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ABM International  
**M-Series INNOVA**  
**AUTOPILOT MACH 3**  
Including: Grand Format Embroidery (GFE)  
USER INTERFACE MANUAL

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## Table of Contents

<b>INTRODUCTION .....</b>	<b>8</b>
<b>SAFETY .....</b>	<b>9</b>
SAFETY INTRODUCTION .....	9
SAFETY PRACTICES.....	9
<b>SPLASH SCREEN .....</b>	<b>10</b>
FILE / QUIT AUTOPILOT .....	10
<b>SETTING UP.....</b>	<b>11</b>
CREATE QUILT GRID .....	11
CREATE SEW ZONE.....	11
<b>IMPORT PATTERNS .....</b>	<b>13</b>
ADDING PATTERNS.....	14
<b>PATTERN PAD MANAGEMENT .....</b>	<b>16</b>
<b>ADD/DELETE PATTERNS FROM WORKSPACE .....</b>	<b>17</b>
<b>UNDO/REDO .....</b>	<b>18</b>
<b>MIRROR AND FLIP.....</b>	<b>18</b>
<b>REVERSE SEW .....</b>	<b>18</b>
<b>NUDGE.....</b>	<b>18</b>
<b>PATTERN CENTER.....</b>	<b>18</b>
<b>TRANSFORM .....</b>	<b>20</b>
<b>RESIZE.....</b>	<b>20</b>
<b>ROTATE.....</b>	<b>22</b>
<b>MORPH.....</b>	<b>24</b>
<b>TRIM .....</b>	<b>25</b>
<b>DELETE SEGMENTS.....</b>	<b>26</b>
<b>SPLIT (DIVIDE/ CREATE SEGMENT/MULTI-SEGMENT) .....</b>	<b>27</b>
<b>ALIGN .....</b>	<b>29</b>
<b>POSITIONING GRAB/DROP .....</b>	<b>31</b>

<b>JOIN .....</b>	<b>31</b>
<b>GROUP .....</b>	<b>33</b>
GROUP .....	33
ATTACH .....	33
LINK .....	33
UNGROUP .....	33
<b>GROUP MANAGER .....</b>	<b>34</b>
<b>AUTOFIT .....</b>	<b>34</b>
<b>CROSSHATCH .....</b>	<b>37</b>
<b>DRAW .....</b>	<b>39</b>
<b>TEXT .....</b>	<b>40</b>
<b>DRAW .....</b>	<b>40</b>
<b>EDIT .....</b>	<b>41</b>
<b>ENDSNAP .....</b>	<b>43</b>
<b>WREATH .....</b>	<b>44</b>
<b>EDGE TO EDGE .....</b>	<b>45</b>
FIT .....	45
TRIM .....	45
MULTIPLY .....	45
FILL .....	45
ROW GAP .....	45
COLUMN GAP .....	46
OFFSET .....	46
FLIP OPTIONS .....	46
EDGE TO EDGE WIDTH/HEIGHT .....	46
ADJUST ROW GAP .....	46
ADJUST THE OFFSET .....	46
ADJUST COLUMN GAP .....	46
<b>MASK .....</b>	<b>49</b>
OPTIONS FOR MASKING: .....	49
CONTINUOUS SEW .....	49
SEW MASK OUTLINE .....	49
<b>BOUNDARY AND BOUNDARY OPTIONS .....</b>	<b>51</b>
MORPH TO FIT .....	51
MAINTAIN RATIO .....	51
<b>GRAND FORMAT EMBROIDERY .....</b>	<b>53</b>
IMPORT PATTERNS .....	53
EDIT COLOR .....	53

SET SEW ORDER .....	55
PATH APPLY .....	55
EDIT MOTIF .....	57
VIEWPORT GRID .....	57
RESIZE .....	58
<b>PUSHPINS AND PUSHPIN OPTIONS .....</b>	<b>60</b>
PUSHPINS .....	60
MOUSE .....	60
SEWHEAD .....	60
PUSHPIN OPTIONS .....	60
SETTINGS FOR PLACING PINS .....	60
CONNECT WHILE PLACING .....	60
MOUSE PLACEMENT .....	60
CONNECT INDIVIDUAL PUSHPINS .....	61
CLOSE WHEN DONE .....	61
REMOVE PUSHPINS .....	61
CENTER PUSHPINS .....	62
PUSHPIN LINES .....	62
PUSHPIN CHIMES .....	62
<b>PATTERN LOCK.....</b>	<b>62</b>
<b>MEASURE.....</b>	<b>63</b>
MEASURE - FREE.....	63
MOUSE .....	63
SEWHEAD .....	63
MEASURE - PATTERN .....	64
MEASURE - PATTERN TO POINT .....	64
MEASURE – PATTERN TO PATTERN.....	65
<b>SEWING OPTIONS .....</b>	<b>66</b>
SET PATTERN CLICK .....	66
REVERSE DIRECTION .....	66
DEQUEUE .....	66
SEWING PREVIEW .....	66
MANUAL ORDER.....	66
AUTOMATIC ORDER.....	67
TOP LEFT.....	67
TOP RIGHT.....	67
BTM LEFT .....	67
BTM RIGHT.....	67
<b>POWER ASSIST .....</b>	<b>68</b>
<b>AXIS LOCK .....</b>	<b>68</b>
<b>SEW .....</b>	<b>68</b>
<b>PAUSE.....</b>	<b>68</b>
<b>STOP .....</b>	<b>69</b>
EDIT .....	69



RESUME .....	69
CONTINUE .....	69
MOVE.....	69
<b>SEWING DISPLAY .....</b>	<b>70</b>
<b>LIGHTNING STITCH SETTINGS .....</b>	<b>70</b>
<b>VIEW .....</b>	<b>70</b>
<b>ZOOM IN.....</b>	<b>71</b>
<b>ZOOM OUT .....</b>	<b>71</b>
<b>ACTIVE ZOOM .....</b>	<b>71</b>
<b>FULL VIEW .....</b>	<b>71</b>
<b>ACTUAL SIZE .....</b>	<b>71</b>
<b>TURN PAN ON.....</b>	<b>71</b>
<b>TURN PAN OFF.....</b>	<b>72</b>
<b>FREE VIEW AND NEEDLE VIEW .....</b>	<b>72</b>
<b>PATTERN SETTINGS.....</b>	<b>72</b>
<b>ADVANCING AND REPOSITIONING.....</b>	<b>73</b>
REPOSITION .....	73
ALIGN TO QUILT .....	73
MANUAL.....	74
<b>TENSION CHECK .....</b>	<b>75</b>
<b>ADJUST COLORS.....</b>	<b>75</b>
<b>BACKGROUND IMAGE.....</b>	<b>76</b>
BACKGROUND IMAGE .....	76
SIZEABLE IMAGE .....	76
<b>SAVE PATTERNS .....</b>	<b>78</b>
<b>DELETE PATTERN/PROJECT FILES .....</b>	<b>78</b>
<b>TAG PATTERNS .....</b>	<b>79</b>
<b>DIAGNOSTICS.....</b>	<b>81</b>
DRIVE SETTINGS.....	81
<b>LIGHTNING STITCH SETTINGS .....</b>	<b>82</b>
<b>MACHINE DIAGNOSTICS .....</b>	<b>83</b>

<b>VIEWPORT .....</b>	<b>84</b>
<b>MENU TABS .....</b>	<b>85</b>
OPEN PROJECT .....	85
MERGE PROJECT .....	85
NEW PROJECT .....	85
PATTERN PAD .....	85
SAVE PROJECT .....	85
SAVE PROJECT AS .....	85
SAVE PATTERN .....	85
PRINT PATTERNS .....	86
IMPORT .....	86
EXPORT .....	86
DELETE PATTERN/PROJECT .....	86
ASSIGN TAGS .....	86
RECENT PROJECTS .....	86
PROJECT RECOVERY .....	86
QUIT AUTOPILOT .....	87
SYNC .....	87
EDIT MENU .....	87
VIEW MENU .....	87
ZOOM IN .....	88
ZOOM OUT .....	88
NEEDLE VIEW .....	88
FULL VIEW .....	88
ACTUAL SIZE .....	88
LIBRARY MENU .....	88
SETTINGS MENU .....	88
SEWING ON/OFF .....	89
PAUSE ON/OFF .....	89
AUTO TIEOFF .....	89
HD STITCHES ON/OFF .....	89
SNAP TO GRID ON/OFF .....	90
BOBBIN NOTIFICATIONS ON/OFF .....	90
SEWING CHIMES .....	90
PUSHPIN CHIMES .....	90
PATTERN PAD MANAGER .....	90
TOP PANEL CONFIG .....	90
ADJUST COLORS .....	90
SEWHEAD DISPLAY .....	90
GRID LABELS ON/OFF .....	90
PATTERN DISPLAY .....	91
SEW ZONE .....	91
QUILT SIZE .....	91
ADD IMAGE .....	91
HELP MENU .....	91
CONTACT US .....	91
ABOUT .....	91
UPDATE .....	91
ACTIVATE FEATURES .....	91
DIAGNOSTICS .....	92
CALIBRATE ACTUAL SIZE .....	92

ENCRYPTION .....	92
<b>RIGHT CLICK DROP DOWN MENU .....</b>	<b>92</b>
*SEW AS EMBROIDERY ON/OFF: .....	93
<b>KEYBOARD SHORTCUTS .....</b>	<b>94</b>
<b>ICON KEY .....</b>	<b>95</b>
<b>INCLUDED PATTERNS AND DESIGNERS .....</b>	<b>99</b>
<b>NOTICE .....</b>	<b>102</b>

## Introduction

ABM International would like to thank you for the purchase of an AutoPilot Mach 3 Computerized Robotics System for your Innova M-Series Quilting Machine. ABM is confident that this system will meet or exceed your expectations for cost, speed and durability.

If at any time you experience problems with any of your ABM products, we ask that you contact your nearest Dealer or us directly- 24 hours a day by calling our service department at (888)99-Quilt. We can help you solve the problem quickly, and correctly. Your calls, questions, and comments will in turn help us to perfect the quality of our products and services in the future.

Once again, we thank you for your purchase.

ABM International, Inc.

Engineering Department

## Safety

### ***Safety Introduction***

As with the operation of all machinery, safe operation of the AutoPilot Mach 3 system and Innova M-Series quilting machine is a major concern of ABM International, Inc. The purpose of this section is to inform the owner/operator further referred to as “User” of the safe and prudent operation of an Innova M-Series quilting machine when equipped with AutoPilot Mach 3 Robotics.

We have attempted to recommend the most effective methods and calculations to warn against actions that could result in personal injury or make equipment unsafe. It is important to understand that ABM cannot anticipate or list all conceivable safety methods and warn of all the possible hazards. In the interest of promoting safety, ABM advises that the user should always make sure that personal safety and the safe operation of the machine will not be adversely affected by their actions.

It is imperative that the User of the Innova M-Series with AutoPilot Mach 3 read and understand the information in this manual before operating the machine.

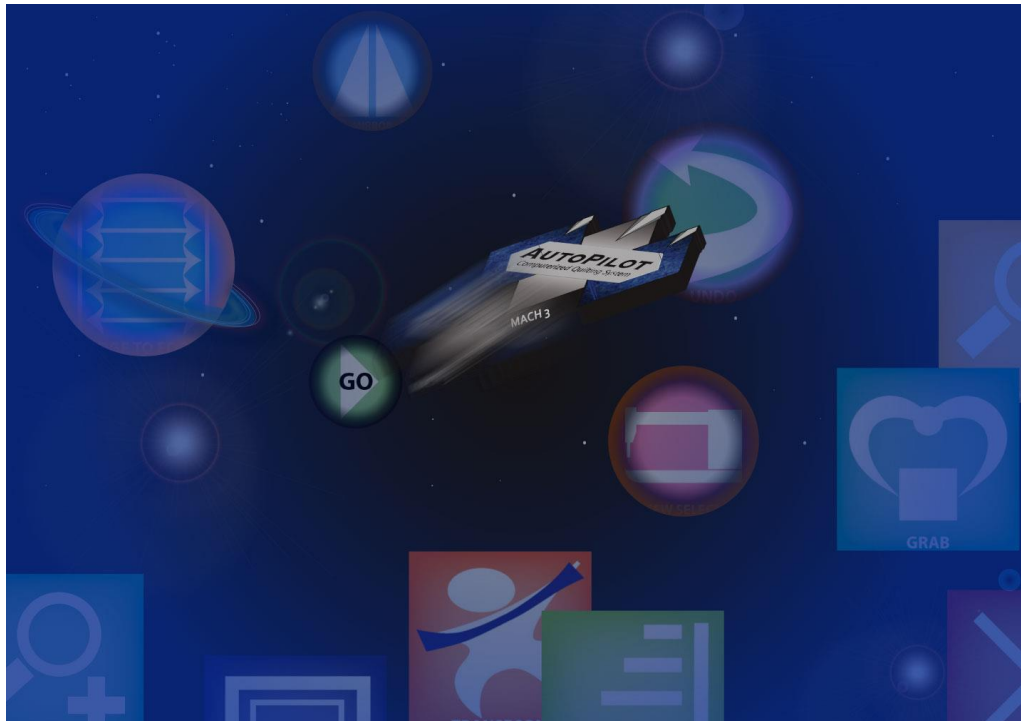
### ***Safety Practices***

These safety factors must be observed to ensure safe operation of an AutoPilot Mach 3 equipped Innova M-Series.

- Read and understand the operating instructions of the AutoPilot Mach 3 and Innova M-Series before operating.
- Use caution when working around the AutoPilot Mach 3 electrical controls.
- Keep hands or other body parts away from the moving parts of the AutoPilot Mach 3.
- Stop the AutoPilot Mach 3 immediately at any sign of malfunction or danger.
- Do not reach into the Innova M-Series sewing area at any time during the operation of the machine.
- Do not climb, walk, or stand on the Innova M-Series at any time.
- Do not tamper with installed motor guards and or safety devices.
- Before starting the Innova M-Series or AutoPilot Mach 3, ensure that no loose tools, needles, or parts are lying in or on any part of the machine.
- Always disconnect the power when working on the machine.
- Do not wear loose clothing or jewelry when operating the Innova M-Series or AutoPilot Mach 3.
- Always keep hair from encountering moving parts.

## Splash Screen

The splash screen is the first screen that appears upon running the AutoPilot Mach 3 application. The version number(s) of the software is shown in the upper left corner. The splash screen will display while the AutoPilot Mach 3 application is loading.



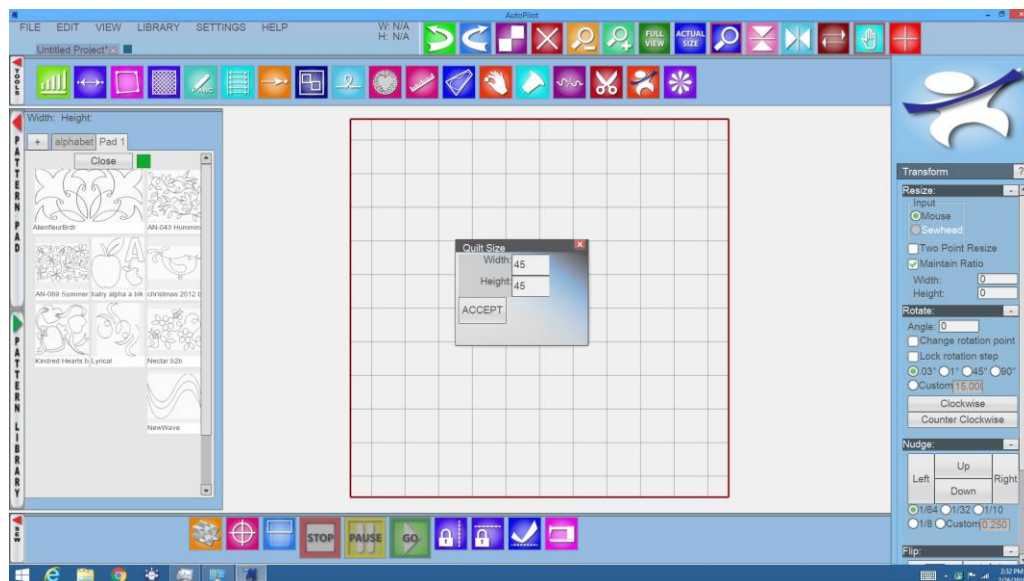
### ***File / Quit AutoPilot***

Terminates the AutoPilot Mach 3 application and returns to Windows.








## Setting Up

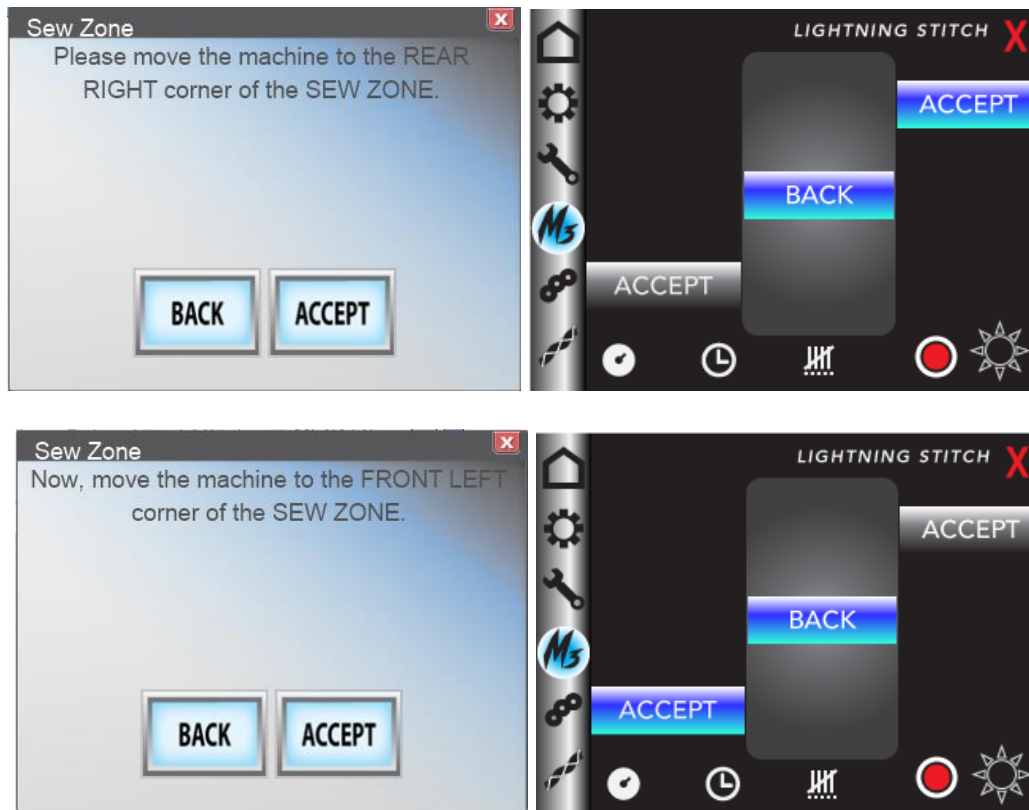
### Create Quilt Grid

Click on the "Settings" tab, click "Quilt Size", enter and accept quilt dimensions.

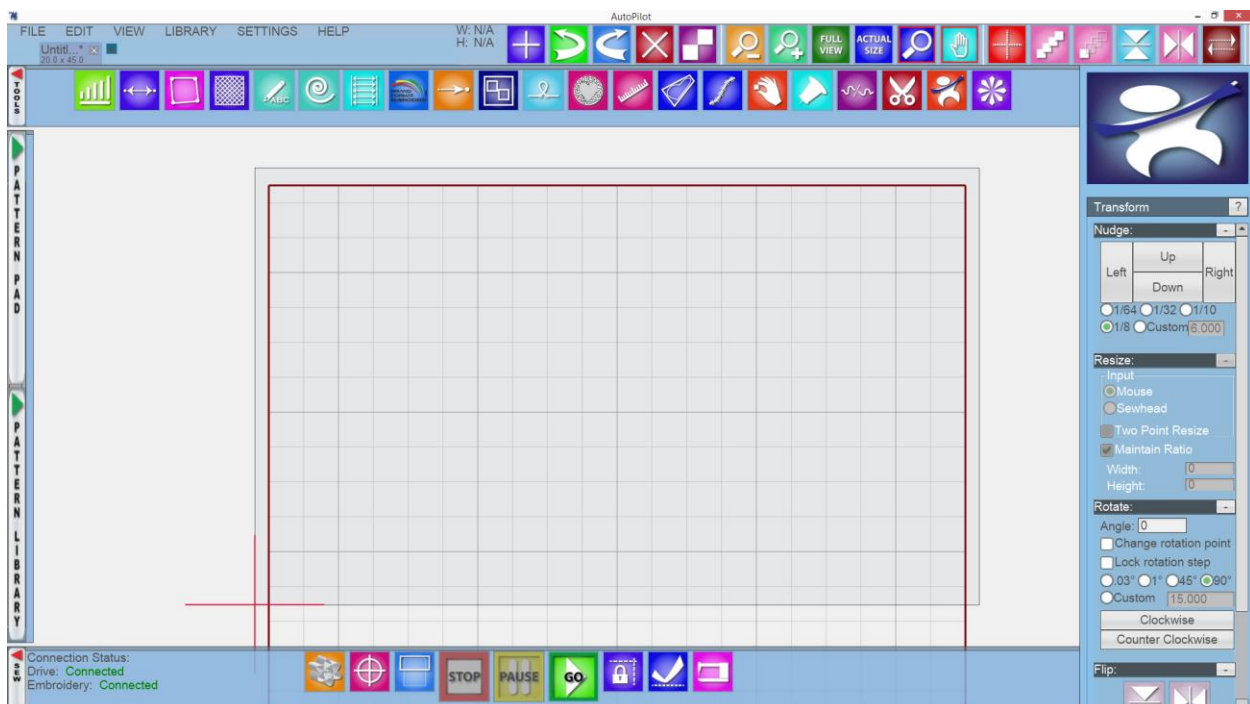


### Create Sew Zone

Clicking on "Create Sew Zone" icon  and move the sewing machine head to the upper right corner of quilt top, next click ACCEPT on the dialog box , or ACCEPT on Lightning Stitch screen . Then move the sewing machine head to the lower left corner of the quilt top and click ACCEPT on the dialog box , or ACCEPT on Lightning Stitch screen . If you need to go back to the previous dialog, press BACK on the dialog box,  or BACK on Lightning Stitch screen .



This will create the area that your machine will safely sew in.



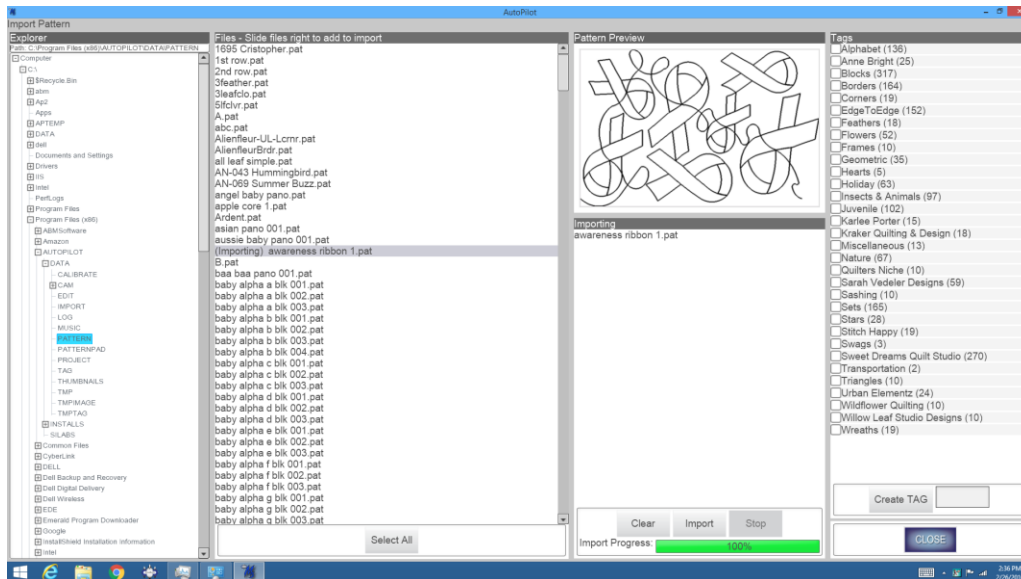


## Import Patterns

Any pattern that has already been imported into the software will display (Imported). If a file is unable to be imported, it will display (Can't Import). If a file is encrypted and requires a dongle and the dongle is not detected, it will display (Dongle Required).

To import patterns: insert USB drive with pattern files into USB port.

Open Import Pattern Screen: click on "Library" tab, click "Import Pattern".



Open Pattern File: in the left window go to "Computer", then find the USB drive, open the folder containing pattern files you would like to import.

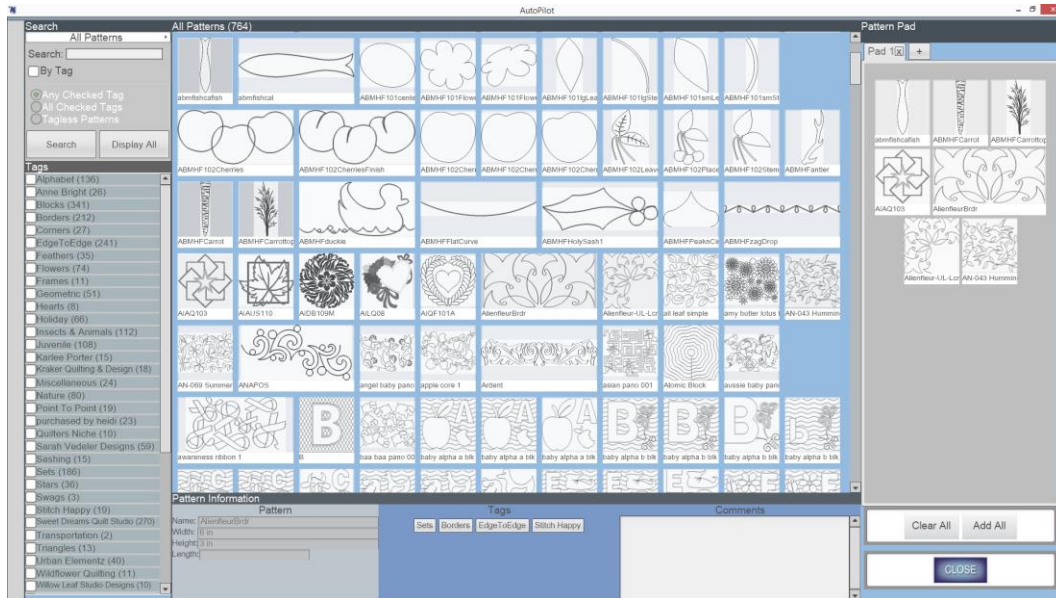
Choose Patterns to Import: from the list of patterns in the second window choose the patterns to import by double clicking on the file. The file name will appear in the Files to Import box along with an image of the selected pattern in the box above. Choose as many patterns as desired to import.

Tag Patterns: choose tags for the patterns being imported in the far-right window.  
Note: see Tagging Patterns pg. 44 for more tagging information.

Import: Click the "Import" button. Then click "Close" to return to AutoPilot Mach 3 application.

## Adding Patterns

Open Build Pattern Pad: by clicking on the “Pattern Library” icon or by going to “File” tab and clicking “Pattern Pad”.



**Pattern Files:** stored in the Pattern Library will all display in the center window.

**Pattern Information, Tags, and Comments:** will display the pattern name, Width and Height of selected pattern. Tags will display any tags associated with that pattern. The Comments field is where you can edit comments associated with selected pattern.

**Display pattern file type:** Click the “All Patterns” drop down menu to choose the file type you wish to display. You may choose All Patterns, Embroidery Patterns, Quilting Patterns, or Extensions.

**Search:** narrow a search by selecting: The search field, to search alphabetically by entering the first few letters of a pattern title; By Tag and “Match Any Checked Tag”, for a broader search of many selected tags; By Tag and “Match All Checked Tags”, for a very specific search of the selected tags; By Tag and “Tagless Patterns”, for all patterns without tags. Click “Search” button to search the pattern library. Click “Display All” button to clear search results.

**Select Patterns:** to add to the Pattern Pad for possible use on the current project by double clicking the pattern chosen. The pattern will then show up in the right-hand window. Choose as many patterns as desired. Click “Close” to return to the Viewport Screen.

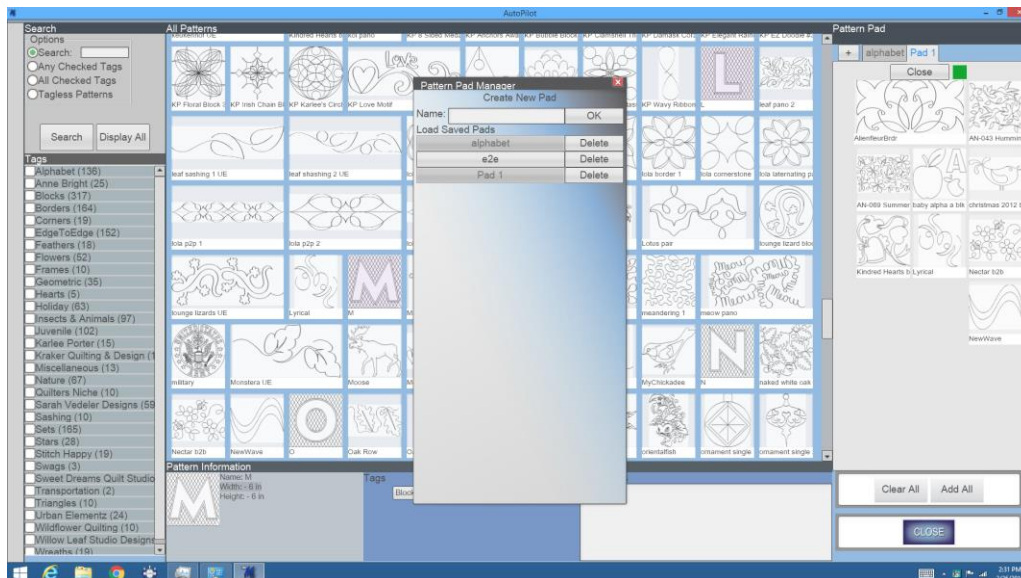
Delete Pattern from Pattern Library: by right-clicking on pattern within Pattern Library and choosing Delete from the dropdown menu. Choose "Yes" on confirmation dialog to permanently remove pattern file from the Pattern Library.

The Pattern Pad: can be cleared by selecting the "Clear All" button.

Delete Pattern from Pattern Pad: by right-clicking on pattern within Pattern Pad and choosing Remove from the dropdown menu. Choose "Yes" on confirmation dialog.

## Pattern Pad Management

Open Pattern Pad Manager: by clicking on the “+” button.



Add a New Pattern Pad: by typing a name into the textbox and clicking “OK” button. A new pattern pad tab with the name selected will be added.

Open a Saved Pattern Pad: by clicking on the name of the Pattern Pad. Pattern Pad will be opened as a new tab.

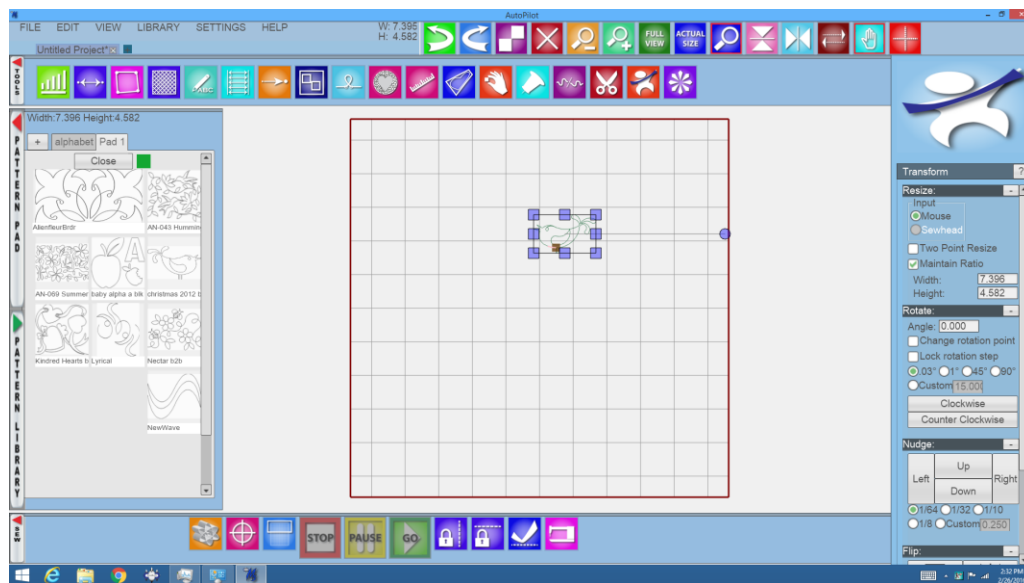
Delete a Pattern Pad: by clicking on the “Delete” button next to the Pattern Pad you wish to remove.

Change Pattern Pad Display Color: by clicking on the colored square next to Close button. Choose desired color and close the color selection window.

Close a Pattern Pad: by clicking on the “Close” button at the top of the Pattern Pad you wish to close.

## Add/Delete Patterns from Workspace


**Place Pattern:** on the quilt grid by double clicking (double finger tap on screen) the chosen pattern on the Pattern Pad. The pattern will go to the center of needle crosshair on the screen. You can place a pattern on the grid by clicking on the chosen pattern on the Pattern Pad and clicking on the grid where you want to place the pattern. You can also click and drag a pattern from the Pattern Pad to the grid.




**To Delete:** a pattern from the quilt grid, select the pattern and click the “Delete” icon.




Or right-click the pattern you wish to delete and choose Delete from the dropdown menu.




**To Create a Copy:** of the selected pattern, click the “Copy” icon.  Or right-click the pattern you wish to make a copy of and choose Copy from the dropdown menu. Created copy will be offset from the original pattern location.

## Undo/Redo


Undo: Reverse/Undo previous action by clicking the “Undo” icon.  Or right-click on the screen and choose undo from the dropdown menu.

Redo: Redo the previously undone action by clicking the “Redo” icon.  Or right-click on the screen and choose redo from the dropdown menu.


## Mirror and Flip

Use the “Mirror” icon  or “Flip” icon  to flip selected pattern. Mirror will flip the pattern on a vertical axis. Flip will flip the pattern on a horizontal axis. These tools can be found within Transform , under the right click drop down menu, and may be pinned to the top control panel.


## Reverse Sew

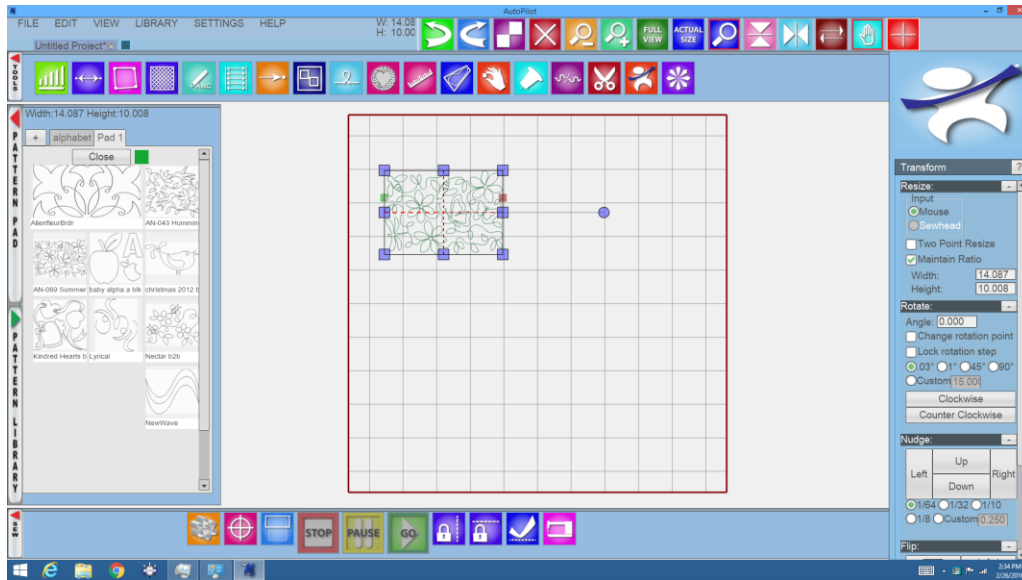
The green dot, and pink line marks the stitching start point of each pattern. Use the “Reverse Sew” icon  to reverse the sewing direction of selected pattern. This tool can be pinned to the top control panel, found as a button within Transform, or under the right click drop down menu.

## Nudge

Use the nudge tool within Transform  to make fine adjustments to the placement of patterns. Adjust the nudge amount by clicking on one of the choices. Nudge choices are 1/64 in., 1/32 in., 1/10 in., 1/8 in., and custom. Click the button associated with the direction you would like to nudge the selected pattern. You can use the arrow keys on your keyboard to nudge the pattern.

## Pattern Center

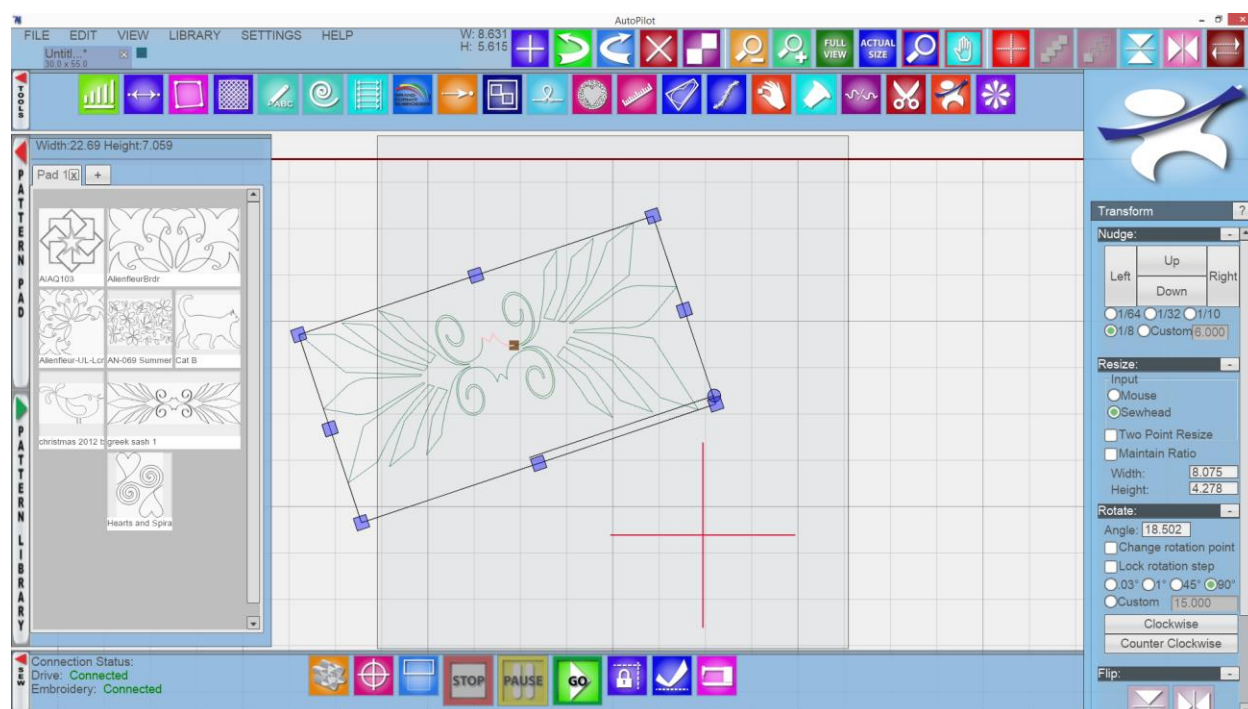
Use the “Pattern Center” button within Transform  to show the pattern center point. This tool can be pinned to the top control panel and can be found in the right click drop down menu.






## Transform

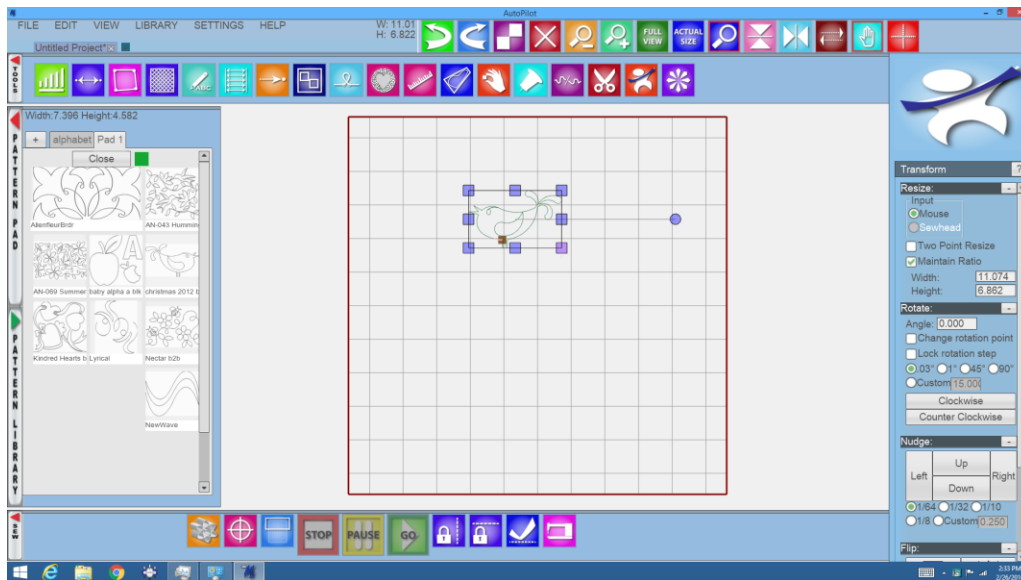
Transform is where basic editing of patterns can be made. Resize, Rotate, Flip, Mirror, Nudge, Reverse Sew, and Pattern Center are all within this tool. Transform, Flip, Mirror, Reverse Sew, and Pattern Center icons can be pinned to the top control panel by either right clicking the icon and selecting "Favorite", or by clicking Settings drop down menu, Top Panel Config, then place a checkmark next to the icons you wish to display on the top control panel. The order of Resize, Rotate, Nudge, Flip, Reverse and Pattern Center within the side bar can be reordered by right clicking the section label. The right click will bring that section of the tool to the top portion of the sidebar. See picture below. Nudge section label bar was right clicked so now it is positioned at the top of this tool side bar.



## Resize

Use the Resize tool within Transform  to resize single patterns, pantograph rows, or groups of patterns.






**Mouse:** Resize the pattern by touching on screen or mouse cursor. Click and drag a grab handle to resize the pattern. The selected grab handle will be highlighted. Use any one of the four corner grab handles to resize with maintain ratio box either checked/unchecked for desired result. Use any one of the four center edge grab handles to resize while maintaining the opposite width or height of the pattern.

**Sewhead:** Select Sewhead input. Position sewhead over grab handle to use for resizing. Click the "Grab" button on Lightning Stitch, or the green button on the sewhead and drag sewhead to resize the pattern. The selected grab handle will be highlighted. Click the "Drop" button on Lightning Stitch, or the green button on the sewhead to release grab handle.

**Keypad:** click on the "Height" or "Width" textbox and enter the preferred dimensions using the pop-up keypad. Maintain Ratio can be used with this option.

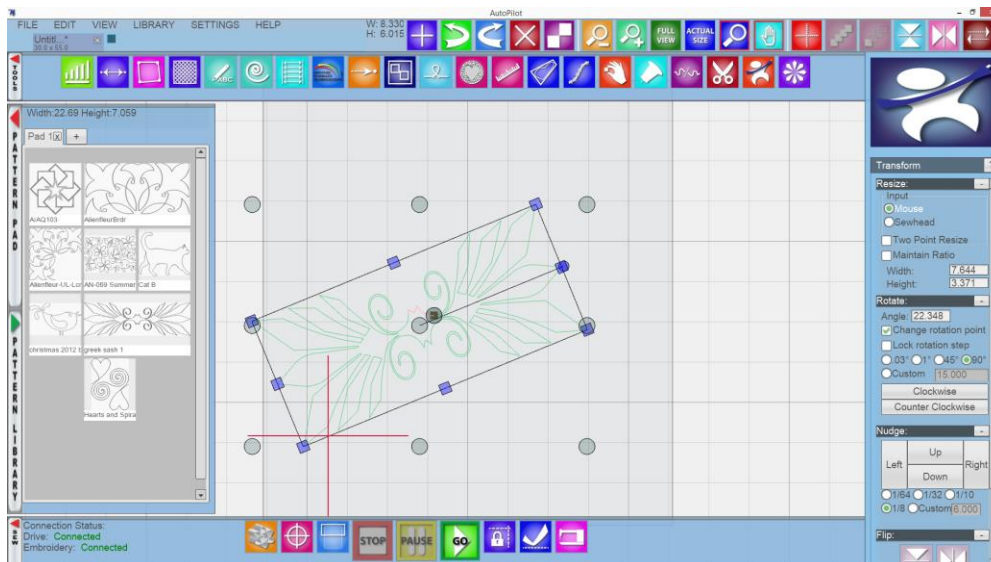
**Two Point Resize:** Check the "Two Point Resize" box to size a pattern by clicking the upper left corner (notice the patterns seems to have disappeared) and then the lower right corner of the location you want the pattern sized to and the pattern will suddenly reappear..

## Rotate

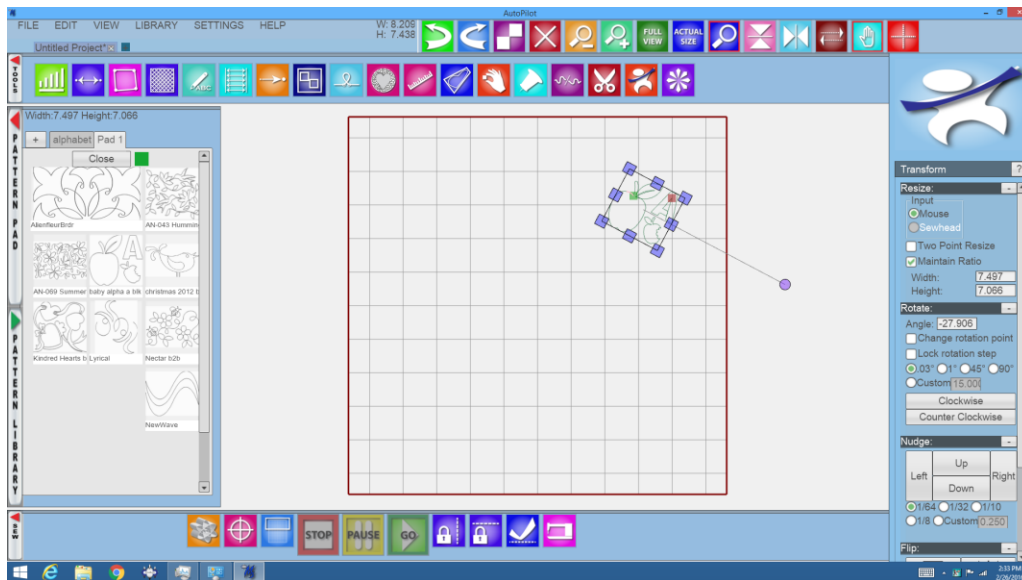
Use the Rotate tool within the “Transform” icon  to rotate single patterns, pantograph rows, or groups of rows. Click and drag the circle grab handle to rotate the pattern using the touch screen or mouse cursor. Choose a specific angle by clicking on Angle box. Use the keypad to enter angle.

Sewhead: may be used by checking the sewhead option under Resize. Grab and Drop rotation handle using Grab/Drop button on Lightning Stitch or the right handle green button.


Change rotation point: will pop up points that can be used as a rotation point. Click on the circle to rotate from that point or click any location on the screen or pattern to choose a custom rotation point. Change rotation point can be made using the sewhead by placing the sewhead over the point you wish to rotate from and select using the Grab/Drop buttons on Lightning Stitch or the right handle green button.

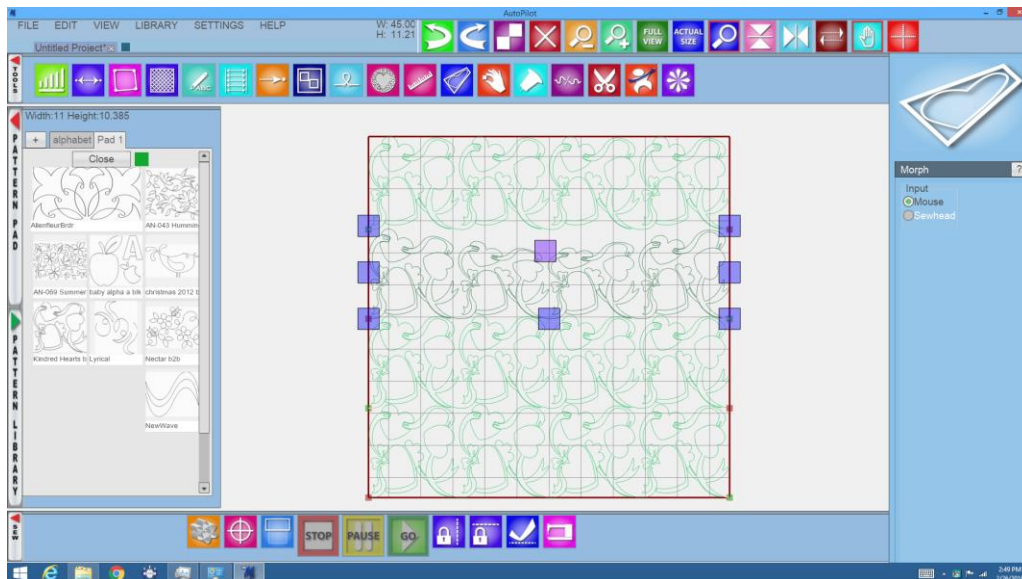


Lock Rotation Step: will snap rotations to selected degree. Uncheck for free rotation. Create custom degree by clicking custom box and entering degree on keypad. Click the “Clockwise” or “Counter Clockwise” buttons to rotate the pattern in any chosen degree increment. Change the rotation degree step by clicking on one of the choices. Rotation choices are .03°, 1°, 45°, 90°, and custom.



## Morph


To morph single patterns, pantograph rows, or groups of rows, select the pattern then click the "Morph" icon  to open the morph dialog. The Morph icon may be pinned to the top control panel.



**Mouse:** Morph the pattern by selecting the pattern for morphing. Click and drag a grab handle to morph the pattern from the selected morph point. The selected grab handle will be highlighted.

**Sewhead:** Checkmark the Use Sewhead option. Position sewhead over grab handle to use for morphing. Click the "Grab" button on Lightning Stitch or the green button on the sewhead and drag sewhead to morph the pattern. The selected grab handle will be highlighted. Click the "Drop" button on Lightning Stitch, or the green button on the sewhead to release grab handle.

## Trim

First select a pattern, row, or group, and then click the “Trim” icon  to open the Trim Dialog. Trim may be pinned to the top control panel.

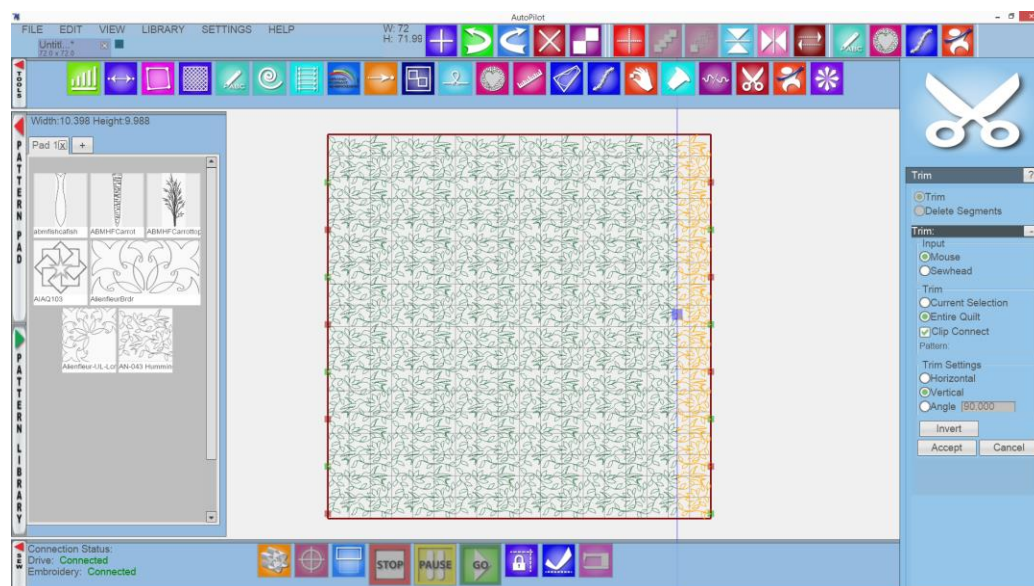
Mouse: Trim selected pattern or entire quilt by selecting either the horizontal, vertical, or angle option. Adjust the angle of the trim line by clicking the “Angle” window and entering the angle, or by clicking and dragging the circle handle on the trim line to desired angle. Click “Invert” to switch the selection to be trimmed away.

The yellow portion is the selection that will be trimmed away. Checkmark the “Clip Connect” option to have pieces of the trim be connected to become a continuous pattern. Click “Cancel” to select a different pattern to trim. Click “Accept” to trim away the red portion.


Sewhead: Trim selected pattern or entire quilt by selecting sewhead input. Select horizontal, vertical or angle option. Click the “Place” button on Lightning Stitch or the green button on the sewhead to place trim line.

You can Grab the trim line by positioning the sewhead over trim line grab handle and clicking the “Grab” button on Lightning Stitch or the green button on the sewhead. To release the trim line, press the “Drop” button, or the green button on the sewhead.

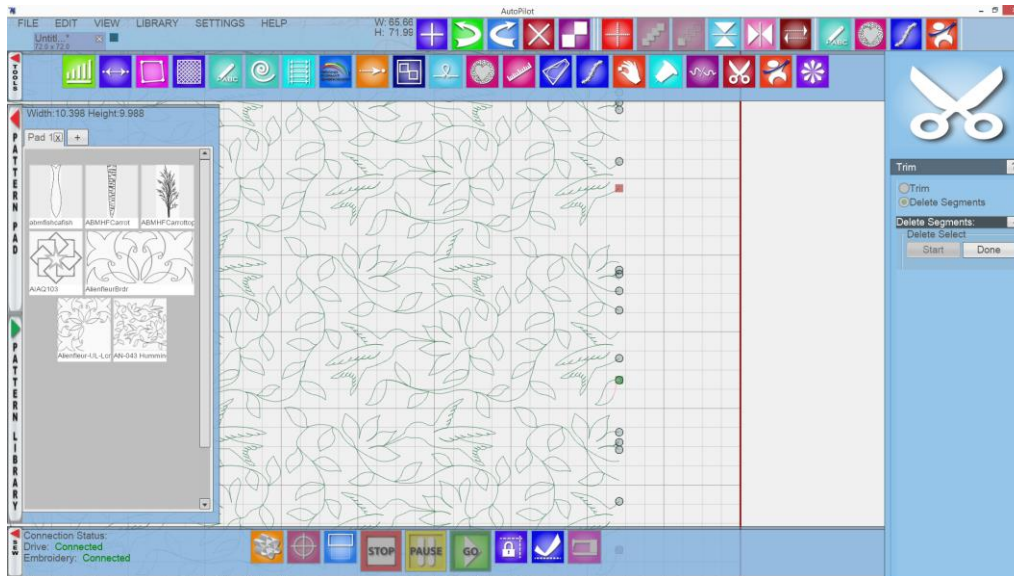
The yellow portion is the selection that will be trimmed away. Click “Invert” to switch the selection to be trimmed away. Checkmark the “Clip Connect” option to have pieces of the trim be connected to become a continuous pattern. Click “Cancel” to select a different pattern to trim. Click “Accept” to trim away the yellow portion.



## Delete Segments


Use the Delete Segments tool within the “Trim” icon  to clean up unwanted segments of a pattern. This feature will not work if clip connect was ON when the trim took place.

Click the “Start” button to display the segments of the pattern that can be deleted. Click on the circle displayed on the segment start point to delete the segment. Click “Done” when finished deleting segments.



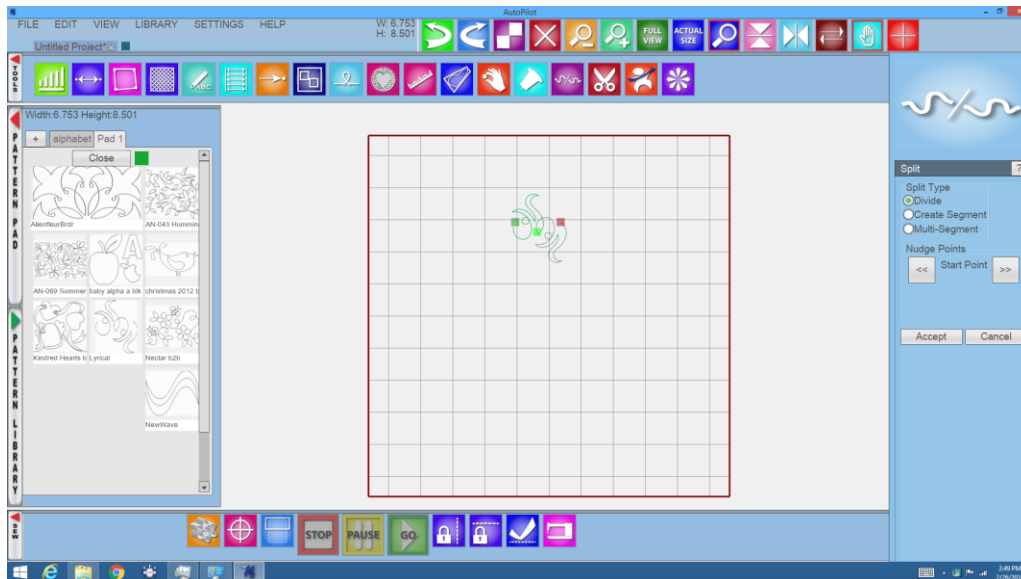


## Split (Divide/ Create Segment/Multi-Segment)

First select a pattern, row, or group and then click the “Split” icon  to open the Split dialog. The Split icon may be pinned to the top control panel.

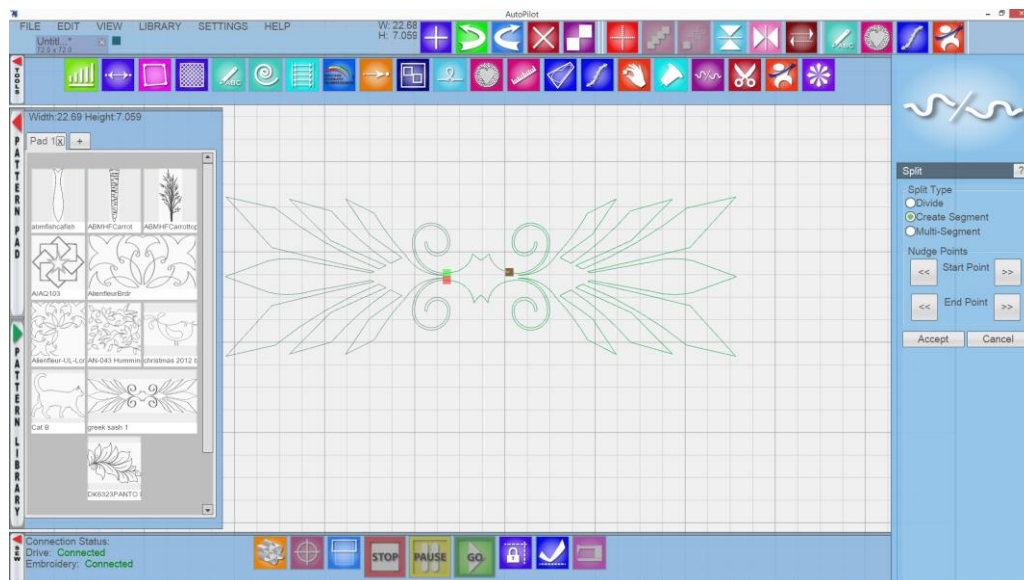
Choose split method: first choose a method to split the pattern. Divide will allow you to place one point, to divide the pattern at that point. Create Segment will allow you to place two points to create a segment of the pattern. Multi-Segment will allow you to place multiple points to split the pattern at those points.

Divide: click on the pattern to place the point for the division to occur. Clicking on the pattern again will move the dot or click the nudge arrows to move the point to desired location. Click “Accept” to perform the split. Click “Cancel” to clear placed point.



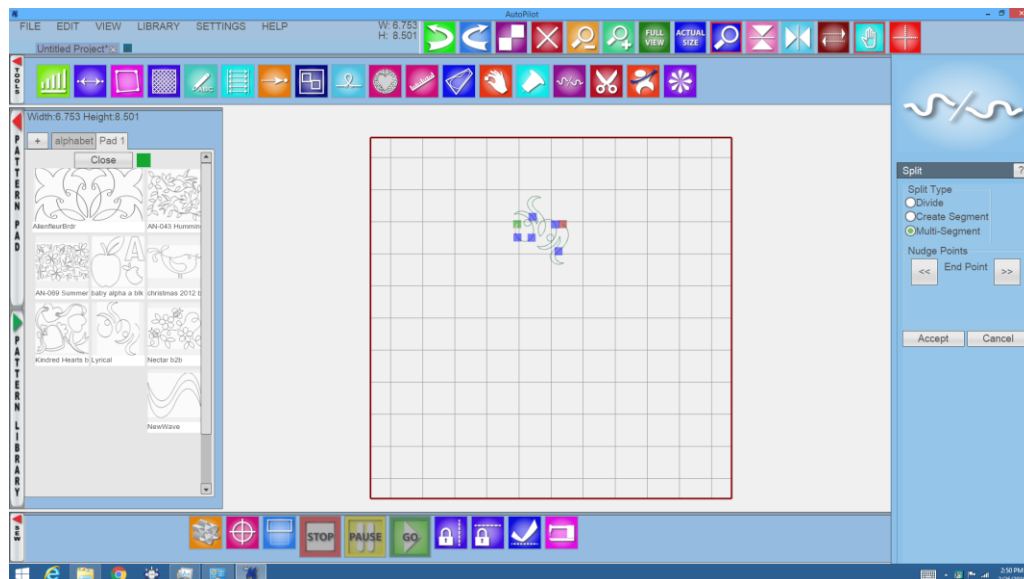
**Create Segment:** click on the pattern to place the start point of the created segment. A green dot will appear, click the nudge arrows to move the start point dot to the desired location. Click the pattern again to place the end point of the created segment. A red dot will appear, click the nudge arrows to move the end point dot to desired location.

Click "Accept" to perform the split. Click "Cancel" to clear placed point(s).




**Multi-Segment:** Click on the pattern to place the point for the split to occur. Clicking on the pattern again will place a new point for a split to occur. Click the nudge arrows to move the last point placed to desired location.

Click "Accept" to perform the split. Click "Cancel" to clear placed point(s).






## Align


First select a pattern, row or group, and then click the “Align” icon  to open the Align Dialog. The Align icon may be pinned to the top control panel.

Choose the line type you would like to use to align your pattern.

Mouse: will align the pattern using touch by finger (or mouse) on the touch pad. Select the alignment type to use, Horizontal Line or Vertical Line. Then click to place the line. When line placement is where you want it, click “Accept” button for Line Placement.

Select alignment style to use;

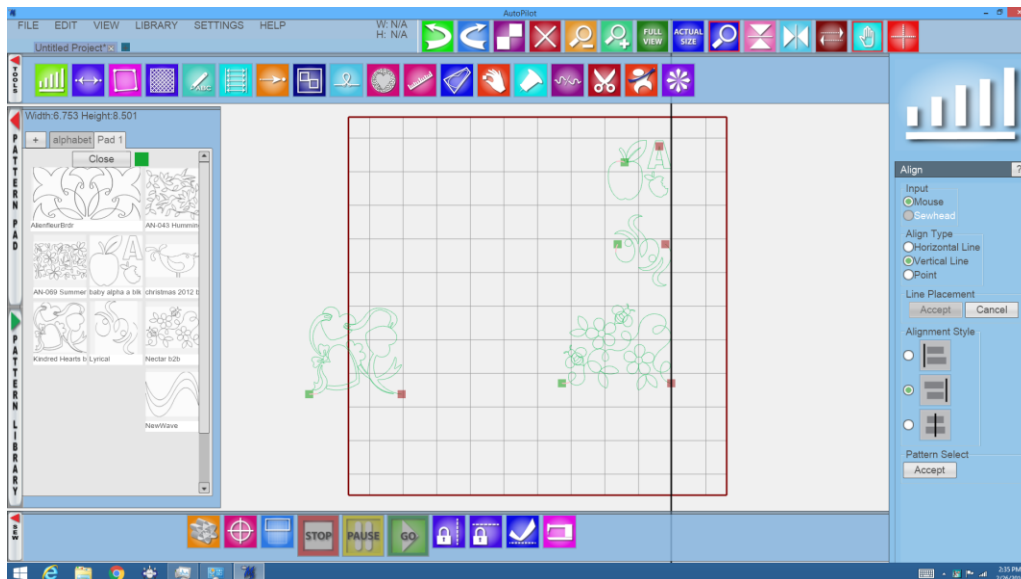
Horizontal: Top, Bottom, or Center 

Vertical: Left, Right, or Center .

Click the pattern(s) you want to align, click “Accept” button for Pattern Select when finished.

Point: Aligns the pattern using touch by finger (or mouse) on the touch pad. Select the alignment style to use, Top, Bottom, Left, Right, Top Left, Top Right, Bottom Left, Bottom Right, Center, Start Point, or End Point.

Click on the screen to place a point to align to. When point placement is where you want it, click “Accept” button for Point Placement. Click the pattern(s) you want to align, click “Accept” button for Pattern Select when finished.



**Sewhead:** Select Sewhead input method. Select the alignment type to use, Horizontal Line, or Vertical Line. Click "Place" button on Lightning Stitch or the green button on the sewhead to place line. Move sewhead to desired position and click "Accept" button for Line Placement.

Select alignment style to use:

Horizontal: Top, Bottom, or Center



Vertical: Left, Right, or Center

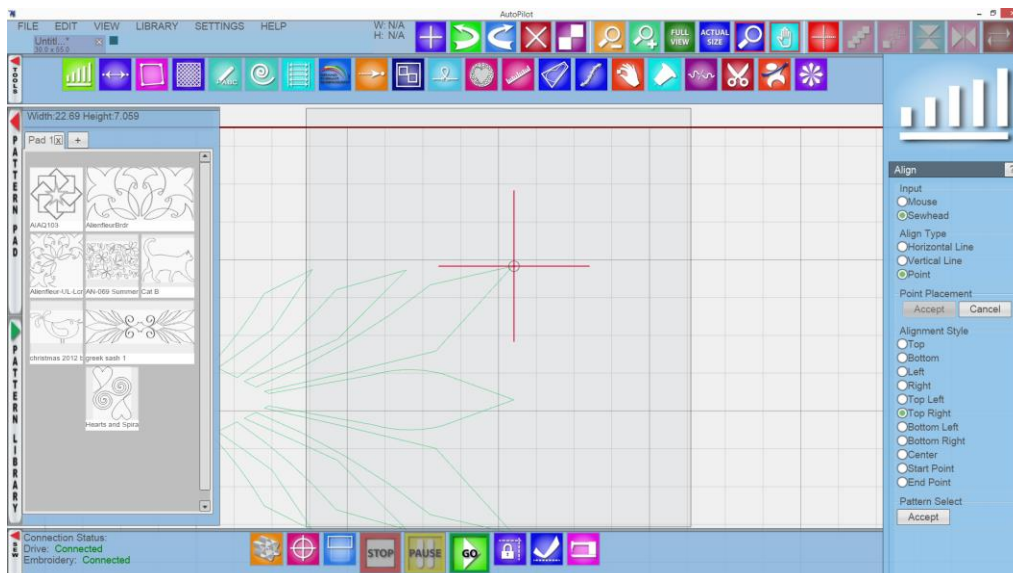


Click on the pattern(s) you would like to align, click "Accept" button for Pattern Select when finished.

**Point:** Select the Sewhead input option. Select the alignment style to use, Top, Bottom, Left, Right, Top Left, Top Right, Bottom Left, Bottom Right, Center, Start Point, or End Point.

Move the sewhead to where you would like to place alignment point. Click "Place" button on Lightning Stitch or the green button on the sewhead to place point and click "Accept" button for Point Placement.

Click pattern(s) you would like to align, click "Accept" button for Pattern Select when finished.




## Positioning Grab/Drop

Grab and drag a pattern from the chosen point of the pattern to the desired location and drop it into place using this function. Click on the Positioning Grab/Drop icon



## Join

To join two patterns or segments together click the "Join" icon  to open the Join dialog. The Join icon can be pinned to the top control panel.

Select the pattern you would like to join something to and click the "Accept" button within Pattern Select. Selected pattern will show next to "Pattern:" field. Click "Cancel" to cancel selection of pattern.

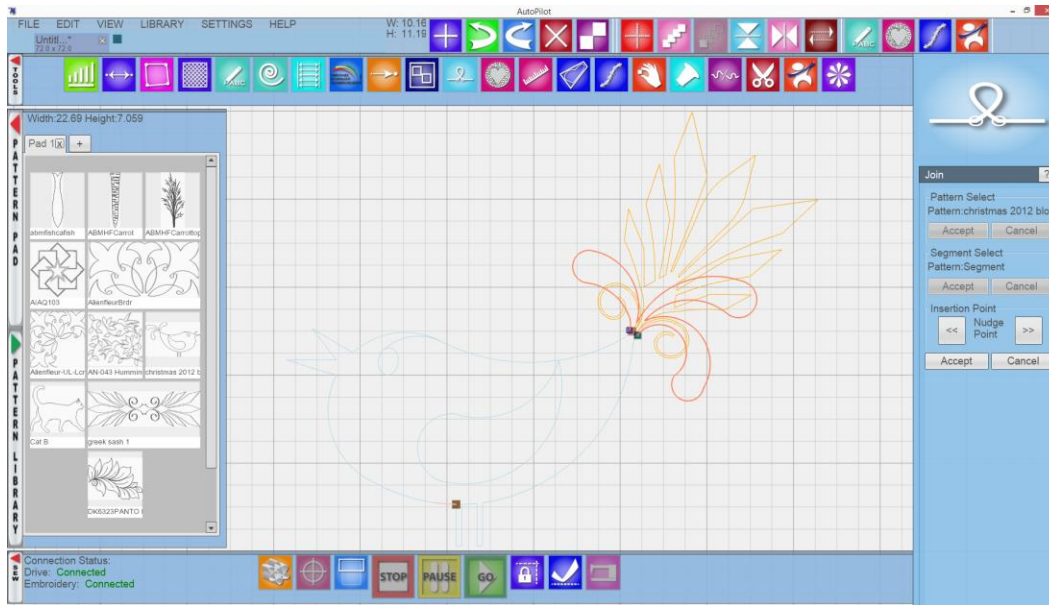
Then click on the pattern/segment you would like to be joined to the selected pattern and click the "Accept" button within Segment Select. Selected pattern will show next to "Pattern:" field. Click "Cancel" to cancel selection of pattern/segment.

Pattern/Segment will turn light orange when selected. Click on the pattern to create the insertion point where the join will occur. Click and drag to move the point(s) of insertion.






Click the nudge arrows to move the insertion point to desired location. When you have the created segment/pattern in place, click the "Accept" button to join the two pieces together.

Pieces that are colored red/orange will be removed when join is accepted. Pieces that are colored green will be added when join is accept.

Press "Cancel" button to cancel joining process.



## Group

Click the “Group” icon  to open the group tool. The Group tool will allow you to Group, Attach, Link or Ungroup patterns    . The Group icon can be pinned to the top control panel.

Click “Accept” to accept the created grouping. Click “Cancel” to cancel grouping method.

### ***Group***

Select the group option and click on the patterns that you would like to group together. Group patterns to make them editable as one pattern.

### ***Attach***

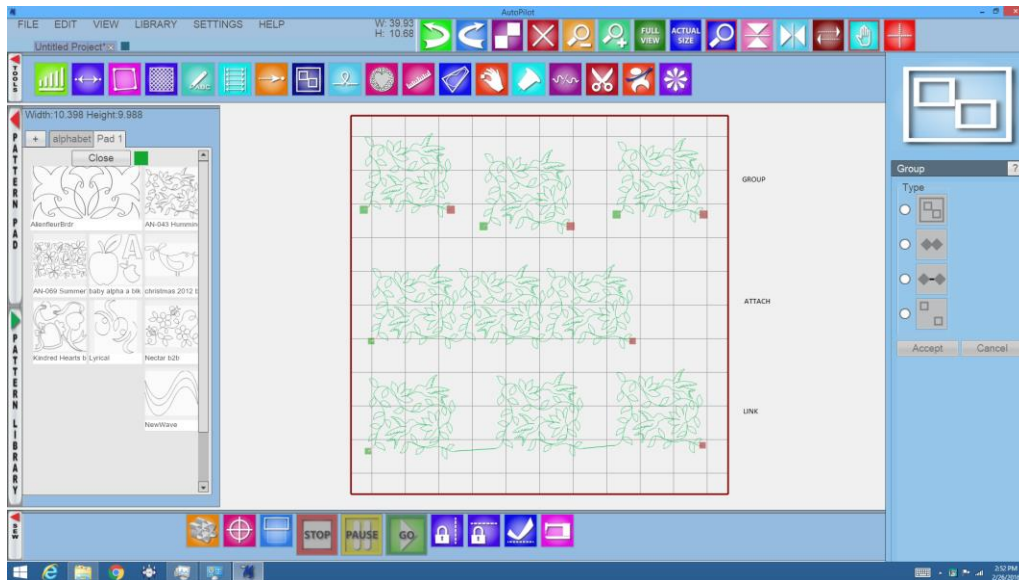
Attach snaps the pattern start point to the end point of the previously selected pattern. Select the attach option then click on the patterns that you would like to attach to each other, in the order you would like them attached.

### ***Link***

Links the pattern start point to the previously selected pattern end point without moving the selected patterns. Select the link option then click on the patterns that you would like to link to each other, in the order you would like them linked.

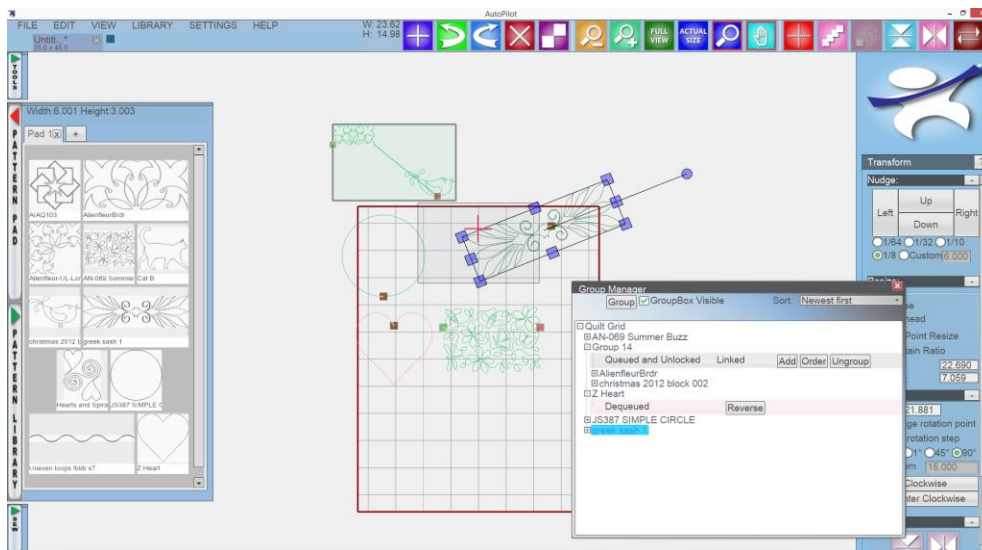
### ***Ungroup***

Select the ungroup option then click on the group to be ungrouped. This will cause the patterns to become unrelated and individually editable.




## Group Manager

Open the Group Manager by selecting from the right click drop down menu. Edit individual patterns within groups, and groups of patterns. Group, add, queue, dequeue, lock, unlock, link, un-link, reverse sew, and order. Rename a pattern by right clicking on the pattern name to open name field entry.



## AutoFit


First select a pattern, and then click the "AutoFit" icon  to open the AutoFit Dialog. The AutoFit icon can be pinned to the top control panel.

Mouse: will fit the pattern using touch by finger (or mouse) on the touch pad. Select the height option, click "Begin AutoFit", and then click to place your starting point. Click again to place the end point, and the pattern will then fit between the two created points. Repeat as desired.

If you would like every other pattern created by the AutoFit tool to be flipped checkmark the "Alternate Flip" option. If while creating the autofit you would like to flip a specific pattern you can click the red end point to flip the pattern.

Sewhead: will fit the pattern by using the sewhead. Select Sewhead input, select the height option, click "Begin AutoFit", and then move the sewhead to where you would like to place starting point.

Click the "Place" button on Lightning Stitch  or the green button on the sewhead to place point. Drag sewhead to desired position and click the "Place"

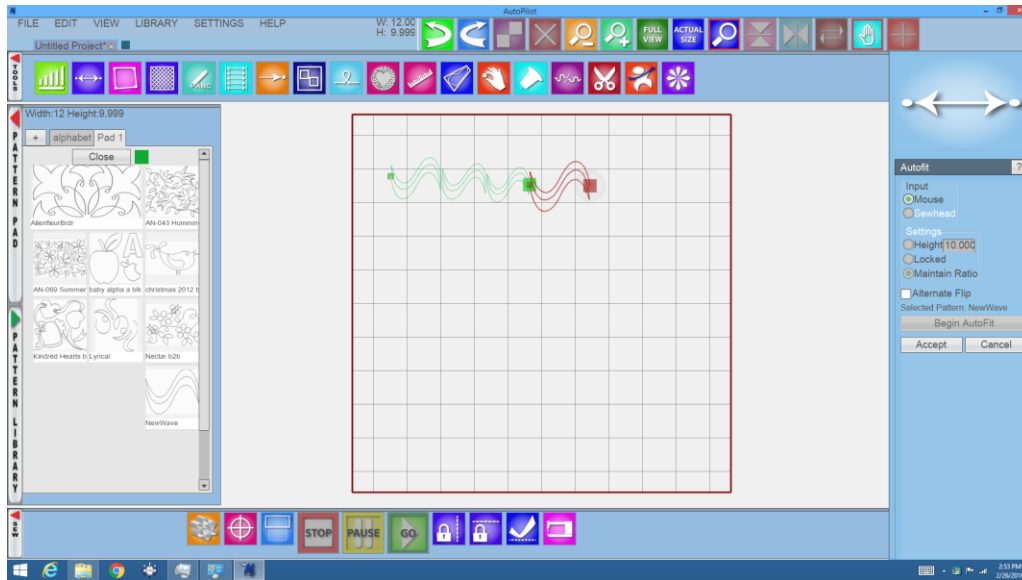
button on Lightning Stitch  or the green button on the sewhead to place an end point.

Pattern will then fit between the two created points. Repeat as desired. If you would like every other pattern created by the AutoFit tool to be flipped, checkmark the "Alternate Flip" option. If while creating the autofit you would like to flip a specific pattern, position the sewhead crosshair over the red endpoint and click the "Place"

button on Lightning Stitch  or the green button on the sewhead to flip the pattern.


#### Height Options:

There are three options to set the height. You can type in a defined height, lock in the height of the pattern or maintain the ratio. In the defined height mode, no matter what the width is, the height will stay as set in the textbox. In locked mode, the height will stay at the current height of the pattern. In maintain ratio mode, the height will change depending on the distance between the start and the end point.






## Crosshatch

Click the “Crosshatch” icon  to open the Crosshatch Dialog. The Crosshatch tool will allow you to create a zone with crosshatching inside that defined zone. Click the “Start” button to begin creating a crosshatch zone.

MOUSE: Click or tap on screen to place points for straight lines between points. Checkmark “Freeform” option to click and drag on the screen to start creating a freeform boundary for the crosshatch area. To remove a point, click on the point you want to remove or click “Remove Last Point” button. To cancel crosshatch design, click the “Cancel” button.

SEWHEAD: Select Sewhead input, click the “Place” button on Lightning Stitch

 or the green button on the sewhead to place points for straight lines between points.

To remove a point, click on the point you want to remove or click “Remove Last Point” button. To cancel crosshatch design, click the “Cancel” button.

OPTIONS: Select your options, “Sew Outer Edge”, “Continuous Sew”, “Angle” and “Size”.

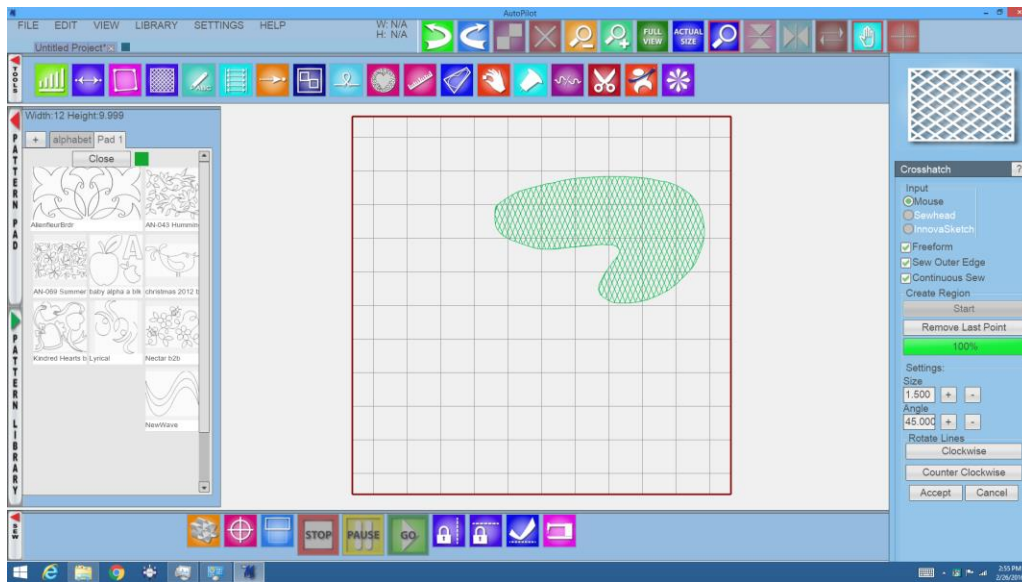
The Sew Outer Edge option will sew the outside edge of the crosshatch shape. The Continuous Sew option will make the crosshatch shape sew as continuous as possible.

The angle and size options can be adjusted by using the plus/minus buttons or by clicking in the text box.


The angle option will adjust the angle of the crosshatch lines.

The size option will adjust the size (in inches) of the crosshatch squares from point to point.

You can rotate the crosshatch lines to achieve your desired look by clicking the “Clockwise” or “Counter Clockwise” buttons.



## Draw

Click the “Draw” icon  to open the Draw Dialog. The draw tool can draw a pattern by using the mouse, using finger on touch screen, the sewhead or InnovaSketch.

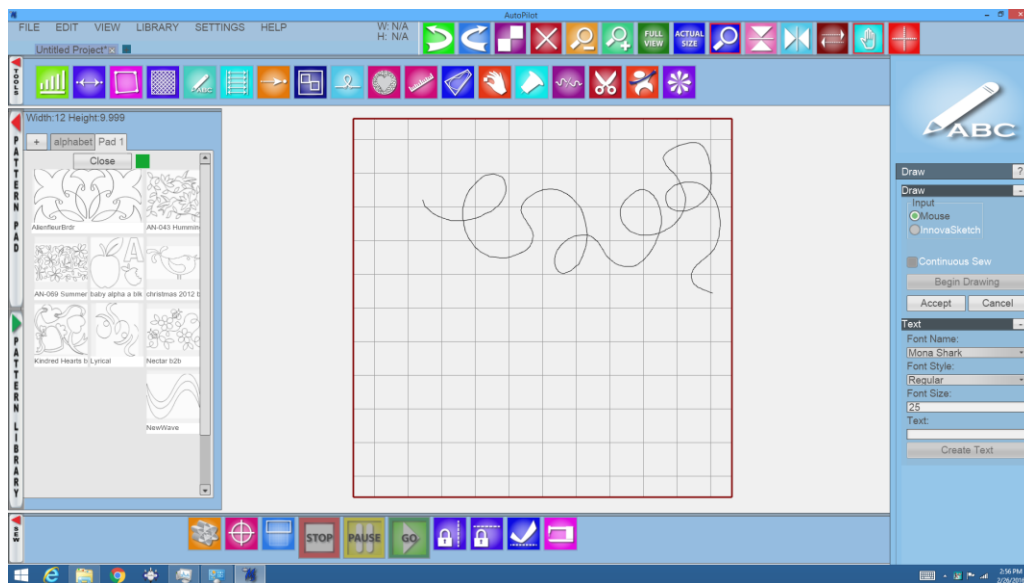
Mouse: Select Mouse option. Click “Begin Drawing” button and start drawing.

InnovaSketch: InnovaSketch will be available soon.

Sewhead: Select sewhead option, disengage drive belts, and click “Begin Drawing” button. Using the sewhead, start by pressing the right handle button, move the machine (or quilt) the desired design, then press the right handle button to stop. Click “Accept” to finish. Re-engage the drive belts and press the “Reset Encoders” button to reset the encoder position to match the belt position.

Use the “Continuous Sew” checkbox to make a multiple line drawing sew continuously, and to make the ending point connect back to starting point.

When finished creating your pattern, click “Accept” button. To clear drawing, click “Cancel” button.



## Text

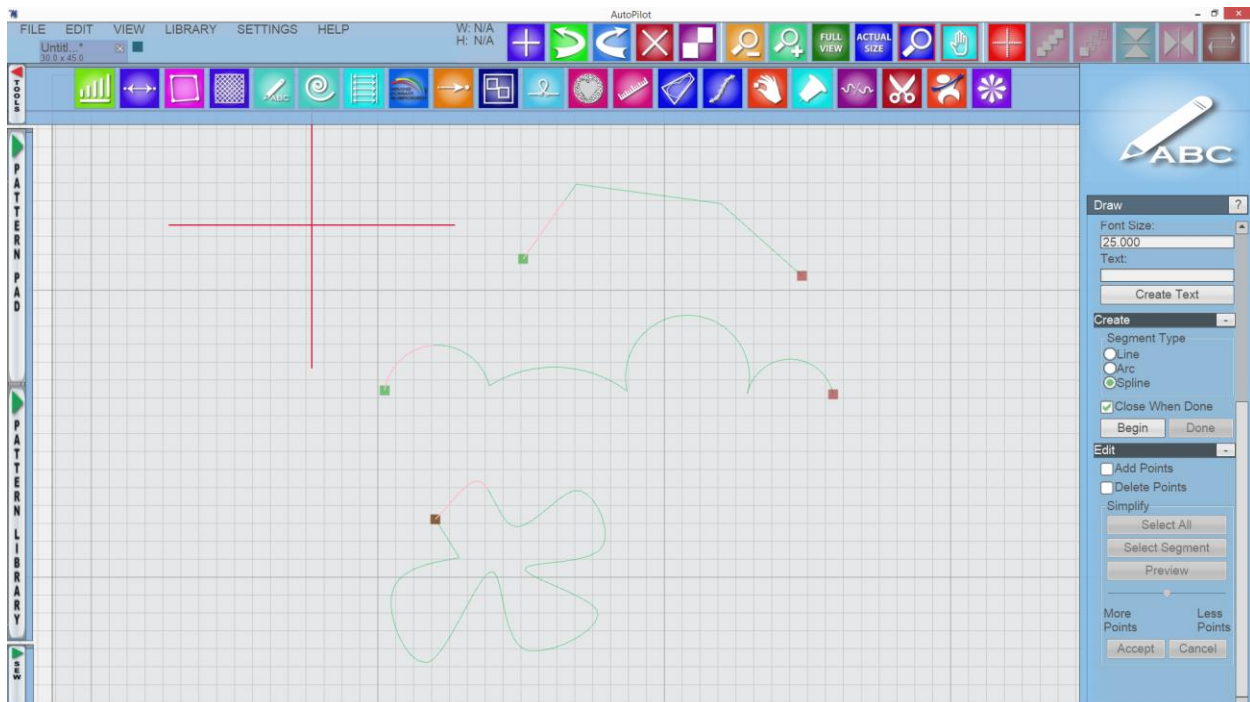
The text tool within the “Draw” icon  can be used to create text that can be stitched and manipulated.

Select a font, select the font style, select the size of the font and type the text you want into the textbox.

Click “Create Text” to place the text on the screen.

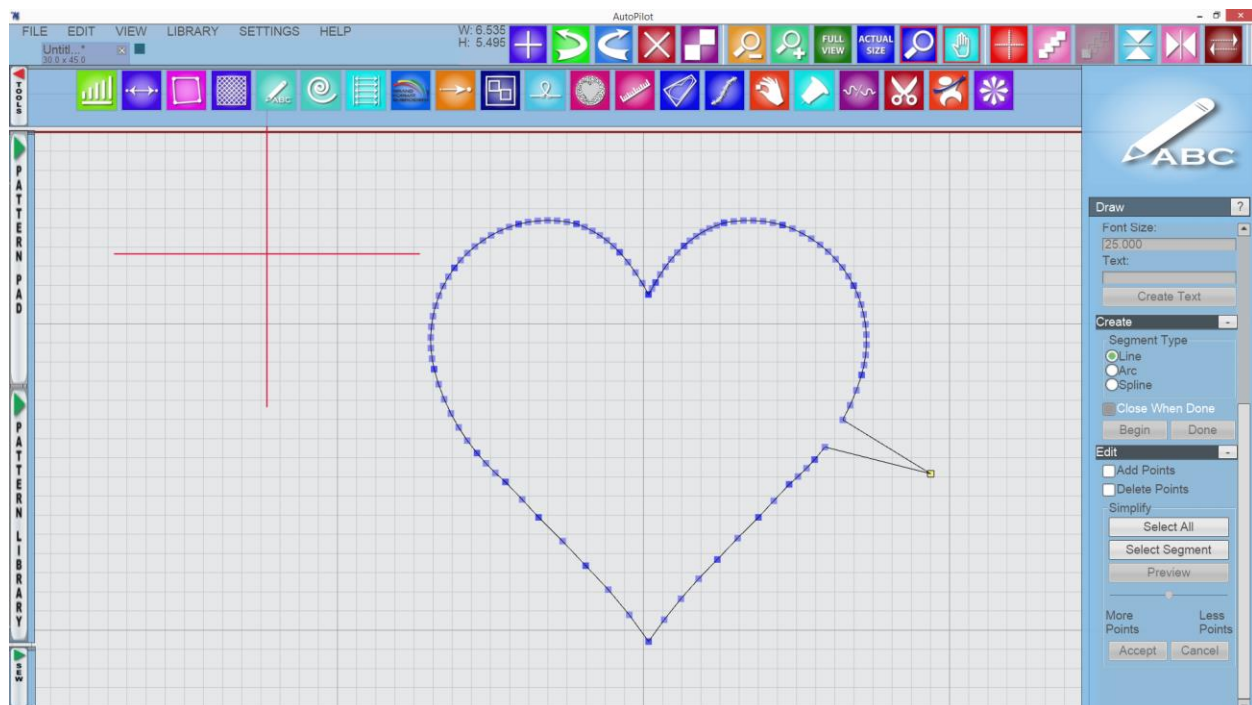
## Draw

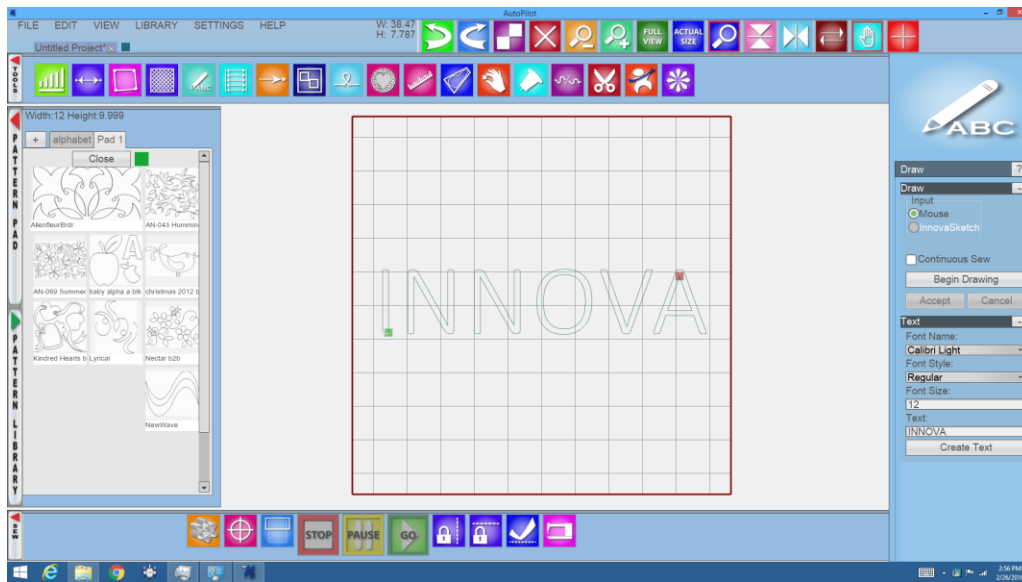
Select the type of line you wish to create by check marking Line, Arc or Spline. Line will create a line segment between two placed nodes. Arc will create a three-node arc between placements. The first and second placement will determine the length of arch, and the third placement defining the radius. Spline will create a curved line of as many points as you click. Checking the “Close when done” will create a line from the last placed node to the first placed node, closing the shape. Click the “Begin” button, click on screen to draw with the type of line style chosen. Click the “Done” button when complete.




## Edit

Allows you to edit a pattern after selecting it within the draw tool. Nodes will appear along the path of the pattern. Check the "Delete Points" box to delete points with the cursor left click. Check the "Add Points" box to add points by left clicking the cursor. Drag a point to a new location by holding down the left click button on the cursor and dragging the node to the desired location. Reduce total amount of nodes by clicking the "Select All" button, then "Preview". Accept the change by clicking the "Accept" button. Reduce the number of nodes within a segment of a pattern by clicking "Select Segment", select nodes at each end of the segment you wish to simplify, "Preview" and "Accept".





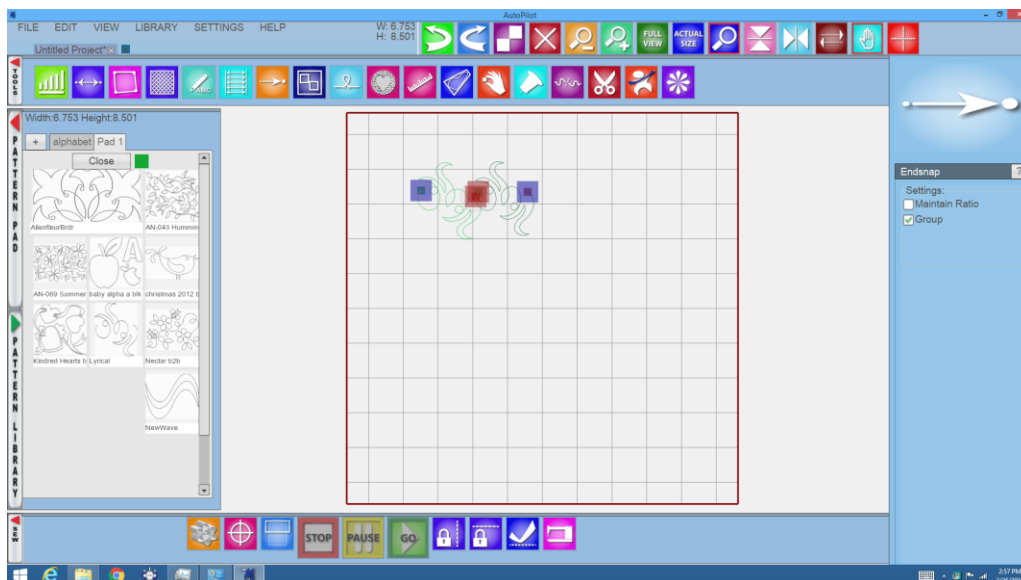
## Endsnap

Click the “Endsnap” icon  to open the Endsnap Dialog. The Endsnap tool is used to snap the start/end point of one pattern to the start/end point of another pattern.

Click and drag the point that you would like to snap to another point. The selected point will turn red. Drag the selected point to where you would like it to snap to. The point it will snap to, will turn red.

You can choose to maintain the ratio of the pattern by checking the “Maintain Ratio” checkbox.

To make the two snapped patterns stitch continuously, checkmark the “Group” checkbox.

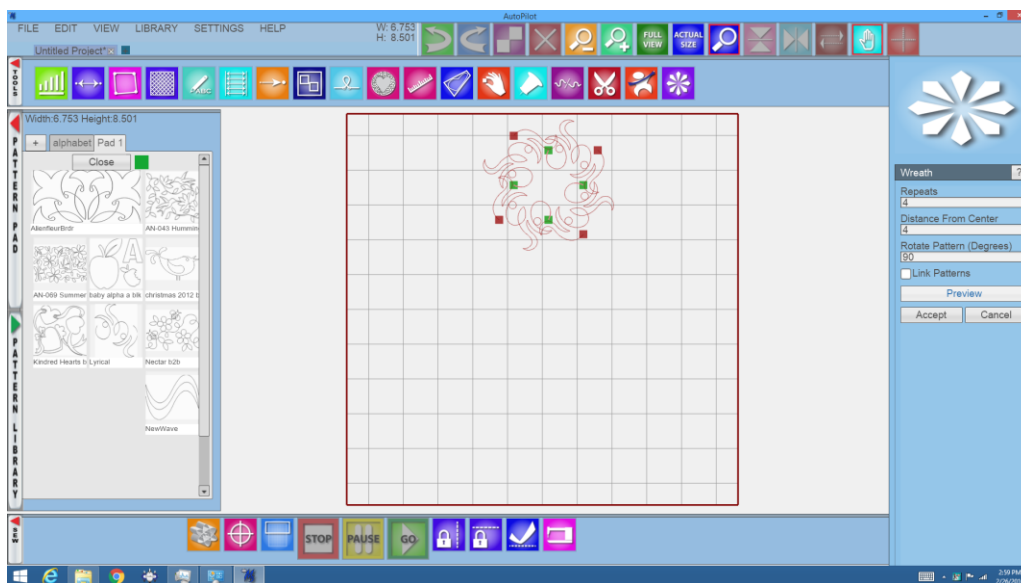


## Wreath

First select a pattern, and then click the “Wreath” icon  to open the Wreath Dialog.


Wreath the selected pattern by choosing how many patterns you want wreathed, how far you want them from the center, and if you want to add an angle of rotation. You also have the option to link the wreathed patterns together.

Click the “Preview” button to see what the wreath will look like. To make changes to the generated wreath, change the values and click the “Preview” button. To accept the created wreath, click the “Accept” button. Click “Cancel” to cancel the creation of the wreath.





## Edge to Edge

First select a pattern, and then click the “Edge to Edge” icon  to open the Edge to Edge Dialog. The Edge to Edge tool will allow you to create More/Less Repeats, Edge to Edge – Trim, Edge to Edge – Fit, Multiply and Fill a pattern.

More Repeats: Adds another pattern and attaches to selected pattern to create rows.

Less Repeats: Removes patterns from row one at a time.

To create a row with the patterns ungrouped check the “Not Connected” option.

Flip Options: You can flip horizontal/vertical all patterns or every other pattern within the repeats.

### ***Fit***

Fit Will figure out the best fit for the edge to edge and fill the quilt.

### ***Trim***

Trim will fill the quilt with the edge to edge and trim the sides, top, and bottom of the quilt.

### ***Multiply***

Multiply the selected pattern by choosing how many patterns are desired across and how many patterns down.

### ***Fill***

Fill the quilt with the selected pattern by choosing how many patterns across and how many patterns down. The fill method of Edge to Edge will figure out the best fit for the edge to edge and fill the quilt with the selected across/down setting.

### **Options:**

#### ***Row Gap***

Enter a negative number to make the rows closer together, enter a positive number to make the rows further apart.

***Column Gap***

Enter a negative number for column gap to make the columns closer together, enter a positive number to make the columns further apart.

***Offset***

Offset will move the rows horizontally either positive/negative depending on the number entered. Click the 50% button to make offset half of the pattern width.

***Flip Options***

Flip horizontal/vertical all rows or every other row.

***Edge to Edge width/height***

Will default to the quilt size but can be adjusted by changing the "E2E Width" and "E2E Height" textboxes.

Make changes to the row gap, column gap, or offset by clicking and dragging patterns on the screen.

***Adjust row gap***

Click and drag a row up or down on the screen to increase/decrease the row gap. To ensure you only adjust the row gap, checkmark the Lock Offset box. \*\*\* Note: Row Gap works with Fit, Trim, Multiply, and Fill methods. \*\*\*

***Adjust the offset***

Click and drag a row left or right on the screen to increase/decrease the offset. To ensure you only adjust the offset, checkmark the Lock Row Gap box. \*\*\* Note: Offset works with Trim and Multiply methods. \*\*\*

***Adjust column gap***

Click and drag a pattern left or right on the screen to increase/decrease the column gap. \*\*\* Note: Column Gap works with Multiply and Fill methods. \*\*\*

Press "Generate Edge to Edge" to see what the edge to edge will look like. To make changes, change the values and click "Update". Click "Accept" or "Cancel".

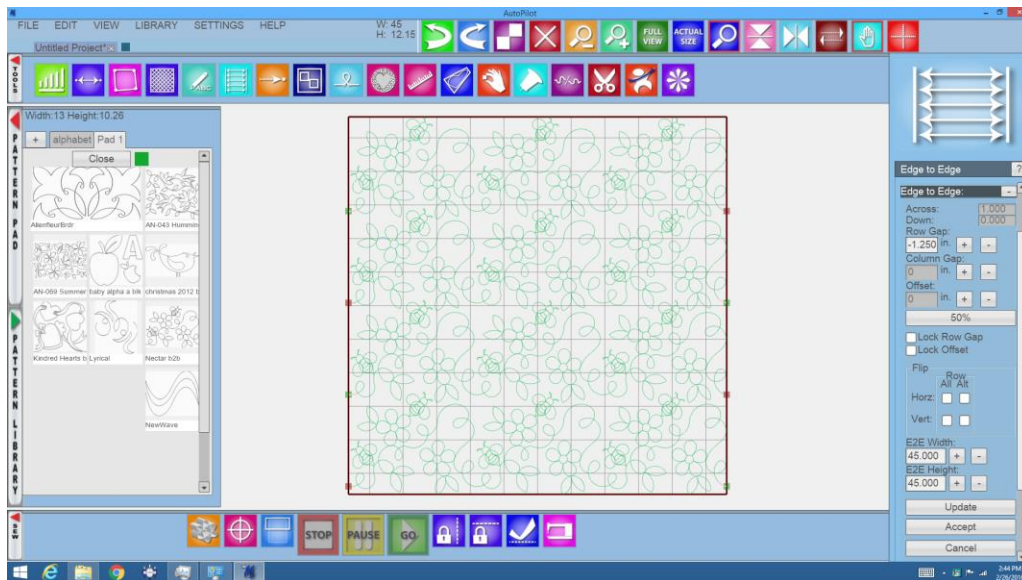


Figure 1 - Edge to Edge Fit

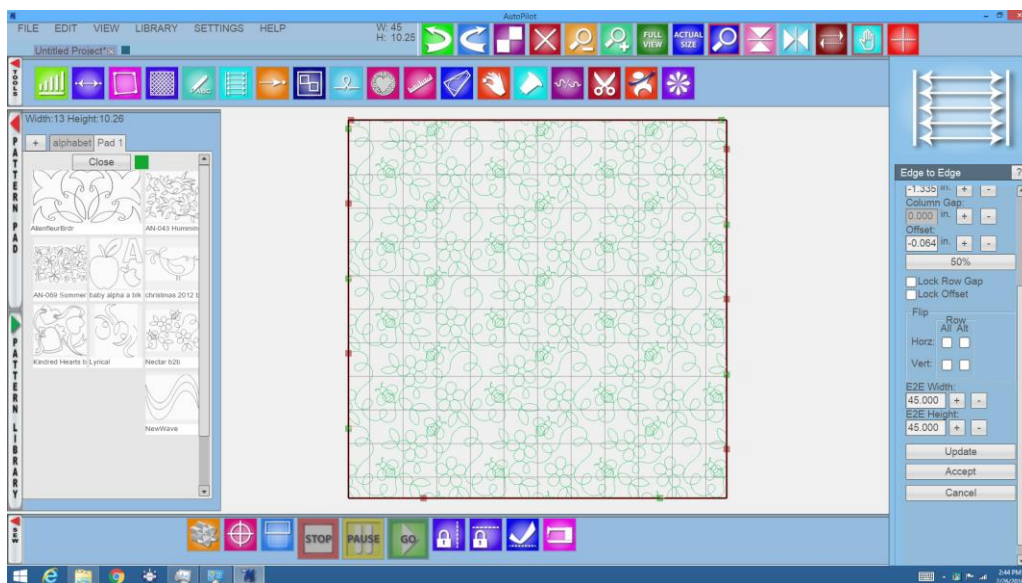


Figure 2 - Edge to Edge Trim

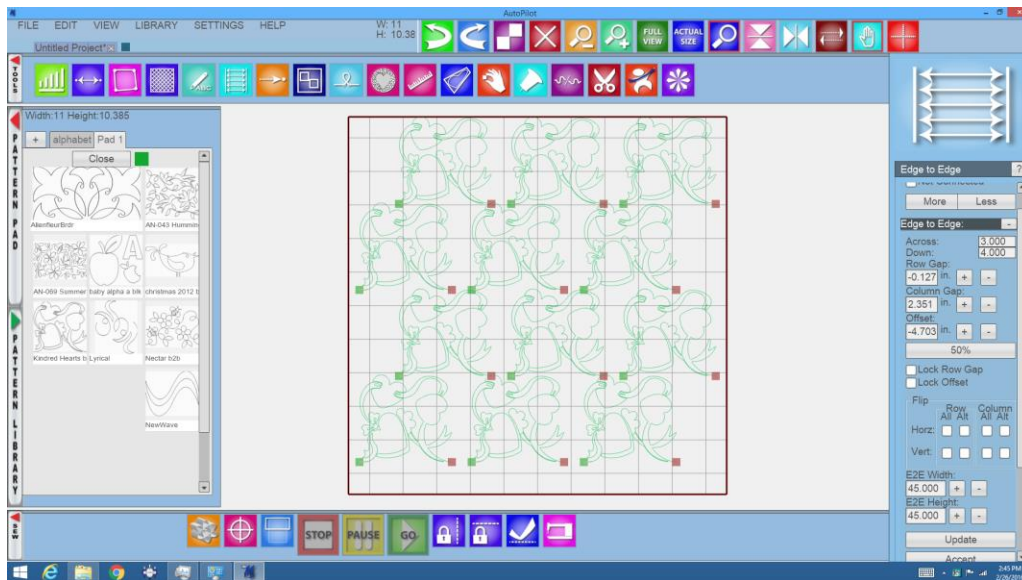


Figure 3 - Edge to Edge Multiply

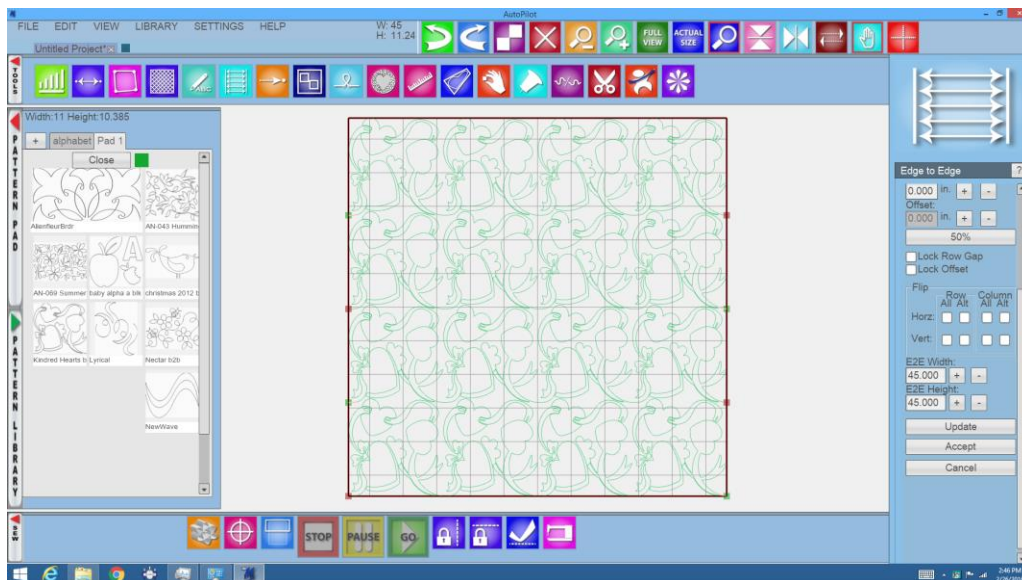


Figure 4 - Edge to Edge Fill

## Mask



Click the “Mask” icon to open the Mask Dialog. The masking tool will let you select a pattern as a mask object and a pattern to be masked. Mask will act like a cropping tool and will remove everything either inside of the mask or outside, depending on your choice.

To use Mask, select the pattern to use as mask object and click the “Build” button to create the mask. Click “Cancel” to cancel the building of the mask. Once the mask has finished building it will be blue. Click to select the mask object. The mask object will turn red when selected, and the name of the mask will be shown on the sidebar, next to “Mask:” field.

Edit the mask object by selecting the mask and clicking the Edit button. The mask selected for editing will turn green. Click inside the mask to trim out areas of the mask object. \*\*\* Note: Editing the mask is an optional step. \*\*\* Click “Done” when finished editing the mask. Mask will turn blue. Re-select mask to continue. The mask object will turn red when selected, and the name of the mask will be shown on the sidebar, next to “Mask:” field.

Choose your options, select the pattern to be masked. When pattern to be masked is selected, the name of the pattern will be shown on the sidebar, next to “Pattern:” field.

When both Mask and Pattern have been selected, click the “Accept” button to apply the mask to selected pattern. Click “Cancel” button to cancel the creation of the mask.

### ***Options for Masking:***

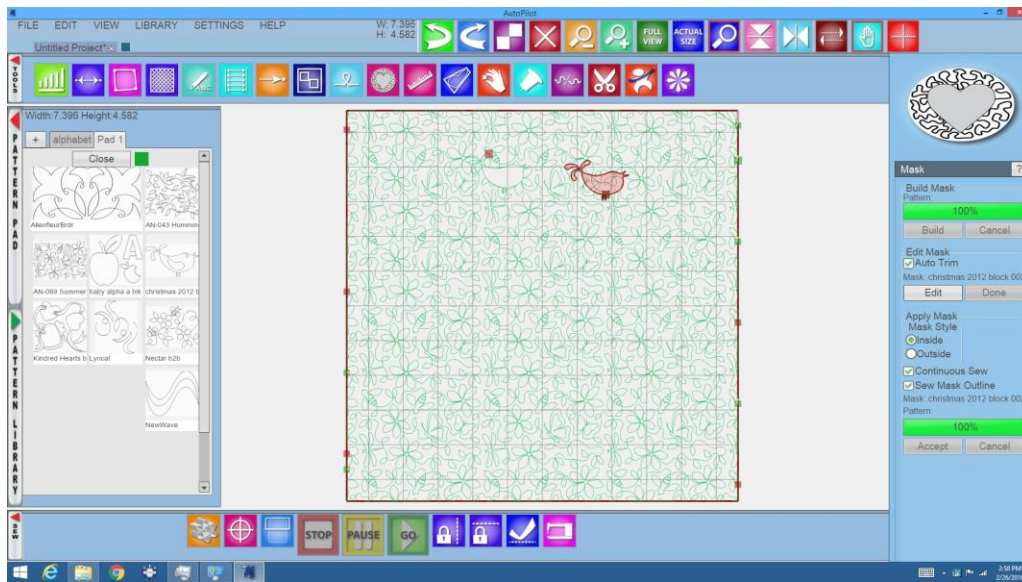
Select the options you would like to use for masking. Mask Inside will erase what is inside the mask object. Mask Outside will erase what is outside the mask object.

### ***Continuous Sew***

Will make the created mask sew as continuous as possible.


### ***Sew Mask Outline***

Will sew the outline created by the mask object.






## Boundary and Boundary Options

Click the Boundary icon  to open the dialog to create a boundary to drop a pattern into.

Mouse: Click the “Start” button and then click on screen to place four corner points of the boundary. Boundary will auto close when last point is placed.

Sewhead: Select the Sewhead input method, click the “Start” button. Click the “Place” button on Lightning Stitch  or the green button on the sewhead to place a point of the boundary. Boundary will auto close when last point is placed.

Choose method to place pattern within boundary, either “Morph to Fit” or “Maintain Ratio”.

### ***Morph to Fit***

Will morph the pattern to fit within the boundary.

### ***Maintain Ratio***

Will determine the best fit for the pattern within the boundary, while maintaining the ratio of the pattern.

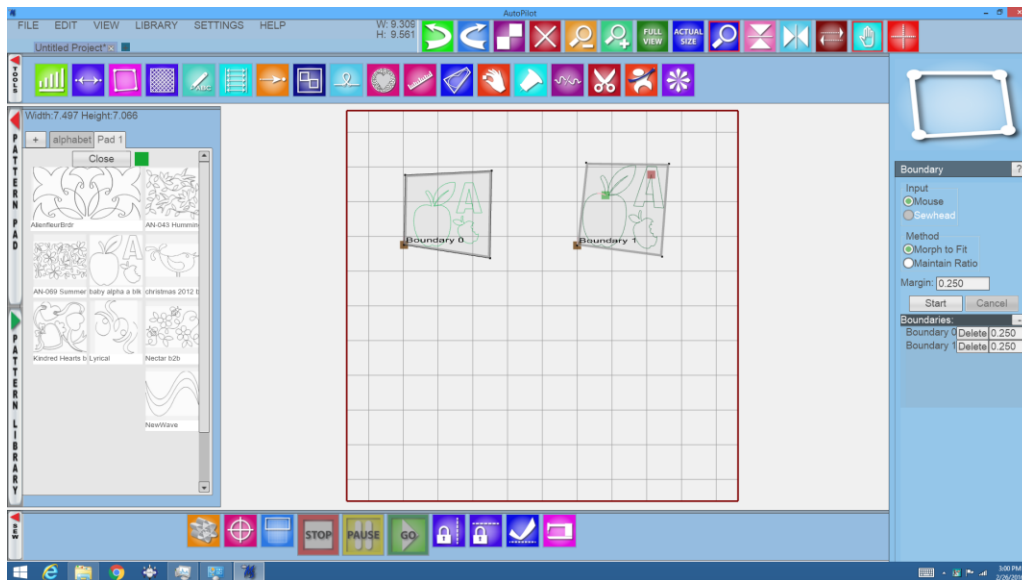
Choose your default margin setting by clicking on the textbox. Enter your desired margin using the keypad entry.

Click the “Cancel” button to cancel the creation of the boundary.

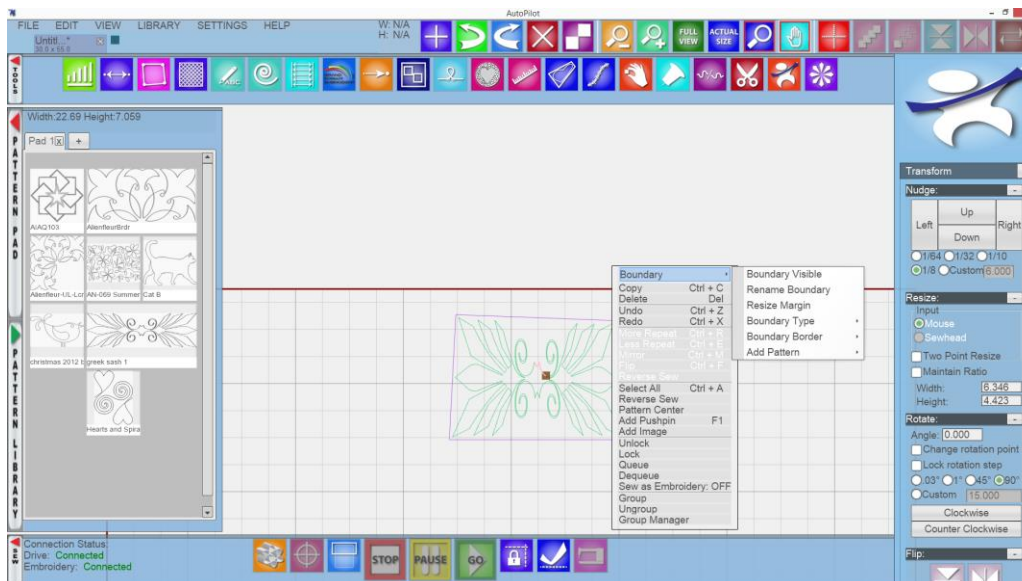
To drop a pattern into a boundary, click and drag the pattern into the boundary you would like it to be placed in. The pattern will then drop into the created boundary using the chosen method.

To change the margin settings for a specific boundary, click in the textbox next to boundary name. To Delete the boundary, click “Delete” button next to boundary name.

The dark gray portion of the boundary is the margin, the light gray portion of the boundary is where the pattern will be placed.



Access and edit any boundary outside of the Boundary tool by right clicking the Boundary line and choosing Boundary from the right click drop down menu.





## Grand Format Embroidery

Purchase and activation of this feature must be completed before available.

*Note: See your dealer if you wish to purchase this module.*

### Import Patterns

Import (.dst) embroidery file types by following Import Patterns instructions, see Page 8.

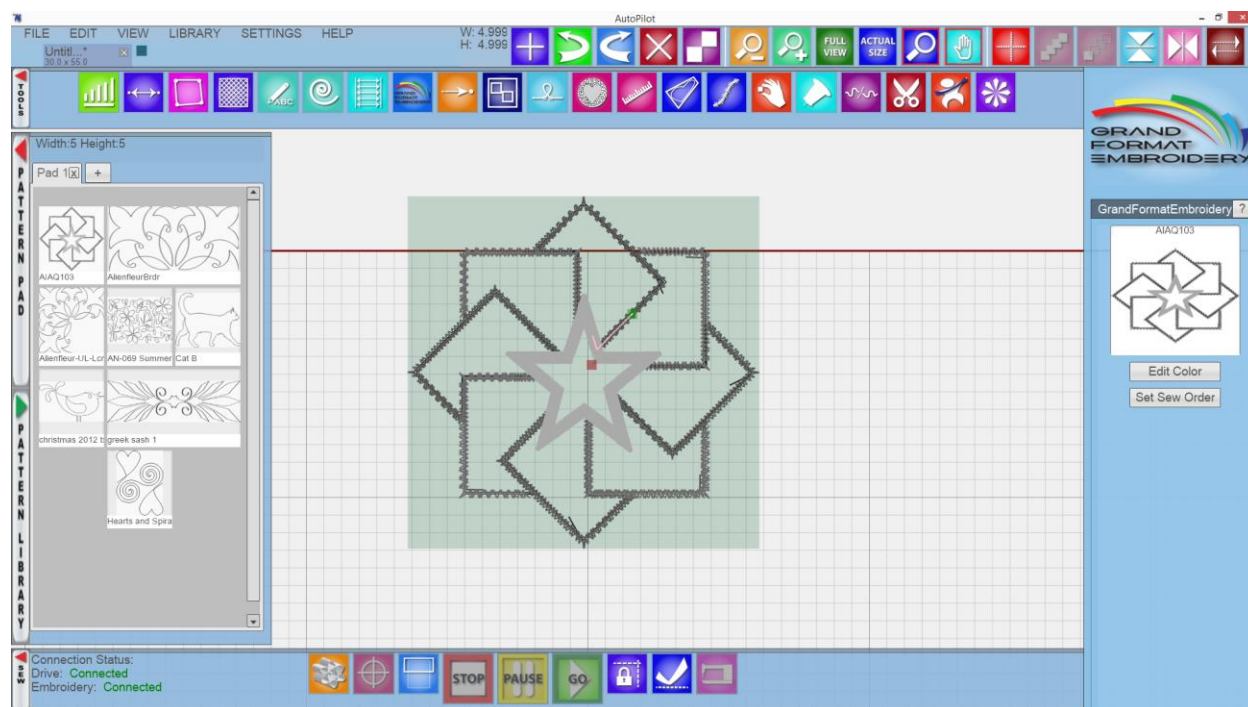
Embroidery patterns can be placed, moved, flipped, mirrored, and rotated. Other editing features of AutoPilot Mach 3 are not available to embroidery files.

To manage elements of embroidery files, click the Grand Format Embroidery icon

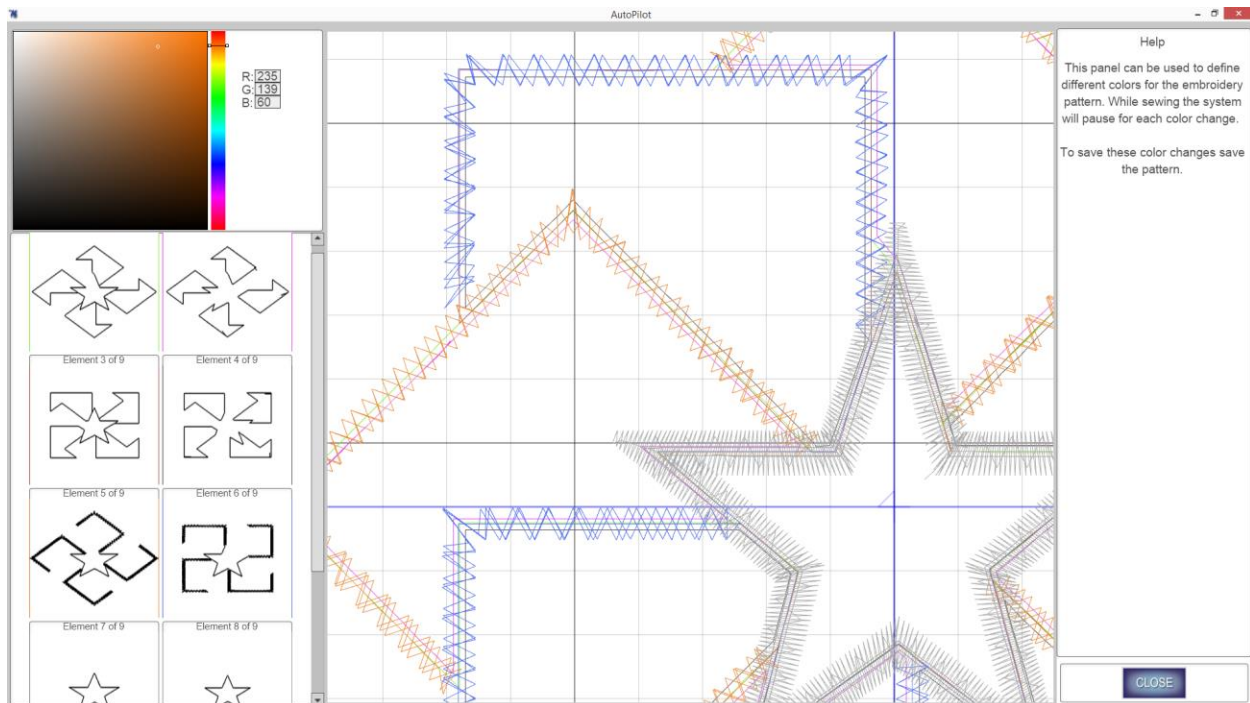


### Edit Color

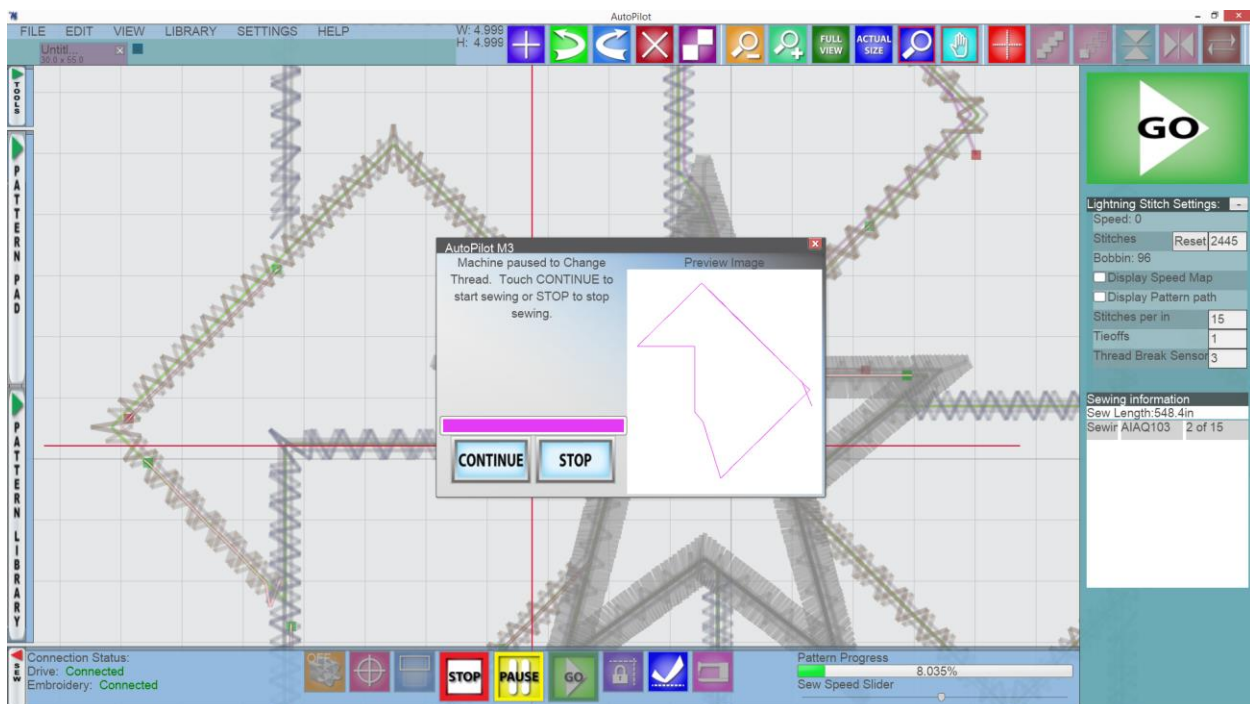
Select Edit Color to assign colors to embroidery elements.



Assign Thread Colors to specific elements by selecting the element you wish to edit, then select a color from the color palette. These edits may be saved to the pattern by saving the pattern as a new pattern after returning to the Viewport Screen.

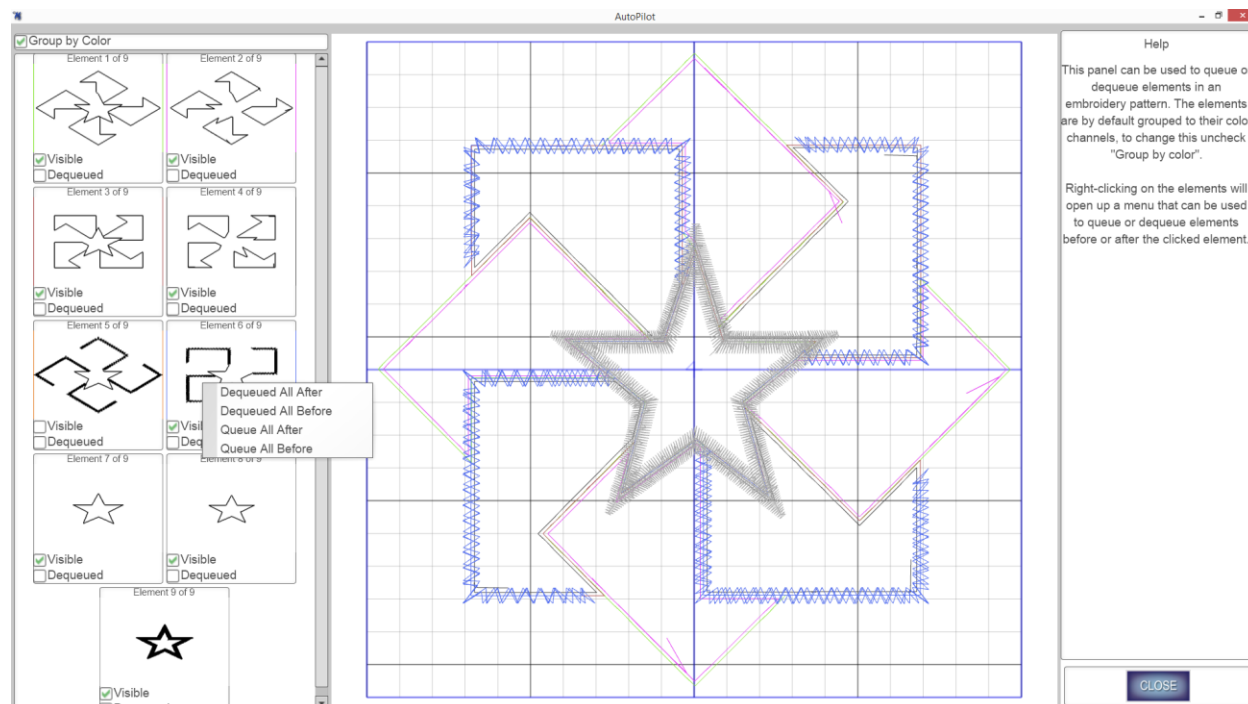


While stitching out the embroidery pattern, the machine will pause for each color change and indicate the upcoming element, showing assigned color.




## Set Sew Order


Select Sew Order to Queue and Dequeue elements, make elements visible or not, or to group elements of the same color. Each element has a check box option for queuing and visibility. You may right click an element and queue/dequeue all before or after. This is particularly useful after a bobbin change, making the MOVE location selection in resuming the stitch out easier.

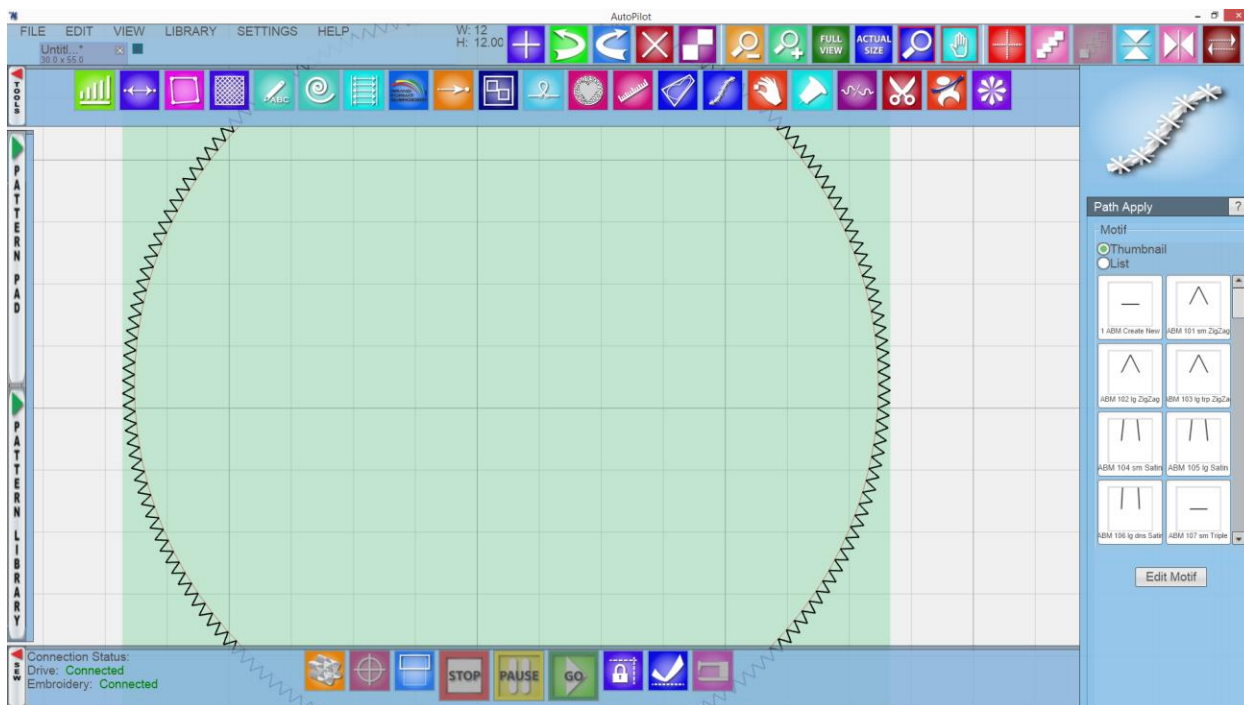


## Path Apply


Path Apply is included with embroidery. This feature turns a path into an embroidery pattern when a chosen motif is applied to the path. The path may be an existing pattern or something you have just drawn on the screen using the Draw tool.

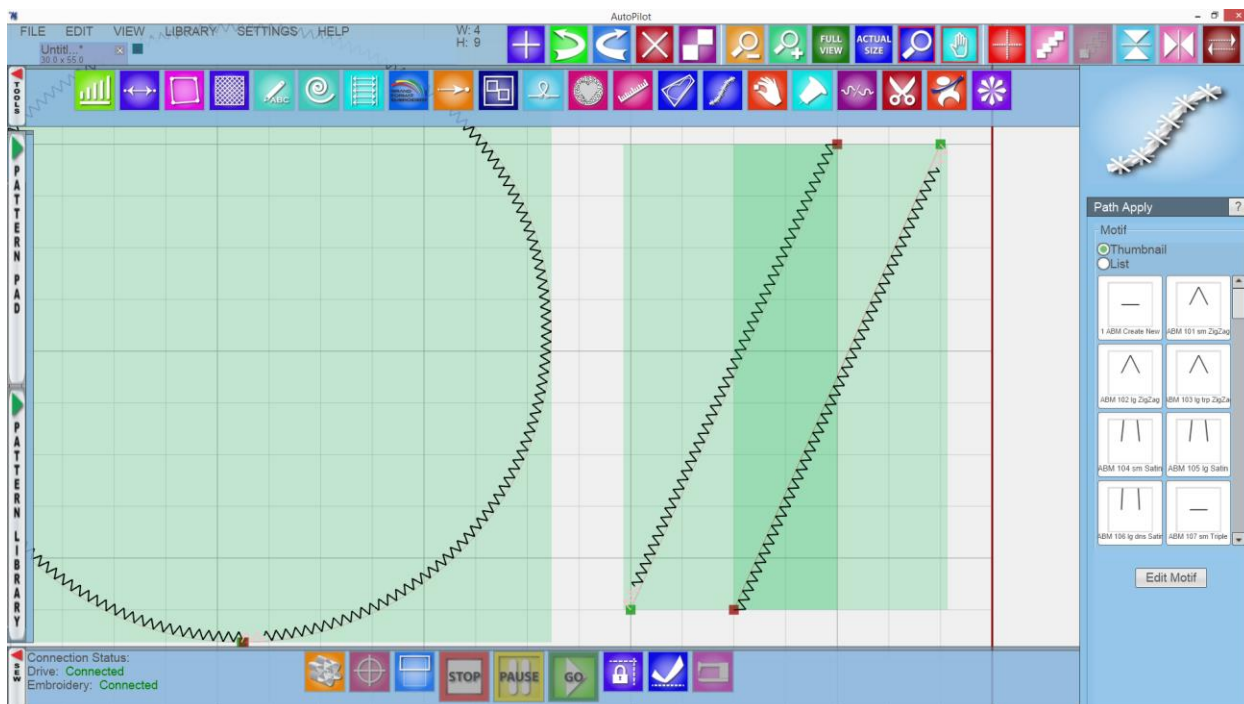
Select the Path Apply icon . Select the pattern or path to apply a motif. Select

the motif. If the result is not desirable, select the Undo icon  or right click and choose "Undo" from the drop-down menu and choose a new motif. The pattern shows with a green transparent boundary shape over it. This indicates that it is an embroidery pattern and that it is queued. When dequeued it will appear red. The motif chosen in the below example is ABM 102 lg Zigzag. Notice that the motif applies to one side, the LEFT side, of the path of the circle pattern.



A quick way to apply the stitch to the opposite side of the line is to "Undo". Click the

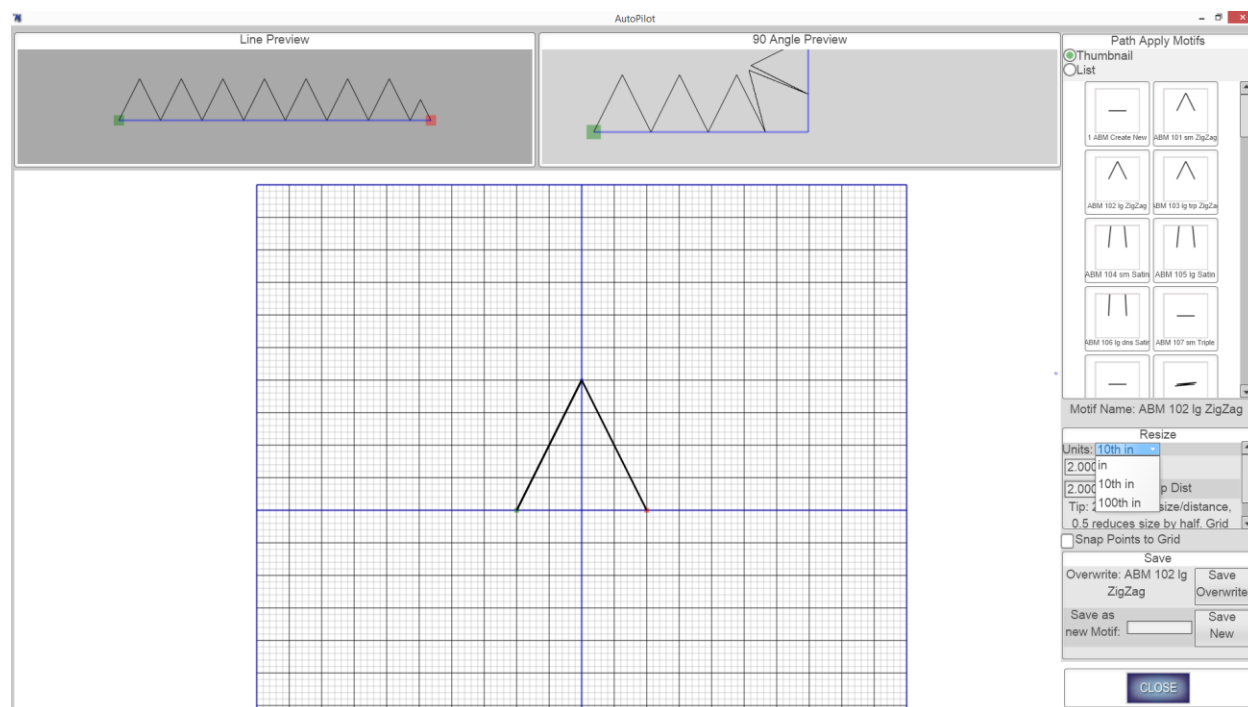
Reverse Sew icon , or choose Reverse Sew from the right click drop down menu, then choose the motif again. The motif, or zigzag stitching, is formed on the opposite side, or RIGHT side of the circle pattern (below). You can see how the pattern applies to the parallel pattern lines based on the direction of the pattern (below).





## Edit Motif

Within Path Apply is “Edit Motif”. Click this button to find options for editing existing motifs and creating motifs. When a motif is selected it will display on the viewport motif grid. The resulting “look” of the motif applied to a path shows in two preview windows at the top of your screen.

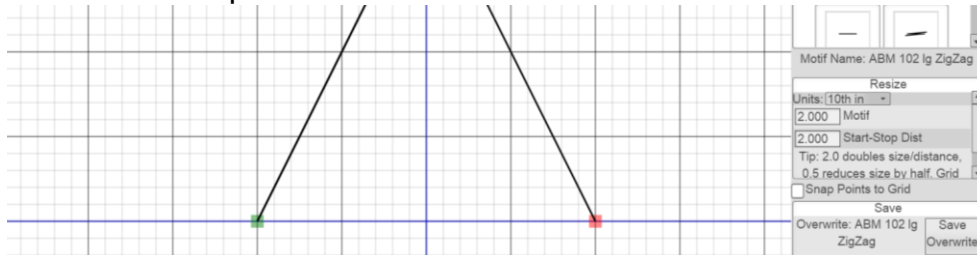


## Viewport Grid

The Viewport Grid is made up of blue lines which represent an inch, dark gray lines which represent 10ths of an inch, and light gray lines representing 100ths of an inch. The viewport grid represents an area 2 inches across by 2 inches high. The middle horizontal blue line represents the path line of the pattern that will apply the motif to. Motifs created above the center horizontal line will stitch on the LEFT side of a path. Motifs created below the center horizontal line will stitch on the right side of a path. Motifs created with the center horizontal line in the center of the motif will stitch out centered on the path. *TIP: To get the path apply to “apply” on an “offset” (for applique) try a ripple echo then apply your motif to the echo pattern.*

## Resize

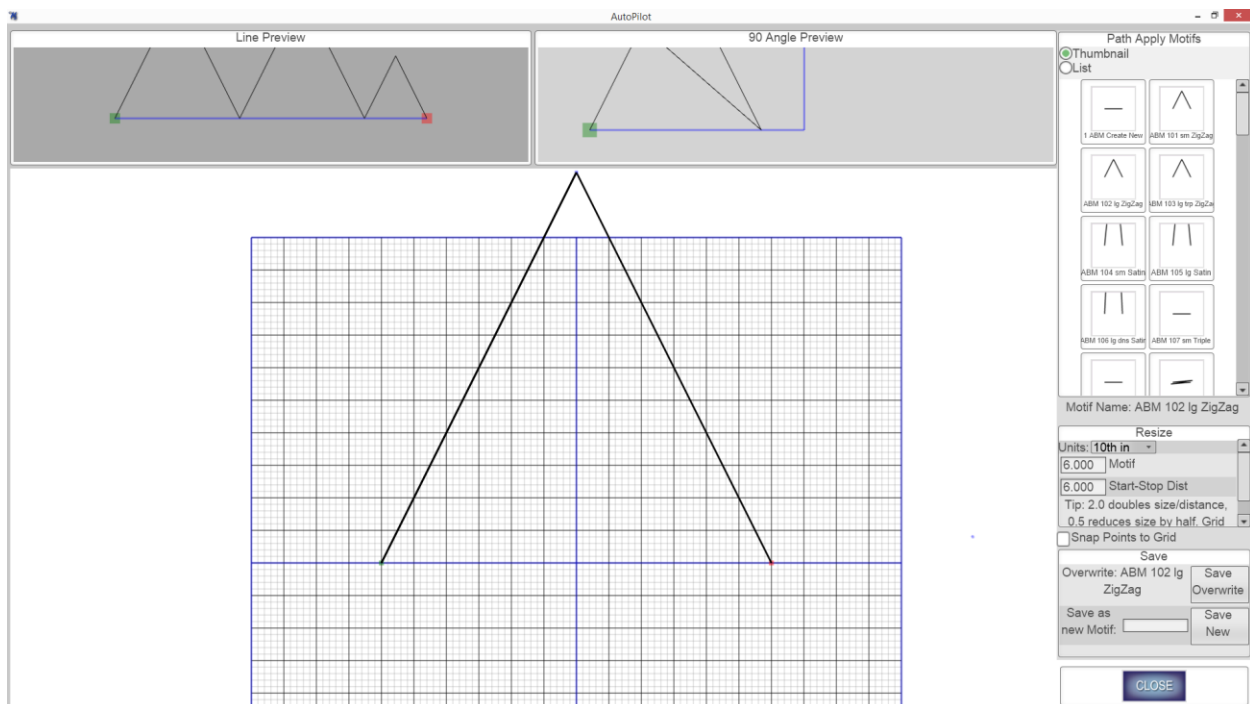
Under the Resize section choose the unit of measurement preferred by selecting from the drop-down menu (shown above). The units of measure are from the center outward and represent half the size of the total motif.



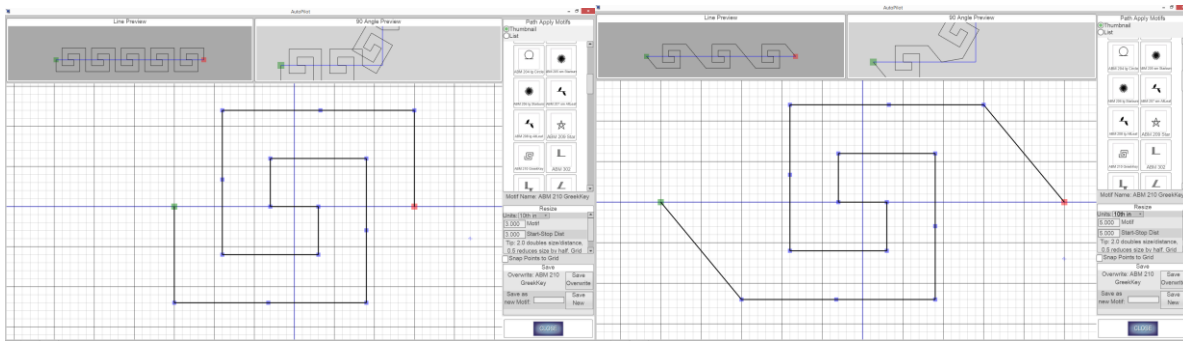
### Note above:

The unit of measure is tenths. The Motif is 2 tenths from center in each direction, this is indicated by the "2.00" in the Motif field. The start point is 2 tenths distance left of center, and the end point is 2 tenths distance right of center, indicated by the "2.00" in the Start-Stop Dist field.

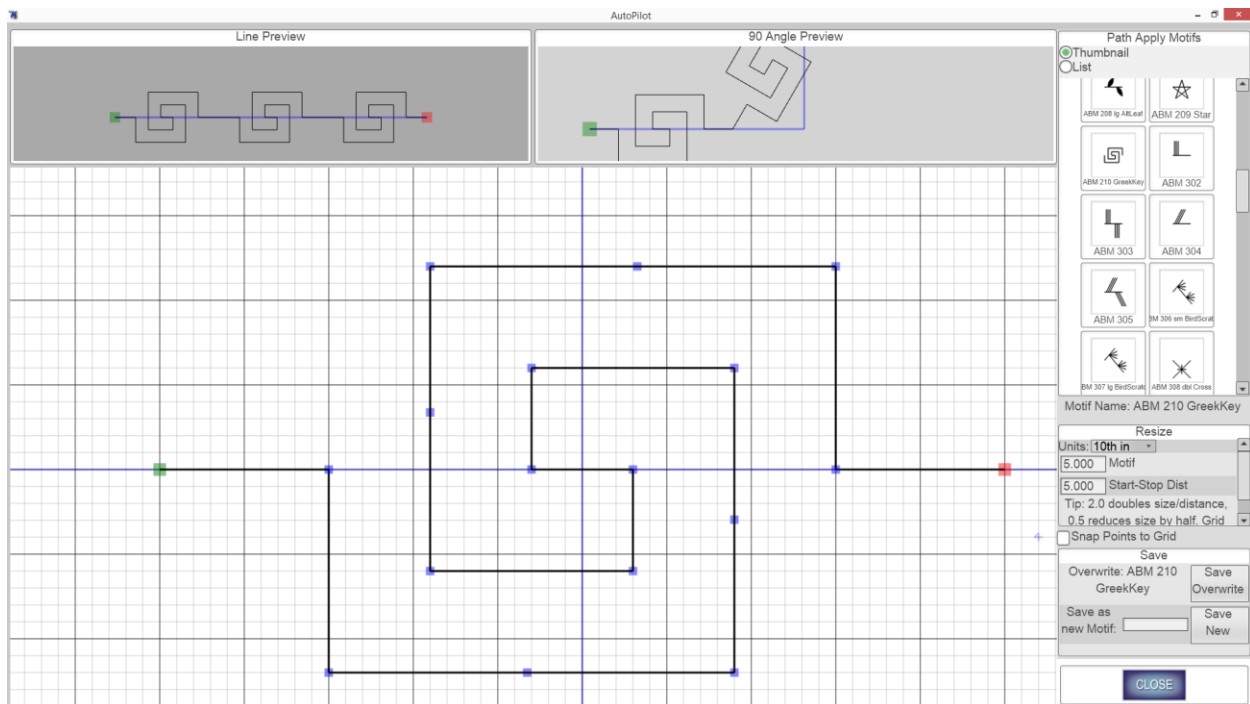
The height of the motif is not indicated. To change the entire motif while maintaining ratio, click the Motif field and enter your desired size.



Changing the Start-Stop Dist field will increase or decrease distance of the start and stop points (see below). This will change the angle of the stitch relative to the point of the other end of that stitch.



Modify the motif by adding or removing stitches. Each node represents a stitch. Left click to add a node, hold the left click to drag the node to desired location. Right click on a node to delete it. Two nodes were added to the diagonal lines and dragged to the center horizontal line (below). Start and Stop nodes may not be dragged to different locations and will always be on the center horizontal line.



Check the "Snap Points to Grid" option box to automatically snap the nodes to a grid intersection while dragging them into position or hold down the control button on your keyboard to snap individual points to grid while dragging into place.

Modifying existing motifs will result in new motifs. Overwrite (Save Overwrite) a motif or save (Save New) the modification as a new motif, with a new name entered in the new motif field, while preserving the original. Choose the "1 ABM Create New" motif to start the creation or use any existing motif.

## Pushpins and Pushpin Options

### ***Pushpins***

There are multiple methods that can be used to create pushpins.

### ***Mouse***

To add a pushpin using the mouse, click the "Start" button within the Mouse Input field of the Pushpin tool. Click "Done" when finished adding pushpins using the mouse.

### ***Sewhead***

Pushpins can be placed from any tool. Move your sewhead to the desired pushpin location, once positioned press the "Pushpin" button on Lightning Stitch



or the white button on the sewhead to place pushpin while in Mach 3 mode of the Lightning Stitch screen. Right-click on the screen and select "Add Pushpin" from the dropdown menu to place pushpin at sewhead location. Continue to move sewhead around to place more pushpins. Click "Done" when finished either



at the AutoPilot Mach 3 computer or on the Lightning Screen

### ***Pushpin Options***



Click the "Pushpin" icon to open the pushpin options dialog.

### ***Settings for Placing Pins***

Check the Place Pins default settings desired.

### ***Connect While Placing***

Checking this box will create a line between pins set. Click "Done" to start a new line. Close When Done: Checking this box will create a line between the last placed pin and the first placed pin when "Done" is clicked. This option is only available with Connect While Placing option selected.

### ***Mouse Placement***

Allows you to place pins on the screen using your cursor.

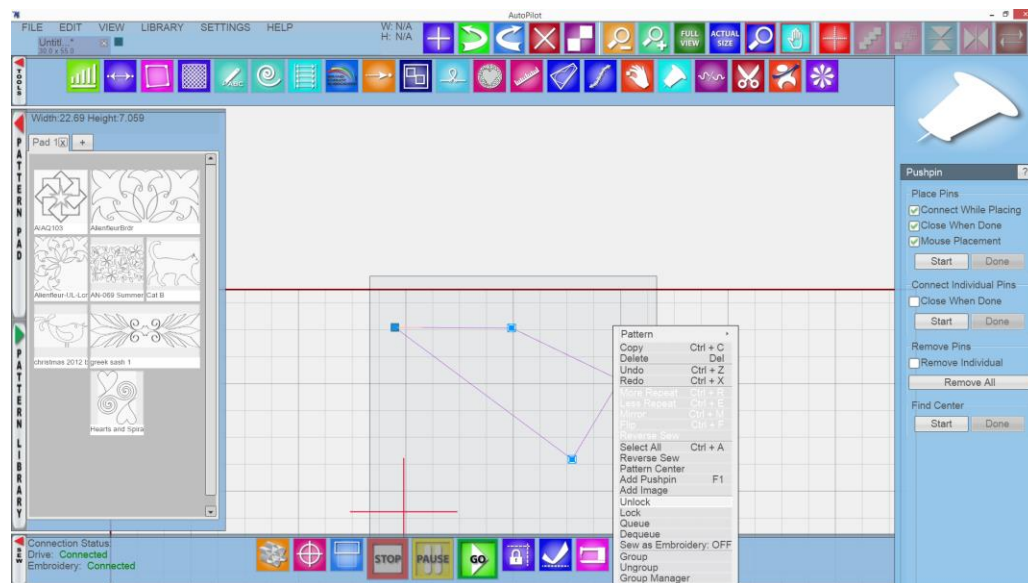


### **Connect Individual Pushpins**

Click the “Start” button within Connect Individual Pins to begin connecting pushpins. Click from pushpin to pushpin to connect the pushpins together. Click “Done” when finished connecting pushpins.

### **Close When Done**

To close the shape when done selecting preset pins, check the Close When Done box before starting. When “Done” is clicked a line will appear between the last chosen pin and the first chosen pin, closing the shape.



### **Remove Pushpins**

To remove a single pushpin, checkmark the “Remove Pushpin” box and click on a pushpin to remove it. Uncheck the box when done removing pushpins.

To remove all pushpins, click the “Remove All” button. All pushpins will then be removed from the screen.

***Center Pushpins***

Click the “Start” button within Find Center and click from pushpin to pushpin to find the center of selected pushpins. A black X will appear to mark the center of the selected pushpins. Click “Done” when finished and a pushpin will appear to mark the center for future reference.

***Pushpin lines***

Pushpin lines are created Locked and Dequeued. Right click a pushpin line and choose Unlock and Queue from the drop-down menu to sew the created line.

***Pushpin Chimes***

Go to Settings tab and select Pushpin Chimes ON/OFF. Select Set Chime to set the chime sound. This is helpful to have “ON” while setting pushpins at the sewhead, an audible chime will sound when the pin was set.

**Pattern Lock**

Right-click on the pattern to lock. Choose “Lock” from the dropdown menu to lock the pattern in place. Locked patterns will turn blue to indicate that the pattern is locked. After a pattern has been locked, it cannot be moved or edited unless it is unlocked first. To unlock a pattern, right-click on the pattern and click on “Unlock” from the dropdown menu. A locked pattern that is dequeued will appear purple.

## Measure




Click the “Measure” icon to open the Measure Dialog. Measure the pattern or quilt. The measurement will be displayed in the Length textbox. Click “Cancel” to clear the measurement points. Turn ruler lines on/off by check marking the “Show Ruler” option.

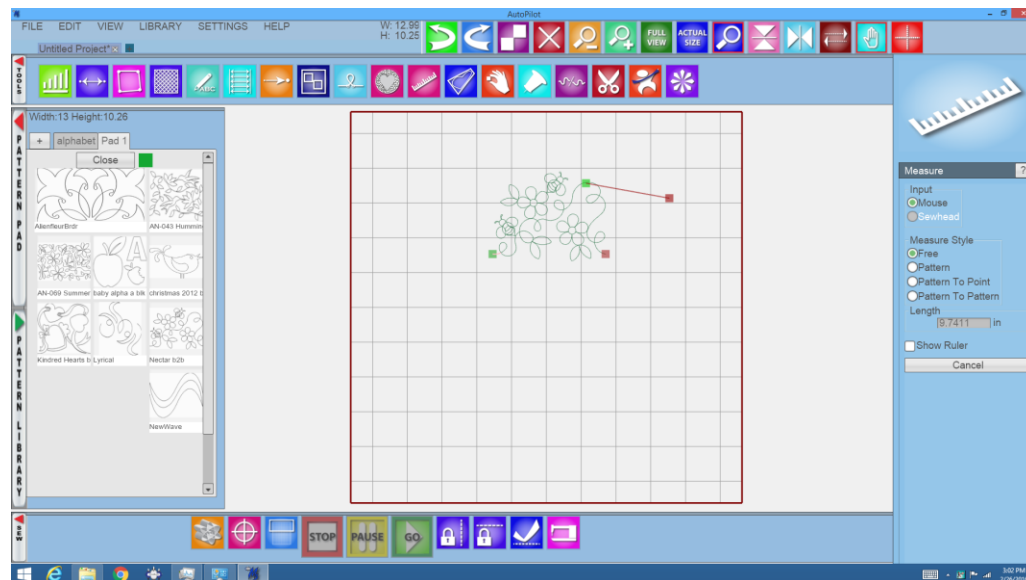
### Measure - Free

### Mouse

To measure between two chosen points, touch to place desired start point and touch again to set desired end point. Keep touching to change the end point.

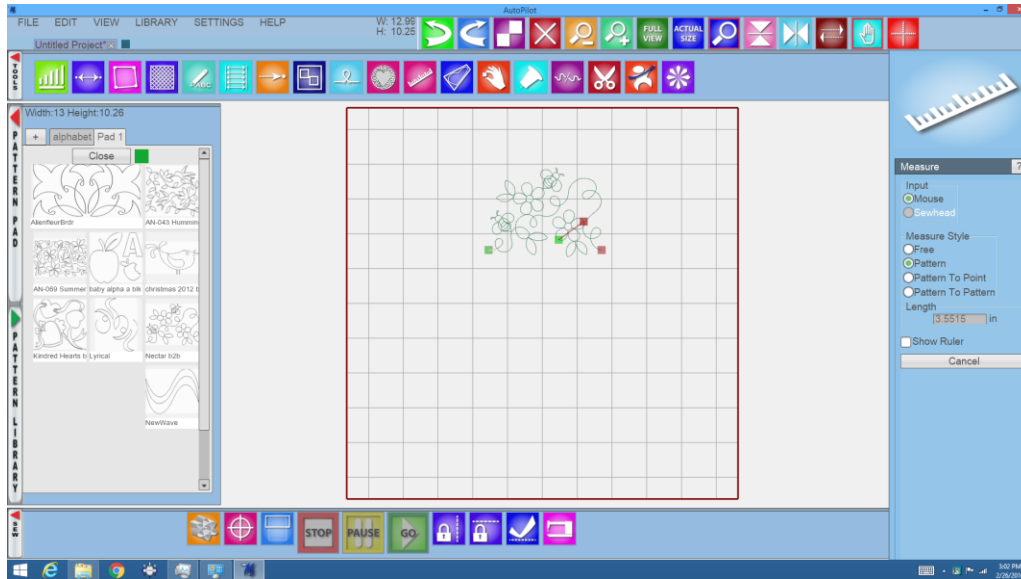
### Sewhead

Move the sewhead to desired location for the start of measurement and click the “Place” button on Lightning Stitch  or the green button on the sewhead. Then pull the sewhead to the desired end point of measurement. Keep moving the sewhead to change the end point.



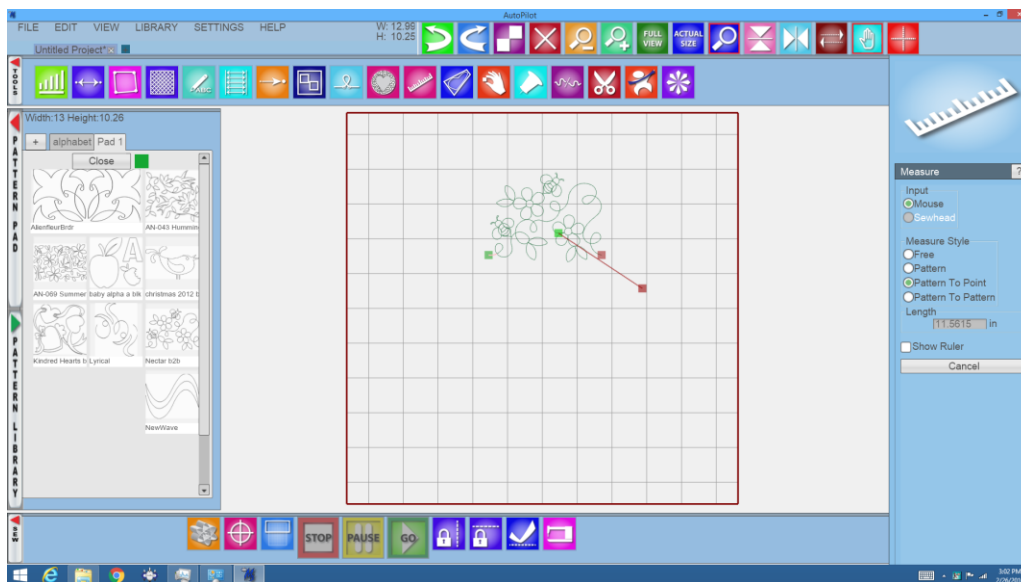
## Measure - Pattern

To measure between two chosen points within a pattern, touch the pattern to place desired start point and touch again on the pattern to set desired end point. Keep touching to change the end point.



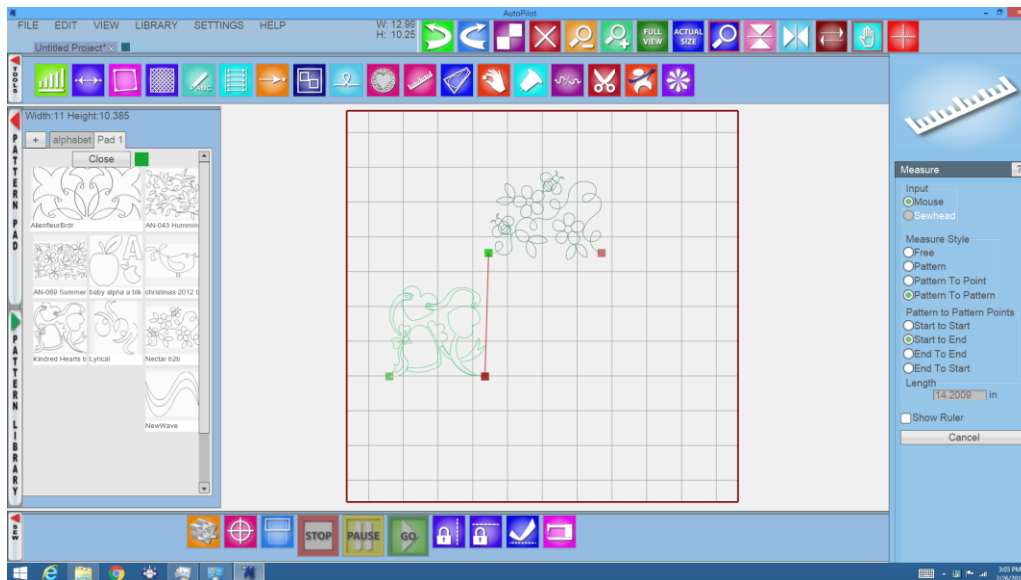
## Measure - Pattern to Point

To measure from a point on a pattern to another point, touch the pattern to place the desired start point and touch again to set desired end point. Keep touching to change the end point.



## Measure – Pattern to Pattern

To measure from the start/end point on one pattern to another pattern, select an option for placing points. Start to Start, Start to End, End to End, or End to Start. After selecting option for placing points, click on the pattern to place the points to measure between.



## Sewing Options



Click the “Sewing Options” icon to open the Sew Option dialog. The AutoPilot Mach 3 stitches out the patterns in the order placed into the sewing area by default. Sew options is where you can queue/dequeue a pattern, see a sewing preview/virtual stitch out of the patterns within the sew zone, manually order the patterns within the sew zone, or automatically order patterns within sew zone.

*\*\*\* NOTE: If patterns are showing dashed red, this means they are temporarily dequeued. The reason they are temporarily dequeued is because they are either outside the sew zone, or there are too many patterns within the sew zone for the controller to be able to sew them all. \*\*\**

### **Set Pattern Click**

Select radio button for Reverse Direction, Queue, or Dequeue. When clicking on a pattern, the action selected will be applied to the pattern.

### **Reverse Direction**

Will reverse the sewing direction of the pattern clicked.  
Queue will queue the pattern clicked for sewing.

### **Dequeue**

Will remove the pattern clicked from the sewing queue.  
To queue or dequeuer all patterns within the sew zone click the “Queue All” or “Dequeue All” buttons.

### **Sewing Preview**

To see a preview of how the patterns in the sew zone will stitch, click “Start”. Pause or stop the sewing preview at any time by clicking the “Pause” or “Stop” buttons.

Adjust the speed of the sewing preview by sliding the slider bar. Slide the bar to the left to go slower, slide to the right to go faster.

### **Manual Order**

To order patterns within the sew zone manually, click the “Order” button. Then click on the patterns in the order to stitch. Click “Done” when finished selecting the order.

## ***Automatic Order***

To order patterns within the sew zone automatically and find the shortest path, click the button, ordering the desired entities to stitch. Sew direction of patterns may change, if it is determined that will be the shortest path to sew the patterns.

### ***Top Left***

Start at the top left corner of the sew zone and determine the shortest path.

### ***Top Right***

Start at the top right corner of the sew zone and determine the shortest path.

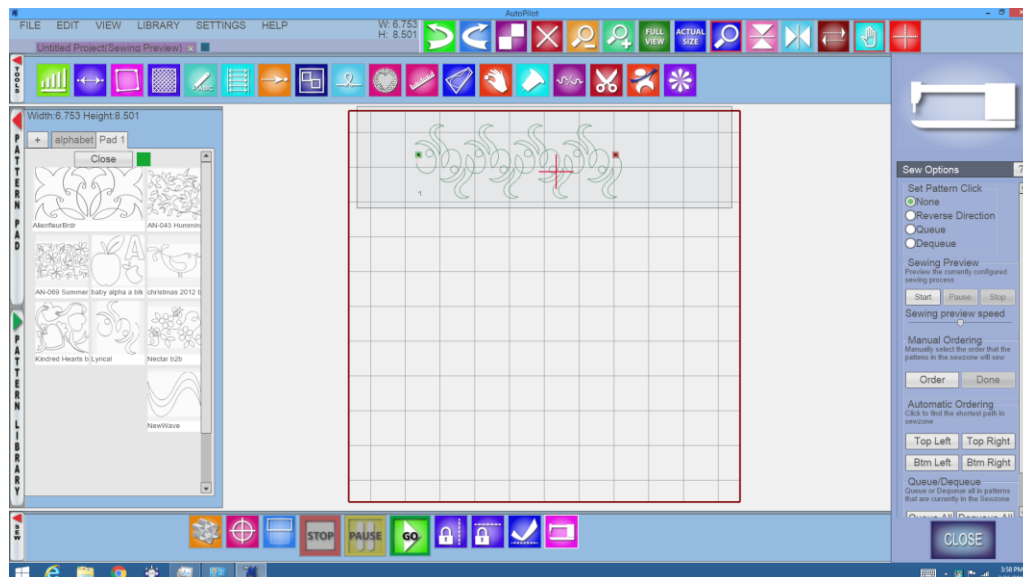
### ***Btm Left***

Start at the bottom left corner of the sew zone and determine the shortest path.





### ***Btm Right***

Start at the bottom right corner of the sew zone and determine the shortest path.







After choosing a method for automatic ordering, click GO to sew patterns in the selected path.




## Power Assist

Click on the “Power Assist” icon , or “Power Assist” button on Lightning Stitch screen , to turn on the power assist. With power assist on, the sewhead will be easier to move around while connected to the belts. The motors will be activated and apply driving force based on input data. Click the “Power Assist” icon again  or “Power Assist” button on Lightning Stitch screen  to turn off the power assist.




## Axis Lock

Click on the “Axis Lock” icon  or “Axis Lock” icon on Lightning Stitch screen  to toggle through axis lock options. The green dashed line indicates the direction the machine will stitch while the opposite axis is locked. Horizontal axis lock  or  on Lightning Stitch screen, will lock the horizontal axis allowing vertical line stitching only. Vertical axis lock  or  on Lightning Stitch screen, will lock the vertical axis allowing horizontal line stitching only.

## Sew

Start stitching by pressing the “Go” icon . If the Pause setting is turned on you will receive the CONTINUE/STOP dialog, which allows you to trim thread or pull up bobbin thread.

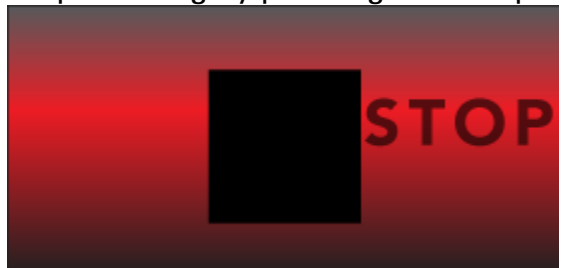
## Pause

By pressing the “Pause” icon  or “Pause” on the Lightning Stitch screen . The drive motors will remain engaged and the machine will not be able to be moved. Restart by pressing the “Go”  icon. The sewhead will continue stitching from where the machine left off. If Pause is left unattended this function will time out and revert to a Stop.





## Stop

Stop stitching by pressing the "Stop" icon , or "Stop" on Lightning Stitch screen





After a stop there are two choices; RESUME and EDIT.



### *Edit*

To EDIT the pattern or make changes not allowed while in the sewing mode, choose "Edit" , "Edit" on Lightning Stitch screen . Choosing to EDIT will exit the sewing mode and you will have to click Go in order to start the sewing process.



### *Resume*

To RESUME stitching the pattern that stopped sewing, choose "Resume" , "Resume" on Lightning Stitch screen . After choosing RESUME there are two choices; CONTINUE and MOVE.

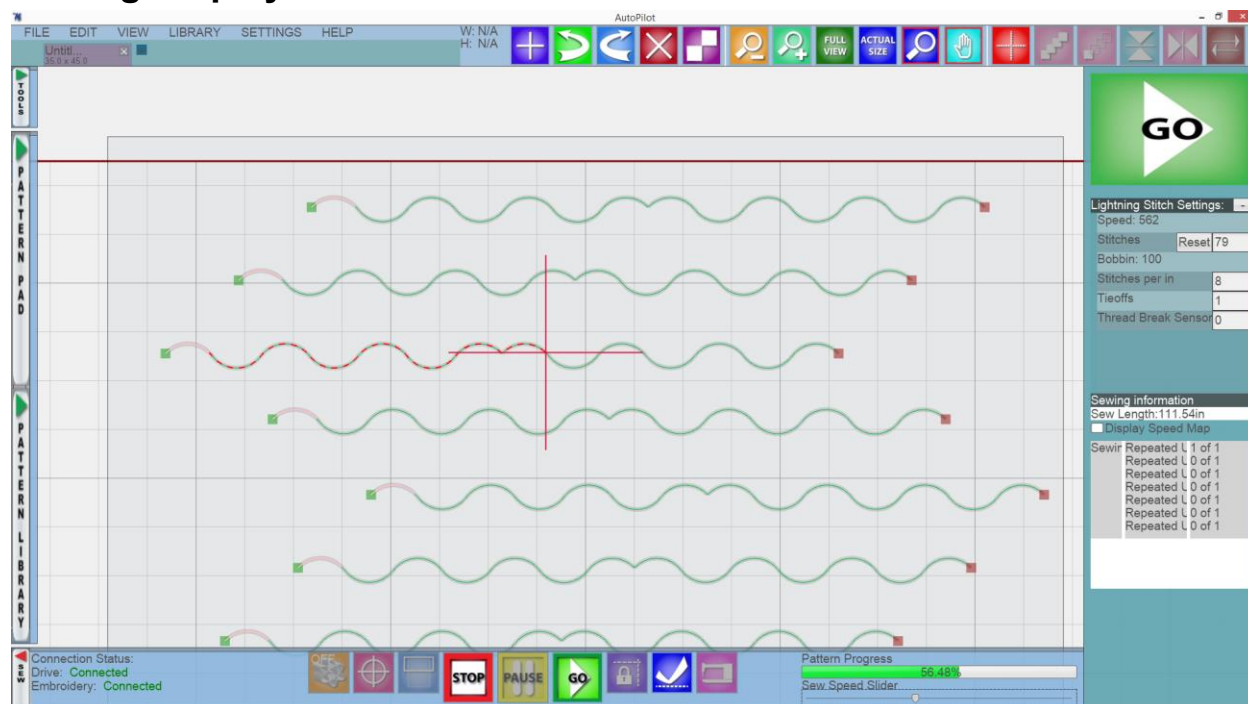
### *Continue*

To CONTINUE stitching the pattern where the machine was stopped; Click "CONTINUE"  or "CONTINUE" on Lightning Stitch screen .

### *Move*

To move to a specific location of the pattern where it stopped sewing; Click "MOVE"  or "MOVE" on Lightning Stitch screen . This is particularly useful if the bobbin thread ran out and the machine needs to be relocated to where the actual stitches stopped rather than where the machine eventually stopped. When choosing to "MOVE" it is helpful to zoom in on the pattern and note the pink line that appears on the pattern where the sewhead crosshair is located. This pink line indicates the direction and location of the "MOVE".

## Sewing Display



### Lightning Stitch Settings

While in sewing mode, Light Stitch Settings are visible in the right side bar.

**Speed:** displays the speed the machine is stitching.

**Stitches:** displays the stitch count since the last reset.

**Bobbin:** displays the percentage of thread remaining.

**Stitches per in:** displays set stitches per inch and may be changed by clicking the number field to access the keypad entry.

**Tieoffs:** displays number of stitches for tie off and may be changed by clicking the number field to access the keypad entry.

**Thread Break Sensor:** displays Thread Break Sensor setting and may be changed by clicking the number field to access the keypad entry.

### Sewing information

**Sew Length:** displays the length of stitching for queued patterns.

**Sewing:** displays pattern stitching status.

**Display Speed Map:** Check box to view speed map. Blue indicates faster speed.

## View

Adjust the View: using the “Zoom” icons, click the “Full View” button to quickly view the entire quilt layout, or click the “Pan” button to move around the quilt layout using the mouse.

## Zoom In



Zoom in to see more detailed view of sew area. To Zoom in by mouse click on icon, scroll wheel on mouse, or by placing two fingers far apart on touch screen and then sliding them together.

## Zoom Out



Zoom out to see larger view of sew area. To Zoom out by mouse click on icon, scroll wheel on mouse, or by placing two fingers close together on touch screen and then spreading your fingers out.

## Active Zoom



Turn active zoom on and zoom in to the point where the mouse clicks.



Turn active zoom off.

## Full View



Full View shows the full quilt grid on viewport screen. This is the preferred selection for laying out patterns. Zoom in or out as preferred. Use pan to adjust viewing position of grid on the screen.

## Actual Size



Actual Size shows the screen and patterns at approximate actual size.

## Turn Pan On



Turn pan on and click and drag using mouse cursor on the quilt grid to navigate the quilt grid. Pan by pushing in the mouse wheel button and moving the mouse

around the screen or by placing two fingers on touch screen to drag the quilt grid into view.

## Turn Pan Off



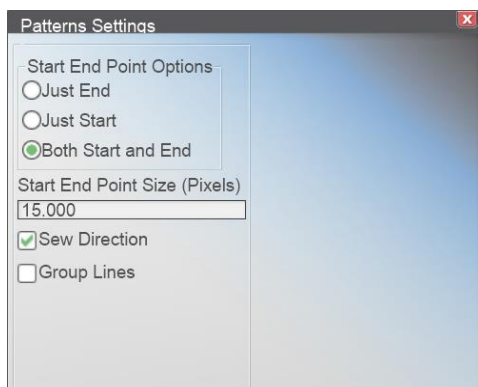
Turn pan off.

## Free View and Needle View

Under the “View” tab choose “Needle View” to view the screen with the sewhead locked to the center position of the viewport screen. Uncheck “Needle View” to pan or zoom to any position on the screen.


## Pattern Settings

Under the “Settings” tab choose “Pattern Settings” to adjust the size of the start/end point, adjust the options for start/end point, change the option for sew direction, and change the option for grouping lines. If an option is check marked, that means it is turned on. Sew direction will show a portion of the pattern as pink to indicate the direction the pattern will sew. Group lines will show the jump lines between patterns within a group.



## Advancing and Repositioning

### **Reposition**

Clicking the “Reposition” icon  and following the prompts on the screen.

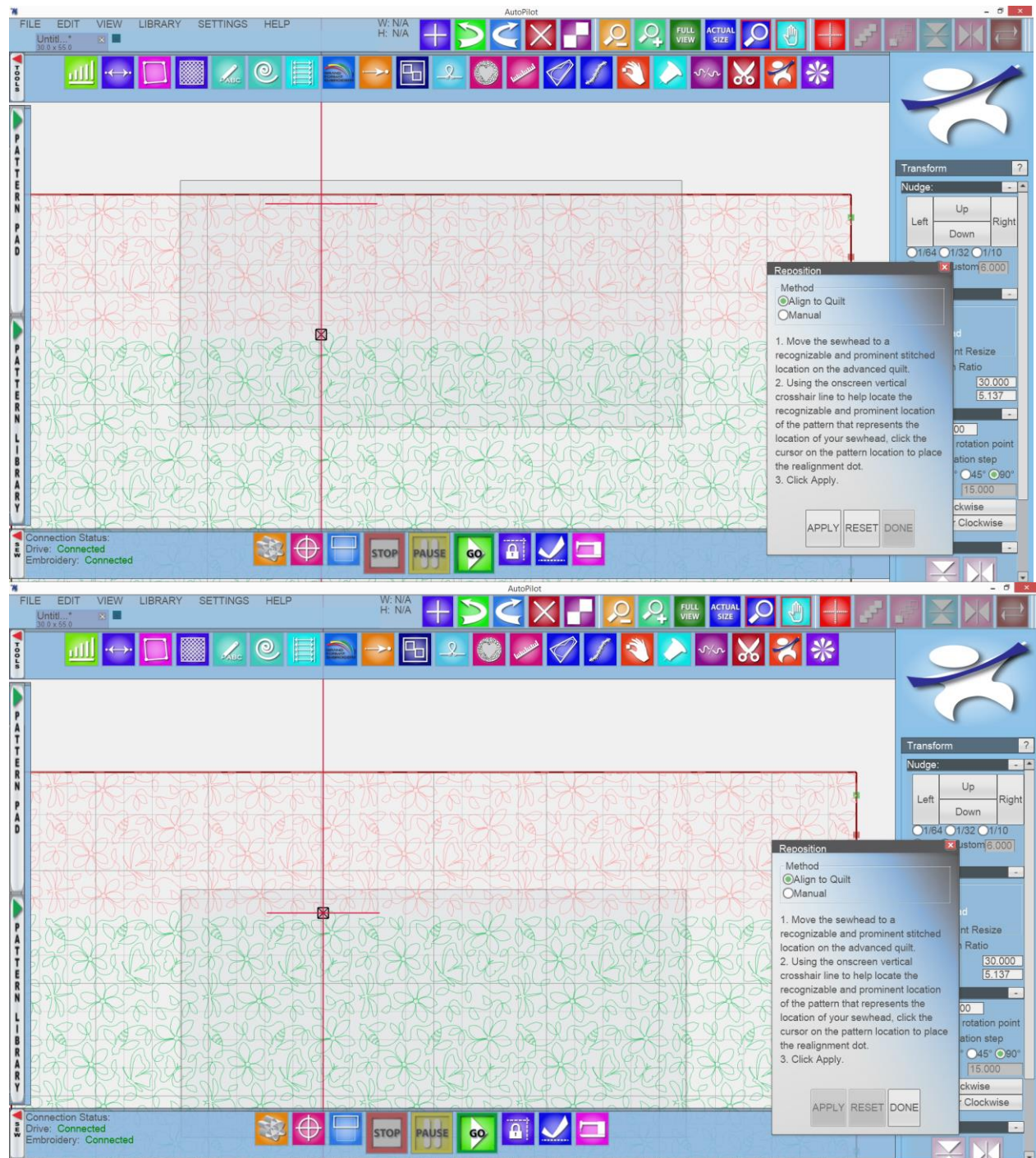
### **Align to Quilt**

Check the “Align to Quilt” selection. Move the sewhead to a recognizable and prominent location on the advanced quilt. Using the onscreen vertical crosshair line to help locate the recognizable and prominent location of the pattern that represents the location of the sewhead, click the cursor on the pattern location to place the realignment dot. Click APPLY.

When pressing “APPLY” button the crosshair (and sew zone) will snap to the point, repositioning the sew zone.

*TIP: One way to think of this is to imagine the crosshair as grouped with the sew zone, and the realignment dot grouped with all the patterns and grid. There are two items; Group 1 (the crosshair and sew zone), and Group 2 (the realignment dot with all the patterns and grid). After clicking APPLY, the two groups snap together at the realignment dot and crosshair.*





## Manual

Check the "Manual" selection. Left click and drag the sew zone and crosshair to the desired location on the screen. TIP: This method skips the placement of a dot and just allows movement of the crosshair and sew zone to the desired location. Again, it is like having two groups or two layers. One group or layer includes the crosshair and sew zone, the other layer or group contains the patterns and grid.

## Tension Check

The AutoPilot Mach 3 software comes equipped with software to accommodate the use of a self-mounted web camera. Use industrial strength Velcro to attach the camera to the lower sew arm pointing up at the bottom of the quilt. Plugging the camera into the computer will allow you to view the bobbin stitch tension and

underside of your quilt when you select the “Tension Check” icon.



For best results use a web camera such as a Logitech® with auto focus and a minimum of 2.0 megapixels.

## Adjust Colors

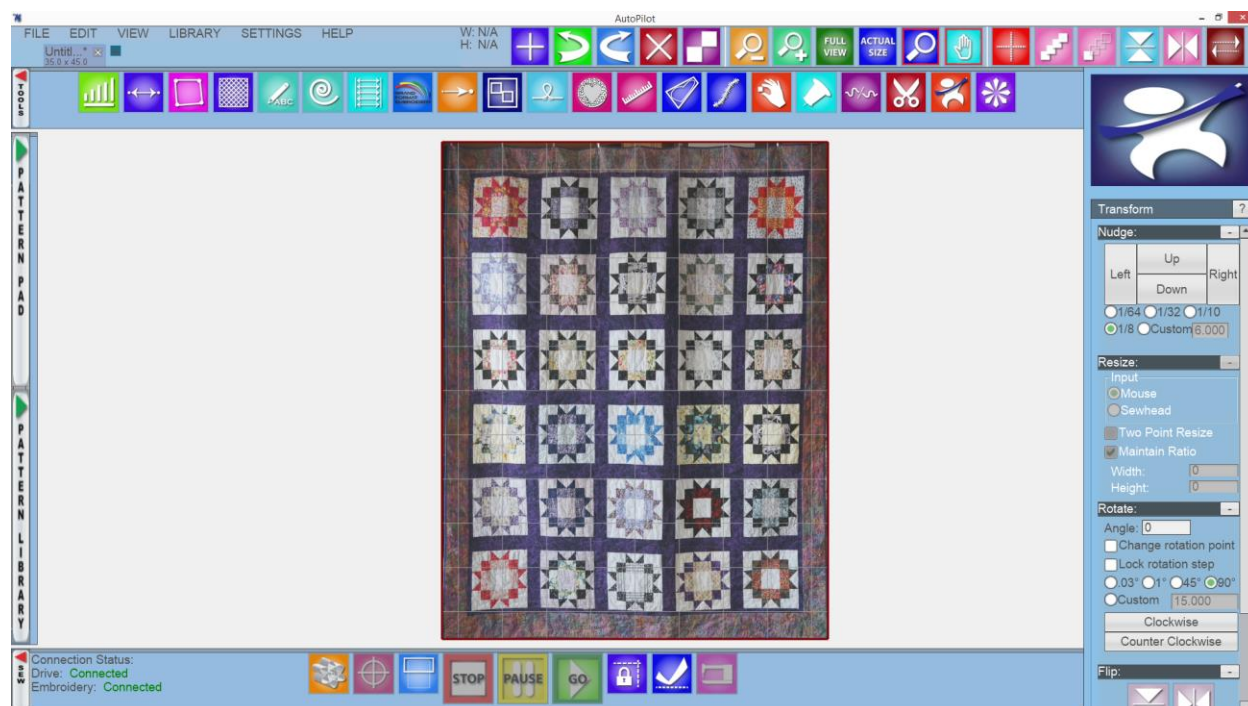
The AutoPilot Mach 3 software color scheme can be customized. Under tabs click “Settings” then “Adjust Colors” to open the color window. Choose Professional (blue mono), Original (multi color), or Custom (your choice). With “Custom” selected choose the button color on the top panel, choose the background color on the lower panel. Click “Apply Color Change” button to see the changes. Change the color of any individual icon by right clicking on the icon and choose Change Color.

## Background Image

The AutoPilot Mach 3 software can show an image of the users quilt in the background of the grid display.

### ***Background Image***

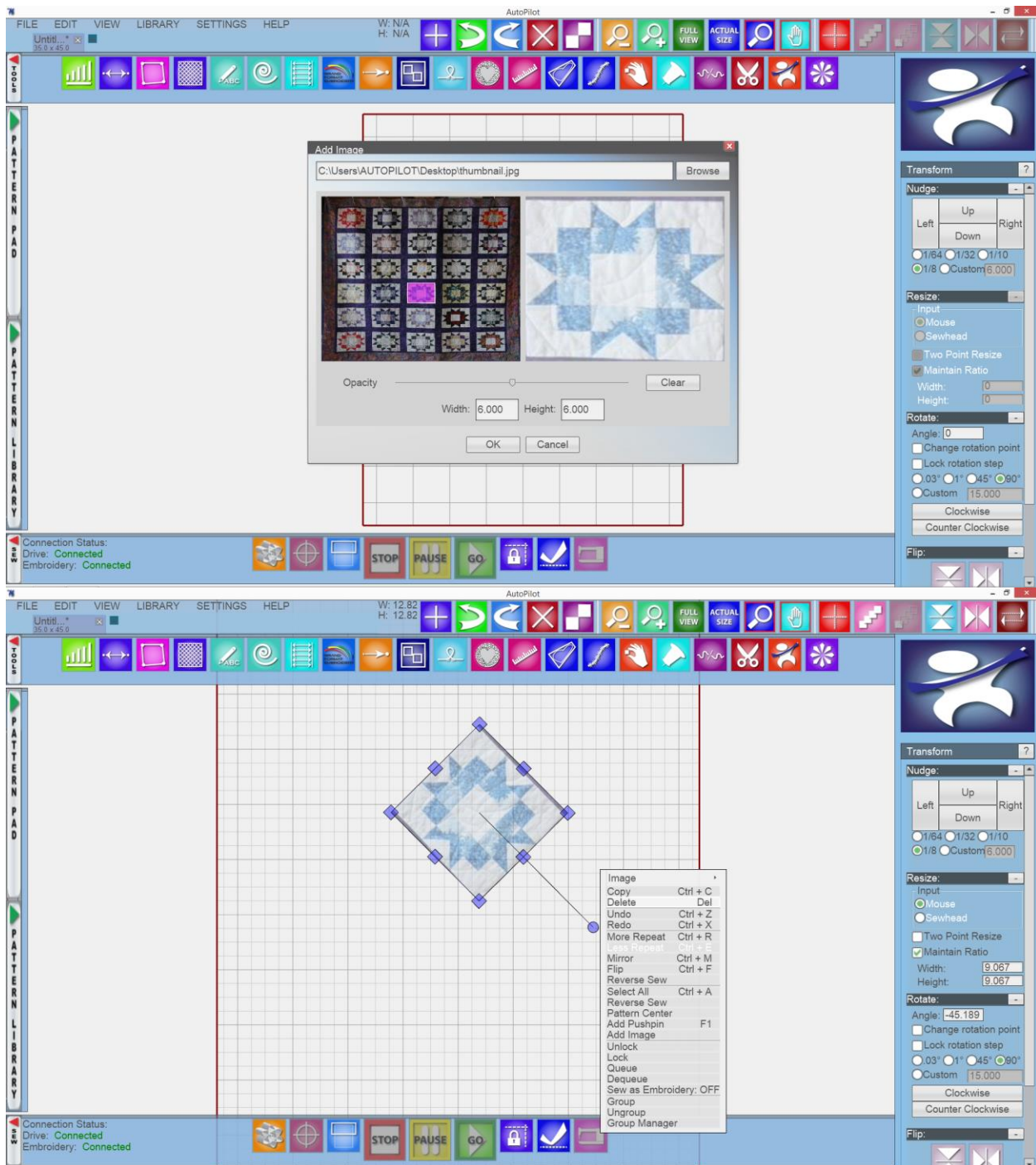
Under tabs click "Settings" then "Background Image". Click the "Browse" button to select an image. "Crop" the image by dragging the sides of the purple box inward. Preview image is displayed in the right panel. Adjust the opacity of the image by using the slider bar. Slide the bar to the left to make the image more transparent. Slide the bar to the right to make the image opaquer. The image will "fit" to the quilt grid and is not adjustable within the viewport screen. Select "Clear" to remove the background image.



### ***Sizeable Image***

Under tabs click "Settings" then "Sizeable Image". Click the "Browse" button to select an image. "Crop" the image by dragging the sides of the purple box inward. Preview image is displayed in the right panel. Resize the image using the number entry fields. Adjust opacity by sliding the bar left for transparency and right for more opacity. The image will show on the quilt grid at the size specified. It will be moveable, resizable, and can be deleted on viewport screen by selecting and using bounding box anchors to resize, or right click then delete.





## Save Patterns

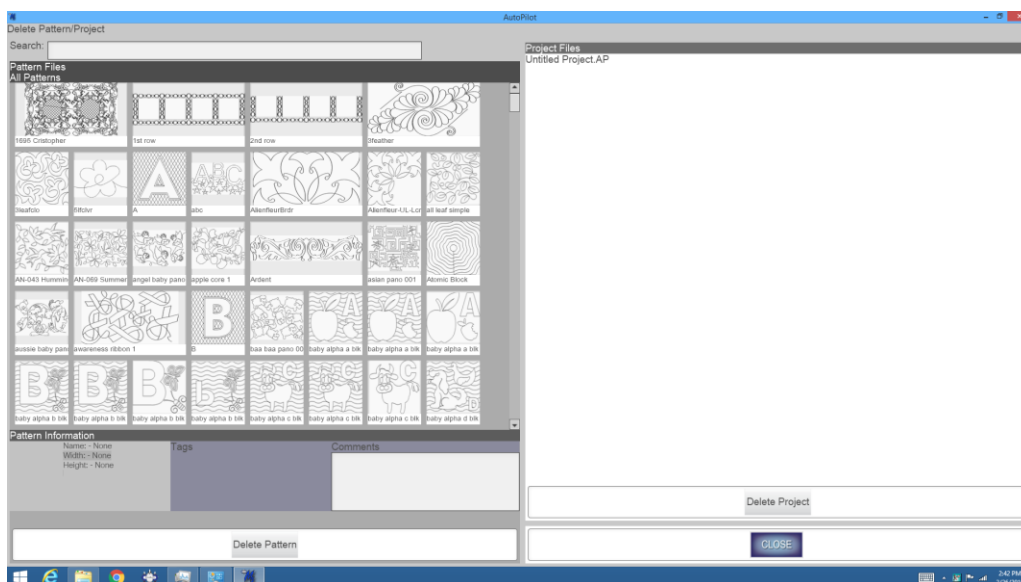
Save Patterns, rows, or groups as new patterns.

Select pattern, row or group desired. Under tabs click "File", then "Save Pattern File" to open Save Pattern dialog.

Rename new pattern in "File name" text box. Click "Save". Viewport screen will reopen.

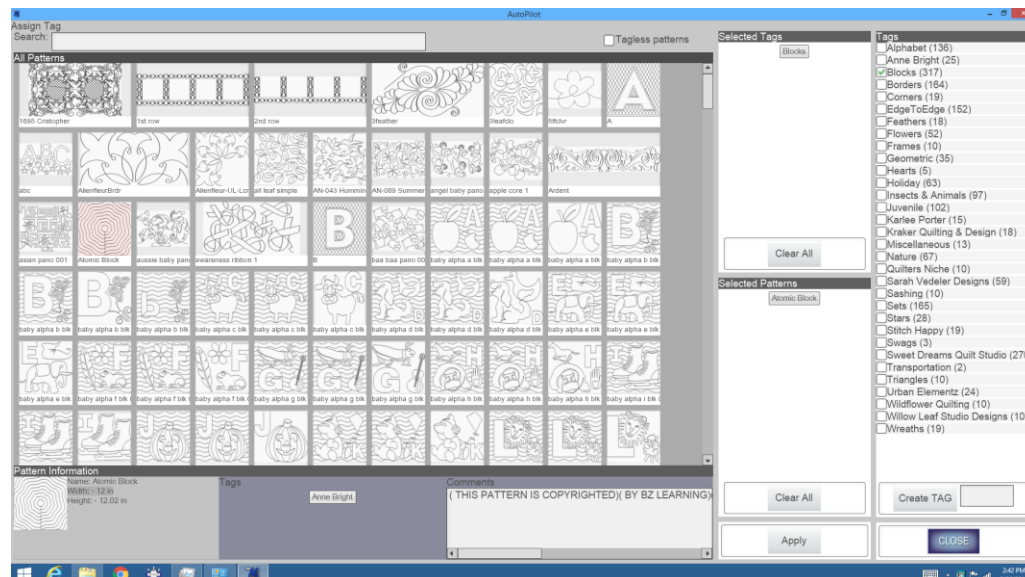
## Delete Pattern/Project Files

To Delete pattern or project files, under tabs click "File", "Delete Pattern/Project Files" to open Delete Pattern/Project screen. On the left side of the screen, select the pattern file to delete and click the "Delete" button. On the right side of the screen, select the project file to delete and click the "Delete" button. Click "Close" to return to viewport.



## Tag Patterns

To tag patterns, under tabs click “Library”, then “Assign Tags” to open Assign Tags to Patterns screen.



To select pattern, double click the pattern thumbnail. The pattern file name will then show in the selected patterns list.

Search the pattern library by pattern name typing into the Search box. To show only patterns without tags, checkmark the “Tag less patterns” checkbox.

Select Tags as desired by check marking the box, selected tags will be shown in selected tags list. To assign selected tags to selected patterns click “Apply”. If adding tags to a previously tagged pattern, new tags will get added to the existing tags for that pattern.

Click “Clear All” to remove tags from the selected tags or remove patterns from the selected patterns list.

To remove a tag from a pattern, select the pattern, and right click on the tag to remove in the Pattern Information panel. Click “Delete Tag” to remove the tag from the pattern.

To create a new Master Tag, type desired name into textbox and click “Create TAG” button. Newly created master tag will be added to the list of tags.

To rename a Master Tag, right-click on the master tag to rename. Choose Rename from the dropdown menu. Click in the textbox and type what you want the master tag to be renamed to. Press "Rename" button to apply name change.

To delete a Master Tag, right-click on the master tag you want to delete. Choose Delete from the dropdown menu. Master Tag will be removed from the list of tags.

## Diagnostics

The diagnostics screen is where to view different settings about the machine.



### Drive Settings

The drive settings are where different settings are stored that affect the motors/stitch out of patterns.

**Minimum Sew Speed** is the minimum stitching speed of the Innova sewhead as it stitches out a pattern in AutoPilot Mach 3. Increasing the speed will make it so the machine won't slow down as much in corners. Default minimum sew speed is 250.

**Embroidery Accel/Decel** refers to the speed at which the needle moves up and down, or makes a stitch. A higher number will make the needle go down and back up much faster. Default speed is 40.

**Embroidery Needle Accel/Decel** is the speed at which the Innova sewhead moves, while the needle is in the up position, between stitches. A higher number will make the machine move to the next stitch faster. Default speed is 250.

**Jump Speed** is the speed at which the machine will move when going between jumps. Adjusting the speed will make it so the machine will move faster (or slower) when traveling between jumps within a pattern. Default jump speed is 300.

**X Axis Tuning** choose Default, Medium, or Smooth and relate to motor “noise”. Make the best selection for hardware set-up. If the motors are loud or making an undesirable sound, choose an alternate tune selection.

**Y Axis Tuning** choose Default, Medium, or Smooth and relate to motor “noise”. Make the best selection for hardware set-up. If the motors are loud or making an undesirable sound, choose an alternate tune selection.

## Lightning Stitch Settings

The Lightning Stitch settings are where different settings are stored that are the same as Lightning Stitch. If the setting is changed on the Lightning Stitch screen it will be updated on the Diagnostics screen as well.

**Stitches per in** is the value that the stitches per inch is currently set to. Adjusting the stitches per inch will change the value on Lightning Stitch.

**Tieoffs** is the value of how many tieoff stitches will be taken when the Tieoff button on Lightning Stitch is pressed. Adjusting the tieoffs value will change the value on Lightning Stitch.

**Thread Break Sensor** is the value of the sensitivity of the thread break sensor. Set to 0 if you do not have a thread break sensor. 0 is Off. Set from 1 to 30 with 1 being the most sensitive. Adjusting the thread break sensor value will change the value on Lightning Stitch. If the thread break is stopping the machine and there is no thread break increase the value. Normal is a setting of 5 milliseconds.

**Bobbin Length** value is the distance in yards of the thread on the bobbin. Larger thread sizes will allow less thread to be wound on the bobbin and thinner threads will allow more. In most cases, this will be an experimental value. An initial value of 100 to 120 is a good place to start. Adjust as needed. Adjusting the bobbin length value will change the value on Lightning Stitch.

## Machine Diagnostics

The Machine Diagnostics will show different troubleshooting values. There are three sections to the Machine Diagnostics.

**I/O Flags** will show the states of Start/Stop Push button, Needle Safe, Drives, Run, X Motor, Y Motor, X Lock, Y Lock, and Machine Home. The I/O Flag will show as green and ON when the state of that flag is on.

The Start StopPb I/O flag is the current state of the green push button.

The Needle Safe I/O flag is the current state of the needle.

The Machine Home I/O flag is the state of if the sew zone has been set.

**Drive Values** will show the current position of the X/Y needle encoder and the current position of the X/Y of the motor.

**State** is the status of the connection of the computer to controllers and the current running version numbers.

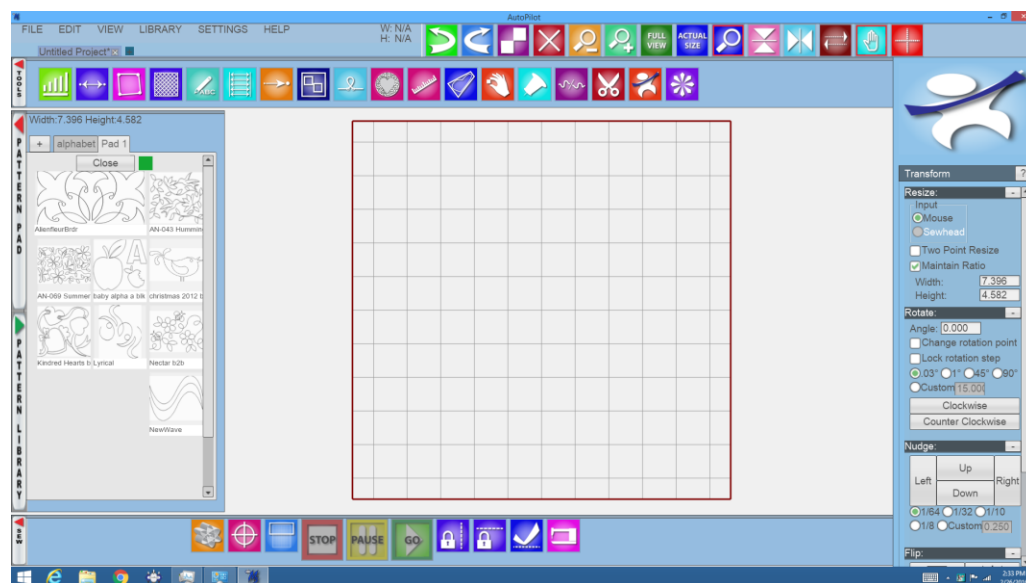
### System Settings

The System Settings show the configuration of the power assist values for X and Y. Adjust the slider bars as necessary.

**System Versions** show drive version numbers associated with the current application version.

## Viewport

The viewport window shows the arrangement of patterns in the active project on a virtual representation of the quilt layout as well as the machine's defined sewing area. It also features the top control panel, right side dialogue panel, menu tabs, and access to the Icon Tool Bar, Pattern Pad, Pattern Library, and Sew panel.



**Gridlines** are visible to assist in positioning and sizing patterns. Turn on Gridline labels by going to "Settings" tab and clicking Grid Labels setting. Gridlines are defined as follows:

Blue 4 inches

White one inch

Dark Gray one quarter inch (only visible at high magnification)

Red outer edges of the sewing area

**Tabs Bar:** allows for function selections included on icon tool bar as well as more function selections and settings that are used less frequently.

**Pattern Pad:** displays patterns selected for possible use on current project.

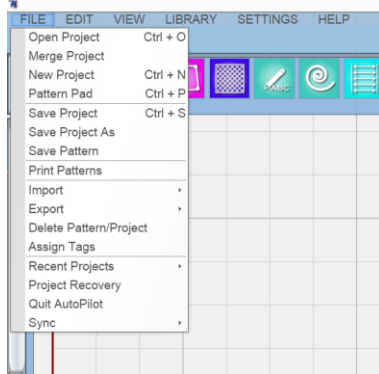
**Icon Tool Bar:** contains icon touch buttons for editing functions.

**Icon Sew Bar:** contains icon touch buttons for sewing related functions.



## Menu Tabs

File Menu: contains options for opening, saving, printing, and managing patterns and projects.



### ***Open Project***

Opens window of saved projects you may select to open.

### ***Merge Project***

Opens window of saved projects that you may open within an already opened project showing elements of both saved projects simultaneously.

### ***New Project***

Opens new project tab for creating a new project from scratch.

### ***Pattern Pad***

Opens the Pattern Library for Pattern Pad management.

### ***Save Project***

Opens window for naming and saving projects.

### ***Save Project As***

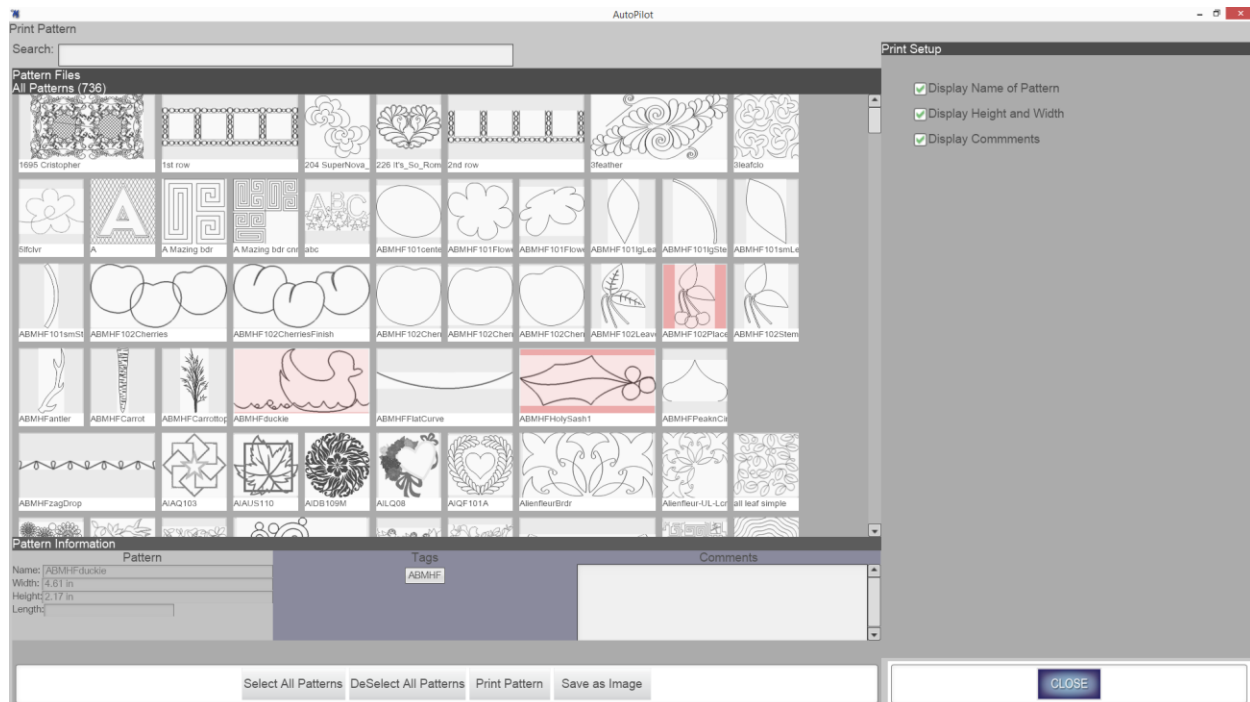
Opens window for assigning a new name to a modifies project, leaving the original as last saved.

### ***Save Pattern***

Opens window for naming and saving modified or newly created patterns.

## ***Print Patterns***

Opens Pattern Library for printing or saving pattern images with print options for including pattern name, size, and comments.



## ***Import***

Opens windows to import Patterns, Projects, or Chimes.

## ***Export***

Opens window for exporting a Selection on the viewport or Patterns from the Library.

## ***Delete Pattern/Project***

Opens window for selecting and deleting patterns and projects.

## ***Assign Tags***

Opens the window for assigning tags to patterns.

## ***Recent Projects***

Opens a window showing recent projects.

## ***Project Recovery***

opens a window showing specific “saves” of projects.

## ***Quit AutoPilot***

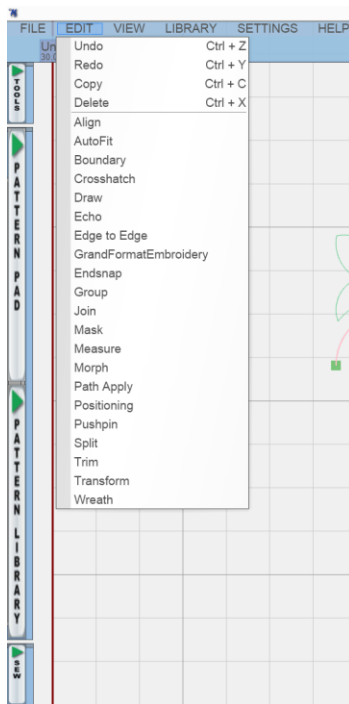
Closes the AutoPilot Mach 3 application.

## ***Sync***

Merges projects between AutoPilot Mach 3 and AutoPilot Mach 3 Simulator. A USB is required.

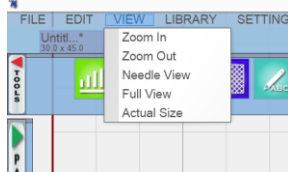
## ***Edit Menu***

Contains a list of previously covered features. Clicking these menu items works the same as if you click the icons.



## ***View Menu***

offers various selections relating to the viewing of the viewport screen.



### ***Zoom In***

Clicking this menu item will zoom in, same as the Zoom In icon. Zoom in by rolling the scroll button on a mouse cursor forward. Finger gesture on touch screen or placing two fingers close together on the screen and sliding them outward will zoom in.

### ***Zoom Out***

Clicking this menu item will zoom out, same as the Zoom Out icon. Zoom out by rolling the scroll button on a mouse cursor backwards. Finger gesture on touch screen or placing two fingers on the screen separated and sliding them towards each other will zoom out.

### ***Needle View***

Clicking on this menu item selects it as the view mode for the viewport screen. Needle view locks the sew head crosshairs to the center of the viewport screen. Having trouble panning, check to see if this view is selected. It is a useful view to choose when running patterns to see the needle (where you're stitching) in the viewport screen. Needle view will remain selected until deselected.

### ***Full View***

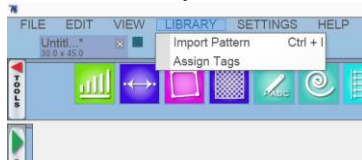
When clicked the viewport screen will zoom out to the full view.

### ***Actual Size***

When clicked will zoom in to view the patterns at their actual size.

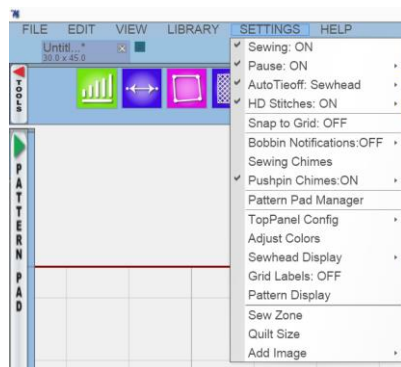
### ***Library Menu***

Contains Import Patterns and Assign Tags, previously covered.



### ***Settings Menu***

contains very important settings, many with sub-menus.



### ***Sewing ON/OFF***

Toggle this setting to run patterns with the needle engaged and stitching (ON), or OFF to run the machine along the pattern path without stitching.

### ***Pause ON/OFF***

Toggle this setting to "ON" to choose to have the machine pause for bobbin pick up or manual tie off at selected sub-menu options. If "OFF" is selected the sew head will move to position and between patterns and jumps without stopping. Sub-menu items for Pause ON include; At Start of pattern, At End of pattern, At Both Start and End of pattern, and Configurable which provides the option to enter a distance at which the machine will pause before moving.

### ***Auto Tieoff***

If this option is selected, the machine will tie off at the start and end of the pattern as designated by the sub-menu selection. Selections are: Sewhead, tieoff (as set at Lightning Stitch screen), BackTack, back tacks specified number set in number field; Ramp, ramps the size of stitch for the distance of programmed stitches set in number field; X's, creates a small "x" stitch.

### ***HD Stitches ON/OFF***

Toggle on to utilize High Definition stitch settings. Sub-menu options will control the percentage of how much to allow the computer to the length of a stitch, "increase" or "decrease" the set stitch length "stitch per inch". This allows the machine to best fit the stitch to path segments between direction changes. The higher the percentages input, the more easily the computer will be able to place stitches in points, creating a crisper stitch out.

***Snap to Grid ON/Off***

Toggle selection for ON/OFF. Items will snap to the closest grid intersection. This is useful when needing perfectly horizontal or vertical placement of points.

***Bobbin Notifications ON/OFF***

Toggle to “On” and choose from sub-menu items for notification at 20, 10, and 0%. Assign notification type from sub sub-menu of none, stop (machine), alarm, message, or alarm/message.

***Sewing Chimes***

Set chime to sound when sewing is done.

***Pushpin Chimes***

Set chime to sound when pushpin is placed. This is very useful when placing pins at sew head.

***Pattern Pad Manager***

Select to open the pattern pad manager.

***Top Panel Config***

Select icons and tools from the sub-menu to display in the top control panel.

***Adjust Colors***

Opens control panel for changing screen and icon color display.

***Sewhead Display***

Opens selection for sewhead display. Choose from Long Crosshair, Small Circle, or Large Circle. No selection defaults to Short Crosshair.

***Grid Labels ON/OFF***

Toggle selection to show or hide centerline grid labels showing distance from center of quilt grid.

### ***Pattern Display***

Opens options for pattern display. Choose to see Start, End, or both Start and End points of patterns. Choose the size of the start/end point. Select to see pink line indicating direction of sewing. Select to see lines connecting grouped patterns.

### ***Sew Zone***

Click to create a new sew zone.

### ***Quilt Size***

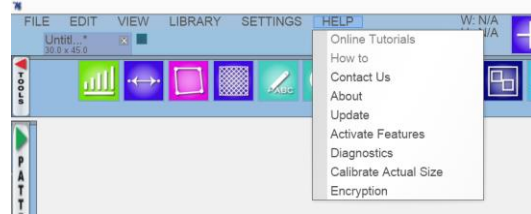
Click to access input field for entry of quilt grid dimensions.

### ***Add Image***

Opens options for adding a background image as previously covered.

### ***Help Menu***

Includes information about the system, updates, activation, diagnostics, calibration, and encryption.



### ***Contact Us***

To find contact information for ABM International.

### ***About***

Click to see the software version currently installed.

### ***Update***

Click to run the updater and update software.

### ***Activate Features***

Click to add features like Grand Format Embroidery.

## ***Diagnostics***

Click to open diagnostics screen, previously covered.

## ***Calibrate Actual Size***

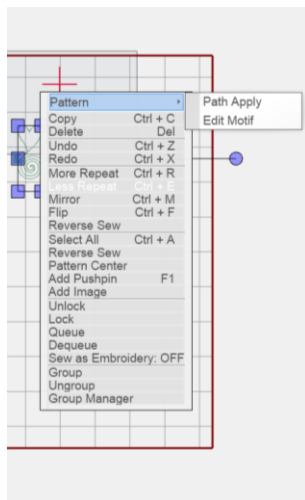
Click to calibrate the actual size of your screen.

## ***Encryption***

Click to install pattern encryption dongle.

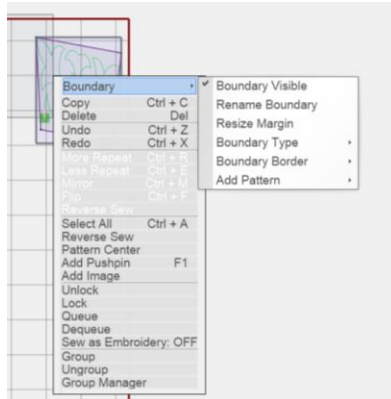
## **Right Click Drop Down Menu**

Right click on a pattern to gain quick access to many functions such as Pattern (Path Apply, Edit Motif), Copy, Delete, Undo, Redo, More/Less Repeats, Mirror, Flip, Reverse Sew, Pattern Center, Add Pushpin, Add Image, Unlock, Lock, Queue, Dequeue, \***Sew as Embroidery ON/OFF**, Group, Ungroup, and Group Manager.



Right click on a selected embroidery pattern to access Grand Format Embroidery options instead of Path Apply options. Right click on a Boundary to access boundary options.



***\*Sew as Embroidery ON/OFF:***

Select ON to stitch a .pat pattern in embroidery mode (Machine only moves while needle is out of fabric).

## Keyboard Shortcuts

**Ctrl + O:** Open Project

**Ctrl + N:** New Project

**Ctrl + P:** Add to Pattern Pad

**Ctrl + S:** Save Project

**Ctrl + I:** Import Pattern

**Ctrl + X:** Cut (Delete)

**Ctrl + C:** Copy

**Ctrl + H:** Flip Horizontal

**Ctrl + V:** Flip Vertical

**F5:** More Repeats (while E2E tool is open)

**F6:** Less Repeats (while E2E tool is open)

**F1:** Add pushpin

**Ctrl + Click:** Select pattern(s)

**Ctrl + A:** Select all patterns

**Ctrl + Z:** Undo

**Ctrl + Y:** Redo

## Icon Key



**Undo:** Reverse/Undo previous action.



**Redo:** Redo the previously undone action.



**Delete:** deletes pattern, row, or group that is selected on screen.



**Copy:** places copy of selected pattern, row, or group on screen.



**Flip Horizontal:** flips the selected pattern on the horizontal axis.



**Flip Vertical:** flips the selected pattern on the vertical axis.



**Transform:** opens dialog box for resize, rotate, nudge and pattern center options.



**Morph:** opens dialog box for morph options to morph selected pattern.



**Trim:** opens dialog box for trim and delete segments options.



**Reverse Sew:** reverses the sew direction of the selected pattern.



**Split:** opens dialog box for split options to split selected pattern.



**Align:** opens dialog box for align options for selected pattern.



**Join:** opens dialog box for join options for selected patterns.



**Group:** opens dialog box for group, attach, link and ungroup options.



**AutoFit:** fits selected pattern between two points.



**Crosshatch:** opens dialog box for crosshatch options.



**Wreath:** creates a wreath of the selected pattern.



**Edge to Edge:** opens dialog box for Edge to Edge Fit, Edge to Edge Trim, Multiply and Fill options.



**Mask:** opens dialog box for masking options.



**Boundary:** opens dialog to create boundary.



**Draw:** opens dialog for draw, and text.



**Pushpin:** opens dialog box for connecting pushpins, removing pushpins, and centering pushpins.



**Positioning:** opens dialog box for grab/drop pattern options.



**Grand Format Embroidery:** opens dialog box for editing element color assignment and setting sew order and view options.



**Path Apply:** opens Motif selection and Editing motif options.



**Measure:** opens dialog box for measure options.



**Sewing Options:** opens dialog box for selecting sew order, and queuing/dequeuing patterns.



**Zoom Out:** to see larger view of sew area.



**Zoom In:** to see more detailed view of sew area.



**Active Zoom On:** use mouse to click to zoom to more detailed view of sew area.



**Active Zoom Off:** turns click to zoom off.



**Full View:** shows full view of quilt width in viewport window.



**Actual Size:** zooms to the actual size of the selected pattern.



**Pan On:** Turn pan on, and click and drag using mouse cursor on the quilt grid to navigate the quilt grid.



**Pan Off:** turns pan off.



**Reposition:** reposition quilt top.



**Sew Zone:** creates quilt top on the grid.



**Power Assist:** will allow the machine to move easier while connected to belts. Click to toggle on or off.



**Axis Lock:** Toggle button to access Horizontal and Vertical Axis Locks.



**Horizontal Axis Lock:** locks the horizontal axis so the machine only moves on the vertical axis.



**Vertical Axis Lock:** locks the vertical axis so the machine only moves on the horizontal axis.



**Tension Check:** uses add-on camera to view stitches under the quilt.



**Pause:** pause sewing of patterns.



**Go:** start the sewing of patterns.



**Stop:** stop sewing of patterns.

## Included Patterns and Designers

Anne Bright <http://www.annebright.com/>

Atomic Block, Bamboo Swirls b2b, Beaded p2p, Bubbles b2b, Coil p2p, Hippie 2 block, Hippie 4 Block, Hippie 4 rectangle, Hippie 8 Rectangle, Hippie 8T block, Hippie 8W block, Hippie Double, Hippie quad, Hippie Single, Jazz p2p, Kaleidoscope 4 block, Kaleidoscope, Kindred Hearts b2b, Nectar b2b, p2p 4 point arches, p2p Cat Paw, p2p Lips, p2p Pinwheel, Puzzle p2p, Surf b2b

Karlee Porter <http://www.karleeporter.com/>

KP 8 Sided Medallions 7, KP Anchors Away, KP Bubble Block 4, KP Clamshell Thorn, KP Damask Coral, KP Elegant Raindrop Corner, KP EZ Doodle #3, KP Floral Block 3, KP Irish Chain Block 2, KP Karlee's Circle 21, KP Love Motif, KP Ornate Chevron #2, KP Splash, KP Stained Glass Block 6, KP Wavy Ribbon 1

Kraker Quilting & Design <http://krakerquilting.com/>

Bubble Big Small BCOR, Bubble Big Small BDR, Circle Array Lightning BLK, Feathered Abbi May BLK, Jacob border corner12, Jacobean Border, P2P 4 Leaf Clover, P2P Circles 3, P2P Ying Yang. Pebbles Panto, Skateboards PANTO, Spiral Double BLK, Sunflower BLK, Swirls & Feathers 3 BLK PANT, Swirls & Feathers BCOR, Swirls & Feathers BDR, Swirls BLK, Whirl 6 BLK

Quilters Niche <http://quiltersniche.com/>

AN-043 Hummingbird, AN-069 Summer Buzz, FL-159 Leaf Border, FL-198 New Vine, ME-072 Pinwheel Meander, SCF-127 Bear Paw v2, SCF-187 Feather Butterfly, SCF-188 Butterfly wreath, SCF-196 Twirl Block v2, ST-009 Bright Stars

Sarah Vedeler Designs <http://www.sarahvedelerdesigns.com/>

A, B, Big Flower, Border1, Bordered-A, Bordered-B, Bordered-C, Bordered-D, Bordered-E, Bordered-F, Bordered-G, Bordered-H, Bordered-I, Bordered-J, Bordered-K, Bordered-L, Bordered-M, Bordered-M, Bordered-N, Bordered-O, Bordered-P, Bordered-Q, Bordered-R, Bordered-S, Bordered-T, Bordered-U, Bordered-V, Bordered-W, Bordered-X, Bordered-Y, Bordered-Z, C, D, E, Eye, F, Flaming hearts, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, Tulip block, Tulip border, Tulip corner, U, V, W, X, Y, Z

Stitch Happy <http://www.stitchhappy.com/Stitch%20Happy%20Digital/>

AlienfleurBrdr, Alienflour-UL-Lcrrr, BetaBuddyRW, Churndash, Gdaisyblock, Gdaisyborder, Gdaisycorner, Gdaisyfaste2e, Heartsnflowers, Jinglebellrolle2e, OhioStar1026, P2pfun6a, P2psqgdaisyystem, Pk-ichthy, Scallopsdeep-six, Smallwreathhrt, Sunbonnetsue, Swan triangle, VVWispP2P

Sweet Dreams Quilt Studio <http://www.sweetdreamsqiltstudio.com/>

1st row, 2nd row, abc, all leaf simple, angel baby pano, apple core 1, asian pano 001, aussie baby pano 001, awareness ribbon 1, baa baa pano 001, baby alpha a blk 001, baby alpha a blk 002, baby alpha a blk 003, baby alpha b blk 001, baby alpha b blk 002, baby alpha b blk 003, baby alpha b blk 004, baby alpha c blk 001, baby alpha c blk 002, baby alpha c blk 003, baby alpha d blk 001, baby alpha d blk 002, baby alpha d blk 003, baby alpha e blk 001, baby alpha e blk 002, baby alpha e blk 003, baby alpha f blk 001, baby alpha f blk 002, baby alpha f blk 003, baby alpha g blk 001, baby alpha g blk 002, baby alpha g blk 003, baby alpha h blk 001, baby alpha h blk 002, baby alpha h blk 003, baby alpha i blk 001, baby alpha i blk 002, baby alpha i blk 003, baby alpha j blk 001, baby alpha j blk 002, baby alpha j blk 003, baby alpha k blk 001, baby alpha k blk 002, baby alpha k blk 003, baby alpha l blk 001, baby alpha l blk 002, baby alpha l blk 003, baby alpha l blk 004, baby alpha m blk 001, baby alpha m blk 002, baby alpha m blk 003, baby alpha n blk 001, baby alpha n blk 002, baby alpha n blk 003, baby alpha o 004, baby alpha o 005, baby alpha o 006, baby alpha o blk 001, baby alpha o blk 002, baby alpha o blk 003, baby alpha p blk 001, baby alpha p blk 002, baby alpha p blk 003, baby alpha pq blk 001, baby alpha pq blk 002, baby alpha pq blk 003, baby alpha q blk 001, baby alpha q blk 002, baby alpha q blk 003, baby alpha r blk 001, baby alpha r blk 002, baby alpha r blk 003, baby alpha s blk 001, baby alpha s blk 002, baby alpha s blk 003, baby alpha t blk 001, baby alpha t blk 002, baby alpha t blk 003, baby alpha u blk 001, baby alpha u blk 002, baby alpha u blk 003, baby alpha v blk 001, baby alpha v blk 002, baby alpha v blk 003, baby alpha w blk 001, baby alpha w blk 002, baby alpha w blk 003, baby alpha xy blk 001, baby alpha xy blk 002, baby alpha xy blk 003, baby alpha z blk 001, baby alpha z blk 002, baby alpha z blk 003, baby bear, baby laundry, baby stars and moon pano 001, bamboo pano, Baptist fan imitator, bd 2010 block 001, bd 2010 block 002, bd 2010 block 003, bd 2010 block 004, bd 2010 block 005, bd 2010 border 001, bd 2010 brd crn 001, bd 2010 p2p 001, bd 2010 p2p 002, bd 2010 pano 001, bd 2010 sash 001, bd 2010 tri 001, bday 2008 block 0, bday 2008 block 1, bday 2008 block 2, bday 2008 block 3, bday 2008 block 4, bday 2008 border, bday 2008 frame, bday 2008 p2p 1, bday 2008 p2p, bday 2008 pano, bday 2008 rec, bday 2008 sash, bday 2008 tri, bday 2011 block 001, bday 2011 block 002 tri, bday 2011 block 002, bday 2011 block 003, bday 2011 block 004, bday 2011 border 001, bday 2011 brd crn 001, bday 2011 pano 001, bday 2011 sahs 001, bday 2011 sash 002, bday 2011 sash 003, bday 2012 block 001, bday 2012 block 002, bday 2012 block 003, bday 2012 block 004, bday 2012 border, bday 2012 brd crn, bday 2013 001, bday 2013 002, bday 2013 003, bday 2013 004, bday 2013 005, bday 2013 006, bday 2013 007, bday 2013 border 001, bday 2013 brd crn 001, bday 2013 pano 001, boys toys, bubbles everywhere 002, butterflys 10, calm water, candy cane pano, christmas 2010 block 001, christmas 2010 block 002 tri, christmas 2010 block 002, christmas 2010 block 003, christmas 2010 brd 001, christmas 2010 brd crn 001, christmas 2010 ornament 001, christmas 2010 ornament 002, christmas 2010 ornament 003, christmas 2010 ornament 004, christmas 2010 pano 001, christmas 2011 block 001, christmas 2011 block 002, christmas 2011 block 003, christmas 2011 block 004, christmas 2011 block 005, christmas 2011 block 006, christmas 2011 border 001, christmas 2011 brd crn 001, christmas 2011 pano 001, christmas 2012 block 001,



christmas 2012 block 002, christmas 2012 block 003, christmas 2012 block 004, christmas 2012 block 005, christmas 2012 block 006, christmas 2012 block 007, christmas 2012 block 008, christmas 2012 border 001, christmas 2012 border 002, christmas 2012 brd crn 001, christmas 2012 brd crn 002, christmas 2012 pano 001, christmas border 2008, christmas elf 2008, christmas gingerbread 2008, christmas pano 2008, christmas reindeer 2008, christmas santa 2008, christmas snowman 2008, christmas tree 2008, circle meander, clouds 1, curls in the snow, gbman pano, geometric1, ginko 1, greek block 1 center, greek block 1, greek block 2 center, greek block 2, greek block 2a, greek block 3 center, greek block 3, greek block 4, greek block 5, greek border 1, greek corner 1, greek lonestar blade, greek pano, greek sash 1, greek tr 1, greek triangle 1, hearts and loops simple, holly simple pano 002, japanese cranes pano 002, kaffee flower pano 001, koi pano, leaf pano 2, lola block 1, lola block 2, lola block 3, lola block 4, lola border 1, lola cornerstone, lola alternating pano 1, lola p2p 1, lola p2p 2, lola sash 1, loris flower pano, meandering 1, meow pano, naked white oak pano, ornament single 1 2007, ornament single 2 2007, ornament single 3 2007, ornaments block 2007, ornaments border 2007, ornaments pano 2007, patty's petals, plumes, points and berries, pretty daisy, puzzle pano 001, religious pano 001, ribbon of violets pano, scotty dog pano 1, simply crosses pano 001, simply crosses pano 002, simply crosses pano 003, skull and bones pano 001, stars and stripes block 1, stars and stripes block 2 tri, stars and stripes block 2, stars and stripes border 1, stars and stripes border 2, stars and stripes border corner 1, stars and stripes bravery, stars and stripes hero, stars and stripes pano, stars and stripes valor, stars and stripes, straight swirls, wavy diamonds

Urban Elementz <http://www.urbanelementz.com/>

Celebrate petite UE, Celebrate UE, Celtic braid UE, Creeping fig UE, Flower power UE, Funky Feathers UE, Insignia UE, Keukenhof UE, Leaf sashing 1 UE, Leaf shashing 2 UE, Lounge lizard block UE, Lounge lizards UE, Monstera UE, Morning Glory UE, Peace dove sashing UE, Rebekah's Rose UE, Ribbit block UE, Ribbit UE, Starburst UE, Strawberry fields UE, Sunflower UE, Texas bluebonnets UE, Wild cherries block UE, Wild cherries UE

Wildflower Quilting <http://www.wildflowerquilting.com/>

Big Boy Toys e2e, Skewed Squares e2e, Star Spangled Banner Border Corner, Star Spangled Banner Border, Star Spangled Banner e2e, Star Spangled Banner Friendship Star Block, Star Spangled Banner Repeatable Block, Wedding Ring Feather Block, Wedding Ring Feather Melon, Wedding Ring Feather Triangle

Willow Leaf Studio Designs <http://www.willowleafstudio.com/>

CoyoteMoon, Filigree, FloralHearts, Gaiety, JI007-border, JIb010a, JIb028\_block, Lyrical, NewWave, Voltage

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For Technical assistance call ABM at 888-99Quilt.

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