zoom tool.

The **ZOOM IN** tool will zoom in so that portions of the design can be seen close up.

**ZOOM IN SELECTION** tool will enable you to draw a rectangle to the area you would like to zoom into. Click, hold, and drag the mouse to draw a rectangle of the area you would like to zoom into, then release the mouse button and the software will zoom into that area.

Clicking this tool icon will fit the workspace within the preview window

The **PAN** tool will pan across the design job within the Preview window.



Clicking this tool icon will zoom to where the width of the media area of the workspace will fit within the preview window.

The **ZOOM OUT** tool will zoom out from the design allowing you to see more of the design.

**ZOOM SLIDER** tool will enable you to use mouse movement to zoom in and out of the design. Click and hold the left mouse button, and then move the mouse up and the software will zoom out. Move the mouse down and it will zoom in.



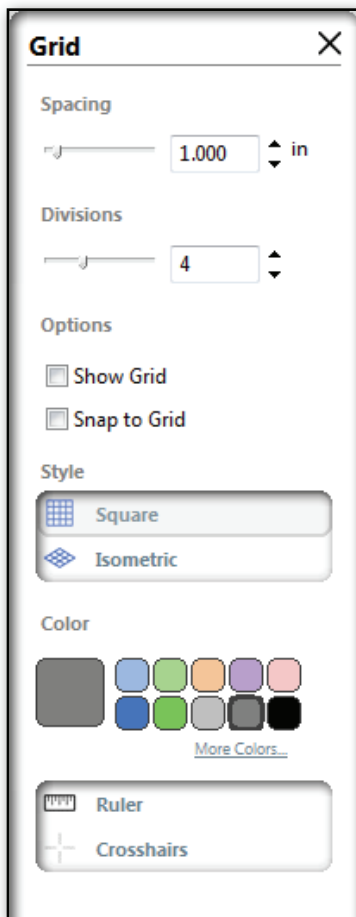
## Basic Software Overview, continued

### Using the Grid Lines Pro

The grid is used to assist with viewing measurements and designing with accuracy. A simple way of enabling the grid is to click on the View pull down menu and **Show Grid**.



To adjust the grid pattern, click on the Grid tool icon on the top right of the screen. This action will display the options in the side panel to adjust the grid pattern.



**Spacing** determines how much space is between the grid lines

**Divisions** sets the number of grids before a darker grid line appears. This assists in finding the dimensions of objects.

**Show Grid** turns the grids on and off.

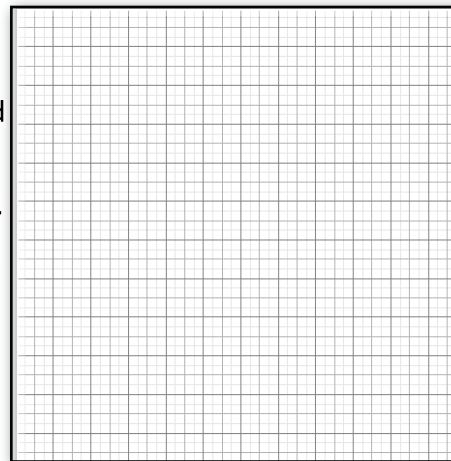
**Snap to Grid** will force objects to conform to the grid's cross points. This is especially helpful when an object needs to conform to a specific shape or measurement.

The grid's **Style** may be selected to be either a traditional **Square** grid or an **Isometric** grid. The Isometric grid provides for a 3-D appearance. Again, the different styles may be helpful while drawing images within the software to provide a reference for measurement as you draw.

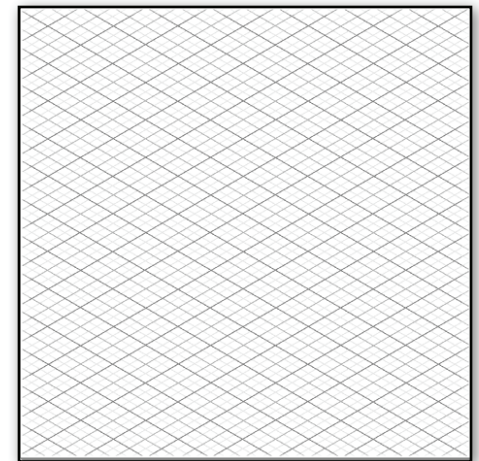
**Color** provides different grid colors to use.

**Ruler** (Pro Only) toggles the rulers on and off.

**Cross hairs** will turn on a light cross hairs. Cross hairs can be helpful when targeting points to drawing objects.



Traditional Square Grid



Isometric Grid

# Drawing Lines and Shapes

On the left-hand side of the Preview Area is the drawing toolbar. Within that toolbar there are four tools for selecting and editing, and ten tools for drawing objects, and a Text tool. The chapter will discuss the drawing tools. (For more information on creating text, see the chapter on [Text](#))

## Basic Lines and Shapes

The first four drawing tools are the Line, Rectangle, Rounded Rectangle, and the Circle/Ellipse. To activate a tool, click on it, and start drawing the object in the Preview Area. These four drawing tools use the same steps to draw:

1. Click the mouse once where the object is to start\*.
2. Move the mouse cursor and the objects will start to form.
3. Once the object is at its desired shape, click the mouse again.

---

\* You can click, hold, and drag the mouse as well and then when the object is drawn, release the mouse.

Below is a description of each tool:



The **Line Tool** will create single straight lines. Holding down the *Shift* key on your keyboard while drawing will force the line to be vertical, horizontal, or at a 45 degree angle from the start point.



The **Rectangle Tool** will draw a rectangle. Holding the *Shift* key on your keyboard while drawing the rectangle will force the shape to be a square.



The **Rounded Rectangle Tool** works similarly to the Rectangle tool except the rectangle has rounded corners. The *Shift* key will force the shape to be a square with rounded corners. To edit the Round Rectangle, see the box on [Editing Rounded Rectangles](#)



The **Ellipse/Circle Tool** will draw an oval or ellipse shape. Holding down the *Shift* key on your keyboard while drawing the shape will force the shape to be a circle. Holding down the *Alt* key on your keyboard will make the initial point clicked the exact center of your object.

### Editing the Drawing Shapes

Each drawing tool will only draw the shape. To edit the shape you will need to use the Select Tool. See [The Select Tool](#).

This method can be changed by a setting in the Preferences. See [Setting the Preferences](#).

### Editing Rounded Rectangles

To edit a rounded rectangle take the Select tool and click on it. There will be two control handles on the upper left corner of the rectangle that can be used to shape the corners. When dragging on a handle to reshape the corner, the other 3 corners will mirror the changes.

Also, to keep the corner shape proportional, hold the SHIFT key down WHILE moving one of the handles.

## Drawing Shapes, continued

### Advanced Shapes

The next six drawing tools are advanced in that they are drawn in a different method than simple lines, circles, and rectangles. Below is a description of each tool and how each is drawn:



The **Polygon Tool** will draw multiple segment lines. The tool will draw a point upon each mouse click with lines being drawn between the new point and the previous point. To stop the lines from continuing to draw, double-click the mouse\*, or if the final point aligns with the starting point, click once\*\*. Clicking Undo will revert to the last point.

Holding down the **Shift** key on your keyboard while drawing the line segment will force the segment to be in a vertical, horizontal, or 45 degree direction from the last point clicked.



The **Curved Shape Tool** operates exactly as the Polygon Tool except that it draws a curved line.



The **Freehand Drawing Tool** will draw a continuous free-form line. To draw with this tool, click, hold, and drag the mouse. A line will continue to be formed with intersecting editing points until the mouse button is released. A closed shape is created if the end point aligns with the start point.



The **Arc Tool** will draw an arc. To create an arc consists of clicking on the mouse 3 times. The first click will establish the center point of the arc. Drag the mouse and click a second time to establish the radius of the arc. Drag the mouse again and the arc starts to form. When the desired length of the arc is reached, clicking the mouse a third time will create the arc.



The **Polygon Tool** is part of the Autoshapes group and draws pentagons. Click once to establish the center location, and the pentagon starts to form. Once the desired size is achieved, click again.



The **AutoShapes Tool** opens the side panel and displays a number of different shapes that can be drawn - from the most basic shapes to more complex shapes. Each shape type can then be adjusted by use of the control handles and the control slider.



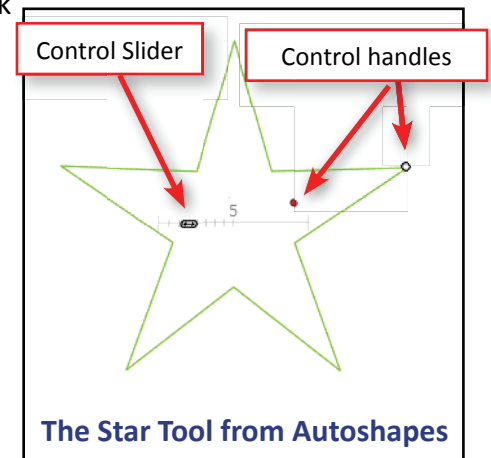
**Polygon Tool**



**Curved Shape Tool**



**Freehand Drawing Tool**



**The Star Tool from Autoshapes**

\* This creates an open shape. See [Appendix A](#)

\*\* This creates a closed shape. See [Appendix A](#)

# Text

## Creating Text



Creating text in Graphtec Studio is very similar to using a word processor. It gives you access to fonts and styles that are a part of your system, as well as other features such as character and line spacing.

### Steps to Creating Text:

1. Click on the text tool located on the left-hand side of the software screen. This will display the text settings in the side panel, where the font, style, and other settings can be selected for your text.
2. Click on the Preview Area.
3. A red blinking cursor will appear.
4. Start typing.



To exit out of the text editing mode, click anywhere outside the text box which is represented by a thin green outline.

### The Text Box

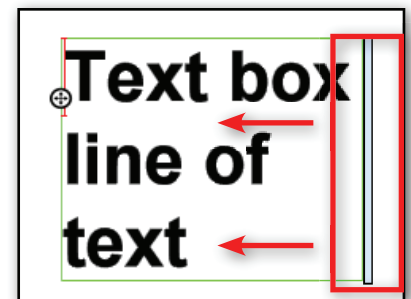
When typing in text, it is very similar to typing in a word processor:

- Press **Enter** to add another line of text.
- Hit **Backspace** to delete the last character. Hit the **Delete** key to remove a character to the right of the cursor.
- To insert text, place the mouse pointer at the insertion spot. This can be done by either pressing the arrow keys to position the cursor, or clicking between two letters where you want to insert text.

### Adjusting the Text Box

The **Control Bar** at the very right of the text adjusts the Text box's width. As the **Control Bar** is moved left and right, the text wrap will adjust, moving whole words to the next line. When the bar is moved to the right, this expands the text box and will adjust the text wrapping accordingly.

At the lower left corner of the Text box is a **Control Handle** for moving the text. If it is near a shape path, it will snap the text so that it will place the text onto the path of the shape. See [Placing Text on Shapes and Paths](#).



When the Control Bar is moved it will adjust the text wrapping



Control handle for moving the text

Control Bar adjusts the width of the text box and the wrapping

## Text, continued

### Editing Text

In order to change the properties of the text or parts of text, the text first has to be highlighted. This is done by moving the mouse over the first character to be altered, click, hold, and drag the mouse to highlight the text. Once the text is highlighted, any settings altered in the side panel will be reflected in the highlighted text.



This is the Highlighted text



This is the *Altered* text

### Moving and Deleting a Group of Text

Once the text is selected, it can be moved to another position within the text box using Cut and Paste.

Pressing the Delete or Backspace key will remove the highlighted text.



THIS IS TEXT THAT MOVES



THIS IS MOVES TEXT THAT

### Editing Modes

As with all objects, the Text Box is a type of object that has two modes: **Selected**, and **Edit** mode.

**Selected Mode** - When a text box is clicked on once, it will be in the selected mode. Similar to when other object types are selected, it will have nine control handles and a rotate control handle surrounding the text box. (See [Editing Objects](#))

**Edit Mode** - Double-click a text box and it enters the Edit mode. The text will show the Control handle, Control Bar, and a Red blinking cursor. It is in this mode that the characters within the Text Box can be changed, replaced, altered, or deleted.

When the text is in Edit mode, altering the text is, once again, similar to a word processor.



This is Select Mode text



This is Edit Mode text

## Text, continued

### Using the Text Options

In the side panel there are several options to alter text within the selected text box.



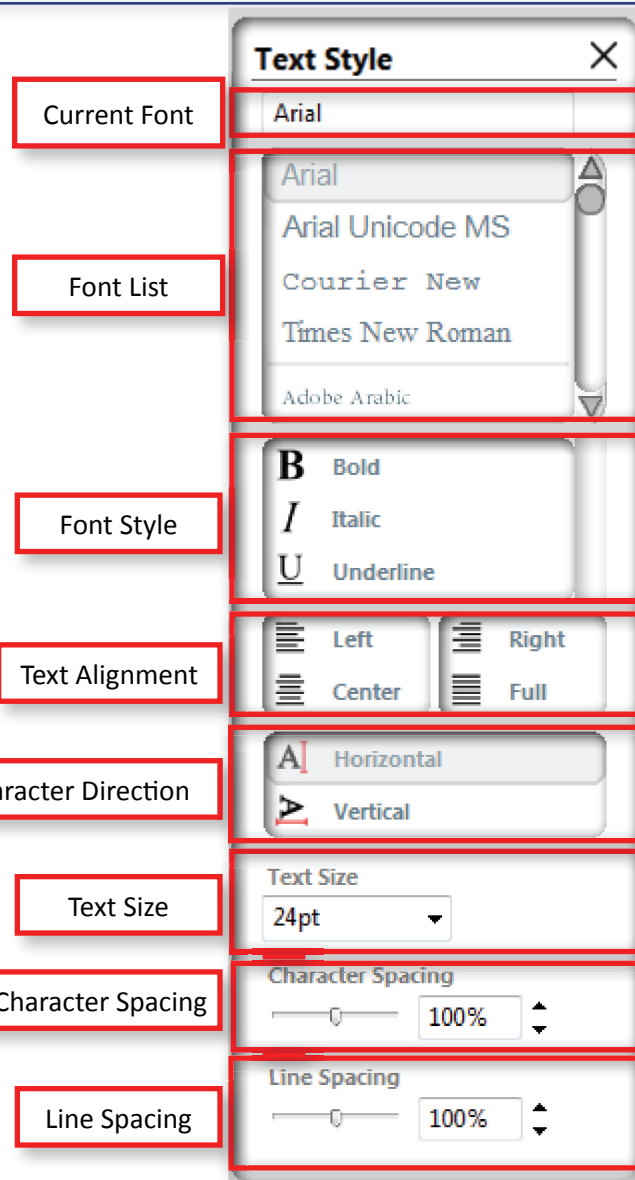
- The **Current Font** shows the font being used at the point of the cursor. If no text object is selected, it shows the default font. This can be changed by selecting a font from the **Font List**.
- The **Font List** utilizes any True Type Font (or TTF) that is installed on your computer. Graphtec Studio simply retrieves all installed fonts and displays them in the text side panel.
- **Font Style** adjusts the look or 'style' of the font. Some fonts have more styles than others. The general font styles are Bold, Italicized, and Underlined. Click on the font style to enable it. Click on it again to disable it.
- **Text Alignment** will align the text to the left edge, right edge of the text box, center of the text box, and fully justified, which places spacing between words to expand the text so that they reach both edges of the text box.
- **Character Direction** determines the character writing direction.

| Point Size | in  | mm  |
|------------|-----|-----|
| 18         | 1/4 | 6   |
| 36         | 1/2 | 13  |
| 72         | 1   | 25  |
| 144        | 2   | 50  |
| 288        | 4   | 100 |

- **Text Size** is always in points. To the right is a conversion chart.
- **Character Spacing** determines the amount of space between each character.
- **Line Spacing** determines the amount of space between each line in the text box.

**Text Spacing at 125%**

**Line  
Spacing  
at 150%**



## Text, continued

### Placing Text on Shapes and Paths

The control handle on the text box will allow the text box to be moved either to a new position, or when it is dragged over a shape or a path, the text will follow the path of the shape.

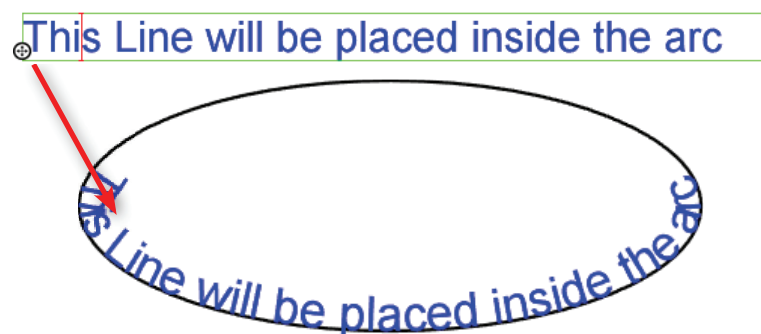
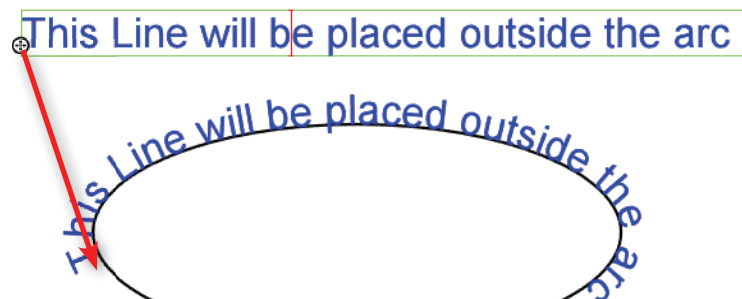
#### To place text on a shape:

1. While in Edit mode, click, hold, and drag the control handle over a path. Once the point is over a path, it will follow the path.
2. Using the mouse, drag the text to the desired position on the path. When placing it on a shape such as a circle, the text can be placed within the shape as well by dragging it further toward the center of the shape.
3. Maneuver the text around to position it in place.
4. Release the mouse button.

The control handle can be used to move the text around the path. It can also be dragged away from the path where the text changes back to the text box format.

### Adjusting the Baseline

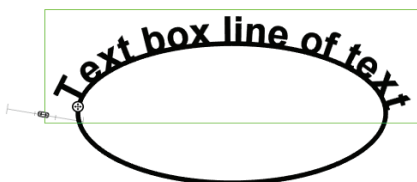
The baseline is the line upon which most letters “sit” with the exception of extended letter such as ‘p’ and ‘q’. When the text is on a path, the baseline is re-shaped to the path. To adjust how the text is positioned on the path, there is a control slider for this. When the slider is to one side, the text is lowered below the path line. When the slider is on the other side, the text is raised above the path line.



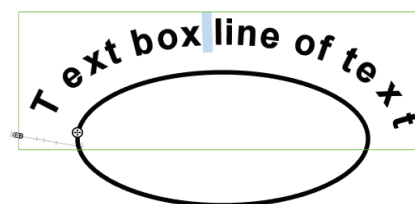
Drag a Control handle to a path and the text is placed on the path either to the inside or to the outside



Slider controls the distance between the text and the curve, which acts as a baseline



The slider at the default position and the text sits on the path which acts as a baseline for the text



As the slider moves to one side, the text rises above the path.



As the slider moves to the other side, the text lowers below the path.



# Editing Objects

## The Select Tool



The Select Tool, located at the top of the Toolbar, looks like an arrow and is the primary tool that is used to edit objects. Before an object can be altered, it has to first be selected. Generally by default, after using any draw or text tool, the software will automatically switch back to the Select tool, although this can be changed in Preferences. With this single tool, the object can be moved, re-sized, rotated, and even re-shaped. There are several ways to select objects.

### To select a single object:

1. First click on the Select Tool.
2. Click on the object you would like to select.

### To select several objects at once:

1. Click on the Select Tool.
2. Click on the first object.
3. Hold the Shift key down, and start clicking on other objects.

### Second method to selecting several objects at once:

1. Click on the Select Tool.
2. Click, hold, and drag the mouse with the select tool and a dashed selection box will start to appear.
3. As the box starts to form, any objects within the box will be selected.
4. Once all the desired objects are selected, release the mouse button.

### To select all the objects.

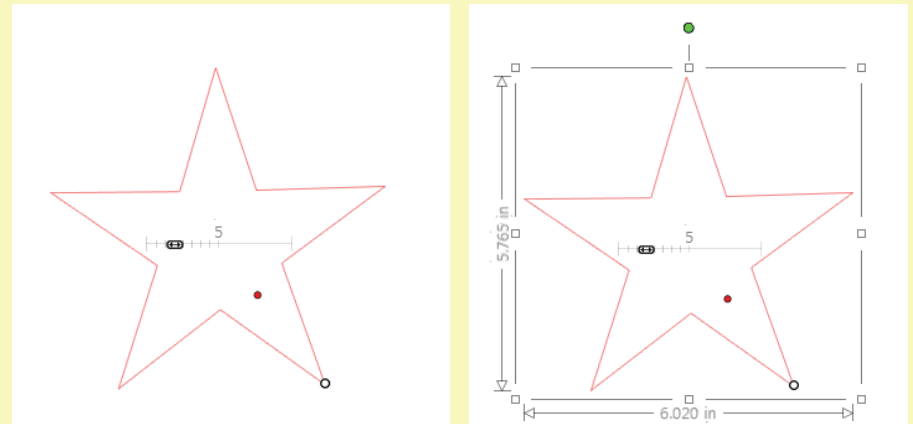
- Press Control-A or Command-A on the Mac.
- Click on the **Edit** pull down menu and click on Select All.

## Selecting an Autoshape

When selecting an autoshape, it will appear with the shape's own control handles. For instance, the *star* autoshape has two control handles and a control slider. The handles control the shape of the star, and the slider controls the number of points on the star. This can be done even when several objects are selected.

Clicking on the star again will reveal the scale and rotate handles.

See [Editing Autoshapes](#)

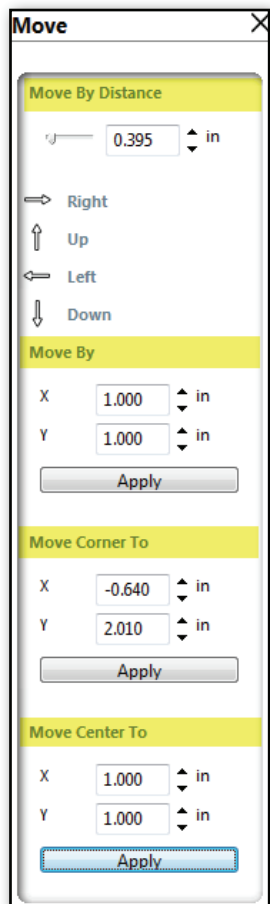




## Editing Objects, continued

### Moving an Object

1. Click on the Select Tool.
2. Hover over the object to be moved. The Select tool arrow changes to a small hand, indicating that it is over an object.
3. Click, hold, and drag the object to its new location.
4. Release the mouse button.



Move Size Panel

### Moving Multiple Objects

1. Select all the objects to be moved.
2. Click, hold, and drag the objects to their new location.
3. Release the mouse button.

### Moving Objects by Value



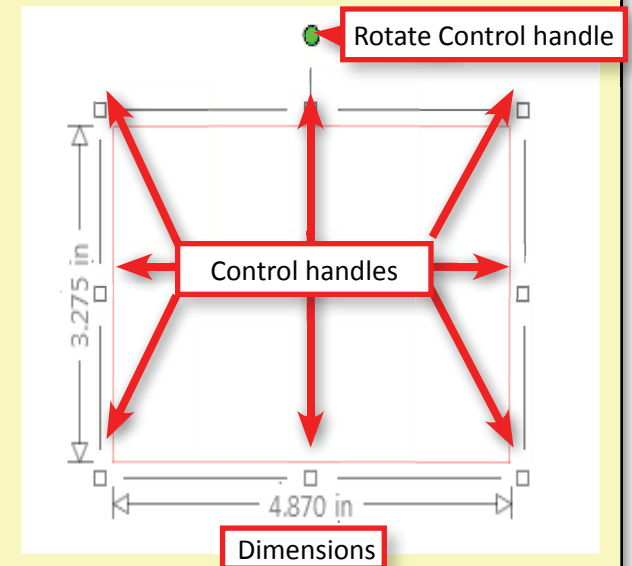
To more accurately move an object, click on the Move tool icon. This will open the side panel with several choices of movement. The side panel has four types of movement (highlighted) described below:

- **Move By Distance** will move selected objects relative to their current position by the distance value. By clicking on one of the four choices of Right, Up, Left, and Down, it will move the object in that direction.
- **Move Cursor To** will move selected objects relative to their current position by the X and Y distance values. Once the values are set, click **Apply**.
- **Move Corner To** will move the *lower left corner* of the object to the absolute position based upon the lower-right corner of the Media Page. Once the values are set, click **Apply**.
- **Move Center To** will move the *center* of the object to the absolute position based upon the lower-right corner of the Media Page. Once the values are set, click **Apply**.

### Object Handles

When objects are selected, they have 9 control handles surrounding the object that are used to move, re-size, and re-shape the object.

There is 1 green control handle that controls the rotation of the object.



The dimensions of the object will display just outside the shape. These are dynamic in that while the shape is being re-sized, the dimensions will change as well.

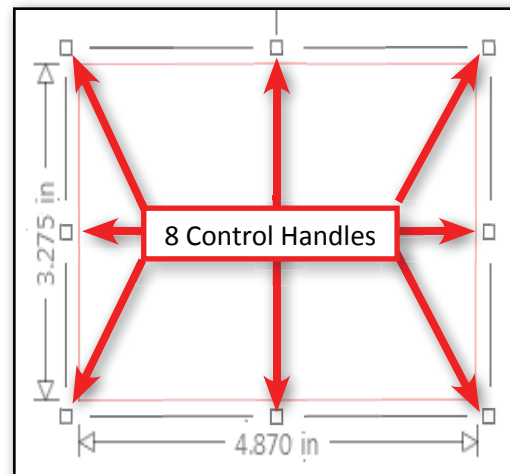
## Editing Objects, continued

### Scaling Objects

When objects are selected, They can be scaled or re-sized, proportionately or non-proportionately, by either using the nine control handles or by using the Scale options in the side panel.

#### Scaling Objects using the Control Handles

1. Select the object.
2. To resize proportionately, click, hold, and drag one of the corner control handles.
3. To resize the objects non-proportionately, click, hold, and drag one of the mid-control handles and the object will be stretched horizontally or vertically, depending on which mid-control handles are used.
4. When the object is re-sized to the desired size, release the mouse button.



#### Scaling an Object by Values



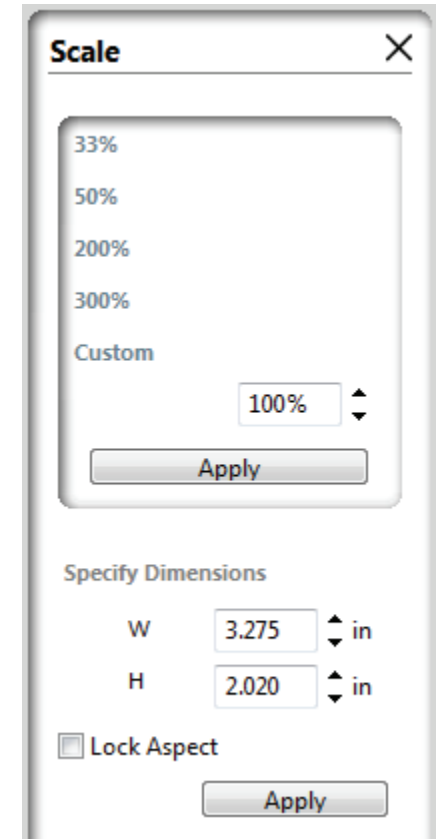
For more accurate scaling, click on the Scale tool icon. This will open the Scale options in the side panel with different methods for scaling objects.

The first section will scale the objects by one of the pre-set percentages of 33%, 50%, 200%, 300% and Custom. By clicking on one of these, the size of the selected objects will either decrease (less than 100%) or increase (greater than 100%). These preset percentage values are also found under the Object pull down menu under Scale.

**Custom** is for entering a specific percentage size. Once a percentage is entered, click **Apply**.

**Specify Dimensions** will allow for entering a specific size for the width(W) and height(H). To keep the re-sizing proportional, make sure Lock Aspect Ratio is checked, otherwise distorted stretch will occur.

Once the value is set, click **Apply** to make the changes in the Preview Area.



Scale Object side panel

## Editing Objects, continued

### Rotating Objects

When an object is selected, it will have one green control handle used for rotating the object.

#### Rotating an Object using the Rotate Control Handle

1. Select the object.
2. Click, hold, and drag the green rotate control handle.
3. When the object is rotated to the desired angle, release the mouse button.

#### Rotating an Object by Values



Clicking on the Scale tool icon will open the Rotate side panel with different options for rotating the objects.

The first section has **common** rotation presets of 45 CW\*, 90 CW, 180, 45 CCW\*\*, and 90 CCW. These will rotate the selected objects by the selected angle relative to the object's current angle.

**Rotate to** will rotate the selected objects to a common preset angle of 0, 90, 180, and 270 degrees.

These preset angle values are also found under the **Object pull down menu** under Rotate.

**Custom Rotate by** will allow for entering a specific angle to rotate the object from the current angle.

**Custom Rotate to** will allow for entering a specific angle to rotate to.

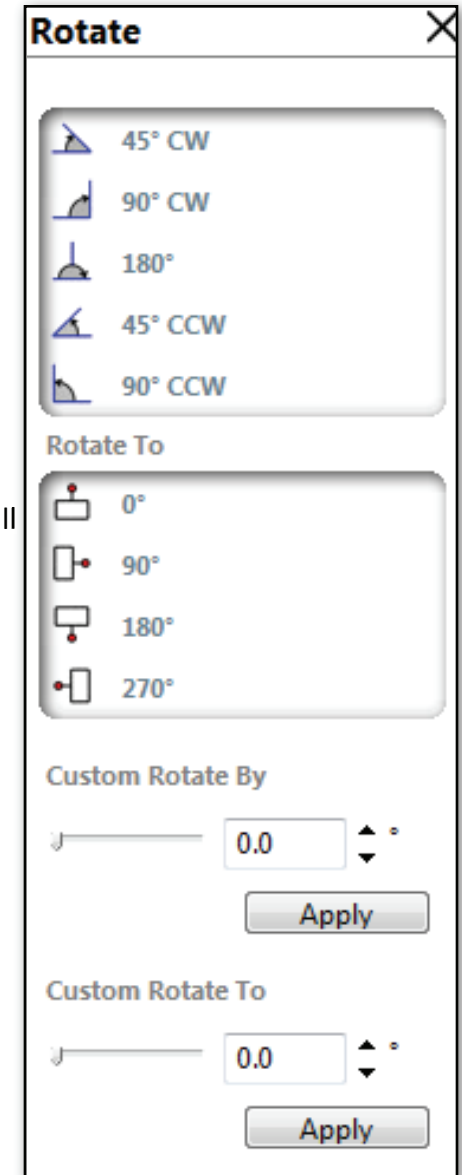
\* Clockwise

\*\* Counter-Clockwise

### Deleting Objects

There are three methods to delete objects:

- Selecting the objects to delete, and then press the Delete key on the keyboard.
- Selecting the objects to delete, and then click on the Edit pull down menu and select Delete.
- Selecting the objects to delete, right click on the objects, and when the menu appears, click on Delete.



## Editing Objects, continued

### Shearing Objects Pro

Shearing an object is basically putting a slant to it. Objects can be sheared both vertically and horizontally. With this tool it is possible to give a three dimensional look to any object.

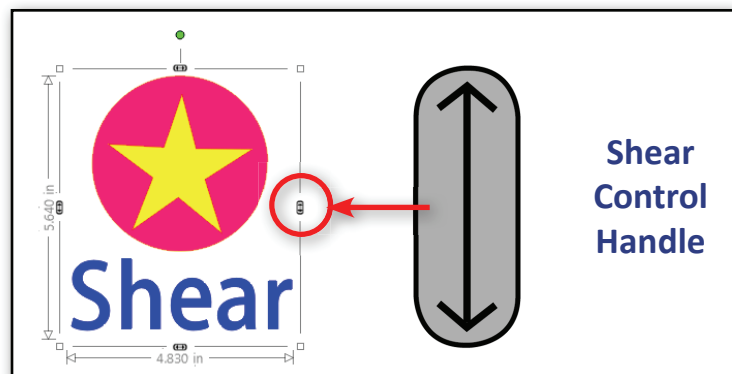
Clicking on the Shearing tool icon will show the different choices for shearing selected objects. Some of these options are:

- **Unshear** at the top will remove the last shear edit.
- **Horizontal Shear** has preset angles to shear selected objects in the horizontal direction. The pre-set values are 15, 30, -15, and -30 degrees. If a custom angle is needed, **Custom** slider handles and a place to enter a value is just below the Horizontal Shear preset angles.
- **Vertical Shear** has preset angles to shear selected objects in the vertical direction. The pre-set values are 15, 30, -15, and -30 degrees. If a custom angle is needed, **Custom** slider handles and a place to enter a value is just below the Vertical Shear preset angles.

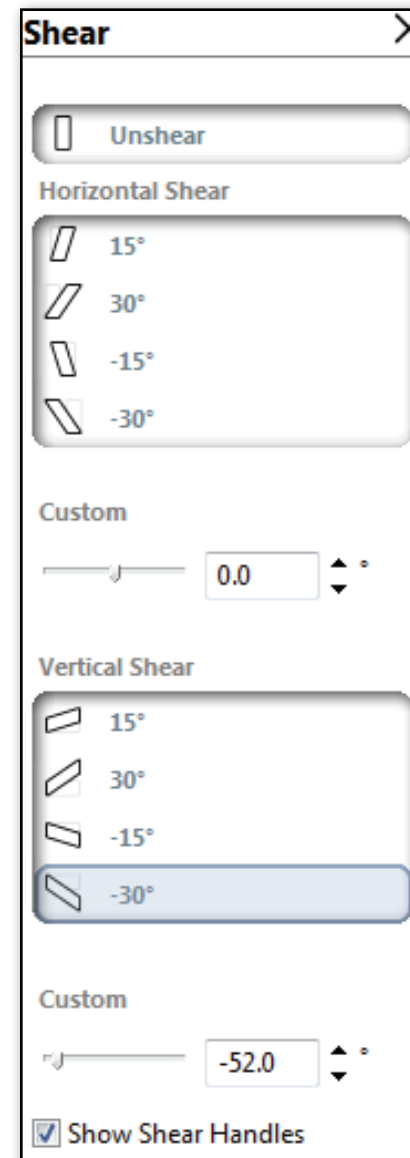
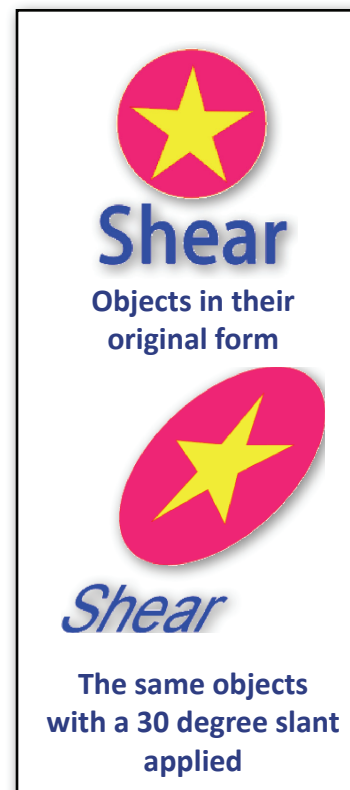
#### Shearing and using the Handles.

At the bottom of the side panel is the **Show Shear Handles** check box. When checked, slider handles will appear on the four sides\* of an object for adjusting the objects shear visually, hands-on.

\* Try using rotating the object as well as shearing for a more 3-D look.



1. Enable **Show Shear Handles** by clicking on the box.
2. Click on the object to select it and the handles should appear. Click on it again if it is an AutoShape.
3. Click and drag on the handle to adjust the shear of the object.

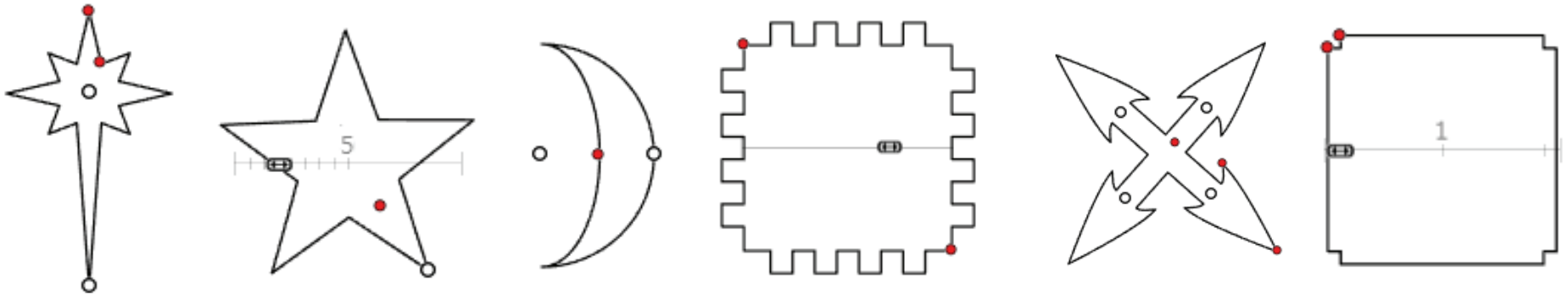


Shear side panel options

## Editing Objects, continued

### Editing Autoshapes



To edit an Autoshape, click on the shape once and the control handles and slider that are unique to that shape will appear\*. Those handles can adjust the autoshape by dragging the handles to different positions.

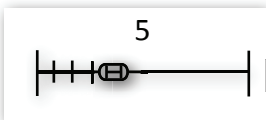


Each Autoshape has its own set of control handles

### Control Handles and Sliders

While you will have to experiment with the different Autoshapes to see what each handle and slider handle does, below are general descriptions of each control.

-  RED control handle will lengthen or shorten repetitive parts of a shape.
-  The WHITE control handle will handle the general size of a shape.



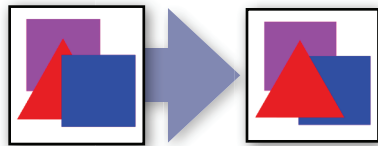
The CONTROL SLIDER will set the number of repetitive parts to the shape. For instance, the star will have a slider determining the number of star points. A polygon's control slider will determine the number of sides.

\* Note: selecting text has an opposite effect to selecting autoshapes. Clicking once will show the Scale and Rotate control handles. Double clicking on text will display the position control handle and the bar. (See [Editing Text](#))

# Editing Objects, continued

## Arranging Object Order

As multiple objects are placed on the Preview Area, they may overlap each other. Whether an object or a shape is in front and or the back of the other shapes is called arranging the object order. This becomes more apparent when using filled shapes. There are several examples of how Object order or arrangement works. In these examples, notice how the red triangle is affected by its 'level' in the order. There are four choices of rearranging the order along with the keyboard shortcuts, using combinations of the Control, Shift, and bracket key.

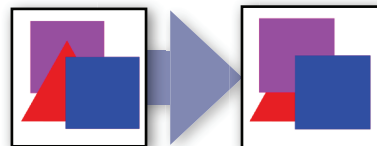


### Bring to Front

(PC) Ctrl+Shift+]

(Mac) Cmd+Shift+]

The red triangle is brought in front of the other objects

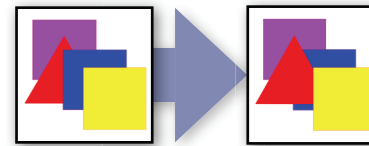


### Send to Back

(PC) Ctrl+Shift+[

(Mac) Cmd+Shift+[

The red triangle is sent to the back of the other objects.

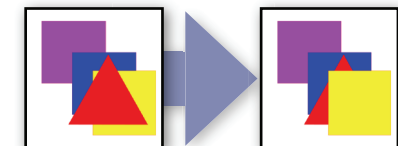


### Bring Forward

(PC) Ctrl+]

(Mac) Cmd+]

The red triangle is brought forward one level.



### Send Backward

(PC) Ctrl+[

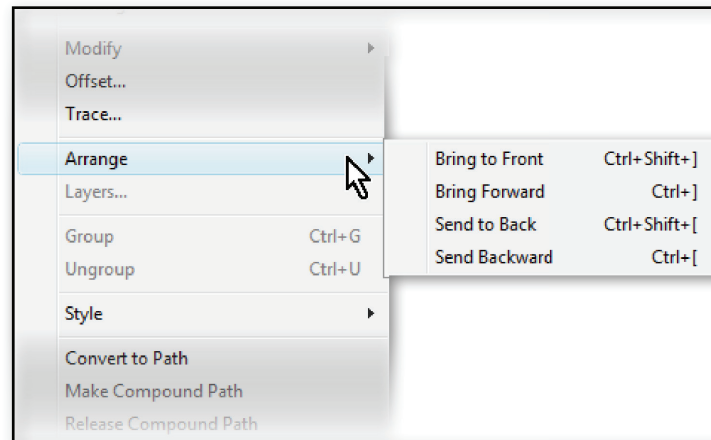
(Mac) Cmd+[

The red triangle is sent back one level.

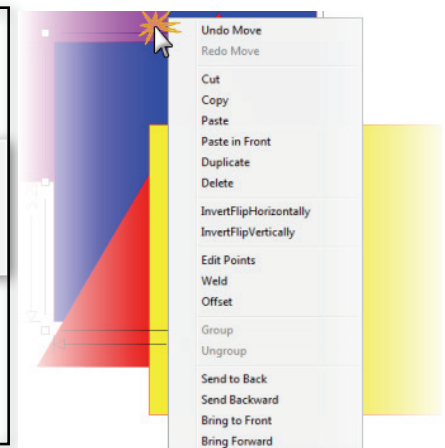
**Back is referred to the direction of the background. Front is coming toward you.**

There are several methods for changing the order.

1. First click on the objects to be re-arranged.
2. Select the order in which the object is to be arranged. This can be done by:
  - Clicking on the Object pull down menu, select Arrange, and then select one of the four options.
  - Right click on an object, and from the pull down list select one of the last four options.
  - In the toolbar, the Quick Set buttons on the top left-hand side offer two choices:



Object pull down menu > Arrange menu



**Right click on an object and this pull down menu appears. At the bottom are the four choices**



Bring to Front



Send to Back

## Editing Objects, continued

### Aligning Objects

Multiple objects can be aligned in relation to each other. To align objects:

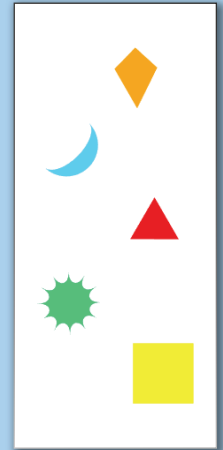
1. Click on the Align tool icon to open the Align options in the side panel.
2. Select two or more objects to be aligned.
3. Select one of the options in the side panel of how the objects are to be aligned.

Objects are aligned to the area they reside in. For instance, Align Left will align all the selected objects to the left-most point of the selected objects. Align Bottom will align all the selected objects to the bottom point of the selected objects, and so forth. Below are diagrams of how each alignment type affects the selected objects.

#### Center to Page

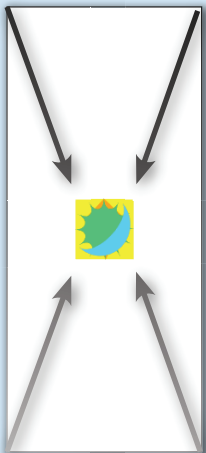
This option, which is the bottom choice, will move the select objects as a group to the center of the media page, in other words, keeping their positions relative to each other intact.

Objects in their original positions



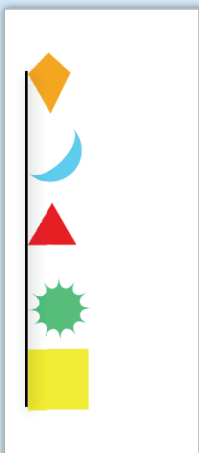
#### Center

Objects are aligned to the center of the selected objects



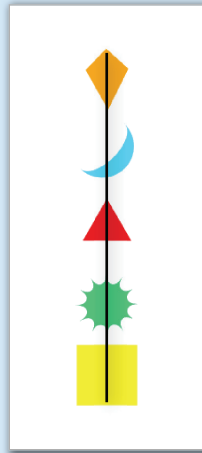
#### Align Left

Objects are aligned to the left-most point of the selected object area



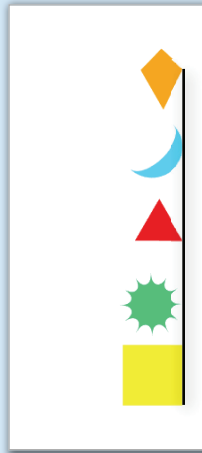
#### Align Center

Objects are aligned to the vertical center point of the selected objects



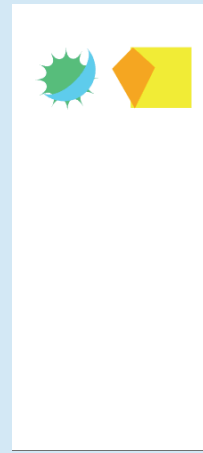
#### Align Right

Objects are aligned to the right-most point of the selected objects



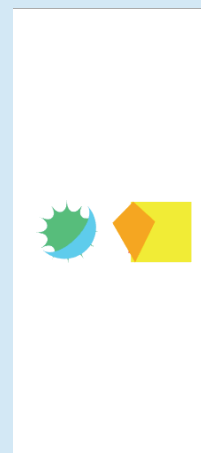
#### Align Top

Objects are aligned to the top point of the selected objects



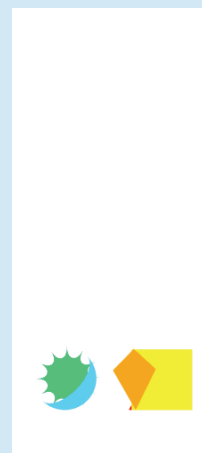
#### Align Middle

Objects are aligned to the middle point of the selected objects



#### Align Bottom

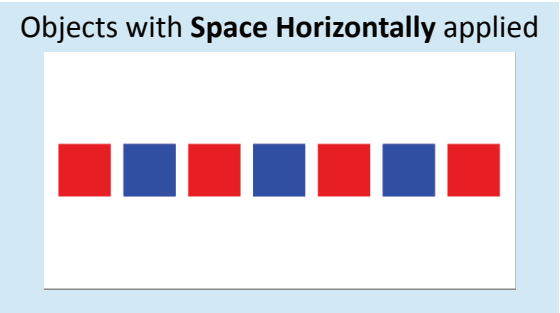
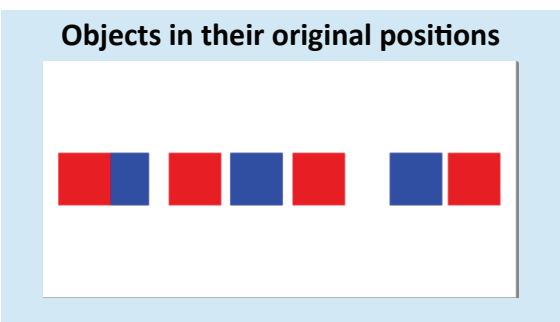
Objects are aligned to the bottom point of the selected objects



# Editing Objects, continued

## Object Spacing

In the Alignment options are the spacing selections. Spacing will distribute selected objects, spacing them evenly using the outer most objects as the boundaries.



Alignment and Spacing can all be applied by clicking on the Object pull down menu, selecting Align, and then choosing the alignment or spacing options available

| Objects in their original positions |
|-------------------------------------|
| Space 1                             |
| Space 2                             |
|                                     |
| Space 3                             |
| Space 4                             |
| Space 5                             |
|                                     |
| Space 6                             |

| Objects with Space Vertically applied |
|---------------------------------------|
| Space 1                               |
| Space 2                               |
| Space 3                               |
| Space 4                               |
| Space 5                               |
| Space 6                               |



# Advanced Editing

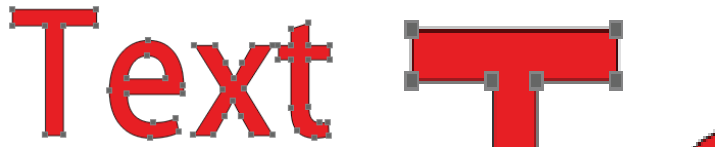
Object shapes can be completely changed and re-shaped by some of the more advanced tools within Graphtec Studio. This chapter will cover these tools, the **Edit Points** tool, the **Eraser** tool, and the **Knife** tool.

## Converting Objects to Paths

Some objects such as rounded rectangles, text and autoshapes, have to be converted to curves in order to edit their points. Keep in mind though that once shape are converted into curves they cannot be returned to their original state. For instance, once text is converted into curves, it cannot be edited using the edit mode to add or remove characters.



A Text object



A Text object converted into path. Notice the points on each corner.



Former Text object has been re-shaped

## Steps to Converting Objects

Objects such as rectangles, circles/ellipses, polygons, curved shapes, and lines do not have to be converted to curves in order to edit their points.

### To convert Autoshapes and Rectangles with rounded corners to a path:

1. Select the Autoshape or Rounded Rectangle to convert.
2. Clicking on the Object pull down menu and then click on either Convert to Paths or Make Compound Path.

### To convert Text to a path:

1. Select the text to convert.
2. From the Object pull down menu, select either Convert to Paths or Make Compound Paths,
3. If using the Convert to Paths option, ungroup the text by selecting Ungroup from the Object pull down menu.

## Advanced Editing, continued

### Point Edit Tool

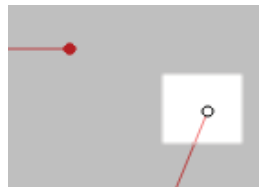
All line points on object shapes and lines may be edited. As mentioned in the previous section, some object shapes such as text, autoshapecs, and other objects, may have to be converted to a path prior to entering the Point Edit mode. Once in the Point Edit mode, any points of your object can then be moved around, separated, deleted, and added. Curves, including arcs, can be flattened and lines can be shaped into curves. All these options can be found in the Point Edit side panel.

### Operation

To enter the Point Editing Mode, either double-click on a selected object, or simply select the Edit Points tool. This will open the Point Edit options in the side panel. To exit the Point Editing Mode, you may double-click on the object again or right click and select Exit Point Edit Mode. Note that objects in that part of a group will not enter the Point Edit mode.

#### Selecting a Point

1. Double click on the object to enter the Point Edit mode.
2. Hover the mouse pointer over a point to be moved. Once this is done, an icon of a point with a line through it will appear. This indicates that the mouse point is over a point.
3. Click one of the points and the segment (curve or line) will turn bold red, indicating that it can be adjusted.



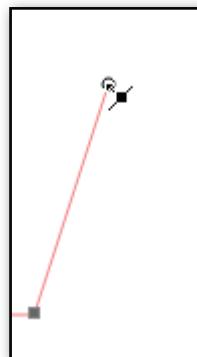
Selected point turns white

When a point is selected, it will turn white.

#### Moving a Point

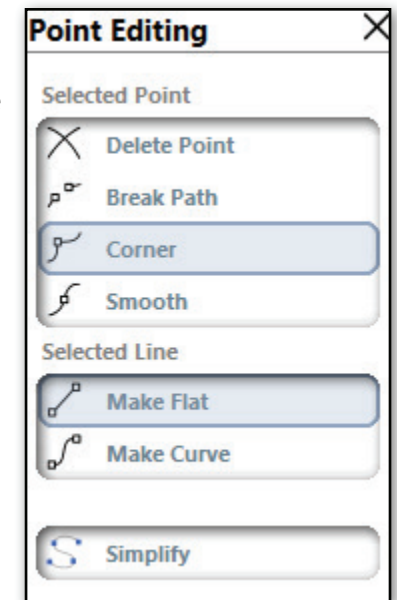
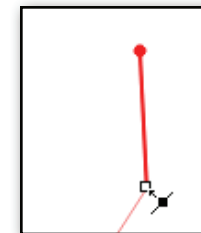
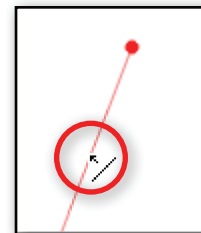
1. Select a point.
2. Click and drag the point to a new location.

This can also be done in one click, hold, and drag action on the point to a new location.



#### Adding a Point

1. Move the cursor over the line or curve segment. The cursor will change to a line with a small arrow.
2. Click and drag a new point to the desired location.
3. Release the mouse button.



#### Deleting a point

1. Select a point.
2. Either click on Delete Point in the side panel, or right click and select Delete Point.

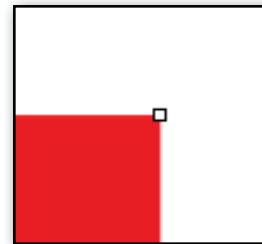
## Advanced Editing, continued

### Breaking a Path

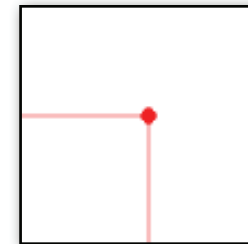
To break a path means to split the line of an object at certain point of the objects shape. If it is a closed object, the object will now become open and the fill will be removed.

#### Steps to breaking a path:

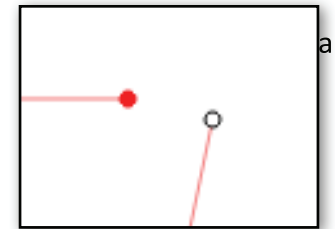
1. Select a point where the path is to break.
2. Click on Break Path in side panel.



Original Corner Point

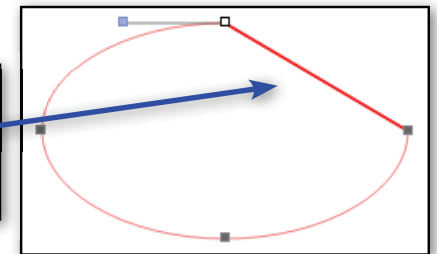
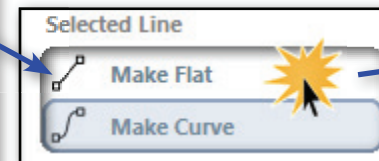
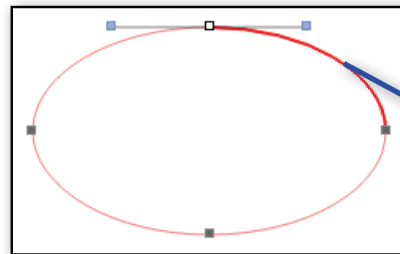


Path is broken at corner point  
which removes the fill



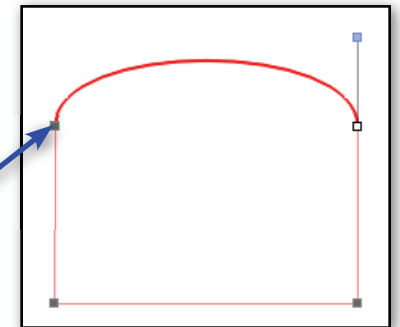
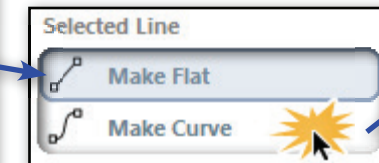
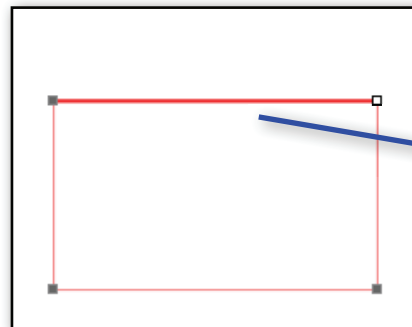
### Making a Curved Segment into a Flat Segment

1. Select the point attached to the curve or arc. The segment that is to be converted will turn bold and red. If the wrong segment is selected, choose the next point. Note: Don't click on the segment, this will only add another point.
2. In the side panel, click Make Flat, or right click on the point and select Make Flat.



### Making a Line Segment into a Curve

1. Select the point attached to the line segment. The segment that is to be converted will turn a bold red color. If the wrong line segment is selected, choose the next point.
2. In the side panel, click Make Curve, or hover over the point, right click on the point, and select Make Flat.



## Advanced Editing, continued

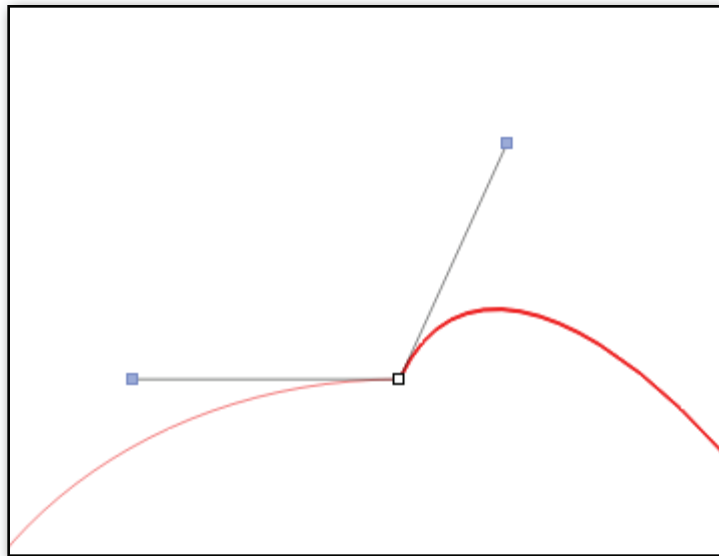
### Working with Curves

Adjusting curves on object shapes works on a bezier concept. Once a curve point (also called Anchor Point) is selected, there will be two curve adjustment handles. To adjust the curve, simply click on one of the curve adjustment handles and drag it up or down. This will reshape the curve.

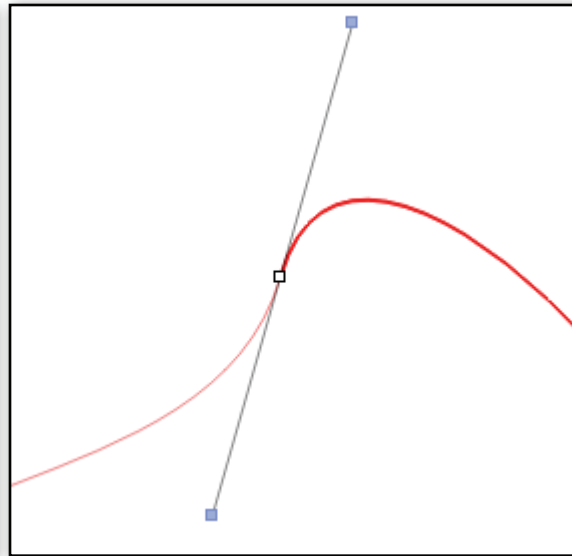
Graphtec Studio offers two types of curve adjustment handles that are shown in the side panel: **Corner** and **Smooth**.

Selecting **Corner** will have the two curve adjustment handles work independently of each other. As one handle goes up, the other handle stays stationary. This creates a cornering effect with the two adjacent curves.

Selecting **Smooth** will have the two curve adjustment handles work in unison with each other. In other words, as one handle is adjusted, the other will move with it. As the one handle goes up, the other will go down. The purpose of the Smooth handle is that it keeps the two adjacent curve segments in line with each other, creating a smoother curve altogether.



Curve adjustment handles  
with the setting of Corner

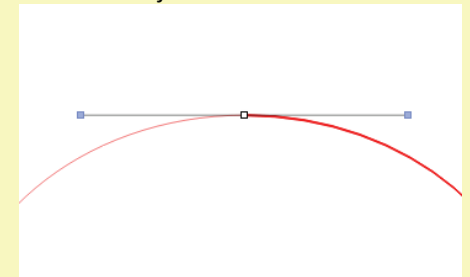


Curve adjustment handles  
with the setting of Smooth

### Knowing a Line from a Curve

Generally, it is simple to visually see if a segment is a line or a curve.

However, sometimes it can be difficult to see. To see if a segment is a line or a curve, click on a point once, and if the segment is a curve, there will be two curve adjustment handles.

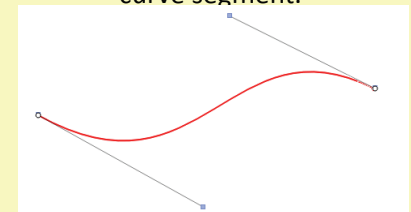


### Working with Bezier Curves

If you have never worked with the bezier curve, the curve adjustment handles can move in any direction.

Picture the handles as magnets that influence or attract the curve.

The two handles on either end of a curve segment will influence their side of the curve segment.



## Advanced Editing, continued

### Eraser Tool

This tool can be very handy for removing unwanted parts of objects. It also can create some unique effects to your objects or designs. When clicking on the Eraser tool the options for that tool are displayed in the side panel. The mouse cursor turns into a icon representing the eraser shape that is set in the side panel options.

### Different Types of Erasers

In the side panel there are several pre-set choices of eraser shapes. Just below the eraser shapes is where the size can be adjusted by simply dragging the little white circle to the desired size. Once the shape and size have been determined, the mouse cursor will reflect the changes.

### Erasing Modes

The eraser will have a different effect on closed shapes and open shapes.

#### Open shapes

Remember an open shape is where there is an opening or break in the shape. An arc, line, and poly line are open shapes. The eraser will remove part of the path, breaking the path into individual parts if erased from the middle of the path.

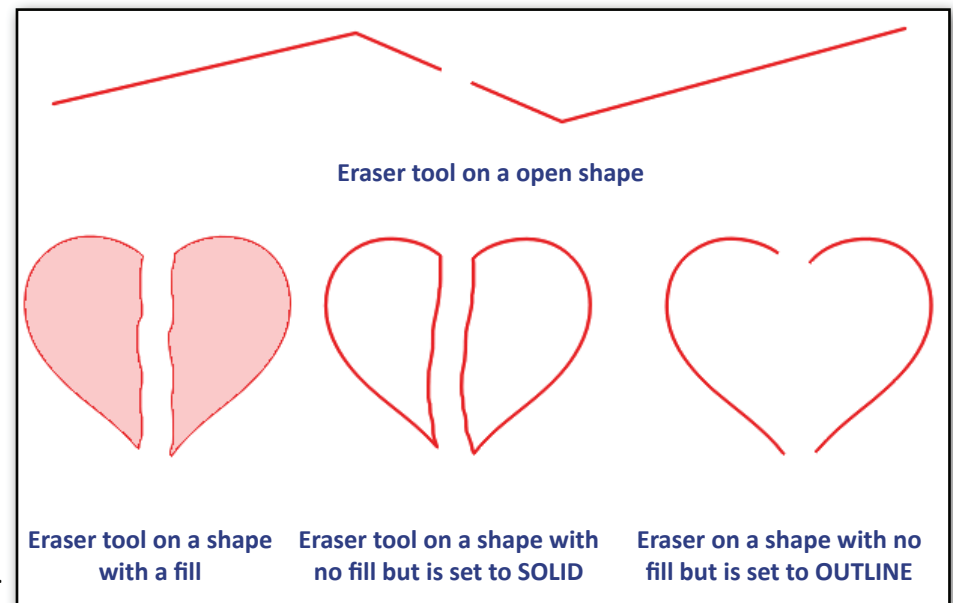
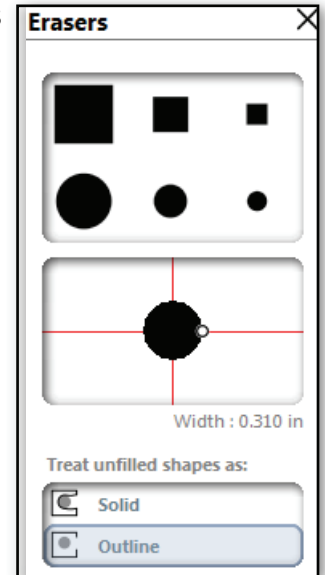
#### Closed Shapes

When erasing closed objects that are filled or solid, the shape will remain closed. When the shape has no fill, there are two types of erasing available under **Treat unfilled shapes as:**

- **Solid** will keep the object as a closed object whether there is a solid fill or not.
- **Outline** will keep a filled object as a closed object, but will break the line of the closed shape, converting it to an open shape. This is also a good tool to use on open shapes for erasing parts of lines.

### Steps to using the Eraser:

1. Click on the Eraser tool.
2. Set the size, shape, and mode.
3. Click and drag the mouse cursor over the area of the object to be erased.



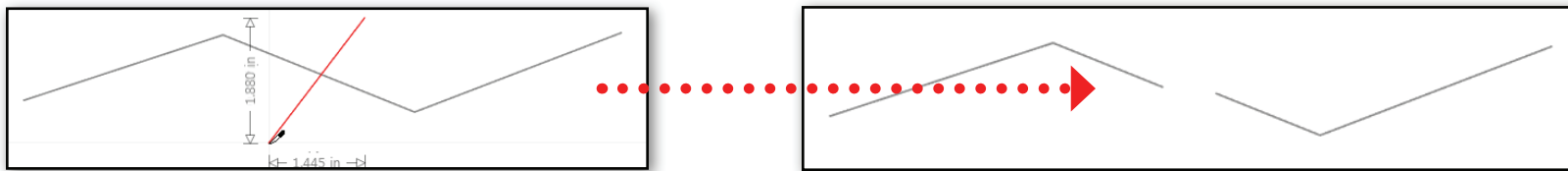
## Advanced Editing, continued

### Knife Tool Pro

This tool will segment objects into separate parts. This tool delivers multiple pattern cuts to separate parts of images to create new independent shapes. When clicking on the Knife tool icon, the options for that tool are displayed in the side panel, and the mouse cursor turns into an icon representing a knife.

### Effect on Open and Closed Shapes

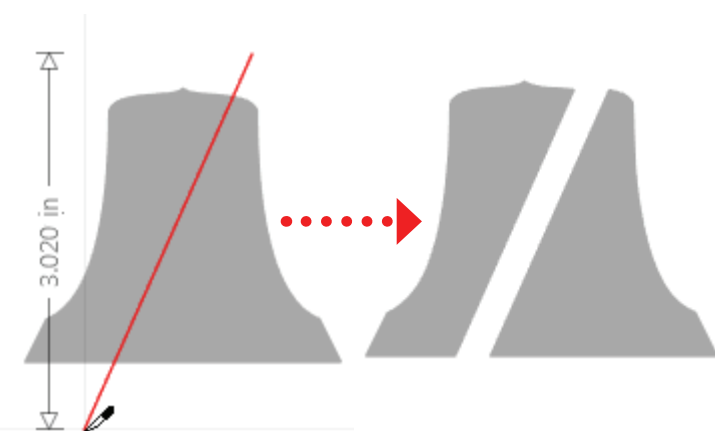
When the Knife tool cut line slices through an OPEN shape (such as a line or arc), it will cut the path into two separated segments.



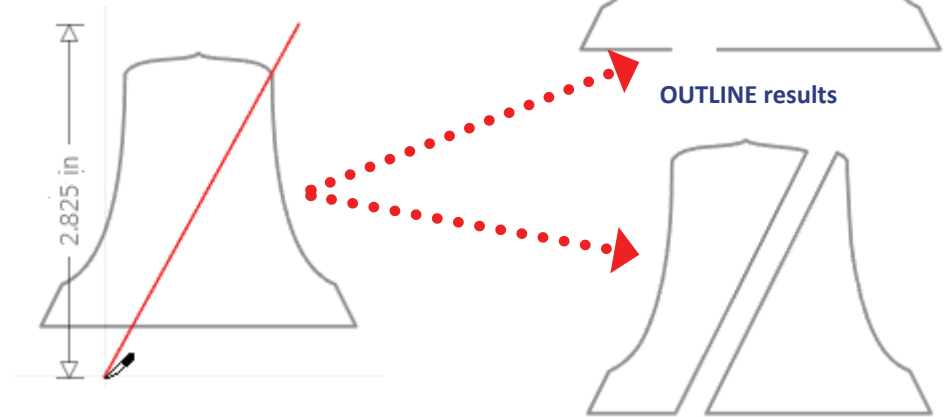
If the Knife tool cut line slices through a filled CLOSED shape, similar to the Eraser tool, it will keep the object closed.

If the shape is a CLOSED shape with no fill, there is a choice in the side bar under **Treat unfilled shapes as:**

- **Solid** will treat the shape as it would with a filled shape. It will remain closed.
- **Outline** will break the line of the closed shape, converting it to an open shape.



Slice through a closed shape with a fill



Slice through a closed shape with no fill

SOLID results

## Advanced Editing, continued

### Knife Options

The first section is the type of path the knife will draw whether it is a straight line, a multiple segment line or polygon shape, a multiple curved line, or just drawing freehand. Below are the different methods and their steps:

**Straight** Line will draw one straight line through the object.

1. Click once and drag the mouse to the desired point.
2. Click the mouse again to end the segment. Any lines or shapes the knife line intersects will be sliced.

**Poly** will draw a multi-segmented line.

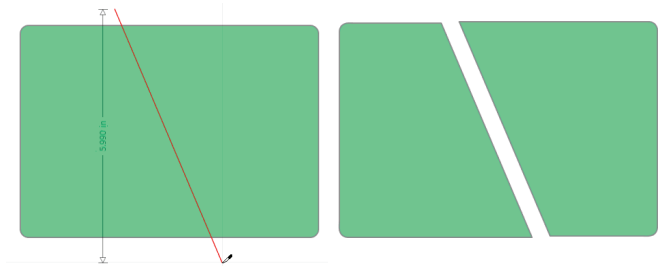
1. Click once and drag the mouse, and the first segment of the poly line will start to form. Each click of the mouse thereafter will create a new segment.
2. Double-clicking on a point will end the creation of line segments. Any lines or shapes the poly line intersects will be sliced.

**Curve** will continue to draw curve with each mouse click.

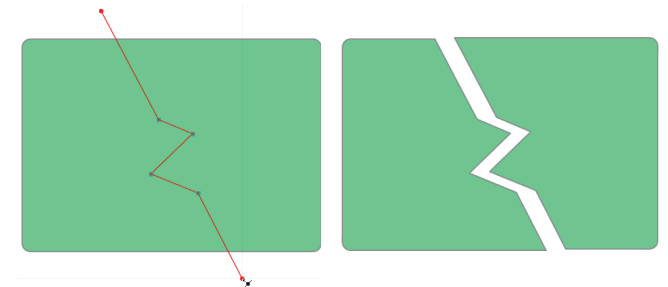
1. Click once and drag the mouse, and the first curved segment will start to form. Each click of the mouse thereafter will create a new curved segment.
2. Double-clicking on the last point will end the curved segments. Any lines or shapes the curved line intersects will be sliced.

**Freehand** will draw a continuous free-form line. The slicing line drawn with this tool will continue until the mouse button is released.

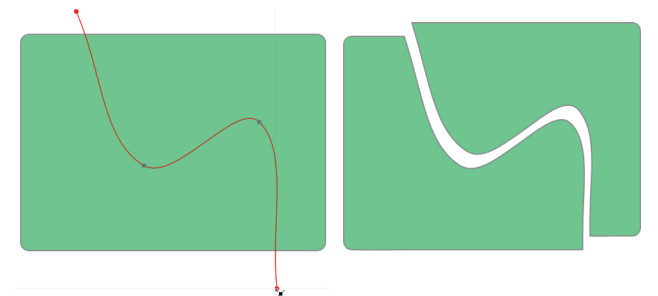
1. Click, hold, and drag the tool and freely draw anywhere.
2. Release the mouse and the knife line stops drawing. Any lines or shapes the curved line intersects will be sliced.



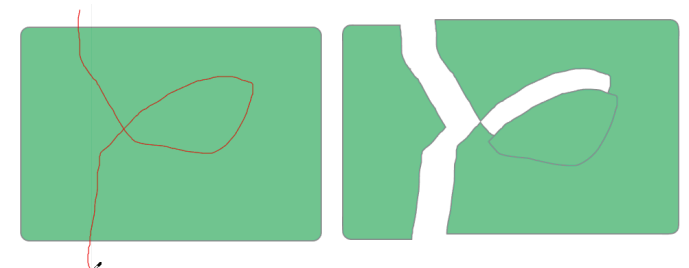
Knife slicing shape using the Straight method



Knife slicing shape using the Poly Line method



Knife slicing shape using the Curve method



Knife slicing shape using the Freehand method

## Advanced Editing, continued

### Slice Pattern Options Pro

Just below the knife methods are slicing patterns. These can be effective when there is a need for a special edge pattern. Each pattern can be adjusted by disabling the Auto Apply check box.

#### Steps to using the Knife with a Pattern

1. Click on the Knife tool.
2. Select the Knife method and pattern.
3. Click the first point.
4. Move to the second point and click. The pattern will be drawn.

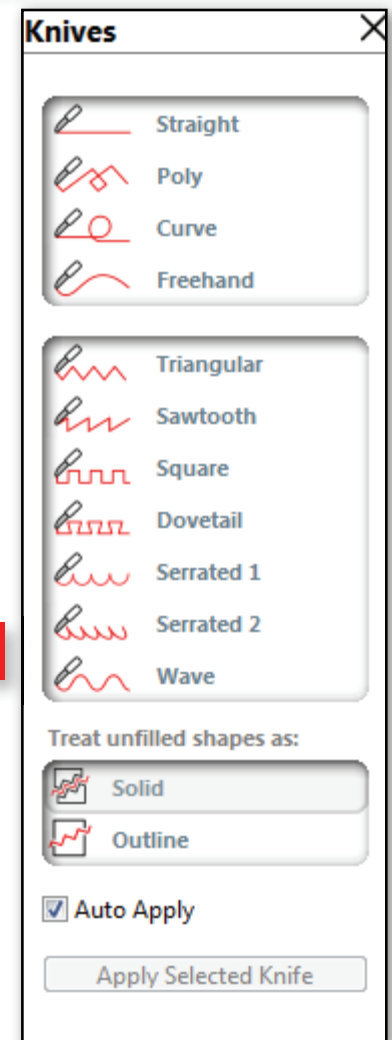
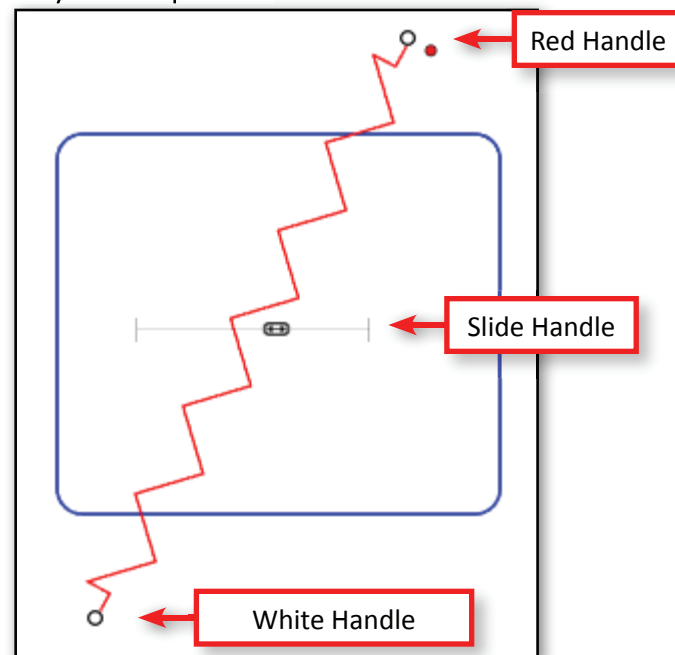
If **Auto Apply is checked**, the pattern will immediately slice the shape to the pattern.

If **Auto Apply is not checked**, the pattern can be adjusted. There is a slider handle, a red handle, and a white handle.

At one end there is a **red handle** that will stretch the peaks and valleys of the pattern.

In the middle is a **slide handle**. This controls the frequency of the pattern.

The **white dot** will re-size the slicing path.





# Lines and Fills

## Basic Color Options

Object Shapes may use different properties such as line colors, line types, fill colors, gradient fills, and fill patterns that affect how they look. The steps to change the line color and fill of objects work in the same way. Clicking on either of these icons will open the side panel to a color chart of common colors.

Lines, by default, display with a red color whereas fills usually default to a clear or blank color. Both the fill or line color may be altered to any desired color.

### To Change an Object's Line Color:





1. Select an object or objects.
2. Open the Line Color side panel by clicking on the Line Color tool icon.
3. This will open the side panel with a color chart as shown on the right.
4. Clicking on any color will change the line color of selected objects.

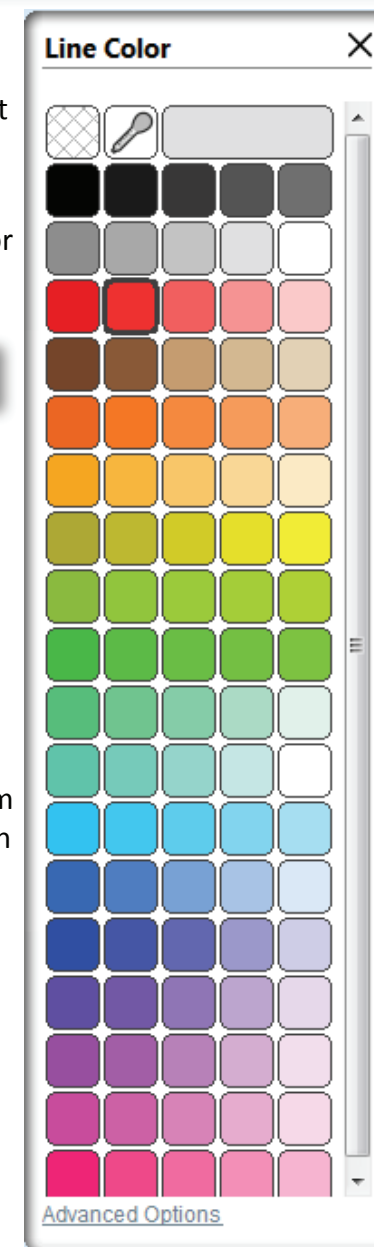
### To Change the Fill Color



1. Select the object or objects.
2. Open the Fill Color side panel by clicking on the Fill Color tool icon.
3. This will open the side panel with a color chart similar to the line palette on the right.
4. Clicking on any color will change the fill color of selected objects.

 At the top of the color chart is a palette with hash lines. This selection, when clicked, will clear the line color from the object. NOTE: Be careful when clearing a line color that has no fill. The object will virtually disappear. If it is in the Media Page, it will be cut.

 Next to the Clear color is the Color Picker tool. This is helpful in cases where a color is needed from one of the other objects. This works simply by selecting the object whose color you want to change. Click on the Color Picker tool, and select any color in the design.



The Fill and Line Color Palettes are similar.

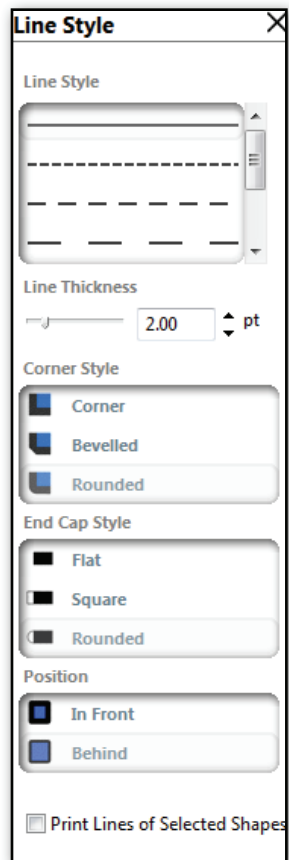
## Lines and Fills, continued

### Advanced Color Options

At the bottom of either color chart is a choice to view Advanced Options. Clicking on this link will change the side panel to customized color options. This can be done by picking a color from the **Spectrum**, entering specific **color values** (RGB, HSL), or entering a color number.

**Transparency** of the line can also be adjusted from this panel by dragging the Transparency bar to the left or right, or by typing in the desired percentage: 0% is completely opaque and 100% is completely clear.

To switch back to the standard color palette, click on **Basic Options** at the bottom of the side panel.



### Line Styles



The Line Style side panel options (shown in the diagram on the left) include the line width as well as the line type (solid, dashed, etc). By clicking on the Line Style tool icon, the side panel will open up with options to adjust the line width and line type.

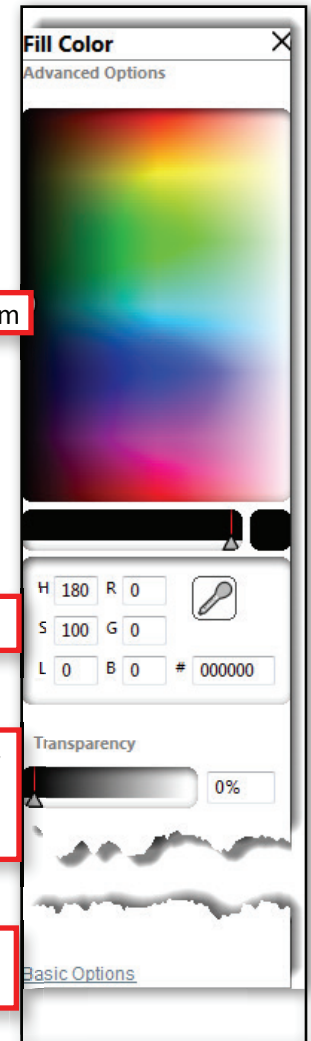
- **Line Style** setting is the type of line. There are several line types to choose from.
- The **Line Thickness** determines the line width. It is measured and altered by using point sizes, and may be adjusted to any thickness. It is adjusted by either manually dragging the Line Thickness slider, or by typing in the desired point size for the thickness. Note that, while line width may be adjusted, the line will always cut as a single line when it is sent to the cutter. Thus, thicker lines are generally used to affect the look of an object for printing.
- The **Corner Style** option will adjust how lines appear at the corner points of an object. Corner is an acute angle of the two lines that make the corner, whereas Rounded will round out the corners.
- The **End Cap Style** option will only adjust lines that have open ends, whereas Flat provides a sharper flat edge at the line tip, and Rounded provides a smoother rounded edge to the line tip.
- The **Position** option will place the line either In Front of a filled shape, or Behind the filled shape.
- If you desire to send your document to a printer to print your images, the **Print Lines of Selected Shapes** option will enable all lines of selected images to be printed as they appear on the screen.

Color Spectrum

Color Values

Transparency Percentage Value

Go Back to Basic Options



Advanced Options

## Lines and Fills, continued

### Gradients

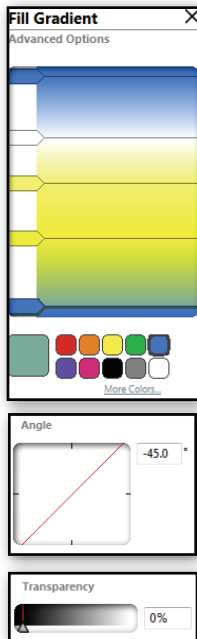
Gradients are very effective for adding interest to objects in your design. Similar to filling images with solid colors, you may also select to fill any closed line images with a gradient fill. To view the gradient options in the side panel, click on the Gradient tool icon next to the Fill tool icon.



#### To apply gradient fill to an object:

Select a shape (closed object)

1. Click on the Gradient Fill tool icon and the gradient chart opens up in the side panel.
2. You may then select any of the pre-made gradient swatches. Once again, the crosshatch selection will always represent “clear”.
3. You may also alter the basic direction of the gradient by clicking on any of the Direction options at the bottom of the Basic Options panel.



Advanced  
Options

### Advanced Options

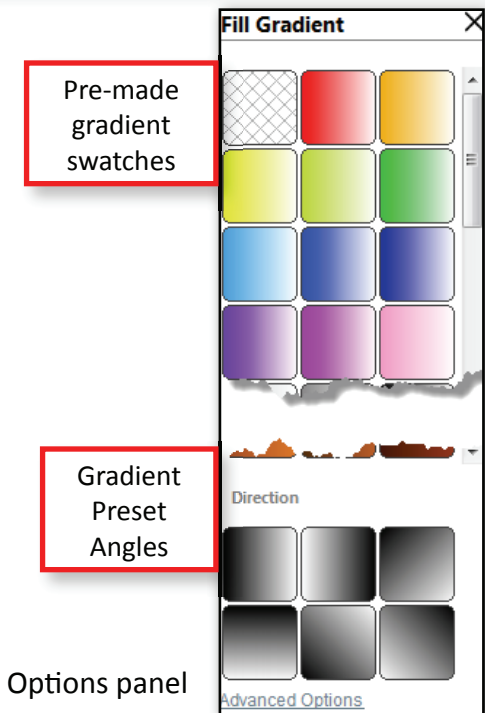
Clicking the Advanced Options link at the bottom of the panel will open the Advanced Options panel where custom gradient fills can be created, based on the current selected gradient fill.

#### Create or Adjust a Gradient

At the top of the side panel is where the number of color bars in the gradient can be set. Each bar represents a different color. By default, gradient fills will always have a minimum of two (2) colors, with one color at the top and one color at the bottom.

#### To add more color to the gradient:

1. Click the white space on the right side of the gradient spectrum panel. This will add a color bar.
2. The color bar can then be dragged to a different position in the gradient.
3. Change the color of the bar by clicking on the color palette below the spectrum.
4. Rotate the angle of the gradient by dragging the red bar in the Angle pane or by entering the degrees.
5. Change the **transparency** by moving the Transparency slider to the left or right, or by entering a percentage.



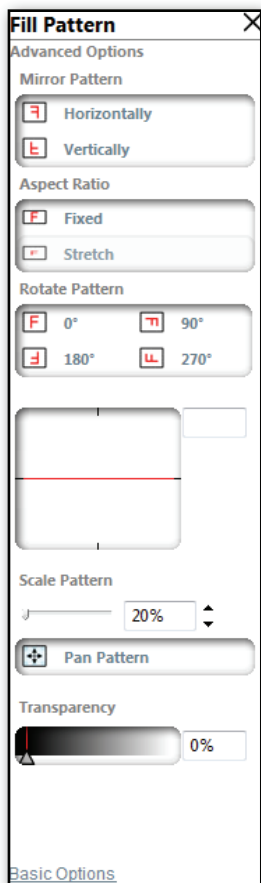
# Lines and Fills, continued

## Pattern Fills

The final fill option is the Fill Patterns. To access the Fill Pattern options, click on the Fill Pattern tool icon.

To apply pattern fills:

1. Select the object or shape to be filled.
2. Select any of the pattern options for the side panel. This will fill the selected objects with that pattern.
3. Click on the Advanced Options link at the bottom of the side panel to adjust the pattern.



Advance side panel options

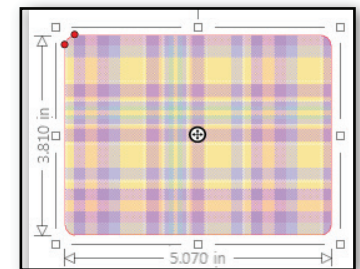
## Adjusting the Pattern - Advanced Options

A description of each option in the Advanced Options is shown below:

- **Mirror Pattern** will mirror the pattern in the horizontal or vertical direction.
- **Aspect Ratio** adjusts the pattern as Fixed (the pattern shows as-is) or Stretch (the pattern is stretched to the size of the shape).
- **Rotate Pattern** will rotate the pattern by either simple pre-set degrees, or to any customized degree by either manually dragging the Angle tool, or by typing in a specified degree.
- **Scale Pattern** will scale the pattern's size to alter the pattern itself as it fills the selected shape. This can be done by manually dragging the Scale Pattern bar or by entering a new percentage value of how the pattern fills the shape.
- **Pan Pattern** is used to move the pattern within the shape. Once the Pan Pattern is selected, a control handle will appear in the shape with the fill pattern. To move the pattern, click, hold, and drag the control handle to re-position the pattern within the shape.
- **Transparency** will adjust the transparency of the pattern by manually dragging the Transparency slider bar, or by typing in the desired percentage where 0% is opaque and 100% is completely clear.



The Basic Option side panel



Control Handle for moving the pattern within the shape.

# Drop Shadows

Drop shadows are an effect that can add a nice 3-D effect to objects. When shadows are applied to a shape or object, they will be attached to the original object as if being a part of the object. This way, as the shape adjusts, so will the shadow.

Click on the Shadows tool icon, which is to the right side of the Fill toolbar, to display the settings for adjusting the shadow in the side panel. These options are shown below:



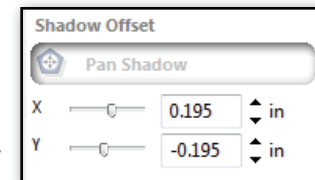
- The **Show Shadow** check box has to be checked in order to view the shadow and adjust the settings.

## Shadow Types:

- Dynamic** will keep the shadow in the same direction. In other words, if the object is rotated, the shadow will always remain in the same direction from the object.
- Fixed** will attach to the object so that, as the object is rotated, the shadow will rotate with the object.

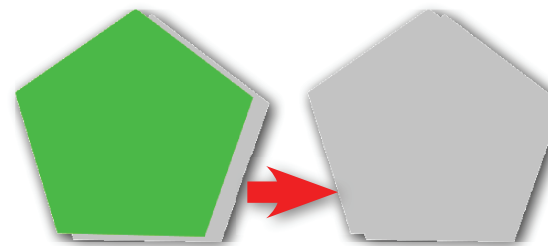
**Shadow Offset** settings will position relative to the source object:

- Pan Shadow**, when enabled, will allow the shadow to be moved using the mouse. This is helpful to position the shadow visually. When using this method, a grab handle will appear, allowing the shadow to be moved by using the handle to drag the shadow.
- The values below the **Pan Shadow** tool icon will show the current X and Y position of the shadow. The shadow can also be re-positioned by entering new values or by moving the slider bar to the left or right. The top value is for moving the shadow side to side, and the bottom value will move the shadow up and down.

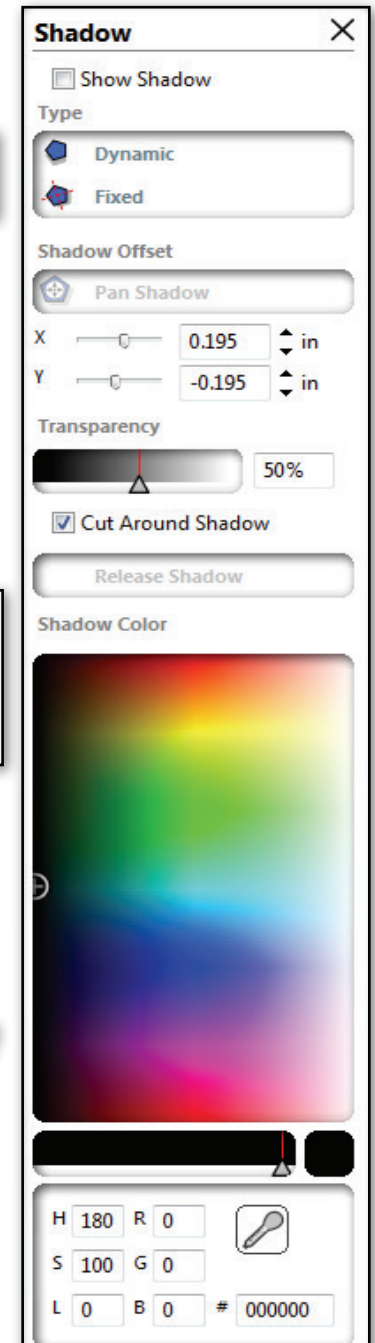


## Color and other settings:

- Transparency** will set the transparency of the shadow.
- Cut Around Shadow** will ensure that when the object is cut, the shadow is part of the shape, as if they were welded together. This is mostly used when cutting vinyl because it prevents edges of the underlying shadow piece from showing. See Steps to Cutting a Shadow.
- Release Shadow** will separate the shadow from the object and it becomes a separate object.
- Shadow Color** is where the shadow color can be set by dragging the color picker, setting the saturation, or by entering a color HSL/RGB color value. A color picker can be used to select a color within the design in the Preview Area.



When **Cut Around Shadow** is enabled, Graphtec Studio will cut both the original shape and the shadow's shape as well.



## Shadows, continued

### Steps to Creating a Shadow:

1. Select the object or objects to which the shadow will be applied.
2. Click on the Shadow tool icon.
3. Enable Show Shadows by clicking on the check box. A shadow will appear.
4. Adjust the Shadow Offset.
5. Adjust the Transparency and Color.



### If the design is using different colored vinyls:

1. Follow the steps shown on this page.
2. Enable Cut Around Shadow by placing a check in the check box. This will cut both the object and the shadow as if they are one object or welded.
3. Load the vinyl color used for the shadow, and then send the job to the cutter.
4. Disable the Cut Around Shadow. This will only cut the source or original object.
5. Load the vinyl color used for the source object and then send the job to the cutter.



# Combining Objects

Combining objects can be helpful when there is a need to group objects together so that those objects will act as one object. This is especially helpful when working with logos and complex shapes. Graphtec Studio provides several ways to combine objects with different purposes:

**Grouping** is the simplest method for combining objects. It takes selected objects and groups them together as one object. When any object in the group is selected, moved, scaled, or changed in anyway, the whole group changes.

**Making a Compound Path** is similar to grouping objects in that it takes objects that are currently selected and groups them together as one object. The difference is if there are objects within a larger object, they will be converted into 'holes' of the larger object. This becomes apparent when the combined group is given a fill. The inner object, or objects, will act as holes so that background objects can be seen through these holes. In the example below there is text inside of a rectangle. The background has been filled with a pattern. The background is not part of the compound path but is only to illustrate how grouping objects differs from Compound objects.

**Welding** will take overlapping objects and make one object out of the outline for all of the selected objects, removing all the inner pieces. This is a great option when using script fonts with the letters overlapping. Welding will be discussed in a later chapter. (See [Modifying Objects](#)).



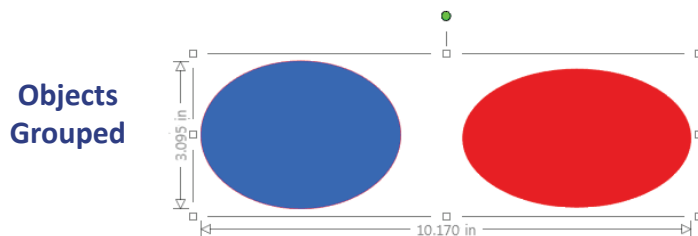
## Grouping Objects

### To Group objects together:

Select the objects that are to be part of the group.

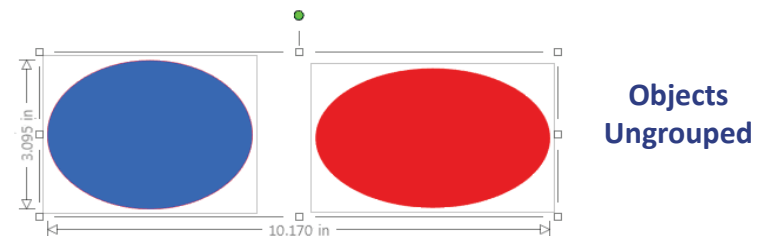
Do one of the following actions:

- Click on the Group tool icon.
- Click on the Object pull down menu and select **Group**
- Simply press Control-G or on the Mac.



### To Ungroup the objects:

1. Select the Group.
2. Then do one of the following actions:
  - Click on the Ungroup tool icon.
  - Click on the Object pull down menu and select **Ungroup** or simply press Control-U or Command-U on the Mac.

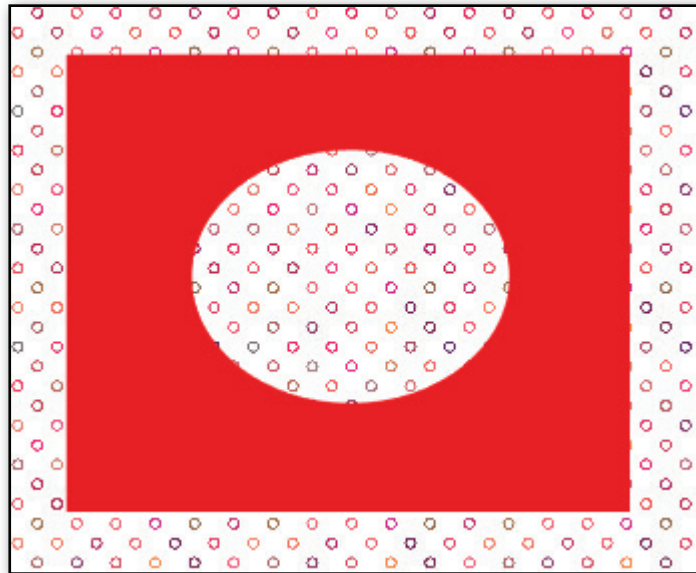


# Combining Objects

## Compound Paths

### To make a Compound Path:

1. Select the objects that are to be part of the compound.
2. To create the compound path, do one of the following:
  - Click on the Modify tool icon and select Make Compound Path at the bottom of the side panel.
  - Click on the Object pull down menu and select Make Compound Path.
  - Right click on the selected objects and select Make Compound Path.



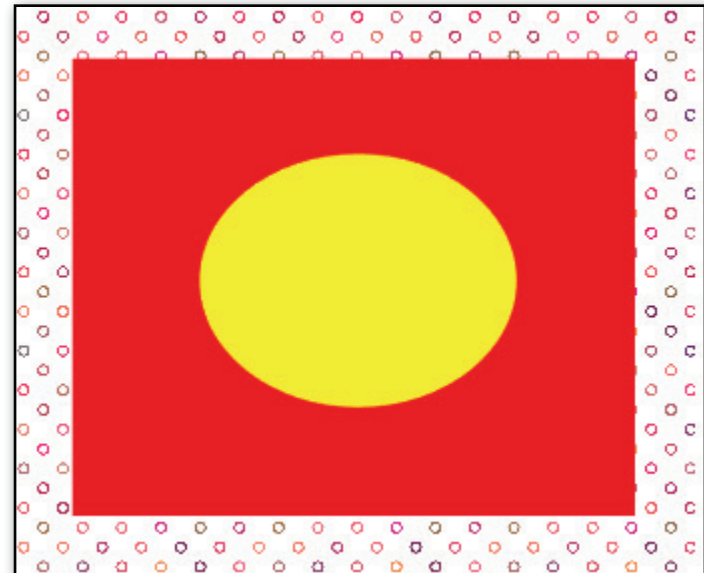
The square and circle are made in a Compound Path

### Breaking Apart the Compound Path

Select the compound object that is to be released.

To release the Compound Path:

- Click on the Modify tool icon and select Release Compound Path at the bottom of the side panel.
- Click on the Object pull down menu and select Release Compound Path.
- Right click on the selected objects and select Release Compound Path.



The square and circle are separated



# Modifying Objects

Overlapping objects may be altered in a variety of ways. The Modify tool icon will provide options in the side panel to re-shape the objects. The options and examples for each option is shown below:

**Weld** will take overlapping objects and make one object out of the outline for all the selected objects, removing all the inner pieces. Welding can be particularly useful when cutting so that the cut lines don't overlap during the cutting process.

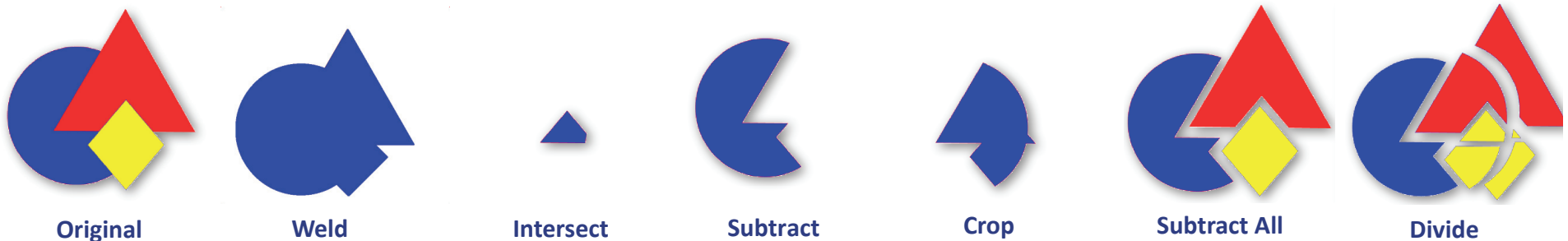
**Intersect** will leave only the overlapping sections, or intersecting sections, of the selected objects.

**Subtract** will remove all overlapping sections of objects that are in front of another object, so that only the object located in back will remain with the overlapping parts of the bottom object removed.

**Crop** will remove all areas that are not shared by overlapping objects.

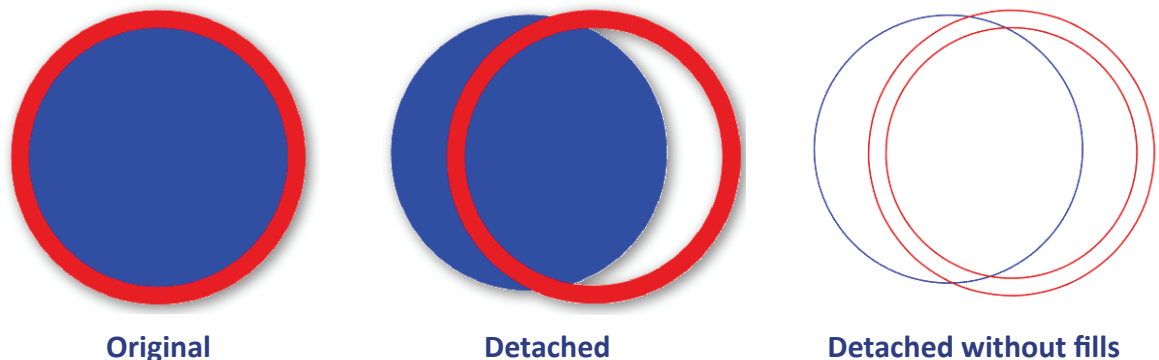
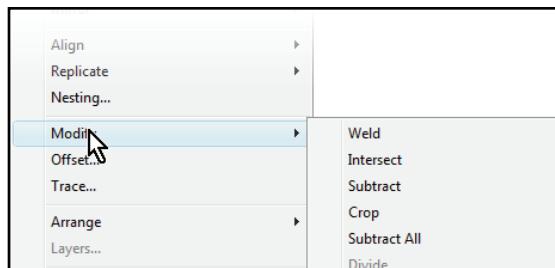
**Subtract All** will remove any section of an object that is behind another object.

**Divide** will create individual objects from the intersections of up to eight selected images.



When objects have a fill and/or have thick lines, **Detach Lines** can detach and move the outline to create two separate objects; one object with just the lines and one with just the filled effects left behind.

Similar to other functions, Modify can be accessed through the Object pull down menu and then **Modify**.



# Copy Objects

There are four methods to make copies of objects: copy and paste, duplicating, replicating, and by using the Matrix Copy function. Each of these methods are used for different reasons and are discussed in this chapter except for Matrix Copy which will be discussed in the chapter Cutting the Design. (See [Copy Matrix](#)).

## Copy and Paste

Copy and Paste is probably the most common way of making copies of objects. It works similar to other applications in that a copy of the selected object is placed in memory and then pasted back onto the Preview Area.

To make copies using this method, first select the objects to be copied.

Place a copy in memory by one of the following ways:

- Click on the Copy tool icon in the toolbar.
- Press Control-C or Command-C on the Mac.
- Click on the Edit pull down menu and select Copy.
- Right click in the Preview Area on the object and select Copy,


To Paste the copied objects by one of the following ways:

- Click on the Paste tool icon in the toolbar.
- Press Control-V or Command-V on the Mac.
- Click on the Edit pull down menu and select Paste.
- Right click in the Preview Area and select Paste.

## Duplicate

Duplicating objects is similar to copy and paste except that a copy is not placed in memory. Instead, it duplicates what is currently selected. This can be the simplest and quickest way to make copies since there are less steps involved.

To duplicate objects using this method, first select the objects to be duplicated, then duplicate them by one of the following ways:

- Click on the Duplicate tool icon. 
- Press Control-D or Command-G on the Mac.
- Click on the Edit pull down menu and select Duplicate.
- Right-click on the objects and select Duplicate.

### What's the difference between Copy and Paste versus using Duplicate?

**Both can make copies with a couple of key strokes but :**

**Copy and Paste** can take objects from one open design file and place them on another open design file within Graphtec Studio.

**Duplicate** is a faster way to make copies of objects but is not able to copy them to another open design file with Graphtec Studio.

## Copy Objects, continued

### Replicate

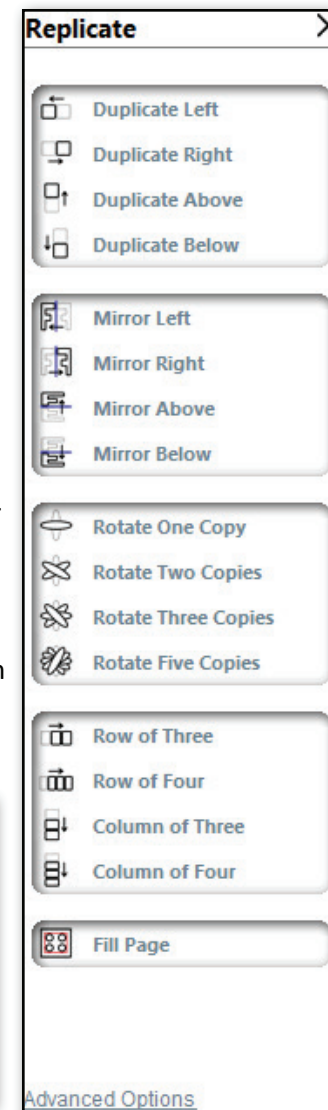
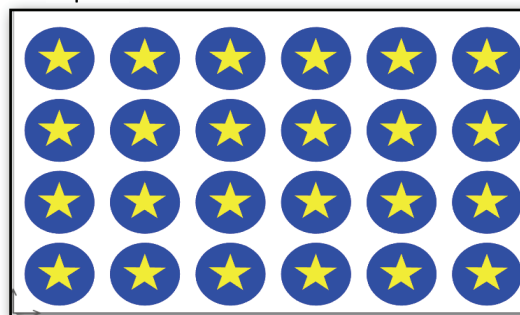
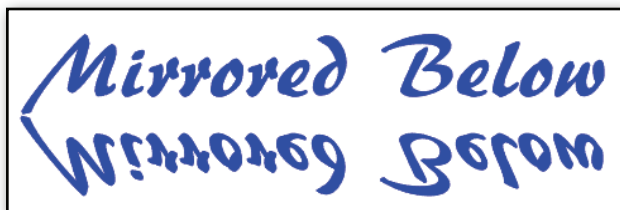
Replicating is a more sophisticated method of making pattern copies. With this tool, multiple copies can be created quickly without having to cut and paste or duplicate.

Click on the Replicate tool icon to open the Replicate options. Options for making copy patterns will appear in the side panel.

### Replicate - Basic Options

These options are for making quick copies either in a certain direction, mirrored, rotated, or in rows and columns. The copies are made with the minimal amount of space between the objects.

- **Duplicate Left** will duplicate selected objects and place a copy directly to the left.
- **Duplicate Right** will duplicate the selected objects and place a copy directly to the right.
- **Duplicate Above** will duplicate the selected objects and place a copy directly above.
- **Duplicate Below** will duplicate the selected objects and place a copy directly below.
- **Mirror Left** will duplicate the selected objects and place a mirrored copy directly to the left. The pivot point will be on the left edge of the copied object.
- **Mirror Right** will duplicate the selected objects and place a mirrored copy directly to the right.
- **Mirror Above** will duplicate the selected objects and place a mirrored copy directly above.
- **Mirror Below** will duplicate the selected objects and place a mirrored copy directly below with the most minimal amount of space between the objects as possible.
- **Rotate One Copy, Rotate Two Copies, Rotate Three Copies, and Rotate Five Copies** will copy the selected objects and make copies from one through five, depending upon the choice made, placing the copies on top of the original image.
- **Row of Three / Row of Four** will copy the selected objects and replicate two or three additional copies next to each other in a row, stacked horizontally next to each other, with the most minimal amount of space between the objects as possible.
- **Fill Page** will make multiple copies enough to fill up the Media Page with the most minimal amount of space between the copies.



## Copy Objects, continued

### Replicate - Advanced Options

The Advanced Options can be accessed at the bottom of the side panel. It is in this panel where a customized number of copies can be made of selected objects, and the distance set between these replicated objects. This includes the ability to select any custom direction. The options are:

**Number of Copies** can be set by the slider, or enter a value.

**Position Each Copy** will determine where the next copies will be placed. If Custom Position is selected, then the position can be determined by the X and Y values just below the list.

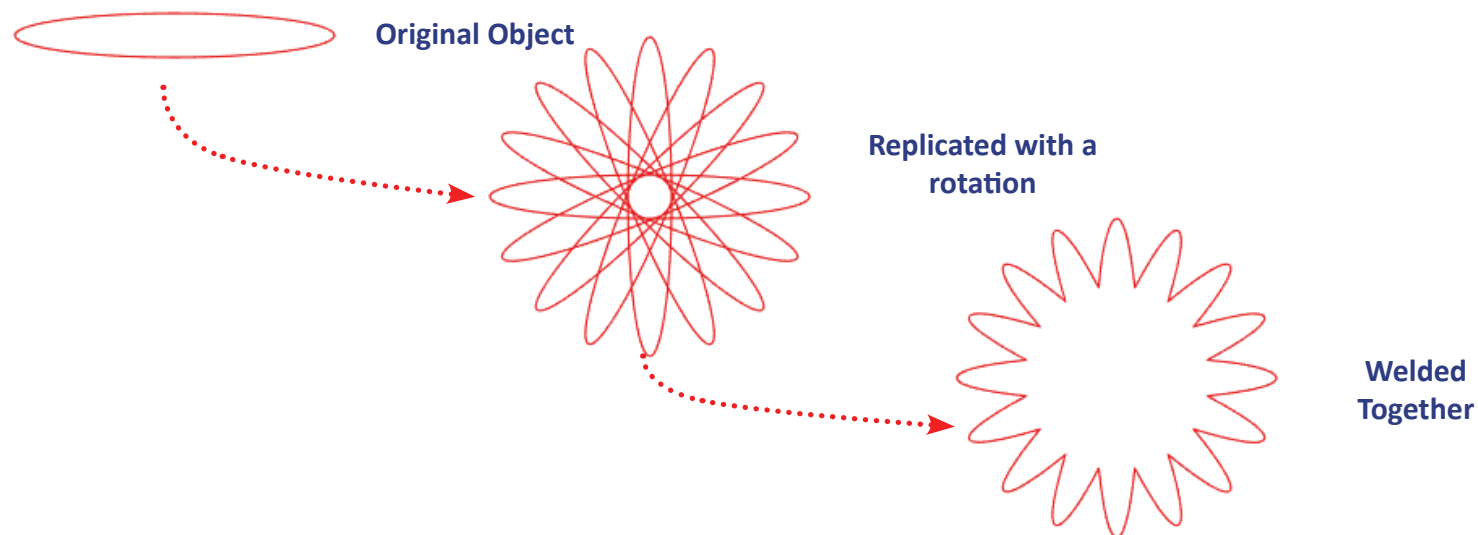
**Rotate Each Copy** will rotate each added copy by the angle established in this setting.

Once the desired number of copies and direction have been set, press the **Replicate** tool icon at the bottom of the Advanced Options menu to apply the selected attributes.

Click on the **Basic Options** link to return to the previous Replicate options.

The Replicate feature is particularly useful when combined with one of the welding options.

Any of these Replicating options are also found in the Object pull down menu.



### Taking Steps

**Replicate**

Advanced Options

Number of Copies

4

Position each Copy

☐ Same Position

☒ to the Left

☐ to the Right

☐ Above

☐ Below

Custom Position

Custom Position

X -1.500 in

Y 1.500 in

Rotate each Copy

270.0 °

Replicate

Basic Options

# Nesting Objects Pro

Nesting is a productive way of organizing objects so that a minimal amount of media will be used when the objects are cut. It does this by re-positioning all the objects so that they take the least amount of space.

When nesting objects, only selected objects are nested otherwise all objects are nested.

Nested objects can use the Media Page as the boundary or one selected object can be the boundary.

Nest can take place within the media page or they can be nested within an object.

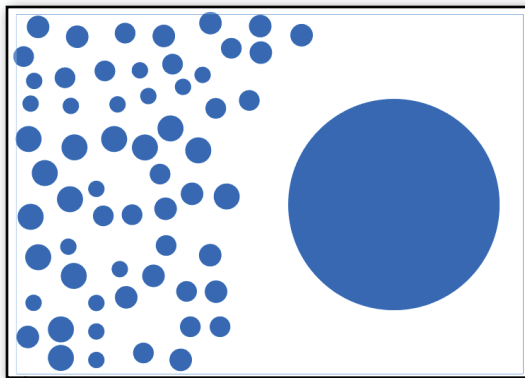
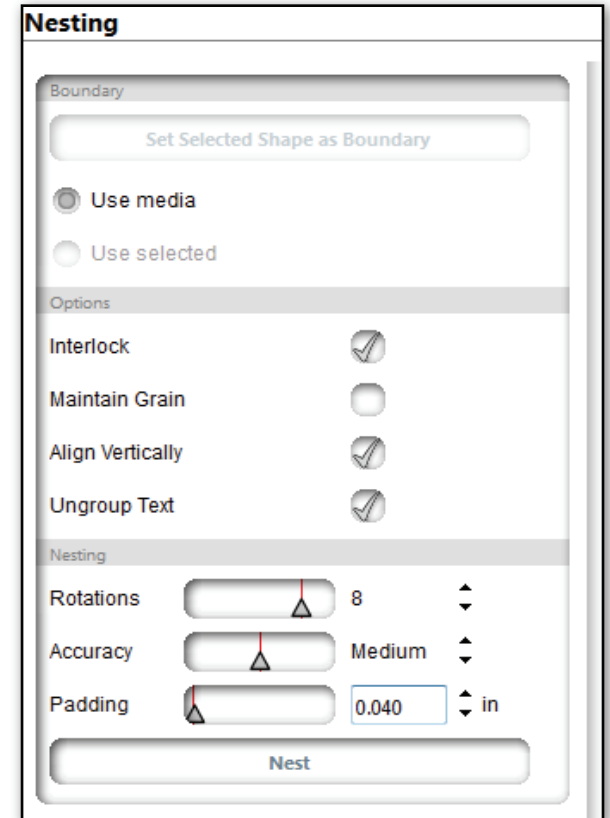


To reveal the Nesting options, click on the Nesting tool icon on the top left area next to the Replicate tool icon. This will display the Nesting options within the side panel.

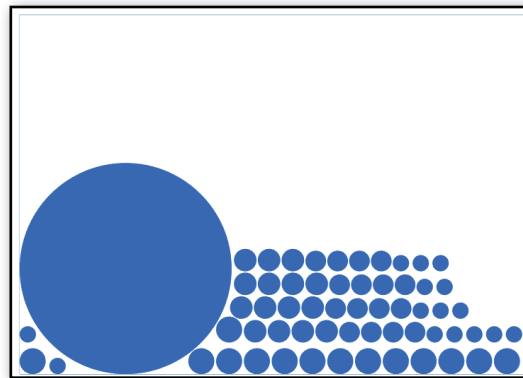
## Boundary

**Use Media** will set the edges of the media page as the boundary for nested shapes.

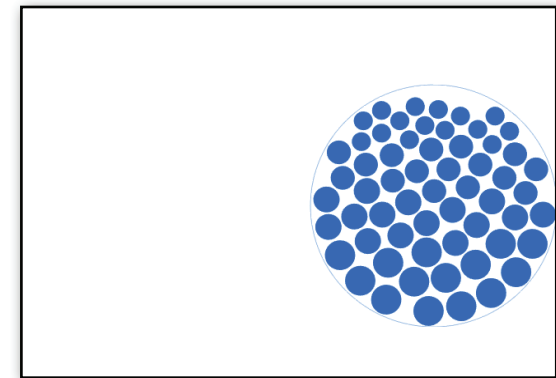
**Use Selected Shape** is selected, then the shape becomes the boundary for nested shapes. The boundary can be created from any shape. Draw a shape, select it and then click the button 'Set Selected Shape as Boundary' and the selected shape becomes the boundary shape and its outline is colored blue.



The original design



Using media as boundary

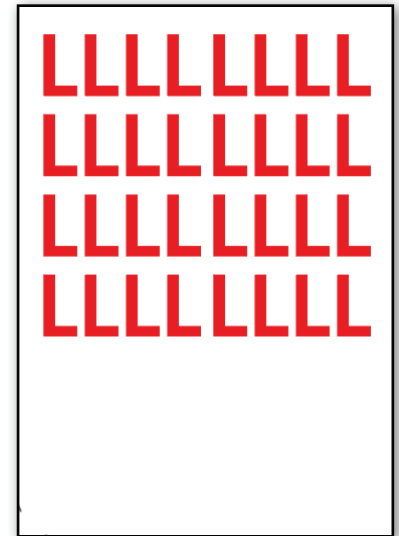


Using a selected object as the boundary

## Nesting Objects, continued

### Options

- **Interlock** attempts to make shapes fit together or interlock them. This option is useful when nesting certain types characters such as L's.
- **Maintain Grain** is used when shapes are being cut on material that has a certain grain to it. This option will rotate the objects at 0 degrees and 180 degrees in order to keep in line with the pattern or grain. This ensures that all the shapes are always cut with the same grain or pattern of the material.
- **Align Vertically** is used the longest edge of each shape is rotated to make it vertical. This eliminates the need for the nesting routine to attempt many different rotations in order to create a good nest which, in turn, will make the nesting much faster.
- **Ungroup Text** will break text apart so that each character of text is treated as an individual shape prior to nesting. This ensures that each character can be rotated to obtain the best fit.

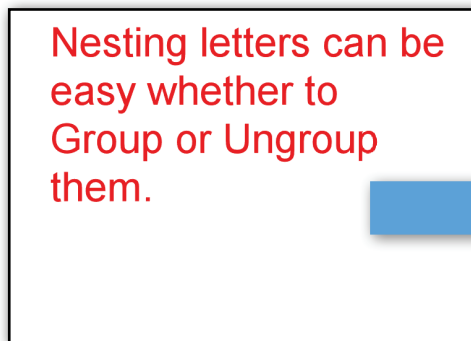


Before Nesting

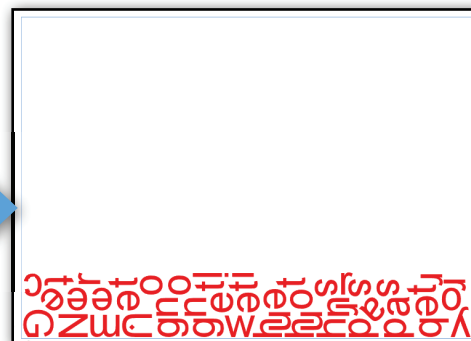
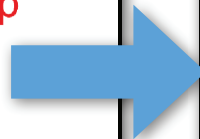
### Nesting

- **Rotations** is the number of rotations that can be applied to a shape in order for to find the best fit for the shape.
- **Accuracy** is the level of accuracy when nesting is applied. When set to **Low** accuracy is fast when nesting. When it is set to **Medium** accuracy is average speed, and when it is set to **High** accuracy is slower
- **Padding** controls the gap between shapes, and is set prior to nesting.

Once the options are set, click **Nest**.



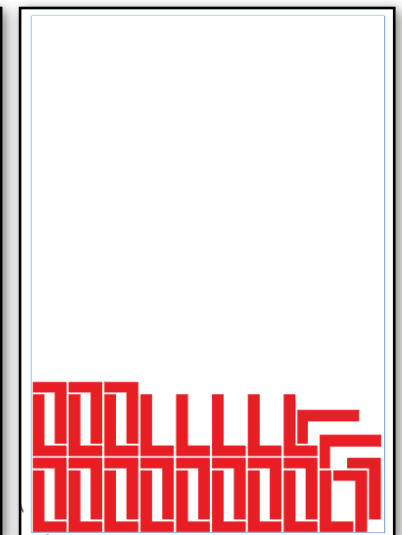
Text before Nesting



Text after Nesting and Ungroup  
Text enabled



Nested with Interlock



Nested without Interlock

# Creating Offset Paths

Creating an Offset Path can really enhance a design. It can also be used to create a cut line for Print and Cut applications. An Offset is an outline, or inline, of a shape or object.



Outlines have been applied with different color to enhance the design

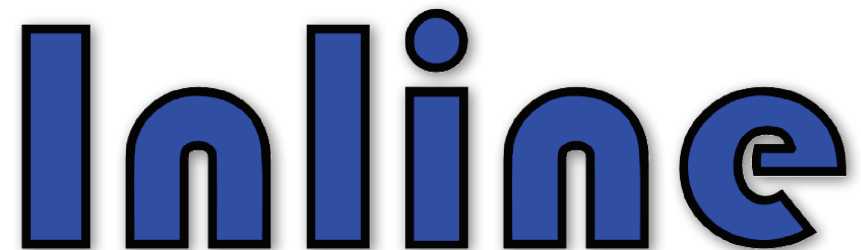


An outline has been applied to this design and will act as a cutting path for the print and cut application

The outline is generally referred to as the Offset and the inline is referred to as the Internal Offset.



A red *outline* or *offset* has been applied to this Text



A blue *inline* or *internal offset* has been applied to this object



## Creating Offset Paths, continued

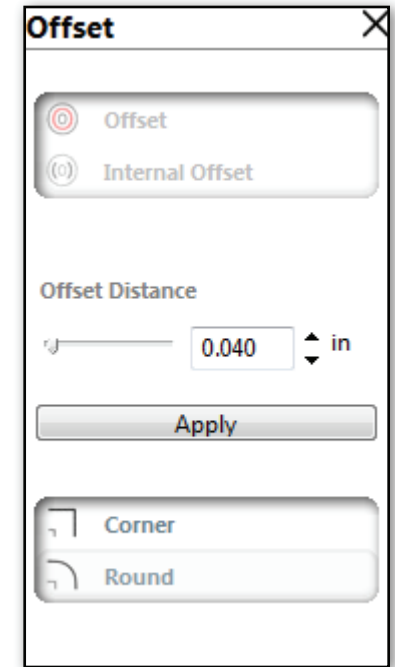
### The Offset side panel

When the Offset tool icon is clicked, the Offset options will appear in the side panel to create and adjust the offset:

- **Offset** is selected if an Outline, a contour path on the outside of the object, is desired.
- **Internal Offset** is selected if an Inline a contour in the inside of the object, is desired.
- **Offset Distance** is the space between the object and the inline or outline, depending on whether Offset or Internal Offset was chosen.
- **Corner** will apply a sharp corner to corners of the offset.
- **Round** will apply a rounded corner to the sharp corners of the offset.
- **Apply** will apply the setting to the internal or external offset.

### Steps to creating an offset.

1. Click on the object.
2. Click on whether to place an Offset (outline) or Internal Offset (inline). The outline should appear.
3. Set the Offset Distance either by using the slider bar or entering a value.
4. Click on either Corner for sharp corner, or Round.
5. Click APPLY.



Offset side panel



# Bitmaps and Tracing

Tracing is a way of taking objects, generally bitmaps, and making an outline of the object. Bitmaps particularly have to be traced since a cutter only understands line and vector paths, and not bitmaps which contain dots (or what is called pixels) that create the image or photo. This feature is great for converting bitmap logos to an outlined (or traced) object as shown in the example below. Since bitmaps are generally objects that need to be traced, this chapter will focus mostly on tracing bitmaps.

There are basically 5 steps to tracing a bitmap:

- Merge the bitmap into the Preview Area. (See [Merging an Existing Drawing into a Current Drawing](#))
- Open the Tracing options in the side panel by clicking on the **Trace** tool icon.
- Select an area of the object or the whole bitmap to be traced.
- Adjust setting for the outline.
- Finally trace the bitmap.

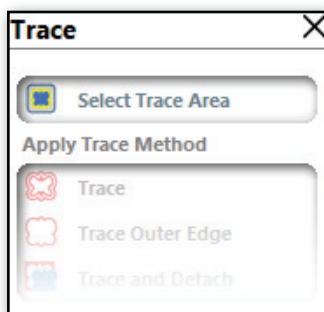


**Acceptable Bitmap Types that can be traced**

- PNG, JPEG, BMP, GIF, TIFF, PCX, CG4

## Selecting the Area to Trace

The software needs to know what area of the bitmap needs to be traced. To select an area:



The Trace options in the side panel

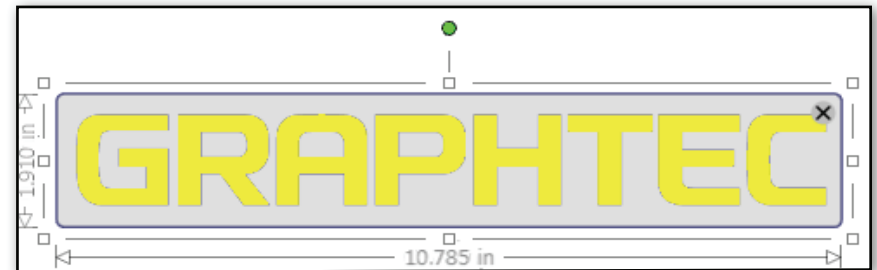
1. Click on the Trace tool icon.
2. Once the Tracing side panel is open, click on the top selection **Select Trace Area**.
3. Click, hold, and drag on the mouse and the Trace box starts to form. The rectangle will be translucent dark grey, with a yellow trace area.
4. Release the mouse button.



Bitmap of Graphtec logo



Traced outline of the logo



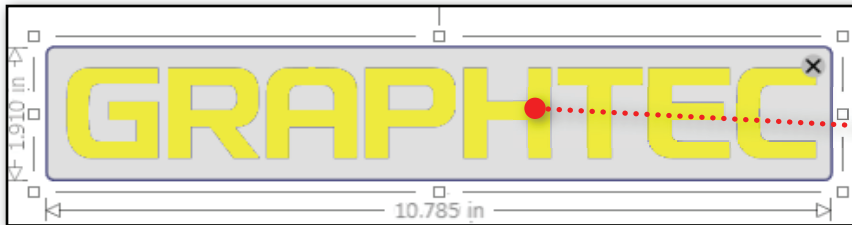
The grey Trace box surrounding a Graphtec bitmap logo with the yellow trace area.

The grey Trace box has nine control handles that can reshape the box and one rotation control handle to rotate the box, similar to what is shown on a selected object. To remove the box, click on the X in the upper right corner, or press delete.

## Bitmaps and Tracing, continued

### Adjusting the Trace Settings

Once the area to be traced is selected, it will have a yellow trace area around the bitmap. It is this yellow area that trace lines will outline. The options in the Trace side panel will adjust the yellow area. Thus, the software will use this yellow area, and trace around it. Below are descriptions of how each setting controls the yellow area.



The yellow area is the area that is going to be outlined

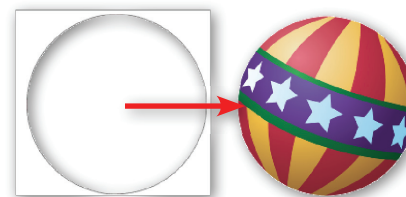
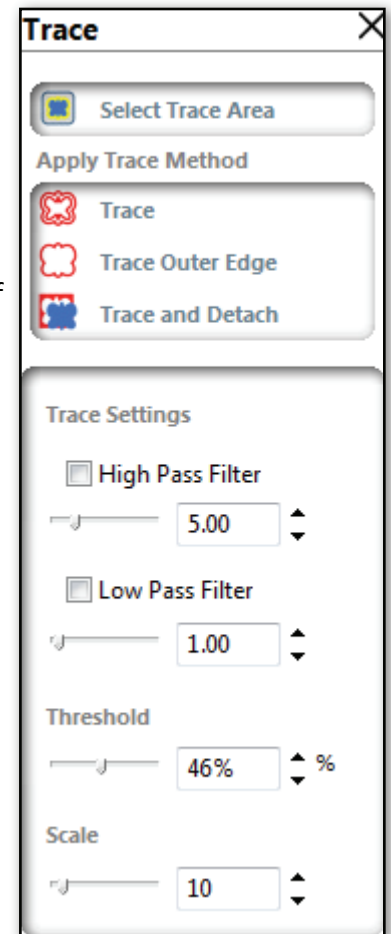
### Trace Settings

- **High Pass Filter** when enabled, filters out, or smooths the differences between the darker and lighter pixels of a bitmap and, depending upon the Threshold, will grow or shrink the yellow tracing area.
- **Low Pass Filter** when enabled, is mostly used for removing “noise” in an image. Care has to be used when using this filter since it can reduce the sharpness of the trace line.
- **Threshold** will increase or decrease the sensitivity of the lighter colors when the **Highpass Filter** is applied.
- **Scale** determines how a greymap image is scaled. In other words, as the scale increases, it darkens the pixels so that the edge of the image is easier to trace. This setting should be adjusted prior to adjusting the Threshold value.

### Apply Trace Method

After the Trace settings are adjusted, click on one of the three options to complete the trace:

- **Trace** will trace around the yellow trace area.
- **Trace Outer Edge** will ignore any open spot within the yellow trace area.
- **Trace and Detach** will trace and actually detach the yellow trace area of the bitmap from the untraced area of the bitmap. This feature is very useful for bitmaps from which a portion of the bitmap can be separated from the original bitmap.



Trace and Detach detaches the traced area part of the bitmap from the original bitmap

# Library

The library is a method of collecting and storing objects and patterns that are commonly used in your designs. This saves time so that, instead of recreating these objects or patterns over and over again, these objects can be created once and can be stored for later usage. Patterns that fill objects can also be saved or imported to the library.



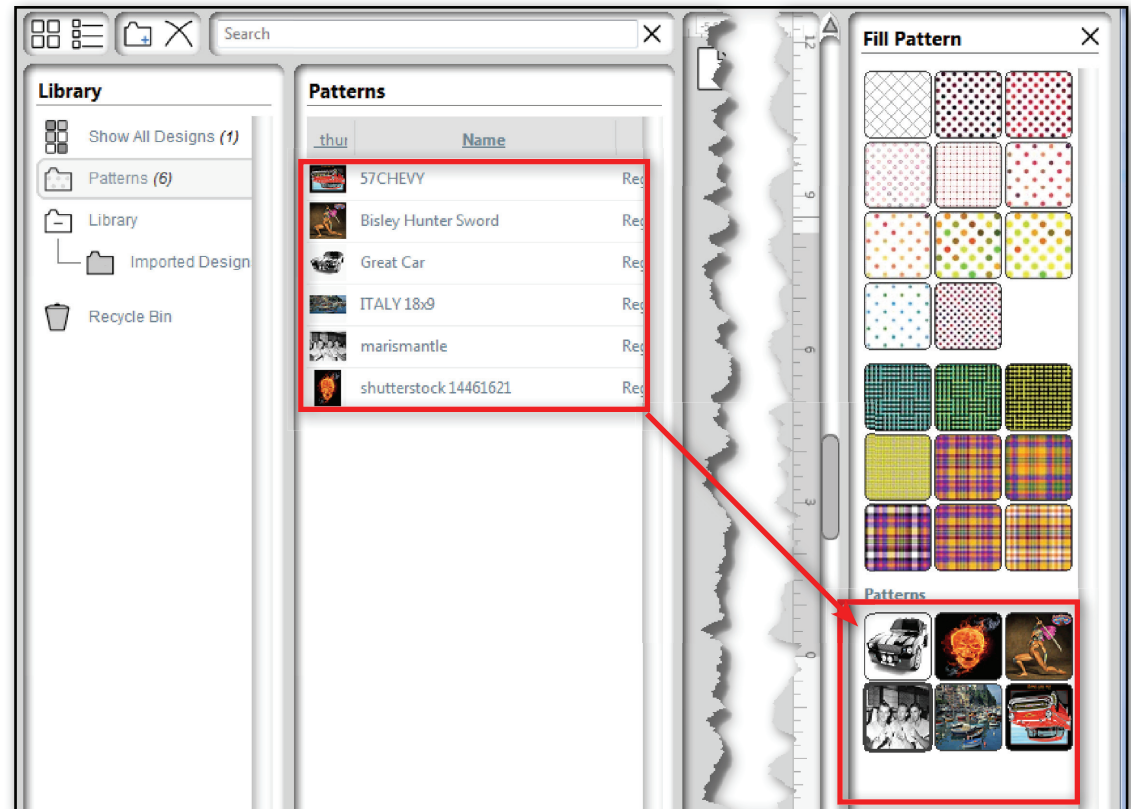
To get to the library, click on the Show Library tool icon at the bottom of the drawing toolbar.

Once selected, the Preview Area disappears and is replaced by the Library, appearing with a new toolbar just above the library window.

## Library Layout

The library windows is divided into two main panels. The **left panel** contains folders that categorize the Library.

- **Show All Designs**, when selected, shows all the objects and patterns in the library. Any of these can then be placed in the Preview Area and be used for new designs.
- The **Patterns folder** contains bitmaps and images used for filling objects. Patterns contained in this folder will also appear as part of the Fill Patterns. See diagram.
- The **Library folder** contains both vector or bitmap designs. These objects can then be placed in the Preview Area as needed. The default folder is the Imported Designs. This is where the designs are stored. Folders can be added to the main folder for better organization.



Bitmaps and images in the Pattern folder will automatically be part of the Fill Patterns.

## Viewing the Preview Area and the Library



To open the **Preview Area** and the **Library** simultaneously, click on the Show Library and Preview Area tool icon at the bottom of the Drawing toolbar. This will show the Preview Area next to the Library.



To turn off the Preview Area, click on the tool icon below the Split View tool icon.



To show the Preview Area by itself, click on the Show Preview Area tool icon just above the Show Library tool icon.

## Library, continued

### Adding Designs to the Library

There are two methods of adding designs to the Library. The first way is by saving the current design in the Preview Area to the Library. The second method is by dragging files into the library itself from a Windows folder.

### Saving a Design from the Preview Area

1. Click on the File pull down menu and select **Save to Library**.
2. This will open a window that prompts you for the following:
  - **File Name:** Objects in the Library are actually design files.
  - **Keywords:** This helps to find the object in the Library later on. This is helpful when you can't remember the name of the object. This will help you search by keywords assigned to the object.
  - **Description** is a note describing the object or its purpose.
  - **Artist** is the name of who designed the object.
  - **Category** is what the design or object was originally intended for: Regular Cut, Print and Cut, Rhinestone Pattern, Sketch Design, and 3-D Crafts.
3. Once this information has been filled in, click OK.

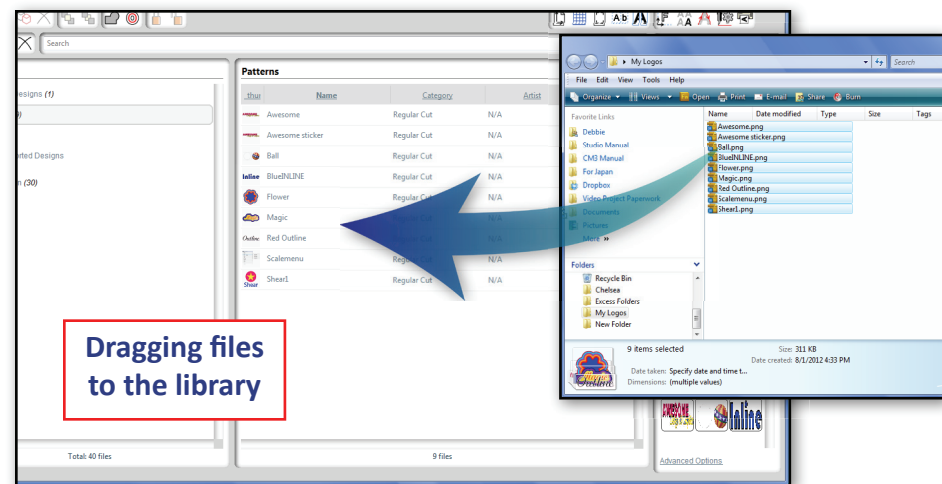
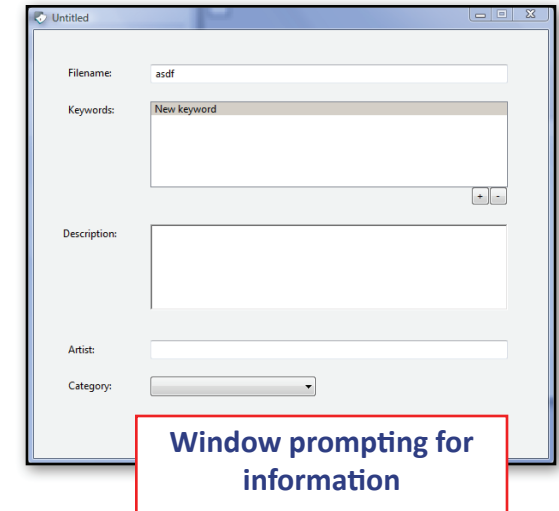
This saves the whole drawing on the media page to the Library. To save just an object, copy and paste the object on a new drawing, and then save it to the library.

### Importing a Group of Files Directly into the Library

1. Open the Library folder or Pattern\* folder to import to.
2. Open the Windows folder where the files are located.
3. Select the files to be added to the library.
4. Next, drag them to the library folder\*\*.

\* Only bitmaps and images can be imported to the Patterns folder.

\*\* It may take a moment or a few minutes until they appear in the Library folder, depending on the size of the files.



## Library, continued

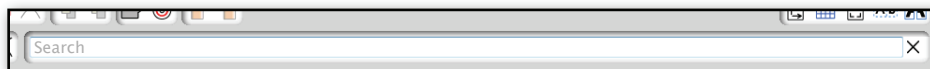
### Using Library Objects

Steps to placing an object from the Library:

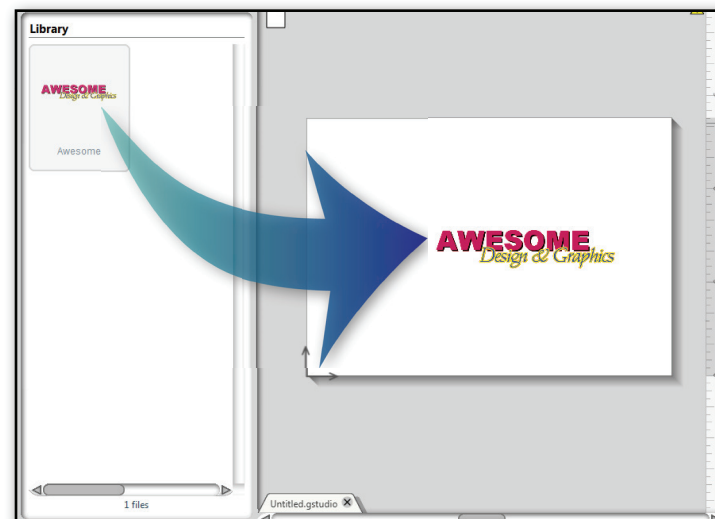
1. Open the Preview Area by clicking on the Show Library and Preview tool icon.
2. Open on the folder where the design is located by clicking on it.
3. Click, hold, and drag the design into place in the Preview Area.

### Searching for an Object

If there is a large number of objects in the Library folder, a search box is provided in the Library toolbar. Start typing and the software will search and list all the objects using the information from the search box.



The Search Box in the Library toolbar



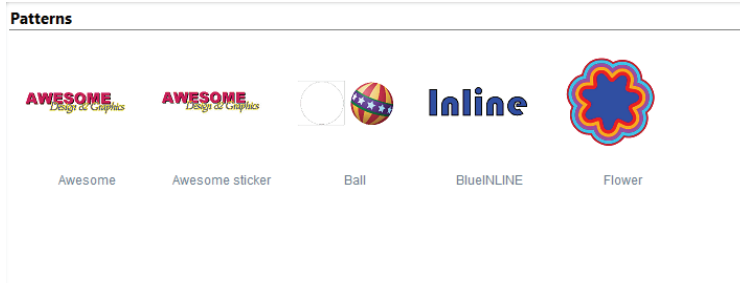
Drag object to the Preview area

### Organizing the Library

Graphtec Studio provides a Library toolbar with several options to organize the Library.

### Viewing Objects in the Library

The first two buttons will display the contents either as icons or as a list. Viewing the objects as icons will enable the objects to be viewed more clearly. When objects are in a list mode, they can then be sorted by Name, Category, Artist, Date Created, and Size.



Icon View



| Patterns |                 |             |        |                           |         |
|----------|-----------------|-------------|--------|---------------------------|---------|
| thru     | Name            | Category    | Artist | Date Downloaded           | Size    |
| awesome  | Awesome         | Regular Cut | N/A    | 5:00 PM Wed, Aug 01, 2012 | 40.2 KB |
| awesome  | Awesome sticker | Regular Cut | N/A    | 5:00 PM Wed, Aug 01, 2012 | 68.9 KB |
| Ball     | Ball            | Regular Cut | N/A    | 5:00 PM Wed, Aug 01, 2012 | 42.2 KB |
| inline   | BlueINLINE      | Regular Cut | N/A    | 5:00 PM Wed, Aug 01, 2012 | 11.8 KB |
| Flower   | Flower          | Regular Cut | N/A    | 5:00 PM Wed, Aug 01, 2012 | 30.7 KB |

List View

## Library, continued

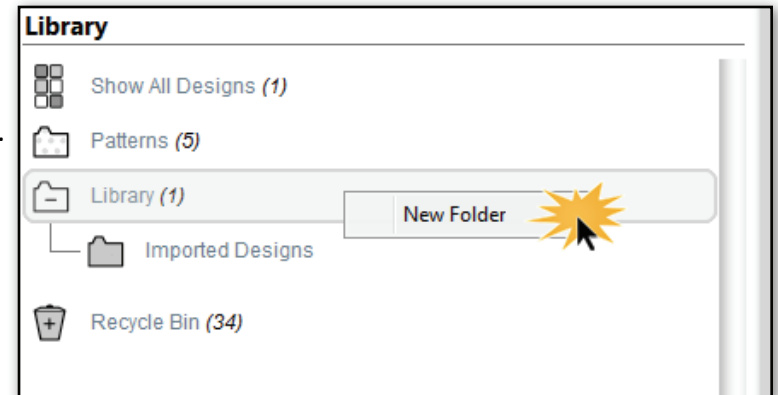
### Creating Folders



Another method to organizing the library is by creating folders. Folders can be used to group similar objects in one folder. Folders can be created within folders as well. By creating folders, objects can be organized by groups or categories.

#### To create a folder:

1. Click on the New Folder tool icon or Right-click on either the Library folder or the Patterns folder. Select New Folder.
2. Label the folder and press Enter.

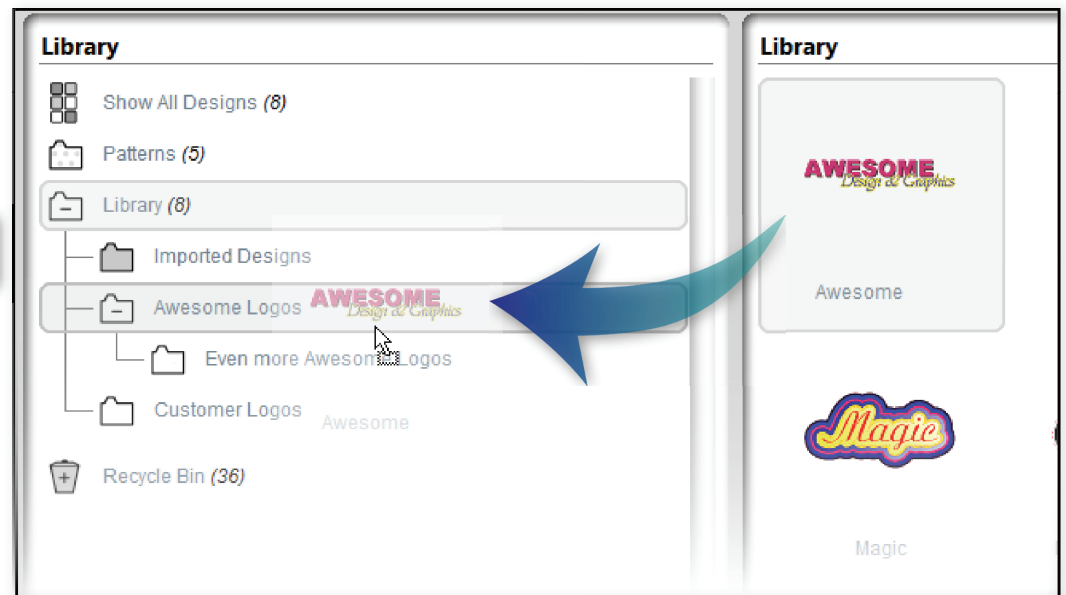
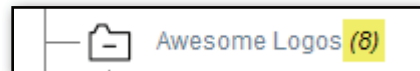


Creating a New Library Folder

### Moving Library Objects within the Library.

Once a folder or folders are created and labeled, objects within one library folder can be dragged to those folders.

Beside each folder there will be a number in parentheses indicating how many objects are in that folder.



Objects can be organized by dragging them from one folder to another.

### Deleting Objects and Folders

To delete an object or folder, select the item to be deleted.

Right-Click on it and select Delete

Or

Click on the Delete button in the Library toolbar.





# Cutting a Design

## Quick Steps to Cutting a Design

To simply cut a design do the following:

1. Click on the Cutters tool icon. In the side panel, the intended cutter (generally the default cutter) should be in a **READY** Status. If not, check to see if the cutter is turned on and connected. (See the Graphtec Cutting Manual).
2. Click on **Conditions** for the intended cutter in the side panel. Set the conditions that would be appropriate for the loaded material. This would include checking on the Advanced group for any advanced settings needed
3. Click on the Cutter pull down menu, select **Send Cut Job**, and select the cutter to send the job to.
4. To queue the job with one of the cutters, click on **Queue Cut Job**. This will hold the job until it is manually released. **To release the job**, click on Start Cutting

## Connected Cutters

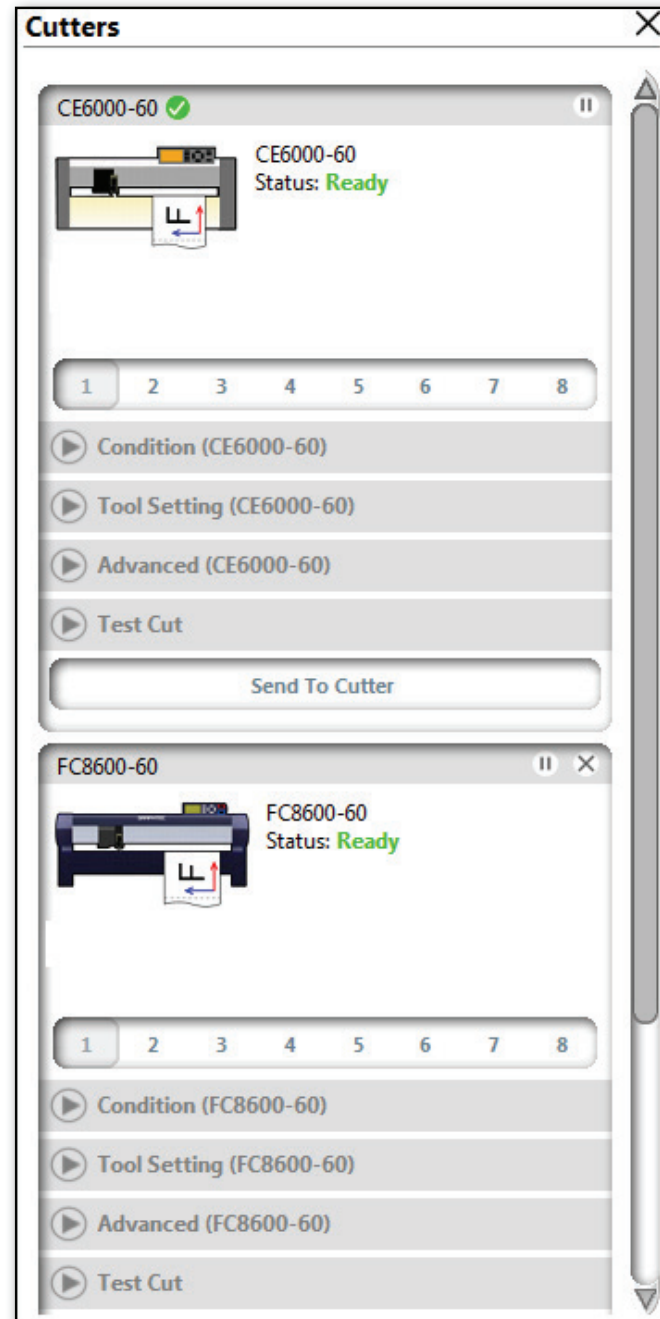
The Graphtec Studio is very interactive with all the connected Graphtec cutters. Click on the Cutter tool icon and this will open the Cutter options in the side panel. This shows not only show every cutter connected to the computer, but their current status and condition.

Each cutter shown has a top section displaying a picture of the cutter, model number and the cutter's status. Each status\* and their meaning is shown below:

- **Ready:** Cutter is ready to receive jobs from the Graphtec Studio.
- **Pause:** Cutter is pausing from cutting. It will be able to receive a job, but instead of cutting, it will be stored in memory. Once the cutter is taken off pause, the jobs in memory will be cut.
- **Busy:** Cutter is busy cutting a job. It will be able to receive a job and the job is cut once the other jobs that preceded have been completed.
- **Syncing:** Software is gathering information on that cutter. This generally occurs when the plotter is first put online.

Below the picture is basic information such as the firmware version as well as how the cutter is connected.

\* There are other status reading but these are the main ones.



## Cutting a Design, continued

### Media Page Options

When you're ready to cut the design on the cutter, the preview window will switch to the **Cutting Preview** mode. This mode will set the Media Page so that it becomes a representation of the media to be cut. Here it will show the orientation of the job design and how it will layout on the media that is planning to be used in the cutter. The Media Page size can be adjusted by clicking on the Media Page tool icon that is just left of the Matrix Copy tool icon. This will open the Media Page options in the side panel. The Media Page options has settings that can adjust the media page size, and the job size, placement, and orientation.

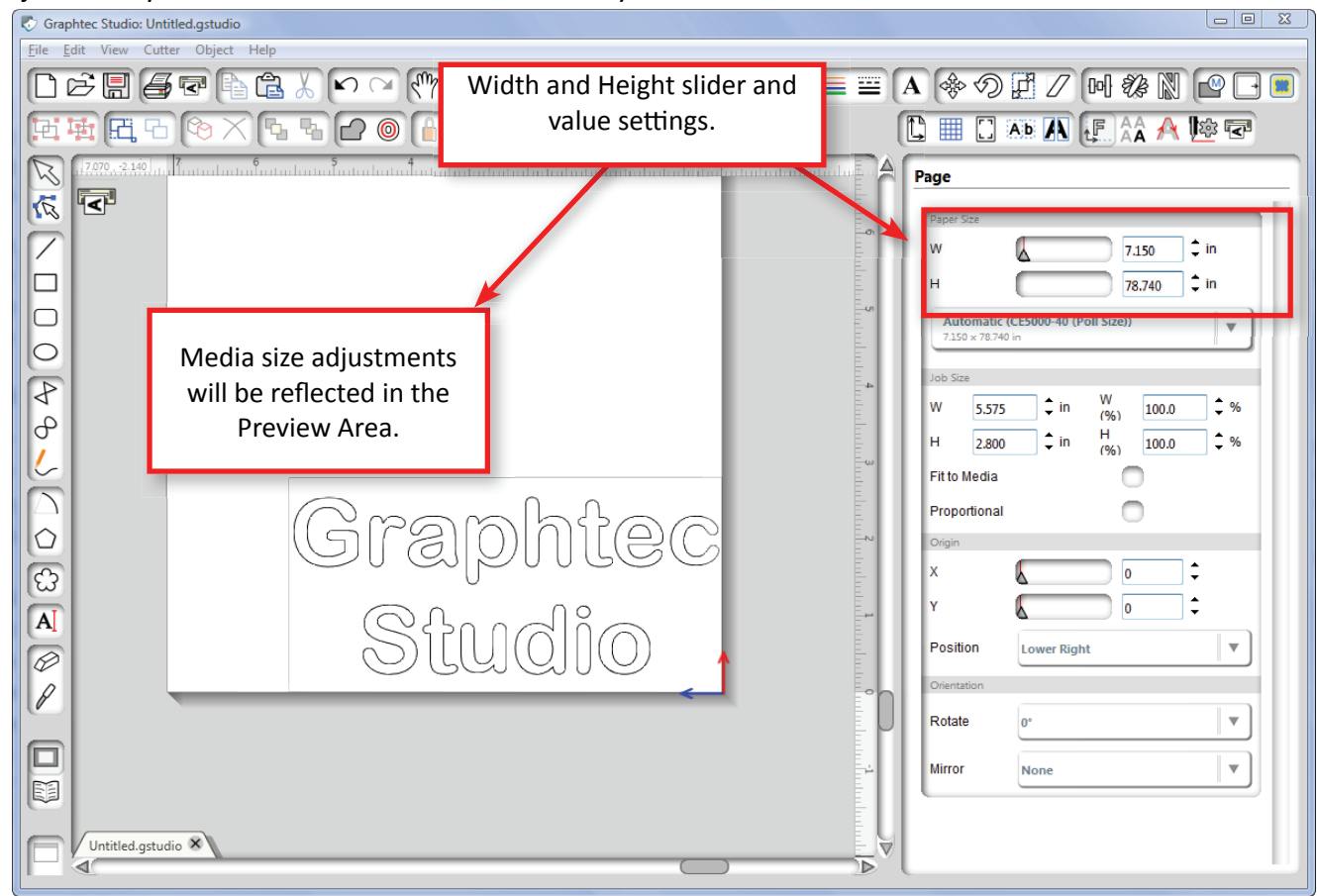


This mode is helpful to see how the design job will layout on the media before it is actually cut.

### Setting the Page Size

The Media Page size\* is automatically set to the cut area of the default connected cutter. The size can be adjusted by using the Width (W) and Height (H) values. The Sliders are for sizing the media visually, whereas size values next to the sliders are for more accurate sizing. Once the width and height have been set, the Media Page in the Cutting Preview Window will adjust accordingly.

Keep in mind that when the Media Page size is adjusted, the job size will not be affected. To keep the perspective of the job size in relation to the media, the job will always grow or shrink in relation to the media size.



The Cutting Preview mode.

Media Page option in the side panel.

\* As a note, the Media Page size in the Cutting mode will be different than the Media Page size in the Drawing Mode.



## Cutting a Design, continued

### Media Size Presets

Just below the sliders are the preset media page sizes. The choices range from polled sizes\* gathered from the connected cutter, to commonly used, or standard sizes that were installed with the software.

To view all of the media size presets, either click on the pull down menu, and then use the scroll bar to pan down the list.

At the top of the media type list is the current printer size. Just below the printer size are three media sizes for each cutter connected to the computer. These sizes are obtained from the cutter during syncing:

- **Automatic (<cutter model> (Poll Size))**. This option will set the media page size to the current cut area of the cutter. It will automatically change the media page size as the cut area is changed with the cutter. This will only display for the default cutter.
- **<Cutter model> (Poll Size)** Choosing this option will set the media page size to the current cut area of the cutter.
- **<Cutter model> (Max Size)** Choosing this option will set the media page size to the maximum cut area of the cutter.

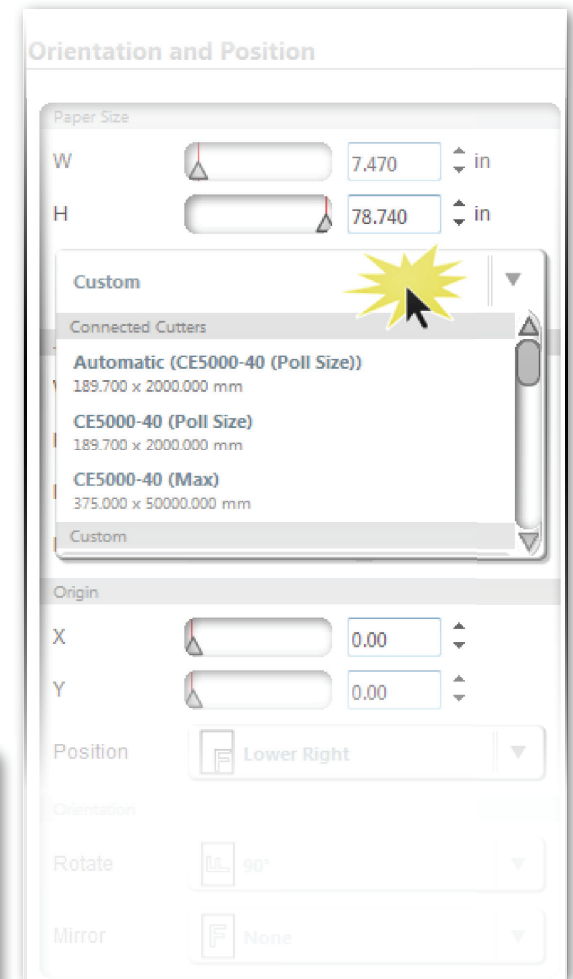
To choose a preset, scroll down the list and click on the desired preset.

#### \*What is Poll Size?

Graphtec Studio constantly queries or “polls” the default cutter to gather information about the cutter. One of the items in that information are the dimensions of the cut area after the material is loaded and is initialized. When using a roll-fed cutter, the cut area will be different depending if ROLL-1, ROLL-2, or SHEET has been chosen.

- **ROLL-1 and ROLL-2**: The cut area will be the distance between the two outer wheels and the Page Length setting on the cutter.
- **SHEET**: The cut area will be the distance between the two outer wheels and the distance between the front edge of the media and the back edge of the media.

When using a flatbed, the polled dimension will be the maximum size of the cut area on the flatbed.



Click the mouse cursor here to see the Media Page size presets.

## Cutting a Design, continued

### Creating your own Media Page Sizes and Categories

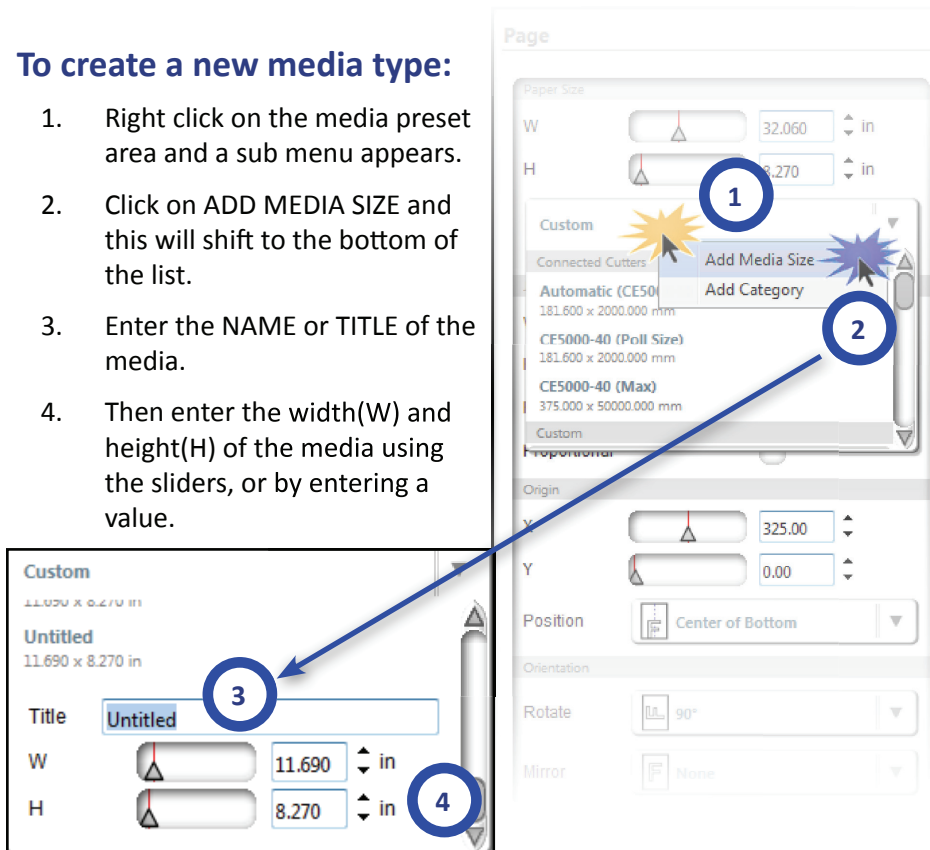
Typically the media category will be set to Custom, allowing the media page to be adjusted manually. But if a particular size is customarily used, then custom media page sizes can be created for that size. These custom Media Page sizes can then be grouped into categories.

#### Creating a Media Size

After a Category has been created, custom media sizes can start being added, with the media size and a label.

##### To create a new media type:

1. Right click on the media preset area and a sub menu appears.
2. Click on ADD MEDIA SIZE and this will shift to the bottom of the list.
3. Enter the NAME or TITLE of the media.
4. Then enter the width(W) and height(H) of the media using the sliders, or by entering a value.

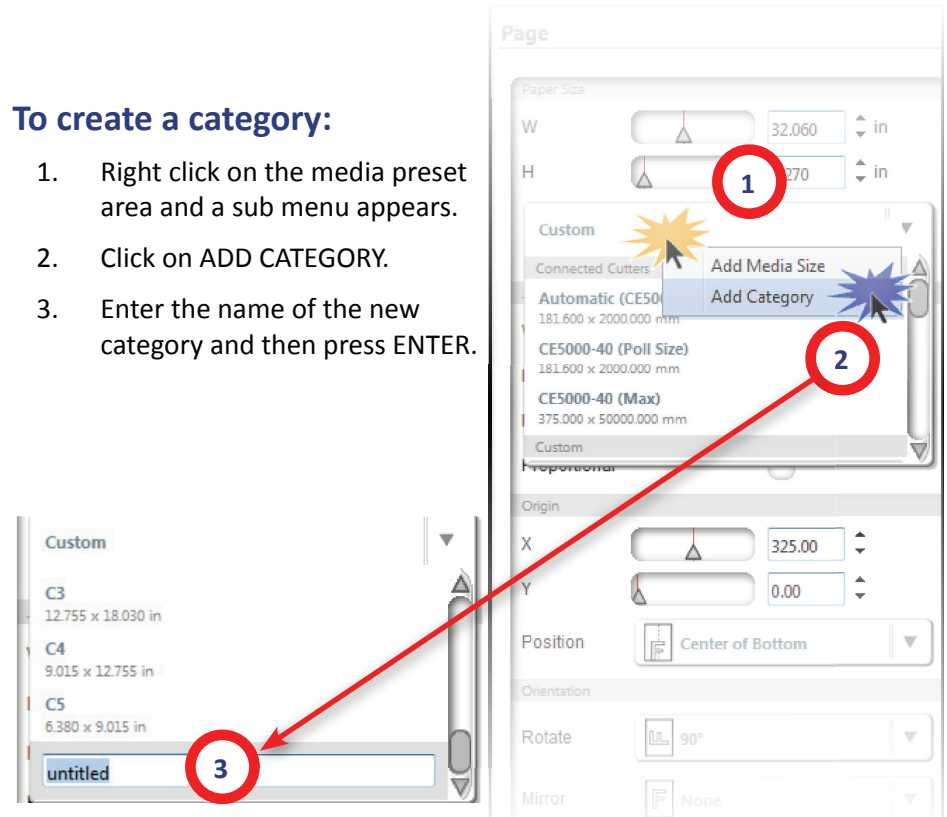


#### Creating a Category

Creating a category helps to organize your media types. For instance, categories can be created for grouping similar types of media. For example, a category can be created for medias from a certain manufacturer.

##### To create a category:

1. Right click on the media preset area and a sub menu appears.
2. Click on ADD CATEGORY.
3. Enter the name of the new category and then press ENTER.



## Cutting a Design, continued

### Repositioning the Job

When the Preview area is in the Cutting Mode, the job will be placed within the Media Page, with the best possible fit. There will be times though, when the job needs to be moved to a new position. Positioning the job is done by several methods, as discussed below.

#### To move the job visually:

1. Hover the mouse cursor over the job. The cursor will change into a hand.
2. Click the left mouse button and the hand turns into a fist.
3. Once the fist appears, drag the job to the new location, and then release the mouse button.



#### To move the job using the side panel settings:

In the side panel, the position can be adjusted by using the **X** and **Y** values under the **Origin** section. These can be adjusted by either the slider bar, or by entering a value.

**Position** is a pull down menu showing quick set positions within the media page. The choices are **Move Freely\***, **Lower-Left**, **Center Of Bottom**, **Center\*\***, **Lower-Right**, and **Use Document Origin**. **Use Document Origin** will place the job as it was positioned when the Preview Area was in the Drawing mode. These can also be selected from the Edit pull down menu, and then select **Position**.



Lower Left



Center of Bottom



Lower Right

\* At any time the X and Y values are changed, or the job is positioned using the hand cursor, the Position setting automatically switches back to Move Freely.

\*\* Note that when selecting the Center position preset, it will place the job in the center of the media page. This can be disconcerting if the page is really long, which can be the case when using a long roll. It is best to avoid this setting when using a roll feed cutter.

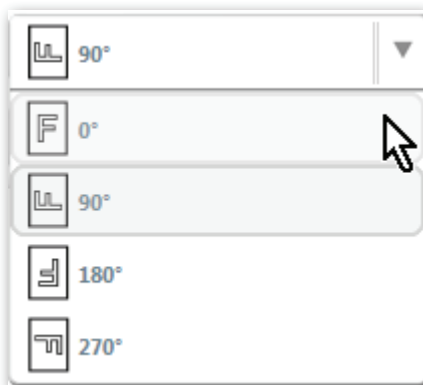
The screenshot shows the 'Page' settings panel. It includes sections for Paper Size (W: 7.150 in, H: 78.740 in), Job Size (W: 6.425 in, H: 7.040 in, W (%): 100.0, H (%): 100.0), Fit to Media (unchecked), Proportional (unchecked), Origin (X: 18.00, Y: 0.00), Position (set to 'Move Freely'), Orientation (Rotate: 90°, Mirror: None), and a Position dropdown menu.

## Cutting a Design, continued

### Re-Sizing the Job

When the Preview Area is in Cutting mode, it is brought in at the same size as the original design in Adobe Illustrator or CorelDRAW. But if the job needs to be adjusted, then entering the desired dimensions for the Width and Height can be used, or entering a desired percentage value for the Width and Height can be used.

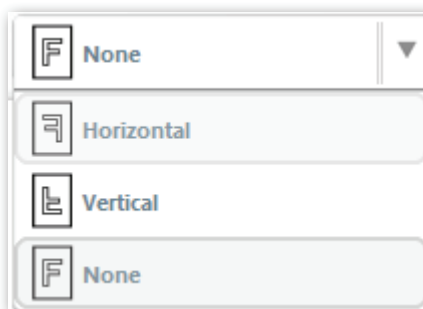
- **Fit to Media** will scale the job so that it fits within the Media Page.
- **Proportional** will make sure the job is re-sized proportionally.



### Rotating the Job

Rotating a job to a different angle is done by selecting one of the rotate angles of **0**, **90**, **180**, and **270** degrees. The job rotates from the center.

Choosing one of these angles can be done either by using the rotate option in the side panel, or by clicking on the Edit pull down menu, selecting Rotate, and then select the desired angle.



### Mirroring a Job

Mirroring a job is done by selecting one of the **Mirror** options in the side panel, or from the Edit pull down menu, selecting **Horizontal** and/or **Vertical**.

A panel titled 'Page' containing settings for paper size, job size, fit to media, proportional scaling, origin, orientation, rotate, and mirror. The 'Paper Size' section shows W: 11.690 in and H: 8.270 in, with a dropdown menu set to 'A4' (8.270 x 11.695 in). The 'Job Size' section shows W: 6.100 in (100.0%) and H: 6.680 in (100.0%). The 'Fit to Media' and 'Proportional' sections have radio buttons. The 'Orientation' section has a 'Rotate' dropdown set to 90° and a 'Mirror' dropdown set to None.

## Cutting a Design, continued

### Cutter Settings

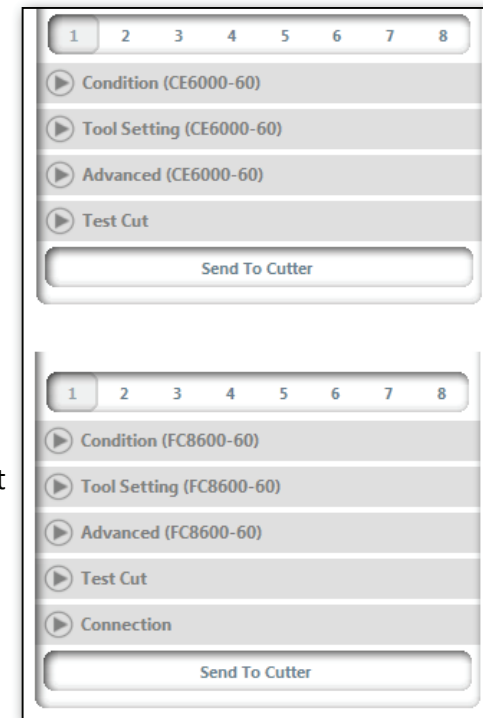
The grey bars are groups of the current settings. The standard group of settings are Condition, Advanced, and Test Cut. The FC8600 and CE6000 will have two added groups of Tool Settings and Connection.

Clicking on the arrows next to each group will reveal the settings therein. Below is a brief description of each:

- **Condition** shows the current condition the cutter. For the FC8600 and the CE6000, there will be numbers 1 through 8 each representing the eight conditions for those cutters.
- **Advanced** shows more advance features. For more details about these advanced settings, review your Graphtec Cutting manual.
- **Test Cut** will contain different types of patterns for testing the cutting conditions. These are similar to the test cut button on the cutter.

FC8600/CE6000 Specific:

- **Tool Settings** will have more advanced settings\* specifically for cutting such as Step Pass, Offset Force and Angle, and others.
- **Connection** pertains to the configuration of the Ethernet port or serial (RS232-C) port



Cutter Setting Groups

Generally, each cutter will show the current condition it is in. The FC8600 and the CE6000 on the other hand will have numbers 1 through 8 just above the grey bars. Each number represents the eight conditions for that cutter. The information for the chosen condition will be contained in the Condition group. This makes it convenient in that all eight conditions can be setup from the software.

*\* It is strongly recommended that if you plan to adjust any of these advanced settings, review the FC8600 or the CE6000 Users Manual to become familiar with these special options.*



The FC8600/CE6000 will display this Condition bar representing the eight conditions of the cutter.

## Cutting a Design, continued

### Using Cutting Conditions from the Software

Graphtec Studio can take full advantage of the cutting conditions on your cutter (See the box [What are Cutting Conditions?](#)) by interactively obtaining and then controlling the conditions from the settings under the Condition Group in the side panel. Each time the condition settings are adjusted, the software will immediately change the settings on a cutter. This makes it convenient in that, by default, when a job is ready to be cut, there is no need to adjust the Condition on the cutter. Note that a Condition or media type assigned to a line color or a layer will override the condition setting in the side panel.

#### What are Cutting Conditions?

The eight cutting conditions on the Graphtec cutters are user-defined cutting presets, each having their own cutting configuration such as speed, force, acceleration, and blade type. The purpose of this is so that each time a media is loaded, instead of changing the speed, force, or blade type, they can easily be switched to a condition that is specifically set up to cut a media type.

(For more information, see your Graphtec Cutter Manual).

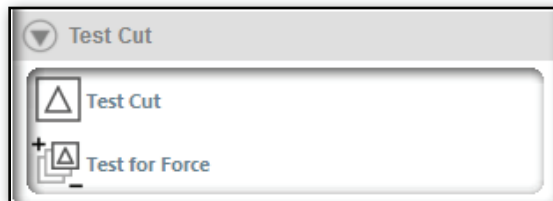
### Condition Settings

Under each cutter model in the side panel is a Condition group of settings\*. Clicking on the grey bar, will display the current cutting condition as displayed on the control panel of the cutter\*\*. These would include:

- Blade type, speed, force, acceleration, and offset.
- Tangential Mode with Mode 1 and Mode 2.
- Cut Line Pattern. See [Appendix A](#) for more details.

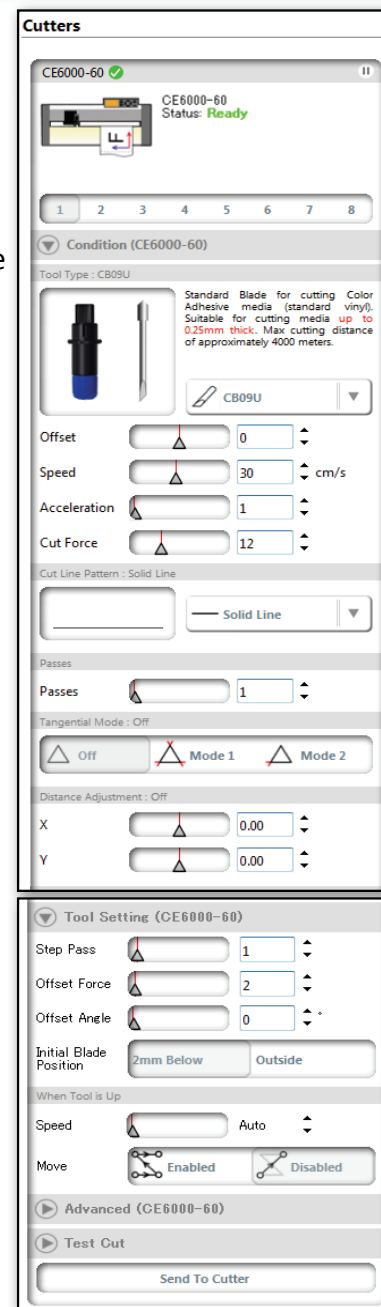
Each of these settings can be adjusted each by a selection or a value. As each setting is adjusted, the setting is immediately reflected on the cutter.

To test the new settings, click on the Test Cut grey bar and choose a cut pattern.



\* On the FC8600 and the CE6000 there will be a choice of all eight conditions on the cutters.

\*\* For more information on these condition settings, review your Graphtec Cutting manual



Side panel settings for the connected cutters

## Cutting a Design, continued

### Defining Conditions and Media Types

This feature of the software is helpful when planning to assign condition settings to line paths in a design. Here is where the assignable Condition and Media Types can be defined or set up. This is helpful when having a design with two paths that need different tools or settings. A perfect example of this is found with packaging designs where a pen, cutting tool, and creasing tool are all needed for the one job.

To open the Define Conditions options in the side panel, click on the Cutter pull down menu, and select Define Conditions. When the Define Conditions options opens in the side panel, there will be two folders:

**Condition Numbers** contains the eight conditions where line types and cutting passes can be assigned to each condition.

**Graphtec Defaults** contains pre-installed Media Types. See [Defining Media Types](#) later in the chapter.

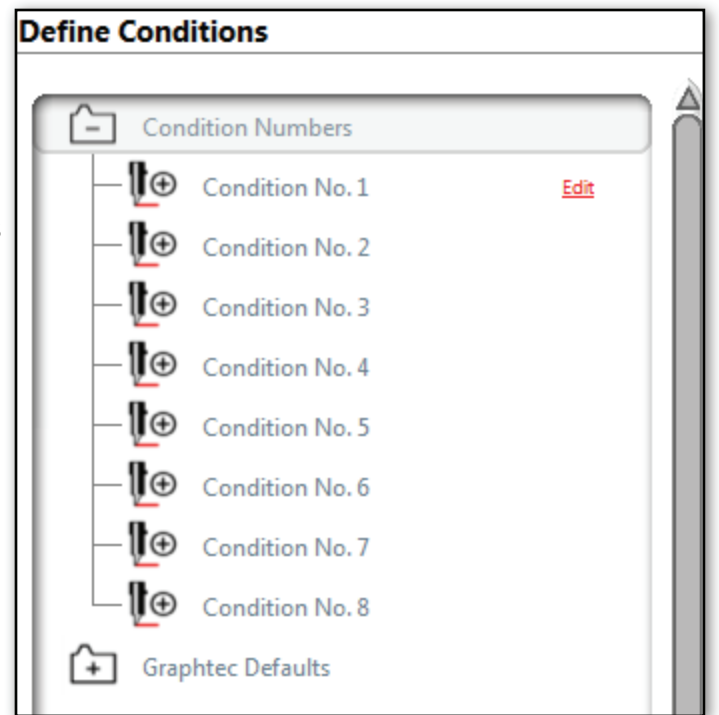
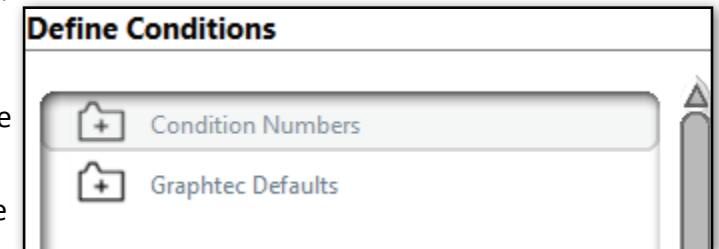
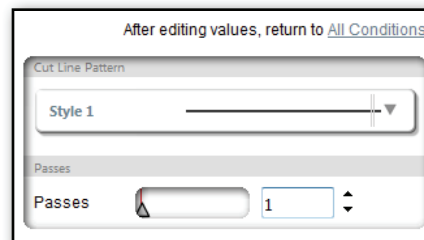
Click on a folder and it will reveal the contents.

### Defining Condition Line Types and the Number of Passes

When opening the Condition Numbers folder, it will reveal the eight conditions. Double-clicking on a Condition will show two settings in the side panel:

- **Line Type** will assign a line type, whether solid or dashed, to the condition regardless of which cutter will be used\*.
- **Passes** determines how many passes to be used for each line. This is a feature to use when cutting harder materials where more than one cut is needed to cut through the media.

If there is more than one cutter connected to the computer, there may be a need to set the line type or number of passes separately for each cutter. To set the cutter model for each condition, click on the Conditions icon. This will reveal the cutters currently attached. Each cutter can then have their own line type or passes assigned to that condition.



\* When using the FC8600/CE6000, this line type should not be confused with the Cut Line Pattern.



## Cutting a Design, continued

### Defining Media Types

Media Types are condition setting presets within Graphtec Studio that allow the settings to be labeled. These settings, which are similar to a condition, have values such as speed, cut force, acceleration, offset, and others (See [What's the difference between Cutter conditions vs. Media Types?](#)). They too can be assigned to a layer, or line color. When this is done, Graphtec Studio will use the cutting configuration within the Media Type to alter the condition in the cutter, prior to sending the job.

To add, edit, or change anything in the Define Conditions side panel, always double click after the last entry. This will open a pull down menu with the different available actions. Depending where you click, the menu will show the available item. For instance, there are more actions that can be chosen when selecting a media type, versus right-clicking the empty space below the last media type entry.

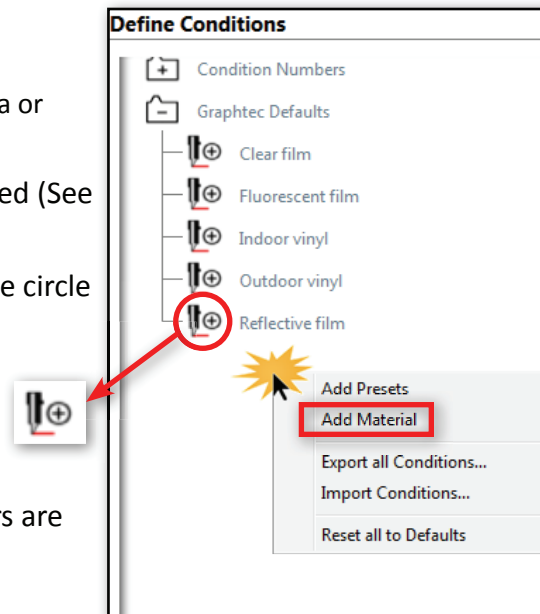
### Adding a Media Type

#### Steps to add a media type:

1. Right click on the area below the last Media Type entry. If this is the first time, it is right below Reflective Film. A pull down menu will display with several options.
2. Select the second choice "Add Material".
3. An untitled media type will appear. Enter the name of the new media or material and press ENTER.

Once the new Media Type has been created, the values can be adjusted (See Editing Media Types).

To the left of the media type name is an icon. Next to the icon is a little circle with a "+" sign within it. By clicking on the plus sign, the software will reveal the different Graphtec models, each having its own settings. This is because some models have special functions that can be used within a condition. An example of this is the FC8600's Cut Line Pattern. Also, not all models will cut the same material with the same settings. One model may need a higher force, or if two or more cutters are connected, one may be using a different cutting tool than the other.



### Differences between Cutter Conditions vs. Media Types

When a Cutting Condition is used for cutting from Graphtec Studio, the software sends a command to switch the cutter to the specific condition. For instance, if Condition 4 is chosen, the software will have the cutter switch to Condition 4 prior to cutting the job. This means that the condition has to be configured for a particular media on the cutter, prior to sending a job. Conditions on the cutter cannot be labeled and may cause some confusion. Note: if you plan to use Conditions on the cutter's control panel, make sure Condition Priority is turned off (See your cutter manual for more information).

A Media Type is where the condition settings are configured and stored in the software. This allows it to have a descriptive label or name (for instance "XYZ High Performance Vinyl"). When a Media Type is used for cutting, the software will change the condition setting for an added condition on the cutter. This method makes it easier to work with since they are able to be labeled, rather than working with condition numbers.



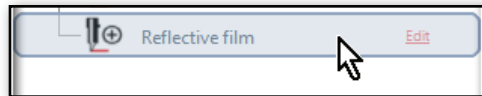
## Cutting a Design, continued

### Editing Media Types

There are Media Type presets that are installed with Graphtec Studio. These can be viewed by clicking on Graphtec Defaults folder that has a big “+” Sign in the middle of it.

#### To re-name pre-existing media type

1. Right-click on the media type and select Rename, or double-click on the name of the media type.
2. Enter a new name and press ENTER.



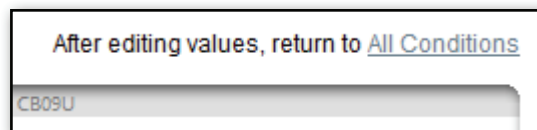
### Adjusting Settings of a Media Type

There are two methods to change the settings of a pre-existing media type:

- Hover the mouse to the right-side of the media name and click on the red Edit (which will appear as soon as the mouse is hovering over the area).
- Double-click on the right side of the media name.

Both actions will open Media Type settings in the side panel similar to the layout when setting a condition. (To learn how to adjust these, see Changing Condition Settings).

Once the settings have been adjusted, click the *All Conditions* link at the top of the side panel, or click on the *Define Conditions* tool icon again.



### Cut Simulation Pro

This feature provides the ability to view the path that will be taken by the cutter blade before actually cutting the job. The software will animate the blade position at each moment, as well in the up or down state.



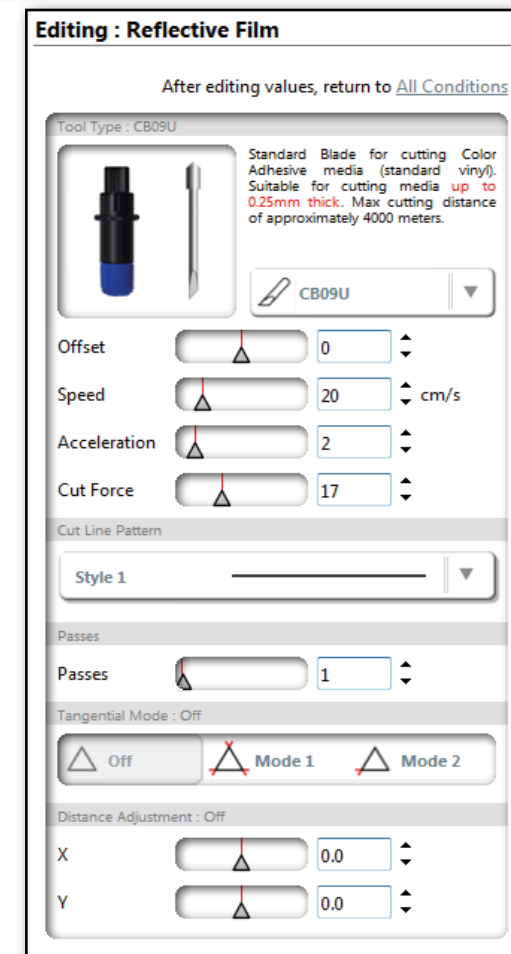
This is helpful to applications that require information pertaining to the direction of the cut. An example of this would be when cutting tint or perhaps chipboard.

To access this feature, click on the Simulation tool icon.

### Test Cut Before Creating a Media Type



Before creating a Media Type, test cut the media on your cutter. Once the blade type, force, speed, acceleration, and other settings are known, record these to use them for the new Media Type.



Media Type Condition settings panel

## Cutting a Design, continued

### Organizing Media Types

Sometimes there is a need to group your Media Types. For instance, you may want to group all the Media Types from a certain manufacturer, or you may want to group all the reflective medias. This is where Preset folders can be used. Creating a folder is done very much the same way a Media type is created.

#### Creating a new Preset folder

1. Right-click on the open space below (in yellow) the last entry.
2. Select Add Preset.
3. At the bottom of the list in the panel, a new Preset folder will appear. Enter the name of the Preset folder and press Enter.

#### Creating A Folder Within A Folder

Preset folders can also be nested. In other words, similar to how the folders work on your computer, you can have a folder within a folder.

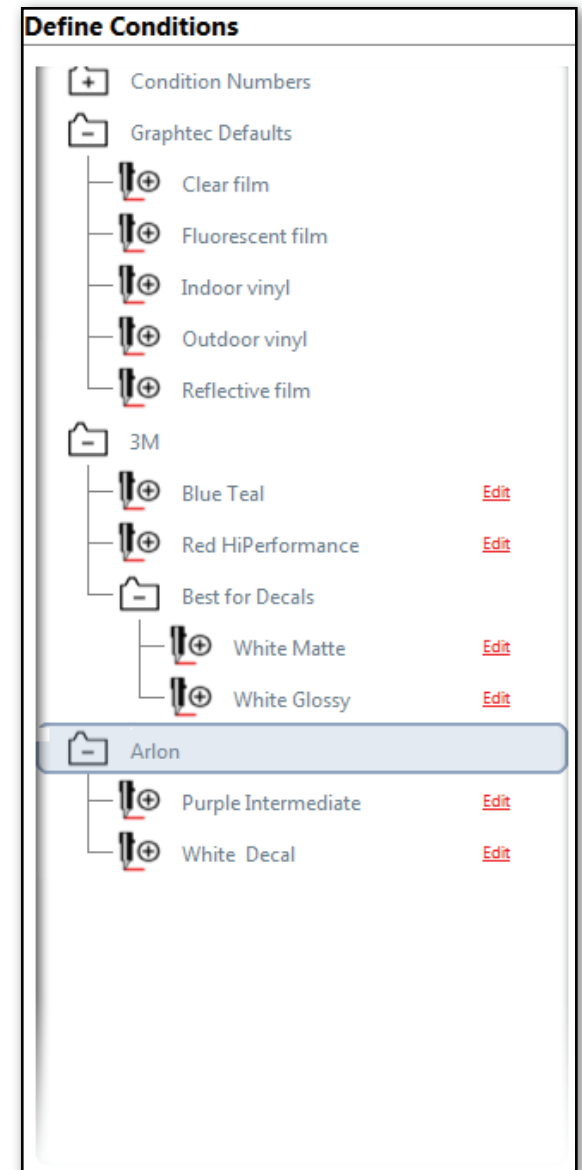
Inner Preset folders can be used to organize contents within the folder. For instance, you may have a main folder for a certain manufacturer, and then create inner folders for different types of media from that manufacturer.

#### Steps to creating a folder within a folder:

1. Right-click on the folder.
2. Select Add Presets.
3. Enter the name of the folder and then press ENTER.\*

Once a folder is created, Media Types can then be placed into the folder by dragging them into the folder.

\* Note: Graphtec Studio allows for having an infinite number of folders.



## Cutting a Design, continued

### Assigning Conditions and Media Types

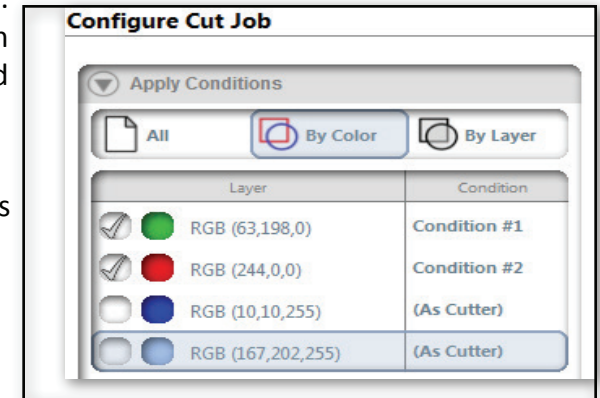
Within Graphtec Studio software, any Condition or Media Type can be assigned to a line color or layer. This is especially beneficial where two paths are slated for different operations. For instance, one path could be used for a crease line, whereas another path could be used for cutting. The final result would be to have the cutter plot the crease lines for the first path, switch tools or conditions, and then cut the second path.

The first step would be to set up the Conditions on the cutter, or Media Types in the Define Conditions panel, depending on which you plan to use (see [Defining Media Types](#)). After they are set up, then that will be assigned to different path types whether creasing, plotting, or cutting.

#### To assign a Condition or Media Type to a color path

1. Click on the **Configure Cut Job** tool icon. This will open the Configure Cut Job settings in the side panel.
2. Click on the **Apply Conditions** folder. This will open up settings for assigning conditions and media types.
3. Here the choice for cutting **All**, **By Color**, or **By Layer** can be selected. Click **By Color**. When this is done, all the colors for the design are shown.
4. Click in the Condition column and choose a Condition or Media Type to assign to each color.

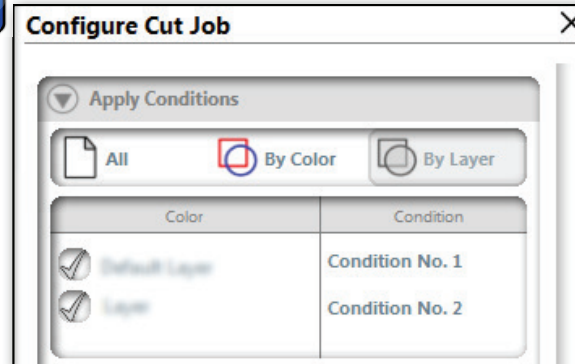
Colors paths that will not be cut or creased are disabled by clicking on the check box next to the color.



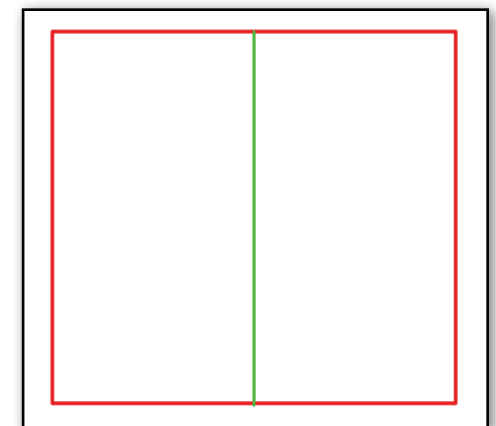
In the Apply Conditions folder, the green line is set for Condition 1 which is for creasing, and the red line is set for Condition 2 which is for cutting. The blue lines have been disabled since they won't be sent to the cutter.

#### To assign a Condition or Media Type to a Layer Pro

1. Follow the steps 1-3 above
2. Click **By Layer**, and all the layers in the design are shown.
3. Click on the **Condition** column and choose a Condition or Media Type for each layer.
4. Layers that will not be cut or creased are disabled. This is done by clicking on the check box next to the layer



In the Apply Conditions Folder the Crease Layer is set to Crease media type and the Cut layer has been set to Cut media type



A design containing a green creasing line and a red cut line.



It is important to keep in mind that the stacking order of each color or layer will determine the order of output. In other words, the top color or top layer of objects will be the first to be sent to the cutter.

## Cutting a Design, continued

### Weed Settings

Weed borders are mostly used when cutting self-adhesive vinyl. After cutting a design, weed borders make it easier to remove unused portions of the cut vinyl. To access the setting for weed borders and lines, click on the Weed Settings tool icon.

The settings for both the weed border and weed lines can be configured once the Weed Settings panel opens.

The first section is where the weed border can be enabled and the size of the weed border can be set. The second section is for the weed line settings. (See [Weed borders vs. weed lines](#)).

#### Weed Border

- **Show Weed Border** check box will either display the weed border, or turn off the weed border.
- **Padding** is the distance between the job and the weed border.

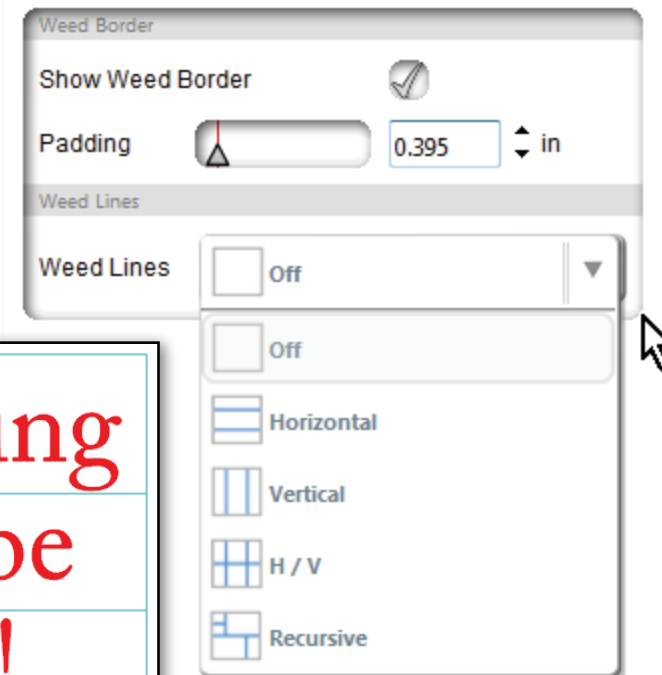
#### Weed Lines Pro

- **Horizontal** will add horizontal weed lines between characters when lines of text have a vertical orientation, lines of text, or objects.
- **Vertical** will add vertical weed lines between characters, and lines of text (when they have a vertical orientation) or objects.
- **H/V** will add both horizontal and vertical weed lines between lines of text, characters, or objects.
- **Recursive** will add horizontal and vertical weed lines between each character or object. The vertical lines only extend between the horizontal lines.

Weed borders and lines, once created, will adjust as the design is adjusted or re-sized.

If the design is rotated, the weed border will resize to fit the new angle, although the weed lines may disappear.

#### Weed Settings



#### Weed borders vs. Weed lines?

A *weed border* is a rectangle that borders the job. The size is determined by the padding, which is the determined space between the job and border.

*Weed lines* are cut lines within the weed border. Weed lines, depending on their layout, help when weeding small or complex objects. Caution is in order: Too many weed lines can make weeding difficult.

## Cutting a Design, continued

### Sorting the Objects Pro

Sorting objects within a job is not only efficient, but will reduce skewing that can occur in longer jobs. When a job is long and is not sorted, excessive media movement may occur increasing cut time and causing possible skewing. Graphtec Studio provides options that will sort the object automatically, prior to sending the job to the cutter.

By clicking on the Configure Cut Job tool icon, Sorting is located within the Configure Cut Job side panel. The first section will organize the job so that the objects are sorted by the condition they are assigned to\*. For instance, if two layers or line colors are assigned to the same condition, those objects will be cut in succession of each other. This operation prevents the cutter from switching between conditions needlessly.

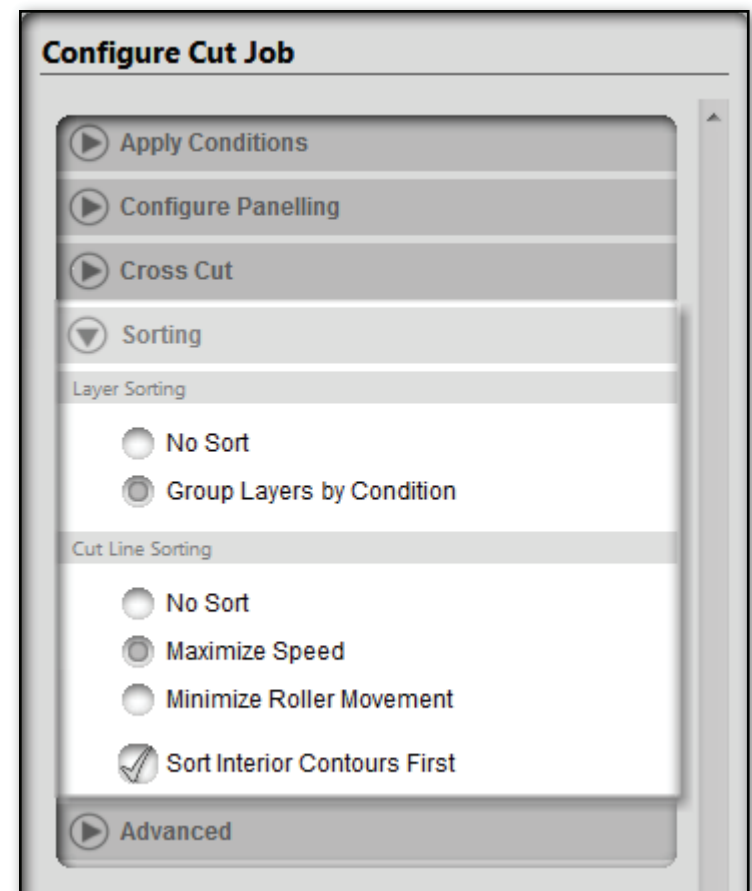
Layer Sorting will sort by Layers:

- **No Sort** will sort the layers as they are listed in the APPLY CONDITIONS panel. Use this setting when conditions are not assigned to layers or colors.
- **Group Layers by Condition** will sort layers or colors assigned to the same condition so that they cut together, in succession.

Cut Line Sorting will sort by object.

- **No Sort** will send objects to the cutter in the same order as they are stacked in the design. Objects on top are cut first, and the objects on the bottom are cut last.
- **Maximize Speed** sorts objects so that the next object to be cut will be the object closest to the current blade position. Use this setting to maximize the cutting speed.
- **Minimize Roller Movement** sorts the objects so that objects are cut in order of how they are laid out in the job. The objects closest to the arrow will cut first. This method is the recommend default setting and will minimize the movement of the media.
- **Sort Interior Contours First** will sort the cut line so that they will cut first when the job is sent to he cutter.

Layer Sorting and Cut Line Sorting can work together. For instance the *Group Layer by Condition* can be selected and have objects sorted within to maximize speed.



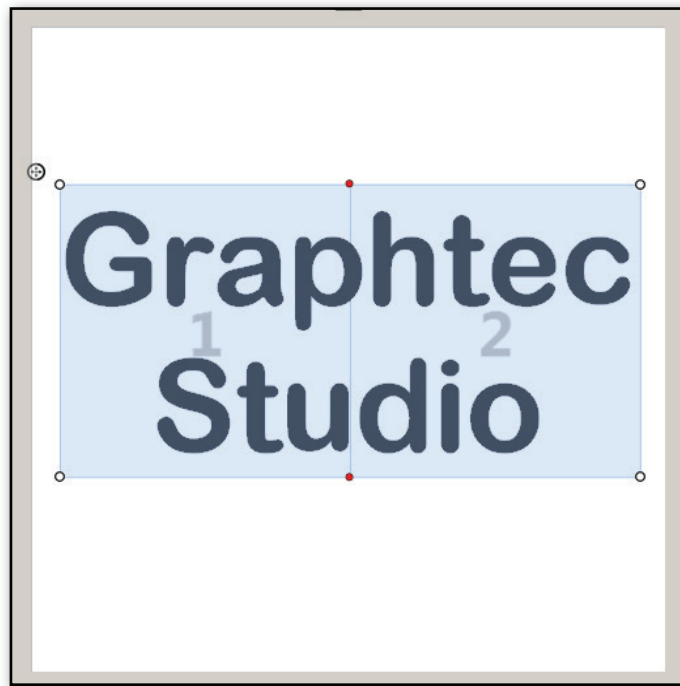
\* This would not include Media Types since they use an auxiliary condition setting.

## Cutting a Design, continued

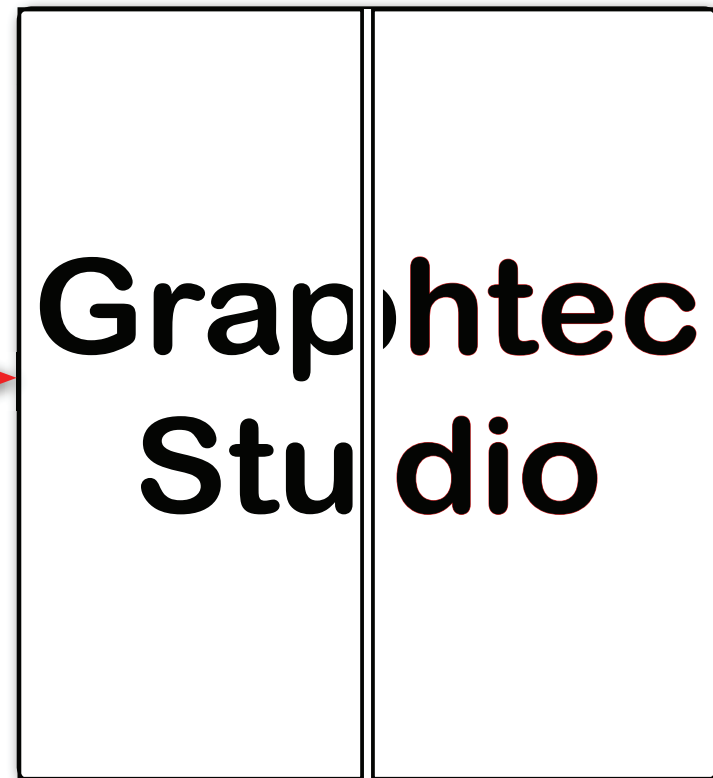
### Tiling Jobs



Tiling is an operation that is necessary if you plan to cut a job that is larger than the cutter you are using. The Tiling settings panel will allow you to “tile” your job. In other words, the job will be split up into separate sections or tiles. Each tile will be cut as a separate job. In the diagram below, the left side shows a large job with a tile pattern applied to it in Graphtec Studio. The right side is an illustration of the end result, with the two tiles cut separately.



Tiling pattern applied in  
the Preview Area



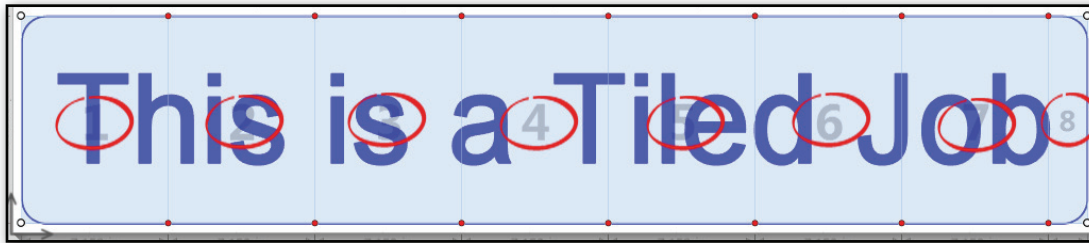
The final result shows the two tiles as two  
separate cut jobs.

## Cutting a Design, continued

### Adjusting the Tile Pattern or Grid

When the design is ready to be cut, if it is larger than the Cutting Preview page, it will automatically tile the job design. The tiling is not shown until the Show Tiling is enabled. Once it is enabled, the tiling options will show in the side bar and a tile pattern will overlay the job design. The pattern can then be adjusted to suit the type of job design. Below describes how each option will affect the tile pattern.

- As mentioned above, **Show Tiling** determines whether the job design will be tiled or not. Once enabled, the Preview area will show a pattern of how the job design will be tiled. Each tile is numbered, indicating the order the tiles will be cut.



Tile pattern overlay. Each tile is numbered indicating the order they will be cut.

### Configure Position and Size

- Origin X** and **Origin Y** will position the tile pattern's origin (which is the lower-left corner) by the x and y coordinates. The coordinates are based upon the lower-left corner of the Media Page.
- Width** and **Height** will show the size of the tile pattern which will be re-sized from its lower-left corner.
- Maintain Aspect** check box will ensure the tile pattern will stay proportional as it is re-sized.

### Configure a Regular Grid

- Automatic** will automatically set the tile grid pattern according to the media size that has been chosen for the cutter. When the Automatic is selected
- Custom** will allow the tiles to be set to a custom pattern.
- Regular Grid** will set all the tiles uniformly. When this option is selected, four options are revealed: **Cell Width**, **Cell Height**, **# Columns**, and **# Rows**.

#### Tiling

☒ Show Tiling

##### Configure Position and Size

Origin X in

Origin Y in

Width in

Height in

☒ Maintain Aspect

##### Configure a Regular Grid

☐ Automatic

☐ Custom

☐ Regular Grid

##### Overlap

Right in

Bottom in

Left in

Top in

☒ Symmetrical

##### Other Options

☒ Show Dimensions



## Cutting a Design, continued

### Overlaps

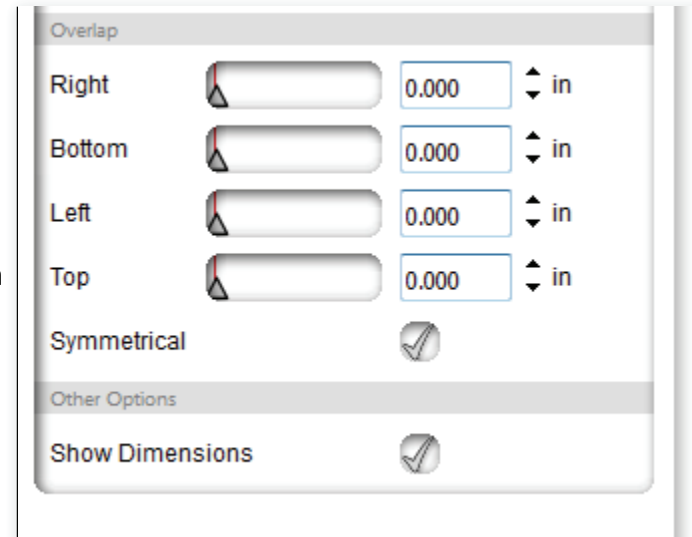
The Overlap values specify the amount of overlap between the rows and columns of tiles. By overlapping the tiles onto the adjoining tiles, you can eliminate any gaps that occur due to the environmental issues such as weather.

- **Right, Bottom, Left, and Top** values will set the amount of overlap between the tiles.
- **Symmetrical** will make sure that Right and Left will size together, and Top and Bottom will re-size together

See the section on [Overlapping Tiles](#).

### Other Options

**Show Dimensions** will display the dimensions of the tiles.

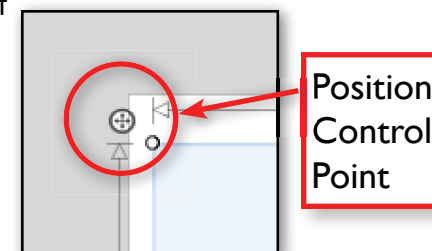


### Moving Tile Patterns

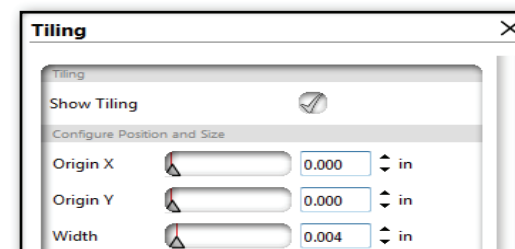
Patterns can be re-positioned by clicking on the Position Control Point, which is located in the upper left corner of the tile pattern. The pattern can also be re-positioned by using the side panel settings\*.

#### To move a pattern using the Position Control Point:

1. Click, hold, and drag on the position control point.
2. Move it to its new location.
3. Release mouse.



The side panel settings can be used for moving the pattern more accurately. Origin X is for moving the pattern in a horizontal direction and the Origin Y is for moving the pattern in the vertical direction. These values are absolute and start from the lower left corner of the media page. As the X Origin value is increased, the pattern moves to the left. As the value is decreased, the pattern moves to the right. When the Y Origin is increased, the pattern moves in an upward direction. As the value is decreased, the pattern moves in a downward direction.



Side panel origin values for moving the tile pattern

\* Pattern cannot be moved when the grid is set to Automatic.



## Cutting a Design, continued

### Re-sizing the Tile Pattern

Patterns can be re-sized by clicking on the corner control points, or by entering the width and height using the side panel settings.

#### To re-size a pattern using the Control Points:

1. Click, hold, and drag any one of the corner control points.
2. Once the desired size is achieved, release the mouse button\*.

#### To re-size a pattern using values:

1. Enter the size of the pattern for the width and height.
2. Press ENTER after entering a value.

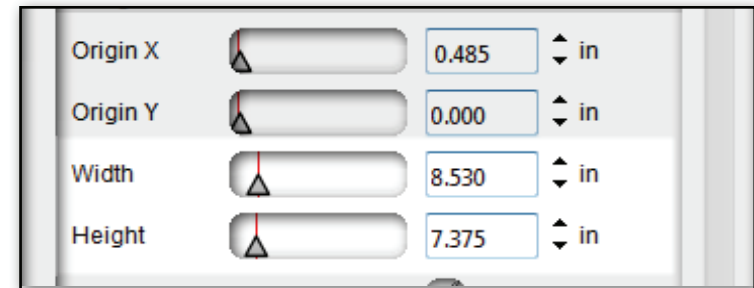
\* Take note that the red control points can be used to re-size the pattern in a horizontal or vertical direction, although their main purpose is to reposition tile lines.

### Disabling Individual Tiles within a Pattern

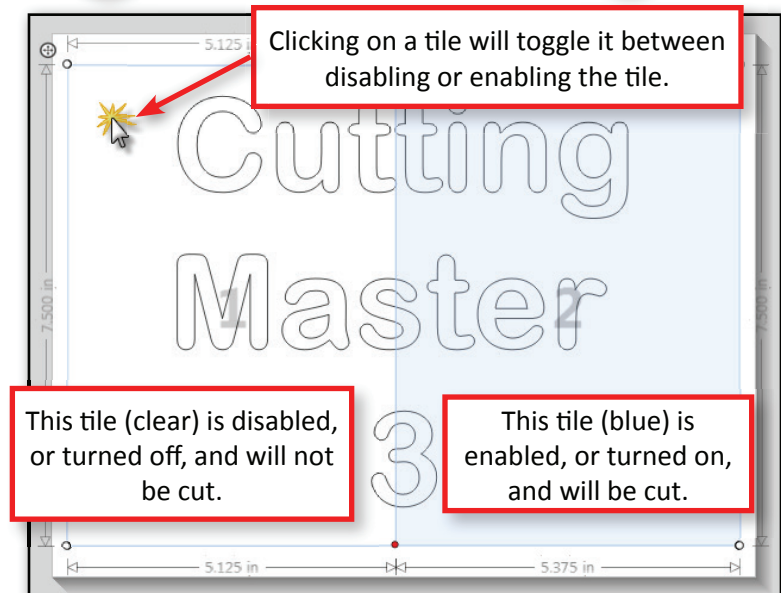
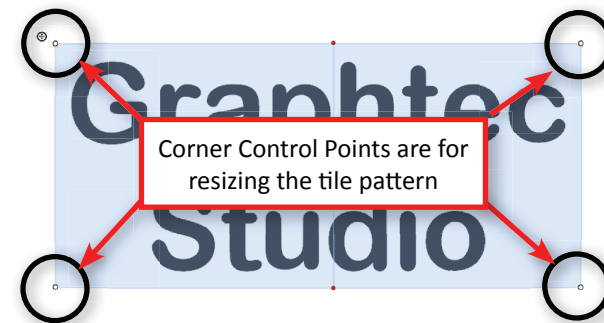
Tiles can be 'turned off' or disabled in cases where certain tiles do not need to be cut. When a tile is 'turned on' or enabled, it will have the transparent blue fill and will be cut when the job is sent to the cutter. When a tile is disabled, it will appear clear and will not be sent to the cutter.

**To Disable a tile** just click on it. Once disabled, it will become clear.

**To Enable a tile**, click on the tile again and it becomes a light blue color.



Side panel values for re-sizing the tile pattern



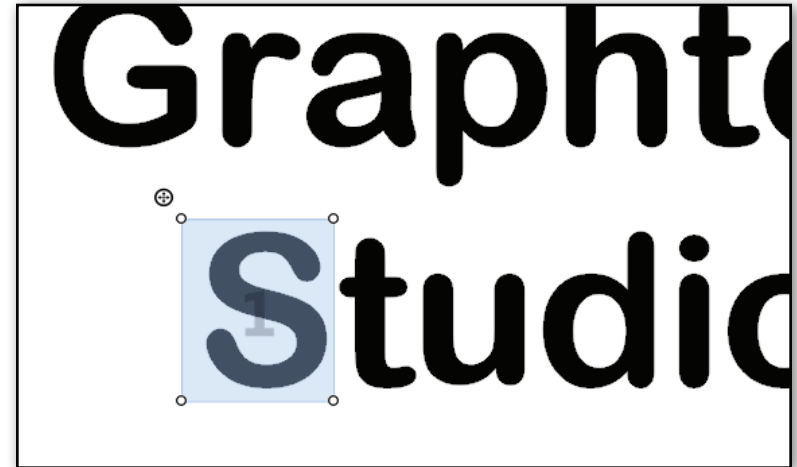
## Cutting a Design, continued

### Cutting a Portion of a Design

Tiling can be used for cutting portions of the design. For instance, if one letter of a sign has to be re-cut, the tile pattern can be adjusted so that the only portion to be cut is that one letter.

#### Steps:

1. Set the grid pattern to Regular Grid.
2. Set the Rows and Columns both to 1. This will create a single tile around the object.
3. Drag the corner so that the tile pattern is over the portion of the design to be cut.



Now when the Job is sent to the cutter, it will cut only the objects within the single tile. **Using the tiling feature, this one letter can be re-cut**

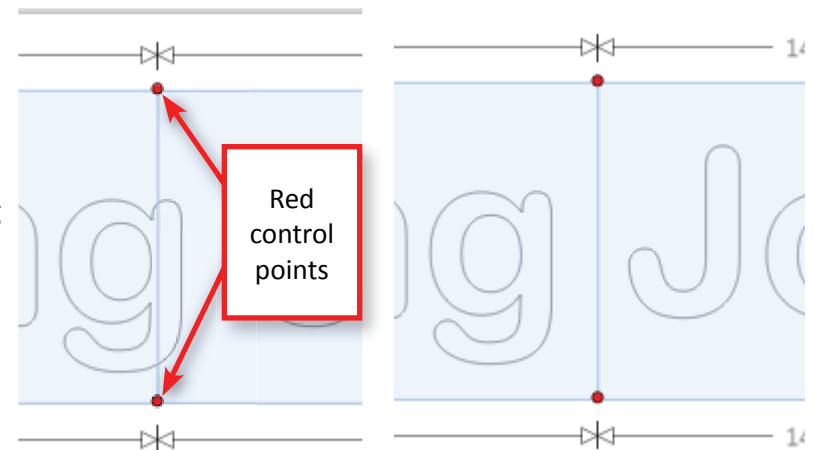
### Re-sizing Individual Tiles

There are times when a tile line may be positioned right in the middle of a letter or object. When that happens, it will split the letter so that part of the letter will be with one tile, and the other part of the object will be with the next panel. In certain cases, this may be undesirable. This can be corrected by re-positioning the tile lines by using the red control points.

#### To re-size tiles:

1. Hover the mouse pointer over the red control points.
2. Click, hold, and drag the red control point to position the tile line to attain the desired tile size\*.
3. Release the mouse button.

When positioning the tile line to its new location, make sure the size of the tile is not greater than the cutting area width on your cutter\*\*, otherwise part of the panel will not cut.



**Here the tile line is placed by default right over a letter, which is undesirable.**

**Here the same tile line has been placed between the letters, which is more desirable.**

\* As mentioned previously, this can re-size the tile pattern as well.

\*\* Generally this can be done by pressing the ENTER key on your cutter.


## Cutting a Design, continued

### Making Tiles within Tiles

If you need to break up the job into more tiles, this can be done by drawing new tile lines to split tiles.

Splitting tiles is a matter of drawing new lines within the tiles. Once the lines are drawn, they can be moved or adjusted.

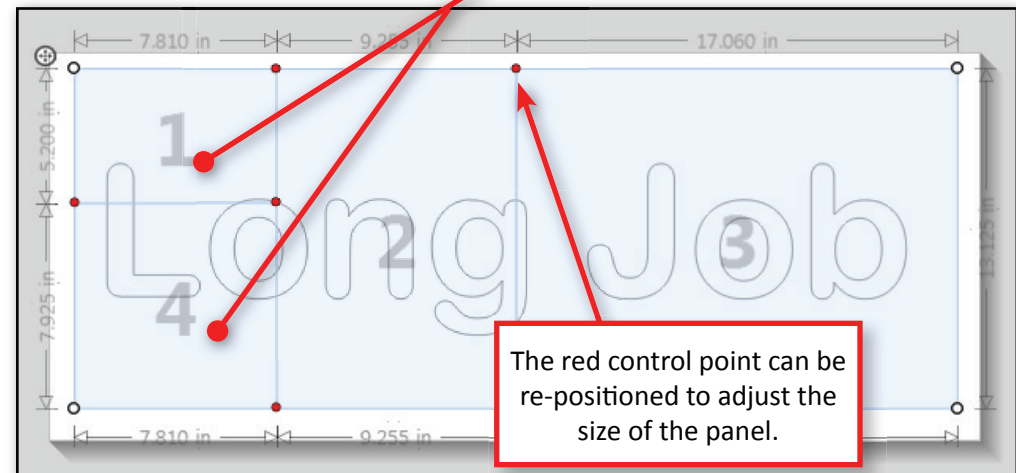
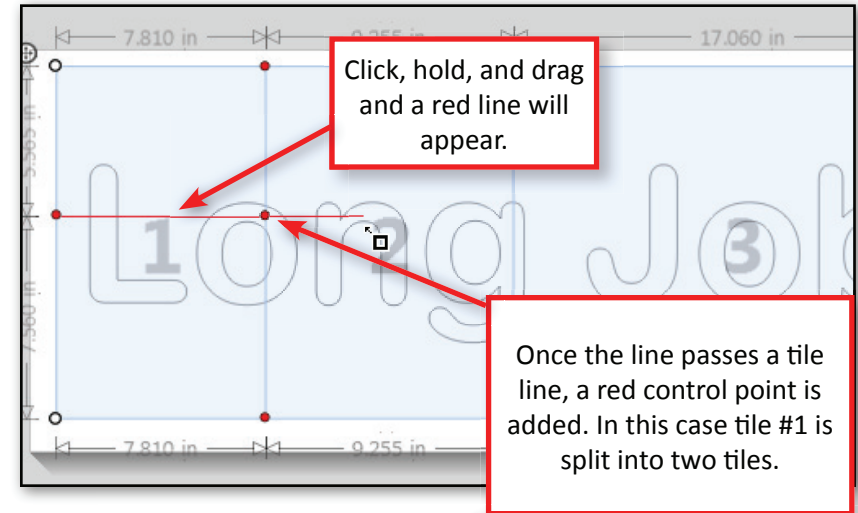
#### Steps to Splitting Tiles

1. Hover the mouse over the edge of the tile pattern. The mouse will switch to a plus and an arrow. 
2. Click, hold, and drag the mouse, and a red line will start to draw across the pattern.
3. Drag the mouse to a tile line, or to the opposite edge of the tile pattern. When it crosses a tile line, a red control point is added. When it crosses a tile line, a red control point is added.
4. Release the mouse button.

As the red line is being drawn to split tiles, it can be extended past other tile lines, creating even more tiles.

The newly added red control points can be used to re-size the tiles.

Starting the line from a horizontal line of the tile pattern generates vertical lines. Starting the line from the vertical line will generate horizontal lines.



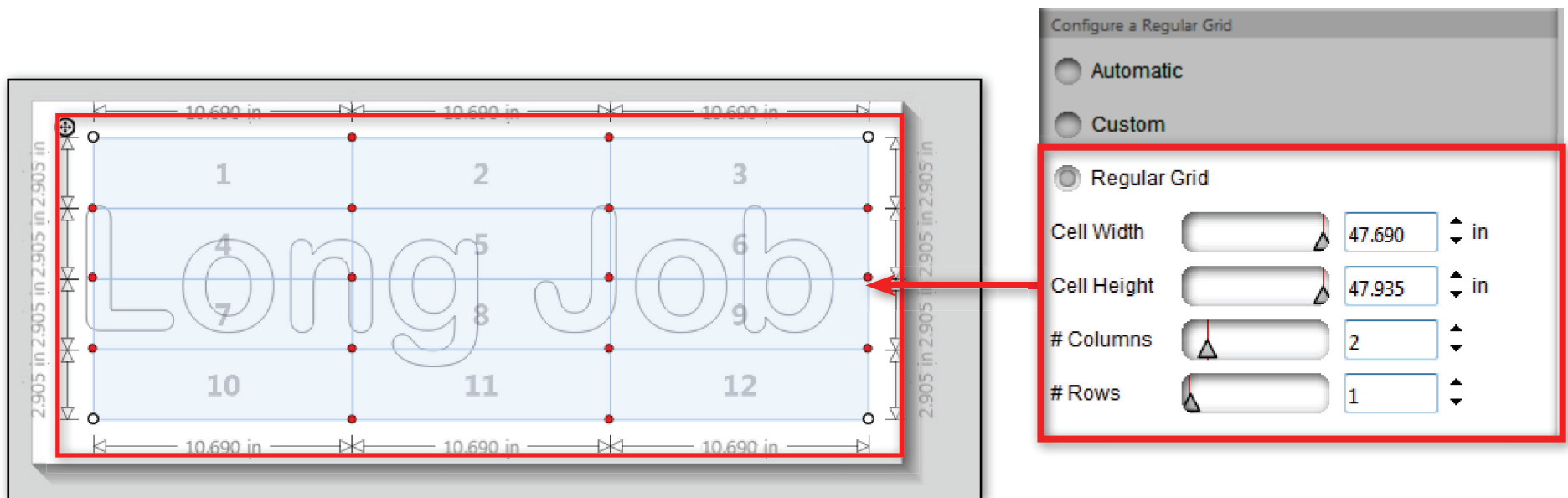
**In the sample here, tile 1 is split into two tiles, creating a total number of 4 tiles in the tile pattern. Once the new tiles are created, the tiles are re-numbered.**

## Cutting a Design, continued

### Grid Mode Tile Pattern

Creating more tiles can also be accomplished by using the Regular Grid option. Choosing this option will reveal the grid settings. In this mode, the tile pattern is made of a symmetrical grid pattern so that each tile is equal in size and these options will appear in the side panel:

- **Cell Width** will affect the width of each tile in the pattern. As the tile width changes, this will affect the total width of the tile pattern.
- **Cell Height** will affect the height of all the tiles. As the tile height changes, this will affect the total height of the tile pattern.
- **# Columns** and **# Rows** will add more columns and rows, but keeps the tile pattern size the same. As more columns and rows are added, the size of each tile becomes smaller so that the total number of rows and columns fit within the perimeter of the tile pattern.



The grid pattern is set to a 3 x 4 pattern of equal sized tiles

## Cutting a Design, continued

### Overlapping Tiles

**Overlaps** specifies the amount of overlap between the rows and columns of tiles. By overlapping the tiles onto the adjoining tiles, you can eliminate any gaps between the tiles when mounting the tiles after they have been cut. This could be crucial when environmental forces such as heat or weather expands and contracts materials, such as self-adhesive vinyl. When the overlap is created, it is represented by a red bar on the tile lines of the pattern.

Overlap

Right 0.000 in

Bottom 0.000 in

Left 0.000 in

Top 0.000 in

Symmetrical ☒

There are 4 choices that can control the thickness of the overlaps:

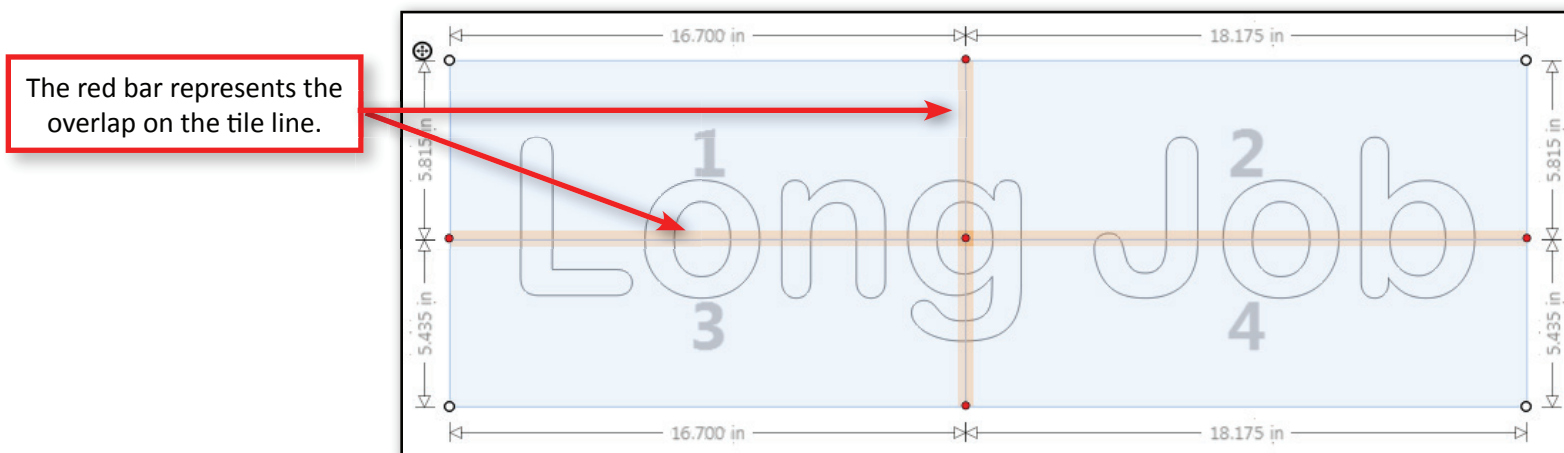
**Right** will extend the overlap to the right of all tiles.

**Bottom** will extend the overlap to the bottom of all tiles.

**Left** will extend the overlap to the left of all tiles.

**Top** will extend the overlap to the top of all tiles.

The **Symmetrical check box** at the bottom of the overlap section will keep the values symmetrical. The top and bottom overlaps are kept the same size, as well as the left and right overlaps. For instance, if the bottom overlap value is changed to 1 inch, the top value will be set to 1 inch. The same would be true for the left and right overlaps; as one changes, so does the other.

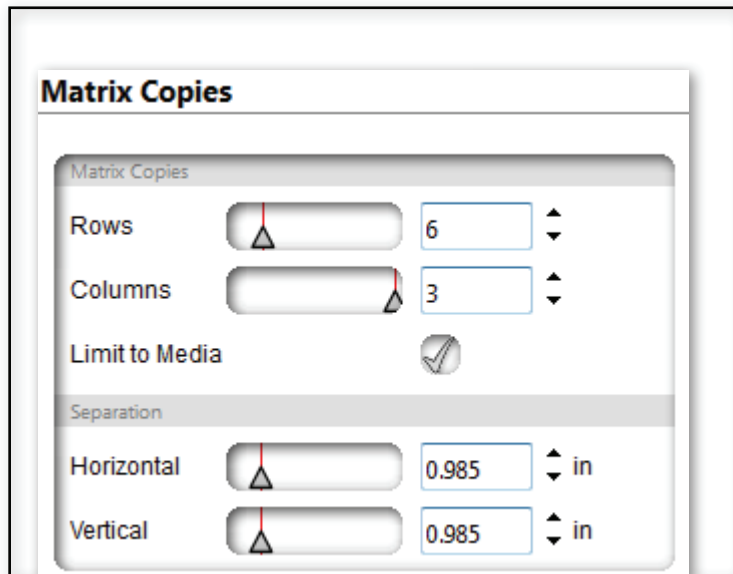


## Cutting a Design, continued

### Copy Matrix

When the job is ready to be sent, copies of the design can be added in a matrix pattern. Once the Copy Matrix tool icon is clicked, the Copy Matrix options will display in the side panel and the software will change the Preview Window to the Cutting Preview mode. When in the Cutting Preview mode, the media page is changed to the actual size that is set on the default cutter.

The first settings affect the type of matrix, how many ROWS and how many COLUMNS you want.



**Rows** value will increase or decrease the copies vertically from the bottom.

**Columns** will increase or decrease the copies horizontally from the right.

**Limit to Media**, when checked, will limit the copies in the horizontal or vertical direction to the media page size. Once it reaches the edge of the media page, it will stop making copies.

Spacing between the copies can be adjusted.

**Horizontal** affects the distance between the horizontal copies and **Vertical** affects the distance between the vertical copies.



Preview Window

### What is the difference between Copy Matrix and Replicate?

The difference between **Copy Matrix** and **Replicate** is that **Replicate** will make copies of individual objects, whereas **Matrix Copy** will make copies of the whole design in a matrix pattern. Replicate is helpful in creating part of the design. Copy Matrix is helpful when making instant copies of the design, and yet it will not effect the design.

## Cutting a Design, continued

### Configure Cut Job

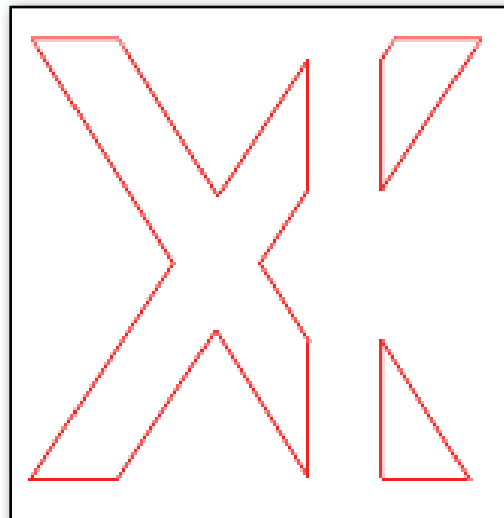
The Configure a Cut Job panel has five useful configuration settings in one panel. These settings are basically for quickly adding or changing aspects to the cut job. Three of the settings, **Configure Tiling**, **Cross Cut**, and **Advanced** will be discussed in detail in this chapter. Two of the options, **Apply Conditions** and **Sorting** settings, have already been discussed earlier in this chapter. When the Cut Job panel opens, it switches the Preview Area to the Cutting Preview mode.



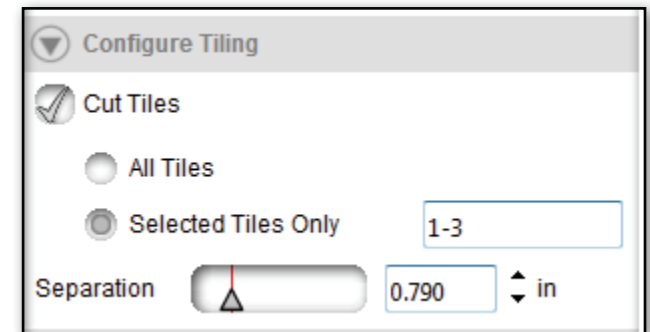
### Configure Tiling

Tiling is an operation that will tile or panel a job that is larger than the cut area of the cutter. It is recommended that the section on tiling be reviewed prior to using the setting in this section.

- **All Tiles** when checked, will cut all tiles.
- **Selected Tiles Only** will cut only tiles listed in the box.
- The **Separation** value determines the distance between tiles when they are cut.



The Separation value determines the distance between tiles

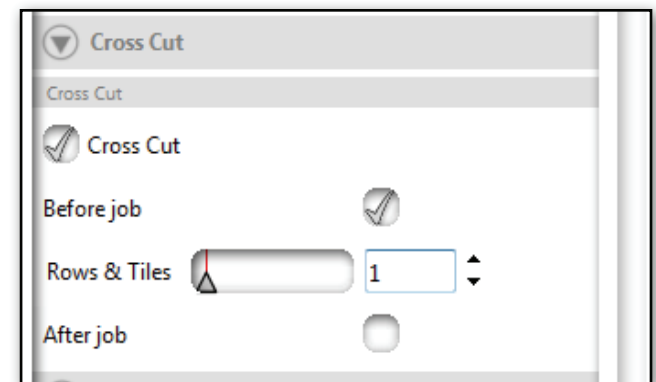


Configure Tiling

### Cross Cut

The cross cut feature is enabled when the cutter equipped with this feature is connected and selected as the default cutter by using [Set as Default Cutter] on the Connected Cutters side panel.

- **Cross Cut** check box will either enable the cross cutter or not.
- **Before Job** will initiate a cross cut action prior to the job being cut.
- **Rows and Tiles** Cross cut the media after predetermined rows.
- **After Job** will initiate a cross cut action after the job is cut.



Cross Cut Configuration



## Cutting a Design, continued

### Advanced Settings

The Advanced section of the Configure Cut Job side panel has settings on what to do after a layer, a tile, or a job is completed.

#### After Cutting a Layer

- **Continue Immediately** will continue to send the job at the highest data rate speed possible without pausing.
- **Await Cutter Ready** will pause sending the job to the cutter until the cutter is ready. It will resume sending the job once the cutter is in READY mode.

#### After Cutting a Tile

- **Continue Immediately** will continue to send the job at the highest transfer speed possible regardless of whether the cutter is still busy cutting.
- **Await Cutter Ready** will not send a job to the cutter automatically if the cutter is not in READY mode. It will resume sending the job once the cutter returns to READY mode.
- **Pause** will pause from sending the next layer. A message will appear that will allow you to decide when to resume the cutting.

#### After Cut Job

- **Feed** will feed the job beyond its edge and resets the origin. This setting is useful if you plan to cut different jobs sequentially.
- **Return to Origin** will return the cutter back to its origin point. The Cross Cut feature (only on the FC8600 series) will be disabled with this setting.

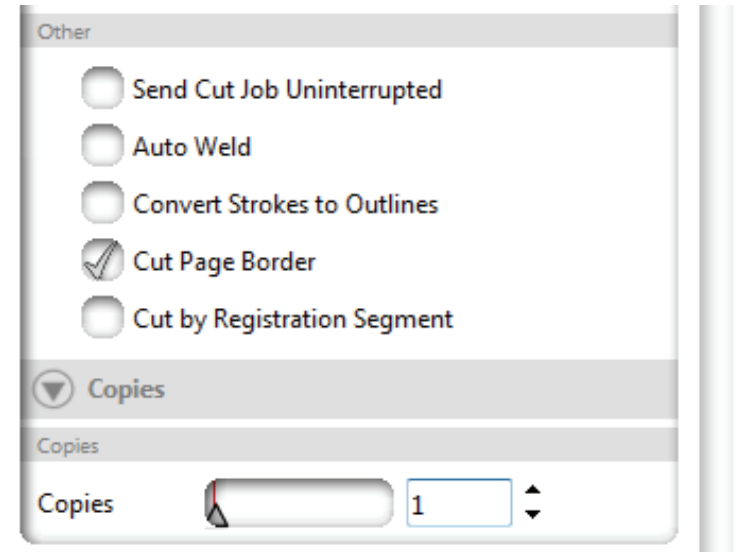
The screenshot shows the 'Advanced' settings panel. It is divided into several sections: 'After Cutting a Layer' with radio buttons for 'Continue Immediately' and 'Await Cutter Ready'; 'After Cutting a Tile' with radio buttons for 'Continue Immediately', 'Await Cutter Ready', and 'Pause'; 'After Cut Job' with radio buttons for 'Return to Origin' and 'Feed', and an 'Additional Advance' slider set to 0.000 in; and 'Other' with checkboxes for 'Send Cut Job Uninterrupted', 'Auto Weld', 'Convert Strokes to Outlines', 'Cut Page Border' (which is checked), and 'Cut by Registration Segment'. Below these is a 'Copies' section with a 'Copies' label and a slider set to 1.



## Cutting a Design, continued

### Other

- Select **Send Cut Job Uninterrupted** to create all the cut jobs and then send them to the cutter at once. This reduces the computer opening time.
- Select **Auto Weld** to combine overlapping objects before sending the data for the condition specified in [Apply Conditions] ([All], [By Color], or [By Layer]).
- Select **Convert Strokes to Outlines** to create and cut an outline of the line width. When this option is not selected, the center of the line width is cut.
- Select **Cut Page Border** to cut the object boundary between tiles when tiling and outputting an object. When this function is turned off, the object boundary between tiles is not cut.
- Select **Cut by Registration Segment** to scan for each segmented registration mark for segmented cutting in the design where segmented registration marks are placed. This option gives better accuracy by detecting any bowing or skewing on longer prints. If this option is not selected, segmented cutting is not performed (FC8600 series only).



### Copies

Once all the cutting options have been set prior to sending the job, this option can be used to send several copies of the final job. For instance, if a matrix copies has been set so that the design is in a pattern of 3 rows and 3 columns, and the number of copies in this option has been set to 2, then it will send 2 sets of the 9 copies, or 18 copies altogether, pausing briefly between the two sets.

# Print and Cut

The print and cut application is a process of preparing a design to print, and then cutting the print on a cutter by following a path that contours around the image. This process can be used for making decals, packaging designs, and other applications.

The steps for this process, start to finish, are as follows:

- **Create the design**
- **Create a cut path around the design.** This will be the cut path that the cutter will follow when the print is cut.
- **Apply registration marks** to the design. Registration marks are L shaped marks that are on four corners of the image design and cut line. They are printed with the design and are used by the cutter, kind of like a mapping system so that the cutter will know where to cut.
- **Process the design** by sending it first to the printer, and then loading the print into the cutter and sending the cut path.

## Creating the Cut Path

After the design is completed, a cut path around the design needs to be created. To create the cut path, the **Offset** function can be used for this.

### To create a Cut Path

1. Select the complete design to create the cut path around.
2. Click on the **Offset** tool icon. This will open the **Offset** side panel. (See [Creating Offset Paths](#))
3. Adjust the settings and click Apply.
4. Once the cut path outline is created, click on the Line Styles tool icon and increase the thickness of the line. This will make it easier to see\*.
5. Click on the Layers tool icon and in its side panel, set the cut path to a new layer and rename the layer to “Cut Path”, or apply to it a unique color.



\* Making the line thick will not affect the cutting, it will still cut a single line.

## Print and Cut, continued

### Registration Marks

Once the design is finished, and the outline has been created, the job can then have registration marks applied to it.

As previously mentioned, registration marks are little “L” brackets around the whole design. The marks help the cutter to map out where the contour cut line should be cut. Without them, the cut line for making the decal would be completely off.

Graphtec Studio provides a special feature for automatically creating registration marks. It provides several types of registration mark patterns that can be used for different purposes:

- **Graphtec TYPE 1** registration marks have their corners pointing inward.
- **Graphtec TYPE 2** registration marks have their corners pointing outward. Type 2 are the most commonly used registration marks since they provide more space for your design.



Type 1 Registration marks



Type 1 Registration marks

### Segmented Registration Marks for Better Accuracy

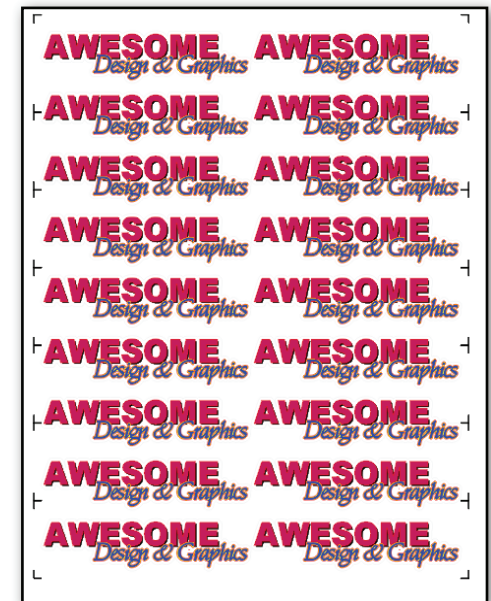
These “Segmented” types are for longer jobs where media skew during printing may have occurred. To prevent this, segmented registration marks will automatically place registration marks not only on the corners, but along the side as well, either in a vertical or horizontal direction. When the registration mark sensor scans this registration mark pattern, it can detect and adjust the cut path for any bowing or skewing in the print. Therefore, segmented registration marks give better accuracy on longer prints.

There are two choices for segmented registration marks: The **H-Segment** and **V-Segment**. Both can use either a Type 1 or a Type 2 pattern.

- **H-Segment** will place registration marks along the horizontal direction (as shown in the example) and are generally used for designs that are wider.
- **V-Segment** will place registration marks along the vertical direction and are generally used for designs that are taller.



H-Segment which places segmented registration marks horizontally



V-Segment which places segmented registration marks vertically

### Registration marks for smaller jobs

Smaller designs do not necessarily need 4 or more registration marks so patterns are provided that will have a minimal amount of registration marks of 3 or even 2, shortening the process time.

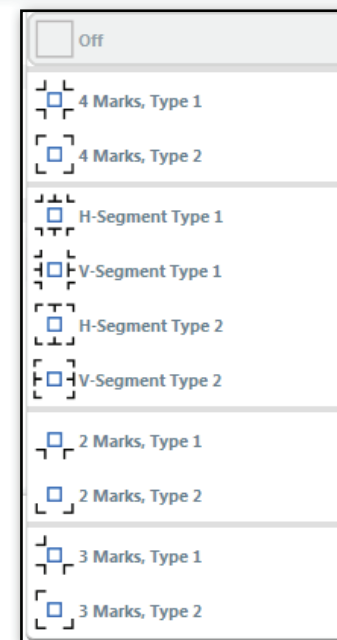
## Print and Cut, continued

### Applying the Registration marks

To apply registration marks to a design:

1. First click on the registration marks button.
2. Click on the type of registration mark pattern needed for the design. The different patterns were discussed on the previous page.

To **turn off the registration mark pattern**, select OFF.



To turn **ON** the registration marks by selecting registration mark style



### Note on Using Registration Mark Pattern “2 Marks” or “3 Marks”

When using registration mark pattern “2 Marks” or “3 Marks,” note the following point.

If the media size specified on the design page exceeds the plotter’s mountable paper width, registration mark pattern “2 Marks” or “3 Marks” cannot be specified.

In this case, use registration mark pattern “4 Marks, Type 1” or “4 Marks, Type 2.”

|          |                             |                               |
|----------|-----------------------------|-------------------------------|
| Examples | CE6000-40 : 484mm(19inch)   | FC8600-60 : 770mm(30.3inch)   |
|          | CE6000-60 : 712mm(28inch)   | FC8600-75 : 920mm(36.2inch)   |
|          | CE6000-120 : 1346mm(52inch) | FC8600-100 : 1224mm(48.1inch) |
|          |                             | FC8600-130 : 1529mm(60.1inch) |
|          |                             | FC8600-160 : 1850mm(72.8inch) |

## Print and Cut, continued

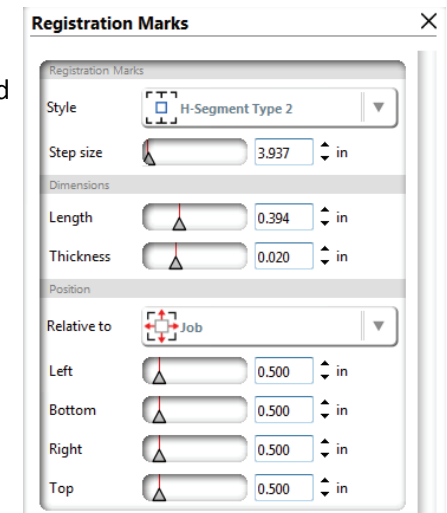
### Adjusting the Registration Marks

Once the registration marks are created, their placement can be adjusted. The Registration Mark side panel will display several settings for doing this.

- **Step Size** is used only if segmented registration marks are used. It defines the distance between the intermediate registration marks.
- **Length** defines the size of the registration marks. The general rule when sizing the registration marks is the larger the design, the larger the registration marks.
- **Thickness** defines the line thickness of the registration marks. The general rule for thickness is the same as for Size. The larger the design, the thicker the registration marks. The type of media can be a determining factor for thickness. If the sensor is having a hard time with a thinner registration mark, go ahead and increase the thickness.

### Position Settings

- **Relative to JOB** will have the registration marks adjust, relative to the design or job using the Right, Bottom, Left, and Right settings.
- **Relative to MEDIA** will have the registration marks adjust, relative to the media page size using the Right, Bottom, Left, and Right settings.
- **Left** will adjust the left most registration marks right or left, based upon the Relative to Job or Relative to Media setting.
- **Bottom** will adjust the lowest registration marks up or down, based upon the Relative to Job or Relative to Media setting.
- **Right** will adjust the right most registration marks right or left, based upon the Relative to Job or Relative to Media setting.
- **Top** will adjust the top registration marks up or down, based upon the Relative to Job or Relative to Media setting.




Registration Mark side panel

## Print and Cut, continued

### Processing the Design

There are three steps to process the design for output: (1) Send the design to the printer without the cut path, (2) Load the print into the cutter, and (3) Send the cut path from the software to the cutter. Each step is explained below in detail.


#### Sending the Design to the Printer

 The first thing to remember in this part of the process is, unless you need the cut path to be printed, make sure it is turned off (See [Assigning Conditions and Media Presets](#)). Next, send the design to the printer by clicking on the Print tool icon, or by clicking on the File pull down menu and selecting Print. This will send both the design and the registration marks.

#### Loading the Print onto the Cutter

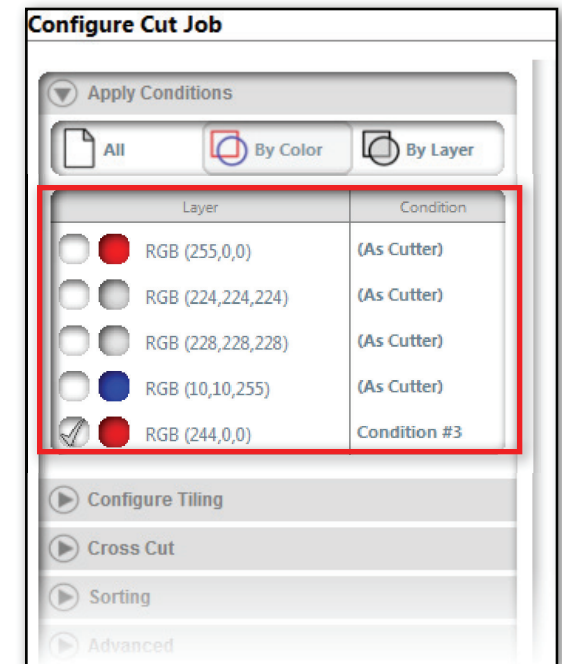
After the printer is finished printing the design, take the print and place it on the cutter. When loading the print, make sure that the orientation is correct. This is easily done by referring to the Preview Area, and obtaining the orientation of the job by using of the Directional Arrow. Remember, this is the arrow indicating which edge goes in first.

#### Sending the Cut Path to the Cutter

-  1. Click on Configure Cut Job tool icon, or click on the Cutter pull down menu, and select Configure Cut Job. This will open the Configure Cut Job option in the side panel.
2. If the cut path has been placed on a layer, turn off all layers except the one with the cut path.
  3. If the cut path has a unique color, turn off all colors except for the color the cut path is using.
  4. Assign the cut path color or layer to either a cut condition on the cutter, or to a media type.
  5. Open the Cutters options in the side panel by clicking on the Cutter Panel tool icon.
  6. Send the job by clicking on the Cutter pull down menu, select Send Cut Job, and then choose the cutter to which the job will be sent.

The cutter will start to scan all the marks and then cut the path of the design.

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*Design & Graphics*



Set the cut path color or layer to the condition or media type

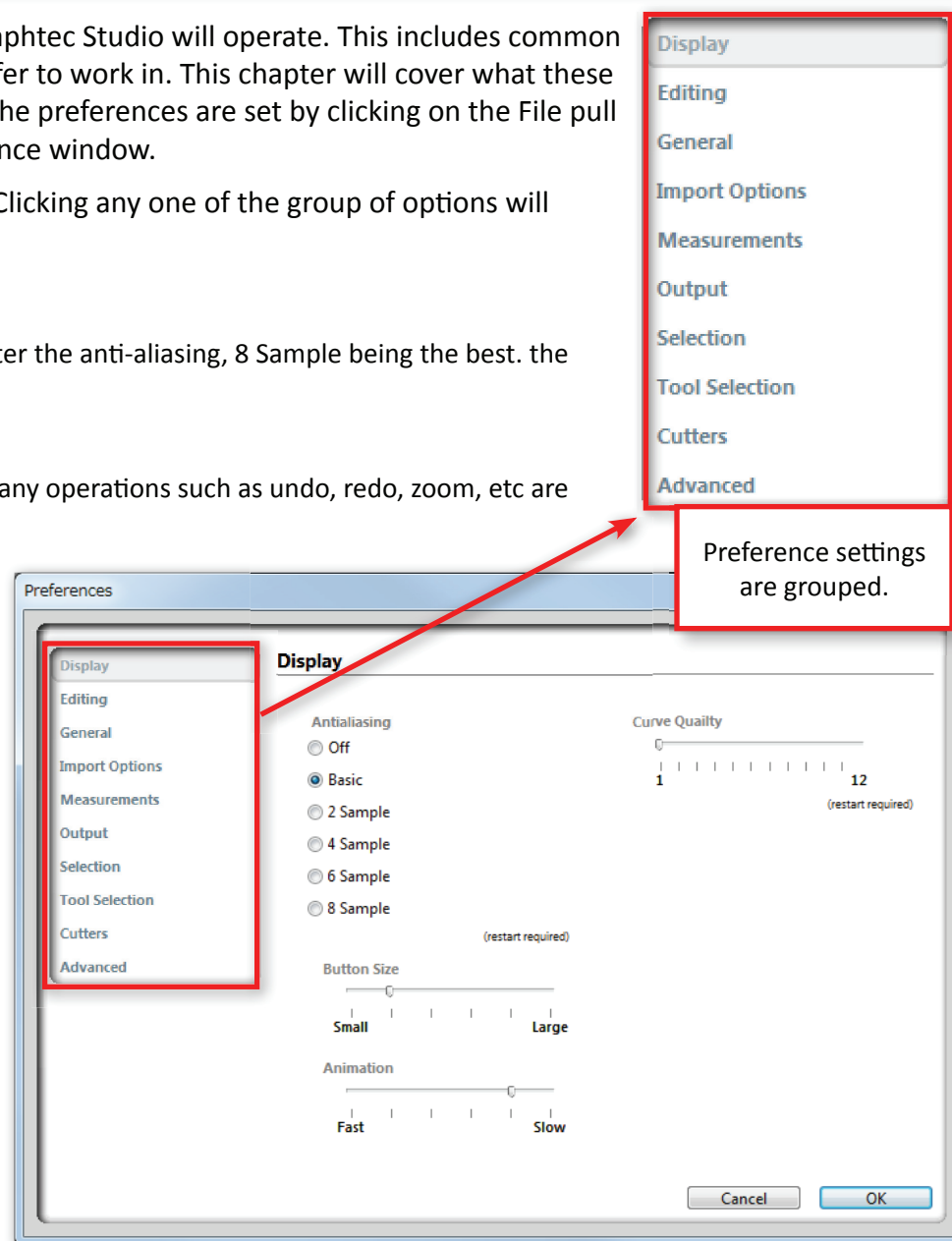
# Setting the Preferences

The Preference window is where options are set to determine how Graphtec Studio will operate. This includes common settings, such as the language or units of measurement you would prefer to work in. This chapter will cover what these are, and what they are used for, although many of them are obvious. The preferences are set by clicking on the File pull down menu, and clicking on Preferences. This will open up the Preference window.

On the left hand side of the window, preference options are grouped. Clicking any one of the group of options will display the settings for that group.

## Display

- **Antialiasing** is how much anti-alias is applied to the graphics. The better the anti-aliasing, 8 Sample being the best. the better the graphics. However, the re-draw of the graphics is slower.
- **Button Size** determines the tool icon size.
- **Animation** determines the speed of the animation of the program. Many operations such as undo, redo, zoom, etc are displayed as animations.
- **Curve Quality** adjusts curve display. The larger the number, the smoother the displayed curve.



Preferences Window

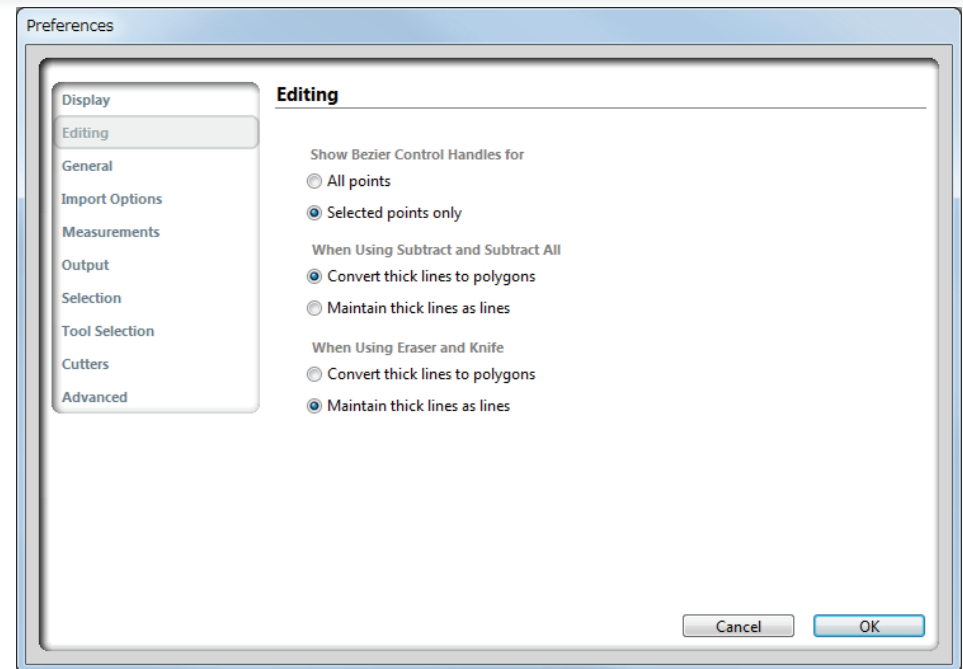


## Setting the Preferences, continued

### Editing

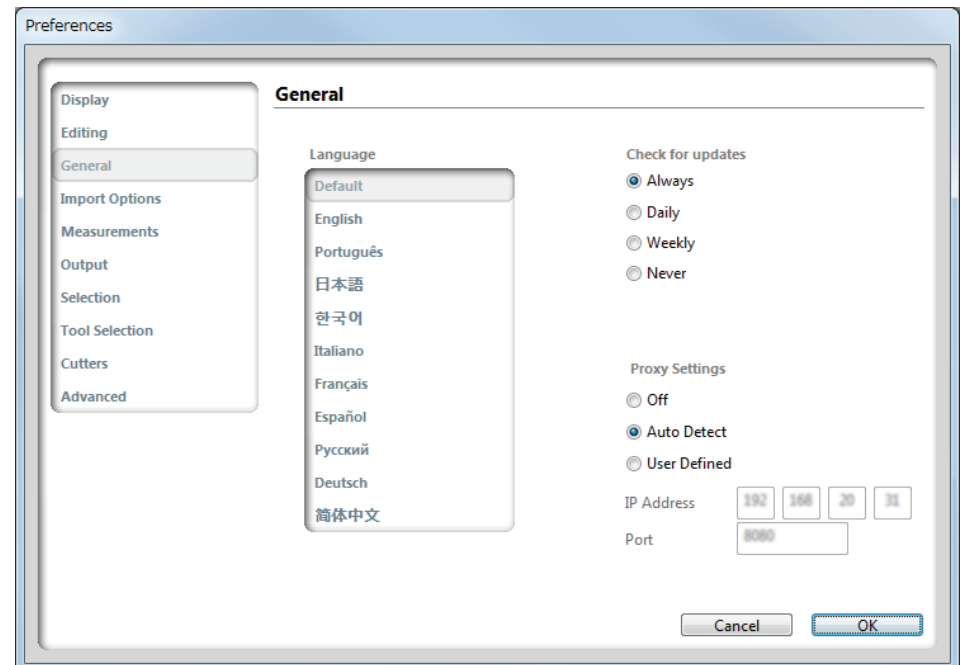
These preference settings will allow different editing feature defaults to be set:

- **Show Bezier Control Handles for** determines whether the Bezier control handles will be shown for all the points, or just the selected points of an object. (See [Working with Curves](#))
- **When Using Subtract and Subtract All** determines how the thick lines of an object will be handled, whether they will be converted to a polygon or kept as thick lines. (See [Modifying Objects](#))
- **When Using Eraser and Knife** also determines how the thick lines of an object will be handled, whether they will be converted to a polygon or kept as thick lines. (See the sections on the [Eraser Tool](#) and/or the [Knife Tool](#))



### General

- These preference settings determine which **Language** to use for Graphtec Studio.
- **Check for updates** specifies the interval at which update information is checked at software activation. The default value is **Always**.
- **Proxy Settings** is the setting for Web browser Internet connection. The default value is **Auto Detect**.





# Setting the Preferences, continued

## Import Options

These preference settings determine how Graphtec Studio imports the graphic file formats into the Drawing Area. Each format has the same settings:

- **Document Position** determines where to position the file design in the **Media Page** of the **Preview Area**.
- **Make white lines black** check box determines whether it will show black outlines for any white or transparent objects being imported to Graphtec Studio.
- **Join lines into polylines** will take shapes constructed from many separate contours, with touching end points, and convert them into a single continuous contour. This eliminates the need for the cutter blade to raise and lower as it would if the segments were separated. This increases the speed as well as produced a smoother cut.

## Measurements

These preference settings determine the **Unit of Length** to use for Graphtec Studio, such as inches or metric.

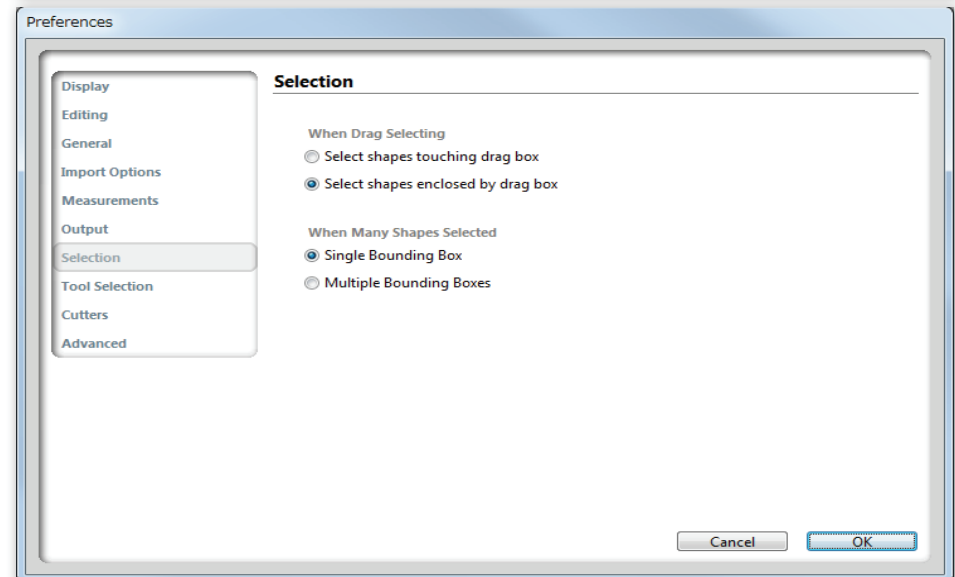
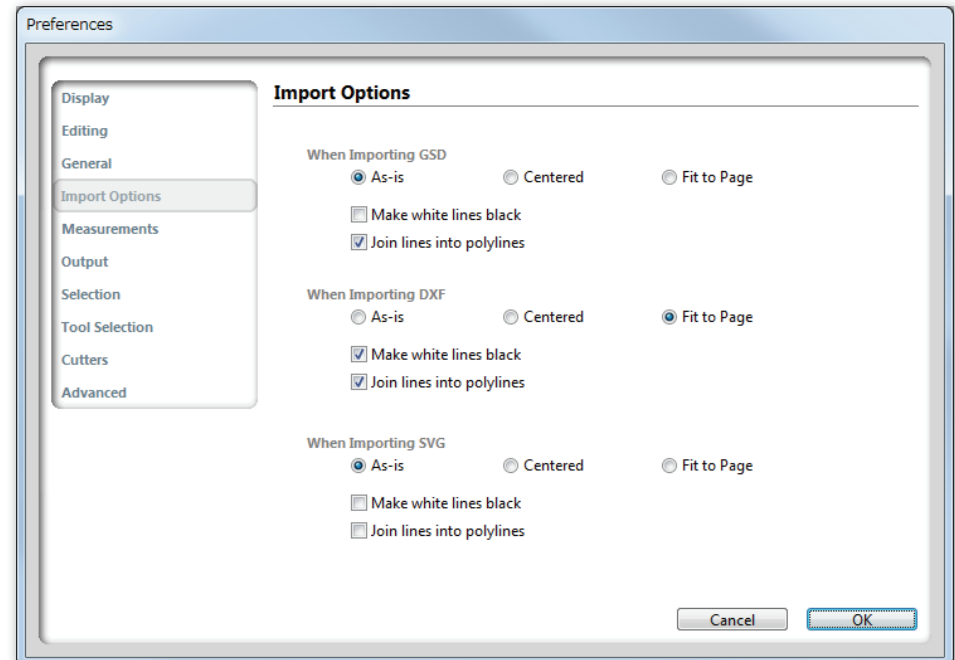
## Output

This preference setting determines the resolution of the design when it is sent to the printer.

## Selection

This preference contains settings that pertain to selecting objects:

- **When Drag Selecting** determines how shapes and objects are selected when drawing a box around them, whether shapes are selected when the box touches them, or shapes are selected only when the box encompasses them.
- **When Many Shapes Selected** determines whether one bounding box is used for all selected objects, or multiple bounding boxes are used for each selected object.



## Setting the Preferences, continued

### Tool Selection

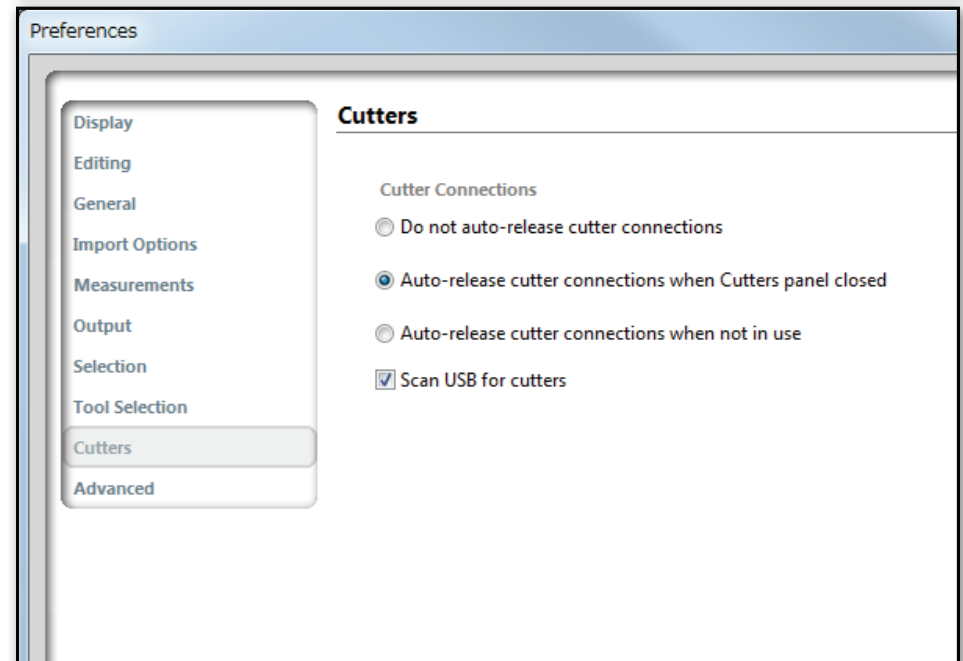
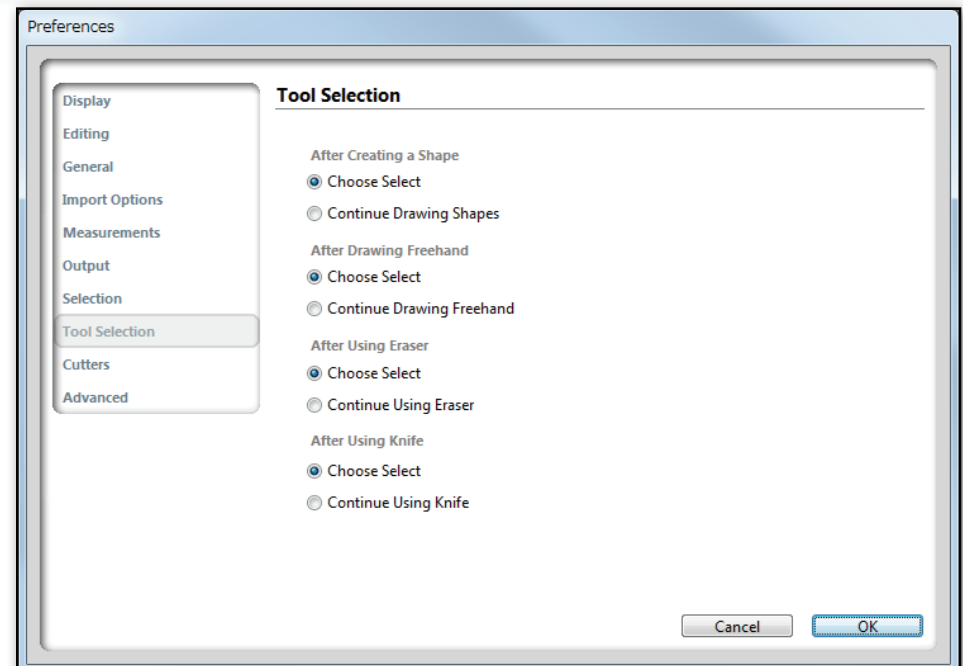
These preference settings determine what action should be taken after using four different tools: Creating Shapes, Drawing Freehand, Eraser tool, and the Knife tool. Each of the different choices of tool actions are the same:

- **Choose Select** will switch to the Select tool after using the current tool. For instance, after creating a rectangle, the software will switch back to the Select tool.
- **Continue Drawing** will continue with the same tool, and will not switch to the Select tool.

### Cutter Connections

These preference settings determine the times and durations for which Graphtec Studio will maintain the connection to a cutter.

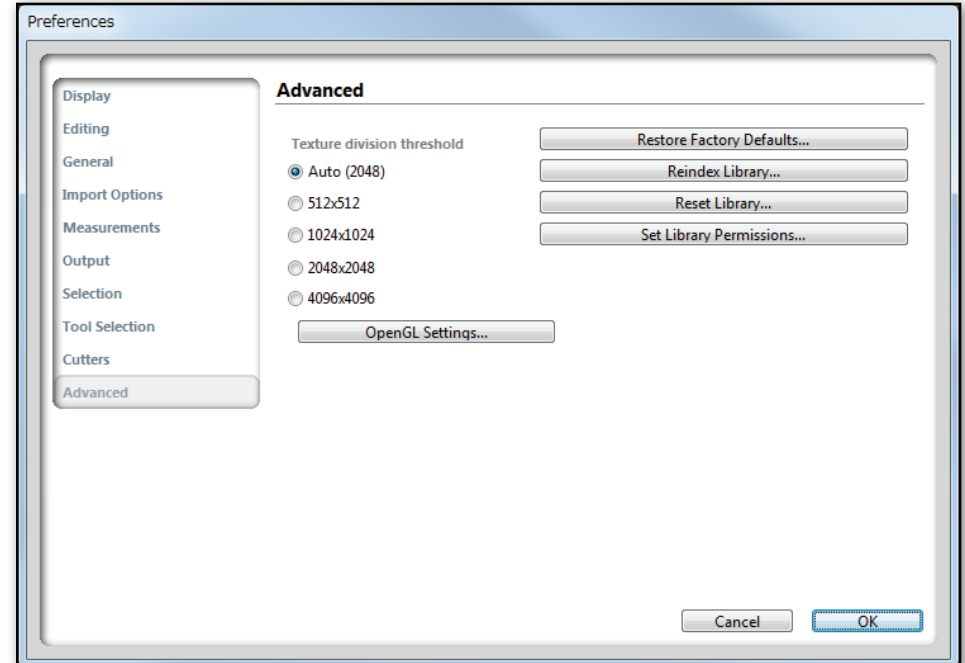
- **Do not auto-release cutter connections** will have Graphtec Studio hold on to all connected cutters until the application is exited, or until the user manually releases a cutter.
- **Auto-release cutter connections when Cutters panel closed** will have Graphtec Studio auto-connect to cutters only when the cutter's panel is opened, and auto-releases them at other times (allowing for other applications to access the cutters).
- **Auto-release cutter connections when not in use** will release the cutter when it is not in use.
- **Scan USB for cutters**, when checked, will automatically search for and connect to Graphtec cutters connected through any USB ports. It will then gather the information of cutters and display them in the Connected Cutter panel.



## Setting the Preferences, continued

### Advanced

- **Texture division threshold** determines how your computer's video card handles larger raster images in the program. OpenGL will display more settings for this option.
- **Restore Factory Defaults** will permanently delete preferences and condition settings, reverting them back to factory default.
- **Reindex Library** will re-index the library to ensure corruption or errors may be resolved. If the Library is not loading correctly this option may resolve the issues
- **Reset Library** will remove all images and folders from your library and reset the library back to its original software installation settings.
- **Set Library Permissions** will automatically set the Library permissions.

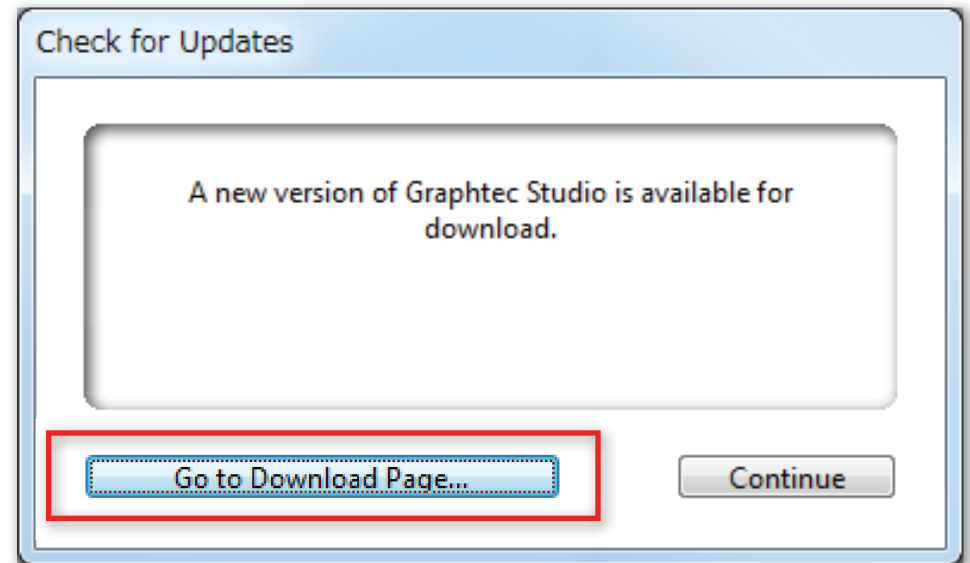


# Software Update

Graphtec Studio automatically checks for updates to the software when it starts up\*. This can also be checked manually. If it determines it is an earlier version than the latest released version, an **Update** message window will appear as shown below.

## How to Update the Software

1. Once the message window shown on the right appears, click on the **Go to Download Page** button. This action will open Graphtec's download page.
2. Select and download the desired software from the download page.



This window appears when a new version of Graphtec Studio is available

3. When downloading is complete, close all open applications currently running on your computer.
4. Double-click on the downloaded installation software icon to start installation.
5. When installation ends, the software update is complete.



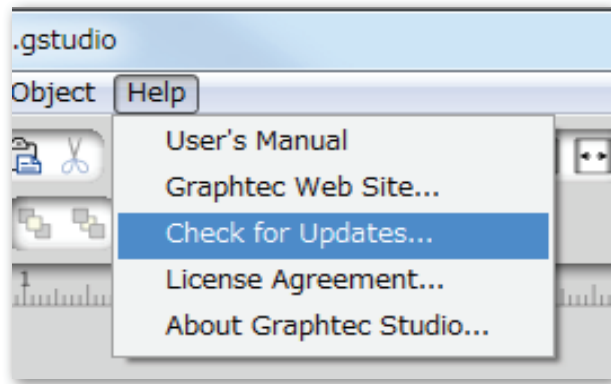
Double click on the downloaded installation software to install the updated software.

\* This depends upon the settings in Preferences, and requires an Internet connection.

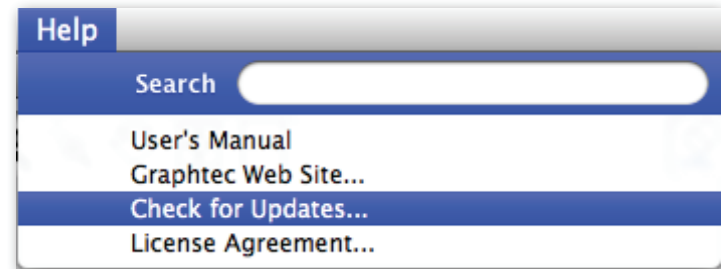
## Software Update, continued

### Checking for Updates

To check software update information, click on the **Help** pull down menu and select **Check for Update**.



Selecting HELP from the Windows version



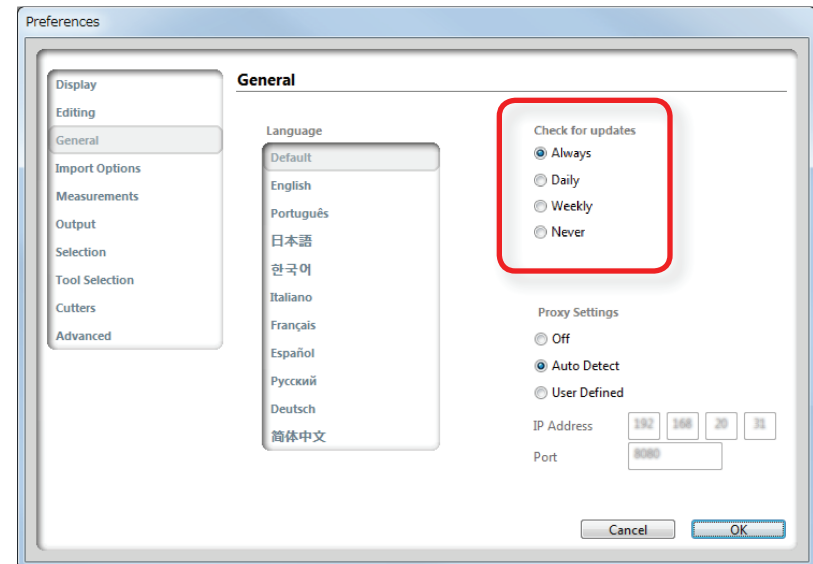
Selecting HELP from the Macintosh version

### Software Update Preference

You can specify how often the software will check for updates in **Preferences**.

To access the preferences in the **Windows** Version, click on the **File** pull down menu and select **Preferences**.

To access the Preferences in the **Macintosh** version, click on the **Graphtec Studio** pull down menu.



# Appendix A - Cut Line Patterns

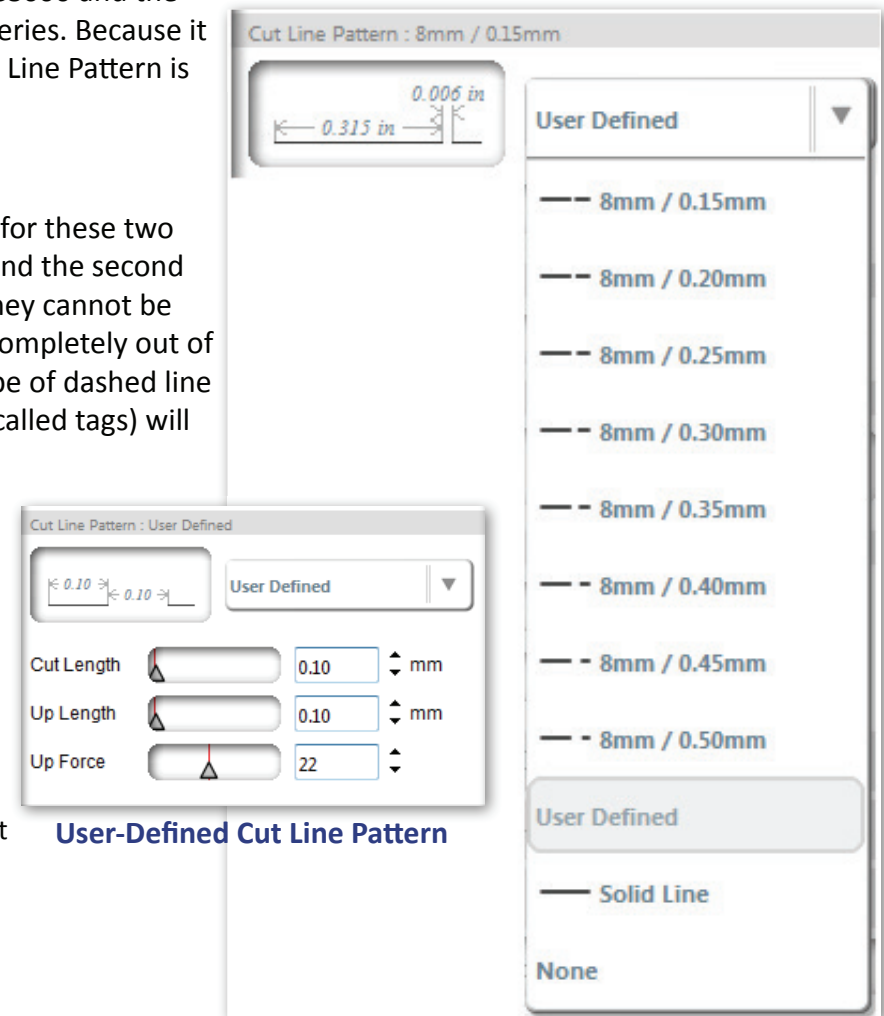
As part of a Condition or Media Type, a cut line pattern can be selected. A cut line pattern can either be a solid line or a dashed line pattern. When the job is cut, it will then cut that line pattern. There is only one solid line, but there are several types of dashed lines, with the differences usually being the length of the dash, as well as the gap. The Cut Line Pattern for the FC8600 and the CE6000 are different from the other cutters: CE5000, FC2250, and the FC4500 series. Because it is important that differences are clear, the section below describes how the Cut Line Pattern is used for the different models:

## FC8600/CE6000 Cut Line Pattern

The FC8600 and CE6000 have *built-in* cut line patterns. The Cut Line Pattern list for these two devices will show how those patterns are set up. The first number is the dash, and the second number is the gap. Since the Choice of patterns are inherent to these cutters, they cannot be changed. What make these patterns different is the gaps; the blade never lifts completely out of the material, but will cut with a lesser force, or what is called a half-cut. This type of dashed line pattern is designed for cutting completely through media. The gaps (or what is called tags) will keep the cut objects in place until the job has finished cutting.

### To edit the user-defined line pattern:

1. Click on the pull down list of Line Patterns.
2. At the bottom of the list, select User-Defined. This will expand the list with these three settings:
  - **Cut Length** is the part of the line where the full cutting force is applied, cutting completely through the media.
  - **Up Length** is the segments of the cut line where the **Up Force** is used and the force is reduced. The Up Length establishes the tags for holding the cut portion in place.
  - **Up Force** is the force used when cutting the **Up Length**.
3. Set the value for each setting and press Enter.



User-Defined Cut Line Pattern

Cut Line Patterns for the FC8600 and the CE6000

## Appendix A - Cut Line Patterns

### CE5000, FC2250, and the FC4500 Cut Line Patterns

The Cut Line Pattern for these Graphtec cutters will have nine pre-installed Line Styles, and three User styles. The first style is a solid line, which is generally the default and cannot be changed. Then there is a range of different dashed line patterns or styles, each of which can be edited. If need be, other line styles can also be added to the list. The dashed lines for these cutters are used when the cut lines need to be perforated, or when plotting dashed lines.

When editing a Style, only the pitch can be adjusted. A diagram will be provided to illustrate how the pitch effects the line. Keep in mind that while editing the line type, it can be labeled with a name.

#### To edit a Style:

1. Click on the pull down list.
2. Either right-click on the Style to change and select Edit, or hover the mouse over the line style and click Edit.
3. Set the pitch length and press Enter.

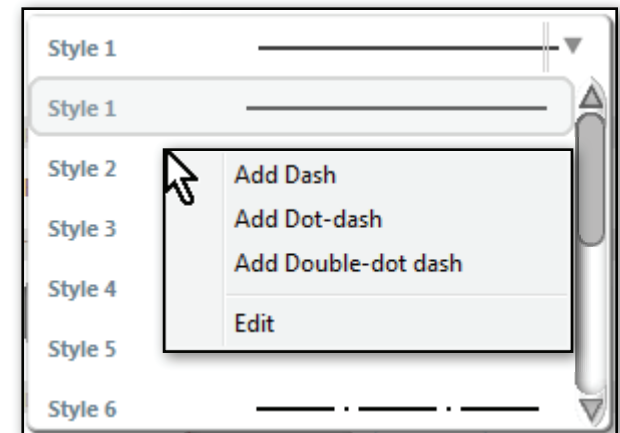


#### To edit a User style:

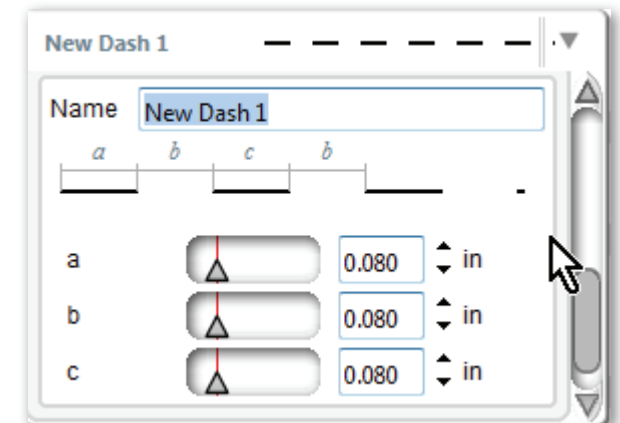
1. Click on the pull down list.
2. Either right-click on the User style to change and select Edit, or hover the mouse over the line style and click Edit.
3. Set the pitch length and press Enter.

#### To add a new Dash line

1. Click on the pull down list.
2. Right-click anywhere on the list.
3. Choose one of the three choices of dashed lines.
4. Set the A, B, and C length and press Enter.



Style Patterns



Defining User Style Cut Line Pattern



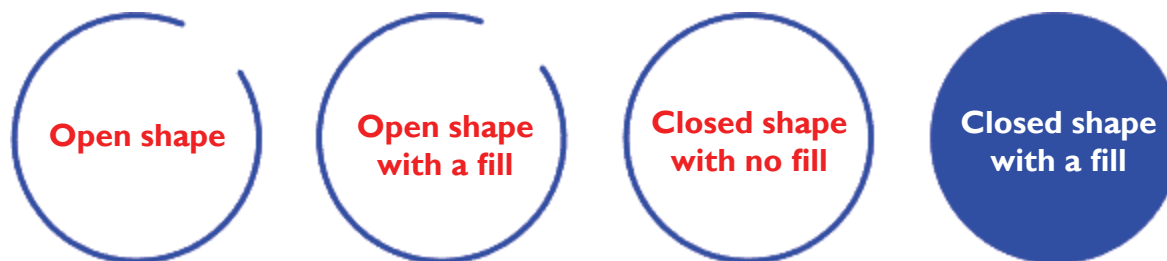
## Appendix B - Closed Shapes Vs. Open Shapes

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Closed objects are shapes that have no gaps in the lines and curves that form the shape. These shapes can have fills.

Open shapes have a break in the line path making the shape. Some are obvious, and others, especially where the beginning point and end point meet, are not obvious. The best way find out if an object is an open or closed shape is to add a fill.

If an object does not fill, then it is an open shape.



# Appendix C - File Compatibility

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Graphtec Studio can import both vector and bitmap files created with a different application.

In the bitmap file, you can perform the print & cut operation and trace an outline using the object editing tool in this software.

Graphtec Studio supports import and insertion of the following file formats:

The extension is shown between parentheses.

## Vector files

- Graphtec Studio file (gstudio)
- Graphtec ROBO Master file (gsd/gst/gsp)
- DXF file (dxf)
- Windows Metafile (wmf)
- Enhanced Metafile (emf)

## Bitmap files (Outlines can be traced in the files with an asterisk (\*).)

- EPS file (eps)\*
- BMP file (bmp, did)\*
- TIFF file (tif, tiff)\*
- PCX file (pcx)\*
- CG4 file (cg4)\*
- JPEG file (jpg, jpe, jpeg, jfif)\*
- PNG file (png)\*
- GIF file (gif)\*
- RAS file (ras)
- CIT file (cit)
- RLC file (rlc)

Files supported in Graphtec Studio Pro 

- AI file (ai)
- PDF file (pdf)
- SVG file (svg)

## Appendix C - File Compatibility

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### Importing an EPS File

The following restrictions apply when importing or inserting an EPS file.

1. Layer settings cannot be imported.  
All the set layers are imported with a combined structure.
2. The objects shown below can be imported but cannot be correctly cut.  
Edit them using the object editing tool in Graphtec Studio.  
If you send data without editing it, the same object may be cut multiple times or subtly move in the filled area.
  - Objects filled with a gradation or pattern
  - Objects filled using the transparency function

The EPS file retains the information about object frames and filling.

Therefore, when these data items are sent to the cutter, the cutter operation is performed multiple times for a single object.

3. Embed fonts in the EPS file.  
Adobe PostScript Level 2 is supported.

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