

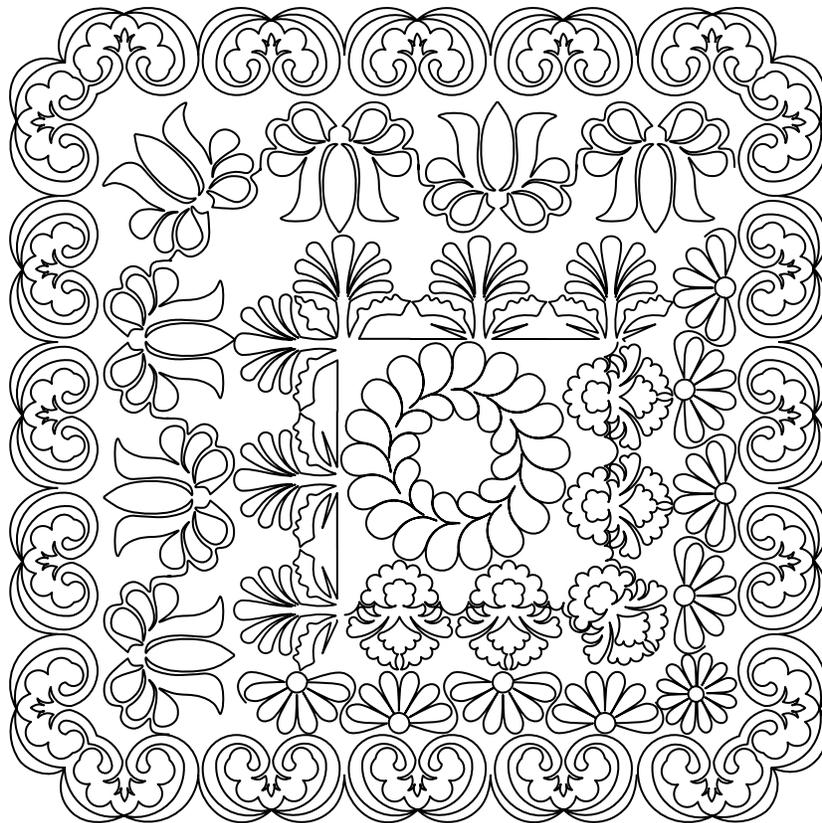


*Addendum 10*

*Borders and Matching Corner Designs  
in Art and Stitch*

*by*

*Mary Beth Krapil*





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## About the Author, Mary Beth Krapil



Mary Beth is a semi-retired pharmacist who loves quilts and quilting. An avid sewer since childhood, Mary Beth has been teaching quilting and piecing classes since 1998. In 2004 she bought a longarm machine to finish her own quilts. She wanted to keep exclusive artistic ownership of the quilts she had pieced and give her quilts “personality” through quilting. Soon thereafter she added a computerized system to her machine. She loves the precision and accuracy of computerized quilting.

Mary Beth is an award winning quilter. She feels honored to have photographs of her quilting published in books as well as national and international magazines.

Mary Beth is a national educator for the Handi Quilter company. Her goal is to share her knowledge and passion for quilting. She loves to teach the basics to new quilters and also enjoys introducing new techniques and ideas to experienced quilters.

She especially has fun sharing the joys of computerized quilting and digitizing. As a certified teacher of Art and Stitch she can help quilters learn how to create their own unique digitized quilting designs.

For more information, please visit Mary Beth’s website: <http://www.redbearquilts.com>



## Introduction

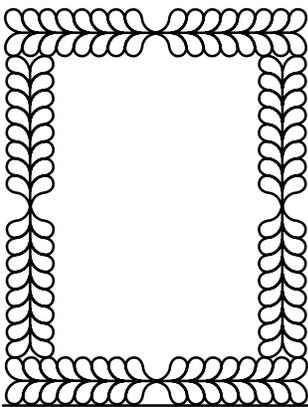
Borders are the frame for the quilt, just like the mat and frame on a picture or painting. A border should enhance the quilt and draw the viewer's eye back into the quilt. It's always exciting to choose designs for a border that will compliment the quilt and the interior quilting. Often times the border on a quilt is a single fabric 3 to 8 inches wide which provides a beautiful open canvas for creative quilting designs. This is where your quilting can really shine!

In this addendum I will explore ways of creating border designs and matching corner designs. I'll take a look at different methods of creating corner designs and the problems that arise when moving designs around corners. Of course the goal will be a pleasing design that fills the corner with quilting of similar density to the border.

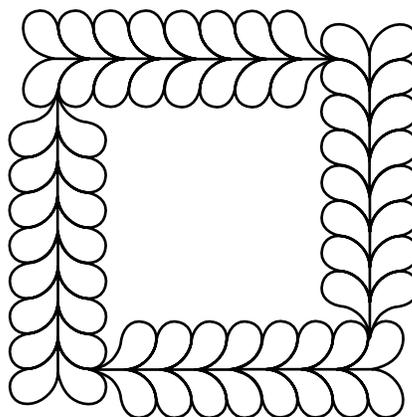
### Three types of borders

#### 1. Collision borders or Dead End borders

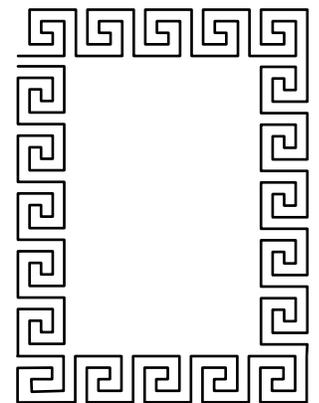
These border designs run from one edge to the opposite edge of the quilt for two borders (i.e. top and bottom). The other two borders (i.e. the side borders) butt up against or "collide" into them, or dead end at the seam line.



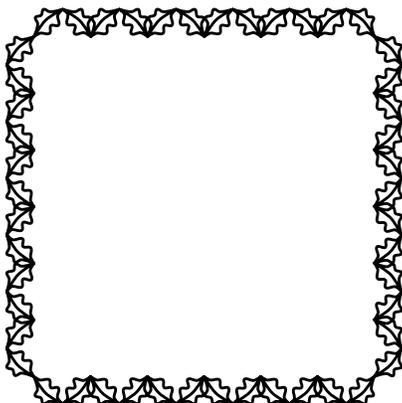
*Collision Feather Border*



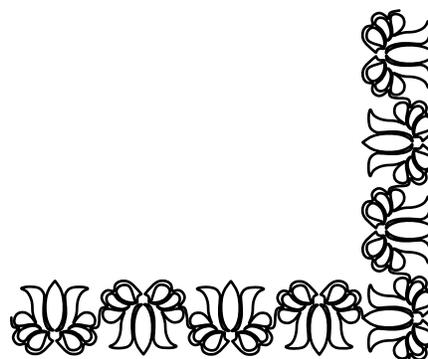
*Rotary Collision Feather*



*Greek Key Collision,  
looking continuous*



*Oak Leaf Border*



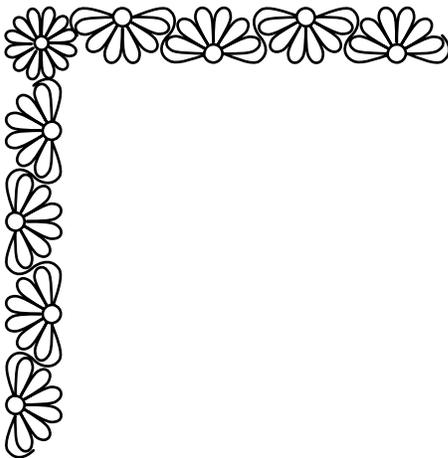
*Tulips Collision*



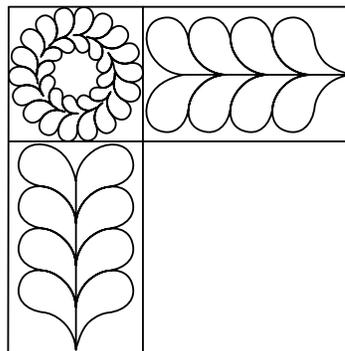
Three types of borders - Cont'd

2. Cornerstones

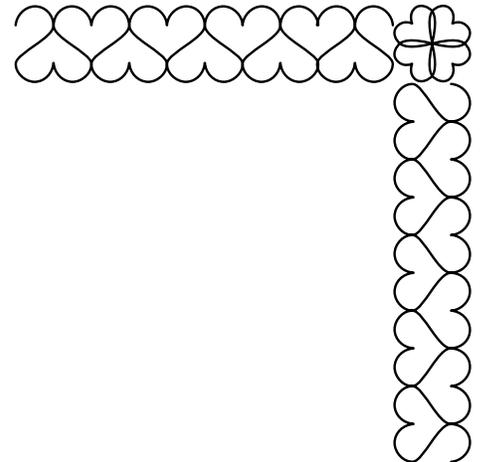
These borders have another design placed in the corners that is different from the one used in the border itself. Some quilts have a different fabric pieced into the cornerstones of the border. Others do not, but you can create a cornerstone by quilting in faux seam lines to simulate pieced cornerstones.



Daisy Cornerstone



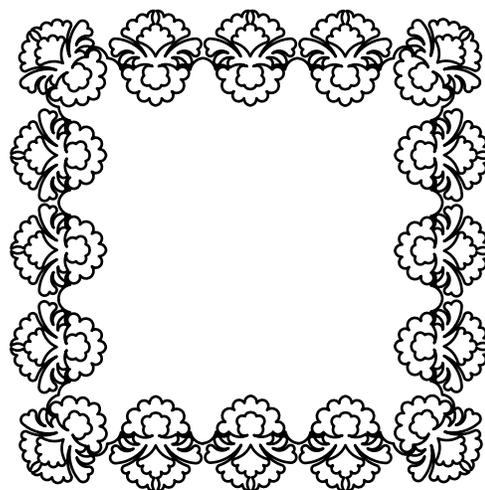
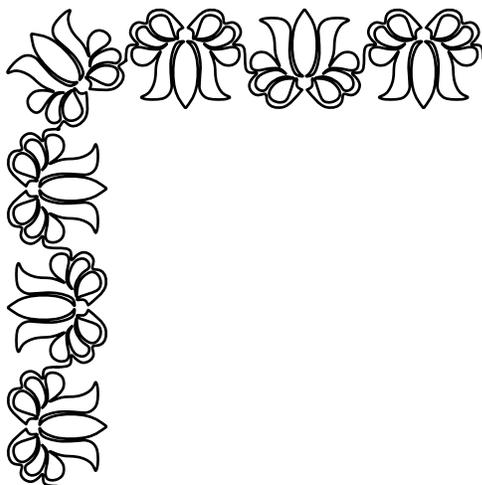
Feather Circle Cornerstone



Alternating Hearts Cornerstone

3. Continuous Borders

In continuous borders the design flows around the entire quilt and you cannot tell where it stops or starts. To create continuous borders you must create a corner design that matches the border design and flawlessly connects to the border on both sides. These corner designs are usually "L" shaped but do not necessarily need to be. For simplicity, I will refer to these as **L corners**.



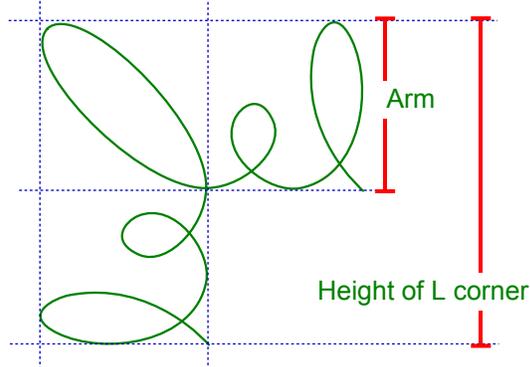


## Principles to keep in mind when digitizing L-Corners

Of course the first and last stitch of the corner must be on the same plane as the first and last stitch of the border.

When digitizing corner designs, care must be taken that the height of the arm of the corner matches the height of the border exactly. This makes the process of resizing the corners to fit your quilt an easier one.

Let's take a look at L corners. The arm of the L corner is the portion of the design that will extend out of the corner and into the border. Note that the height of the entire design is greater than the arm height.



## How to resize a corner to match the border height

When the **arm** height of a corner exactly matches the border height, resizing is a simple task. Let's look at an example:

Warning!!! The following paragraphs contain MATH. It is a four letter word to some.

In this example I use a border design that is 8 inches in height. My quilt border is a little over 6 inches, so I want my border design to be 6 inches high to comfortably fit within my quilt border.

I need to resize my border design by 75%, based on the following calculation:

$$[(6/8) \times 100\% = 75\%]$$

The matching corner design is 16 inches high. I know that this design was digitized correctly to match my border, so I resize it by the same 75% as well. The result will be 12 inch, calculated as follows:

$$[16 \times 0.75 = 12.00]$$

Here's some good news! You can have Art and Stitch do the MATH for you!



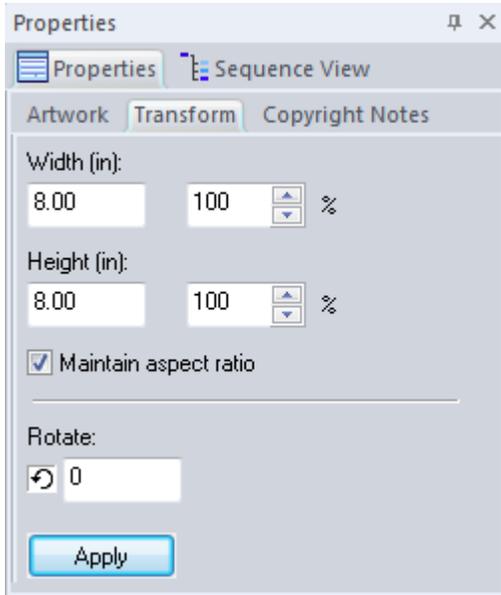
Open the Library and choose pattern Classic1 from the folder Panto E2E.

Look in the Properties Panel - Transform tab. You see the height of the design is 8.00. Now change the height to 6 (do NOT click on "Apply" yet). You will see that the value in the percentage box changes to 75%. This tells you that changing the height from 8 inch into 6 inch is a 75% change. Make a note of the percentage, then click on Apply.

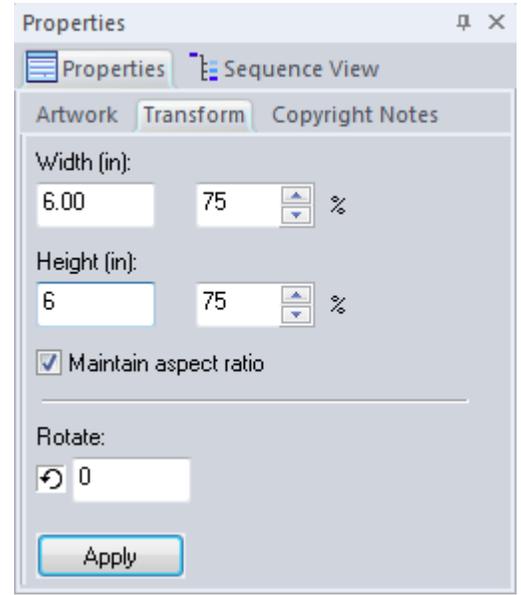
Now all you have to do is resize the matching Corner design by the same percentage (in this example 75%). To try this out for yourself, open CClassic1\_CornerL from the Library, folder PantoE2E, select it and look in Properties Panel, tab Transform. See screenshots on the next page.



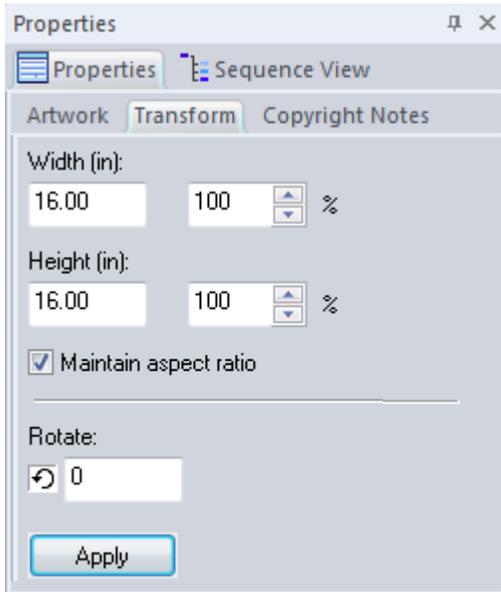
How to resize a corner to match the border height - Cont'd



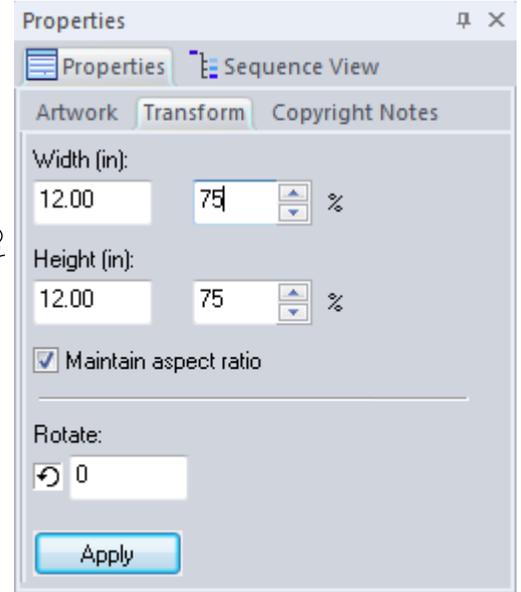
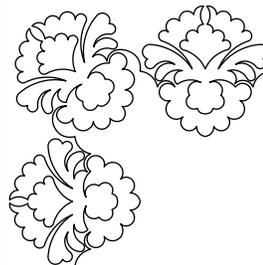
The original border pattern at 100% = 8x8 inch



Change height to 6 - do NOT click on apply. Read the percentage (here 75)



The original corner pattern at 100% = 16 x 16 inch



Height changed to the same percentage: 75% = 12 x 12 inch

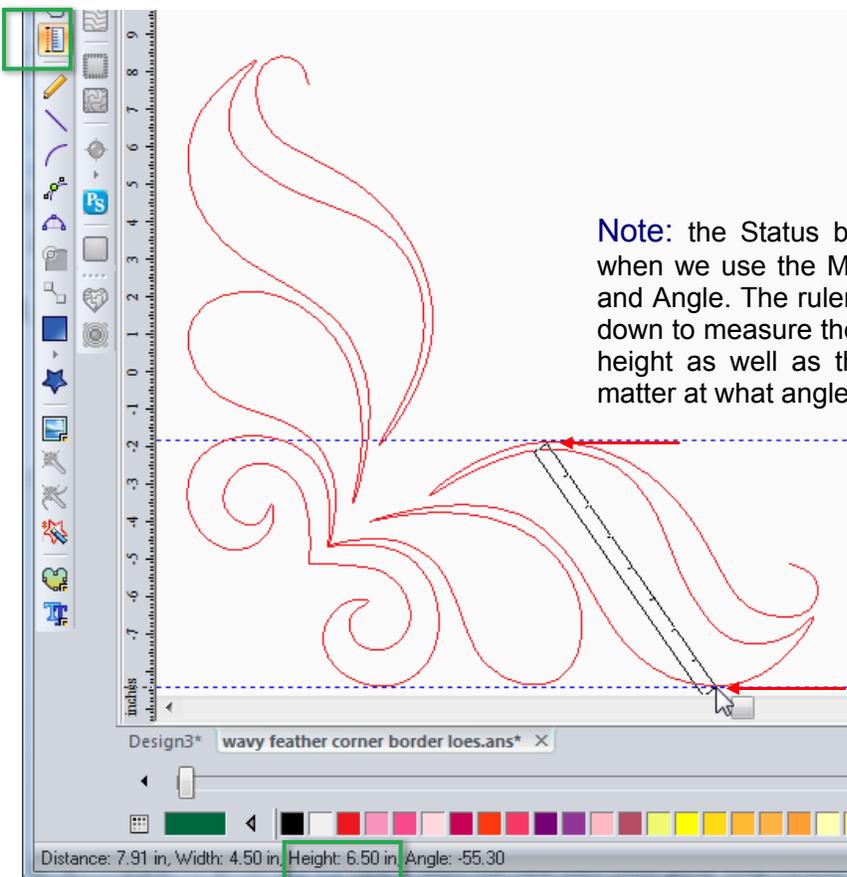


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## How to resize a corner to match the border height - Cont'd

In the previous example the border design and the corner design were digitized properly with corresponding sizes. That makes resizing an easy task - just use the same percentage for both. But when I am unsure if the corner size matches the border (for example in a purchased design) I would need to measure the arm height of the design.

I can accomplish this by bringing the design into Art and Stitch at its original size. Drag horizontal guidelines to exactly enclose the arm of the design. Then take the Measure tool from the Artwork toolbar. Click at the lowest point of the arm and drag to the highest point of the arm. The measurement will show in the status bar at the bottom of the screen. You need the "Height" value shown in the Status bar, even if you are not measuring straight up or down as in this example.



**Note:** the Status bar gives us 4 pieces of information when we use the Measure tool: Distance, Width, Height and Angle. The ruler does not have to be straight up and down to measure the height. Art and Stitch calculates the height as well as the 3 other pieces of information no matter at what angle the Measure tool is placed.

*In this example the height of the arm of the corner is 6.5 inch. So my border height must be 6.50 inch too, to make a matching set.*

Next task is to select the border and resize the border height in Properties Panel > Transform to the measured size of the arm height: here 6.5 inch. Click on Apply.

Now we have a matching set of corner and border, where the arm height of the corner matches the height of the border.

The final task is to resize both to the desired border height. Use the technique described on the previous page: first resize the border (e.g. To 6 inch height: do NOT click on apply yet, read the % first and make a note of that). Then click on Apply. Select the Corner pattern and resize by the same percentage.



## Creating L corners from border designs - Using a part of the border

### Using Guidelines

For this example I am using the Tulips border from the custom shapes library.

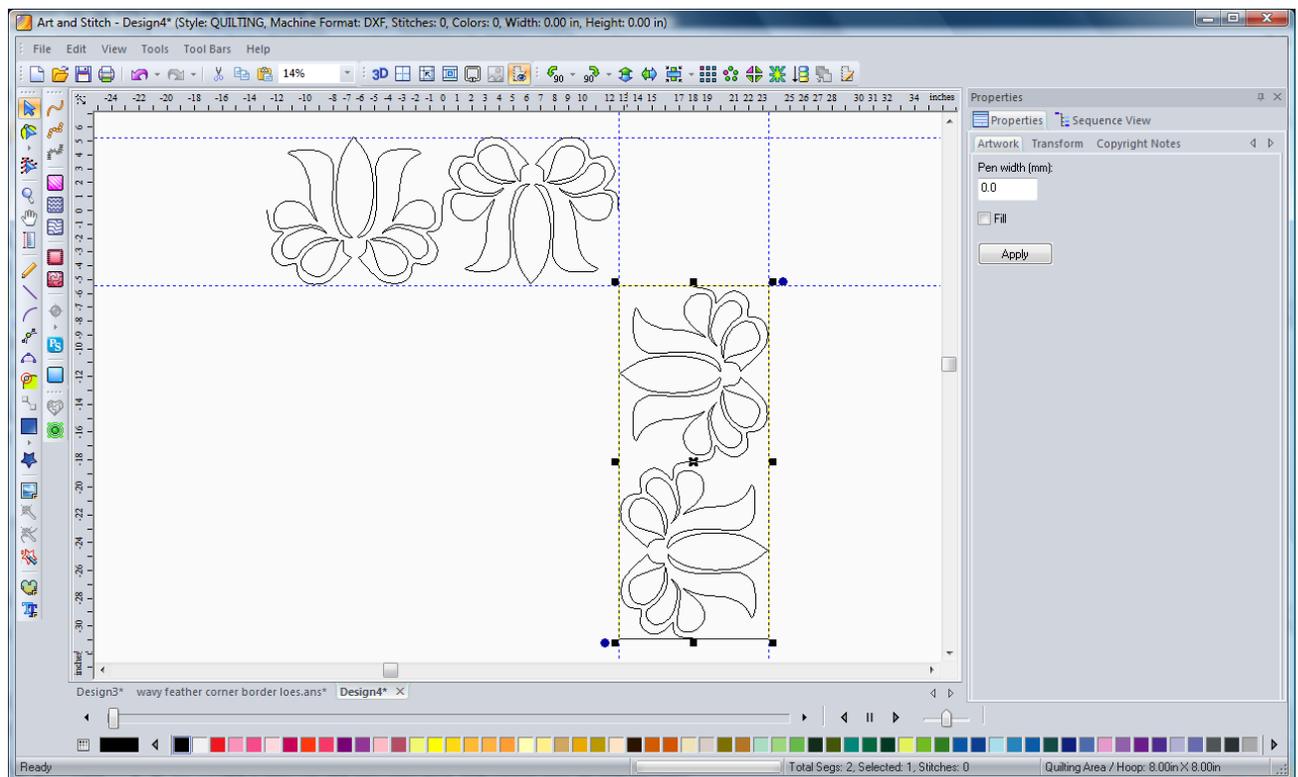
Open the Library and choose the Panto E2E folder. Scroll down and choose the Tulips border. While the design is still selected, copy and paste using the buttons on the top tool bar.

Rotate the copy 90 degrees to the right and mirror it. Move the copy away from the original.

Drag guidelines to the top, bottom and right side of the original design. Zoom in to be as accurate as possible. Move the rotated mirrored copy to line up with the vertical guideline and the bottom guideline.

*Tip: Hold down Control and use the arrow keys on your keyboard to move the design in small increments to precisely line it up. You'll notice the left and top side of the box containing the copied design becomes yellow when it is exactly aligned with the guidelines.*

Drag a guideline to the right side of the copied design.





## Creating L corners from border designs - Using a part of the border - Cont'd

Now we want to take a single motif and place it in the corner at a 45 degree angle. We do have a single motif in the custom shapes library, but let's harvest one from the border design itself as a learning exercise.

Make a duplicate (Ctrl+D or menu Edit > Duplicate) of the horizontal border design and move it over to the right, away from the original, but still fitting within the guidelines.

Drag a horizontal guideline to the start point of the horizontal border design. Select this design and take the reshape tool.

Find the point between the two tulips that intersects the guideline you just placed. This would be the point where the two tulips connect. Right click and choose "Split line". You have now separated the two tulips.

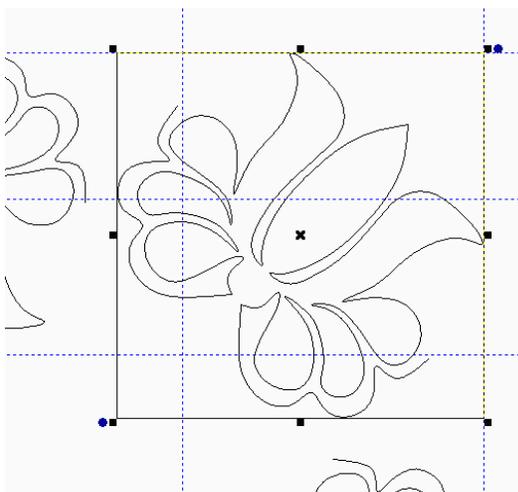
Delete the right separated tulip and move the left tulip into the cornerstone. Rotate it 45 degrees clockwise using the button in the general toolbar (use the flyout of the 90 degrees right button to reach the 45 degrees right button).

To make room for the corner motif, select and drag the border motifs away from the corner. Don't worry about where you place them, we are only getting them out of our way temporarily.

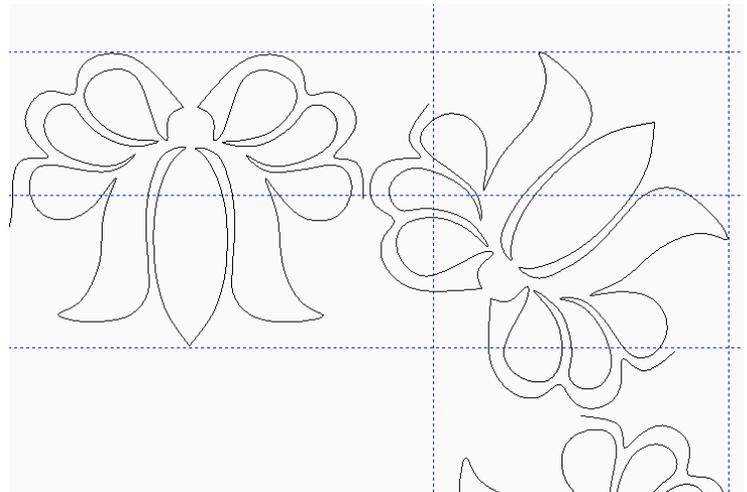
Select and center the rotated tulip motif into the corner.

Use the guidelines and the selection box surrounding the motif to help with placement. Zoom in for a better view. It is OK that the motif spills out of the cornerstone and into the connecting borders. Be sure it does not spill into the center of the quilt. See left image below.

Select and drag the border elements back in place spacing evenly from the corner element. See right image below.



*Center the separated and rotated tulip*



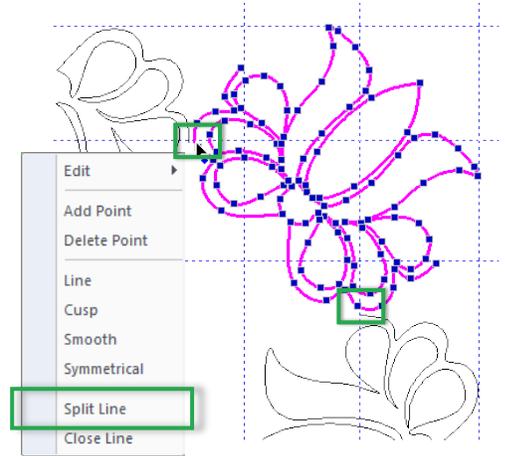
*Align the horizontal and vertical tulip border designs*



Creating L corners from border designs - Using a part of the border - Cont'd

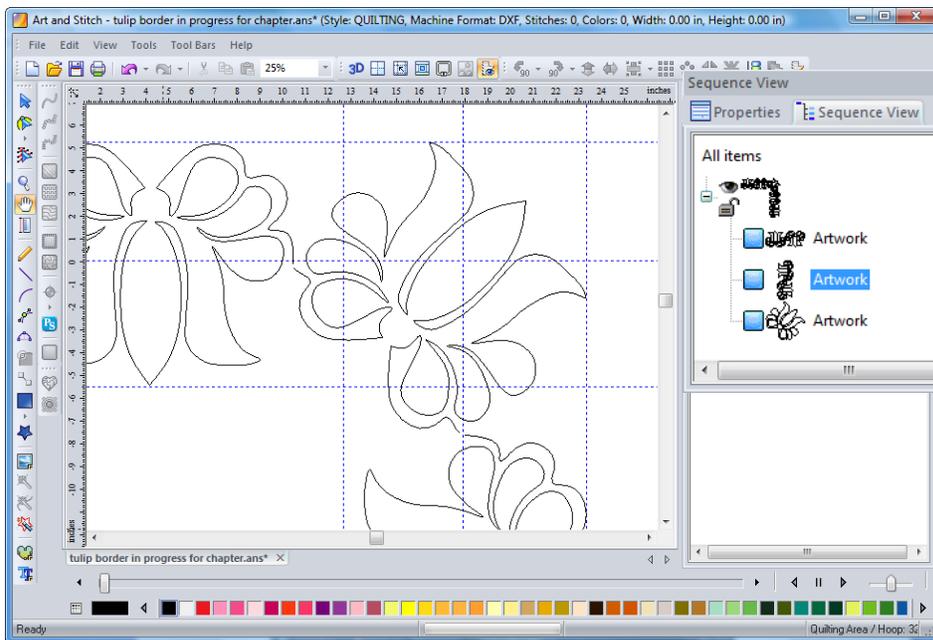
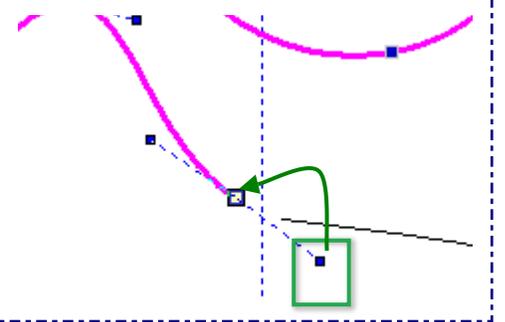
Now we need to connect the border elements to our corner element. In this instance the corner element has some echoing lines on either side that are no longer needed. We can choose a point on those echo lines and delete some of it. First drag a guideline from the vertical ruler and drop it in the middle of the cornerstone (where the point of the vertical tulip pattern ends).

Select the corner element and take the reshape tool. Where the echo line crosses the midpoint guideline, right-click and choose split line. Repeat for the last part of the echo line at the other side of the tulip. Then take the Select tool, select and delete the two little parts that were split off the corner tulip.

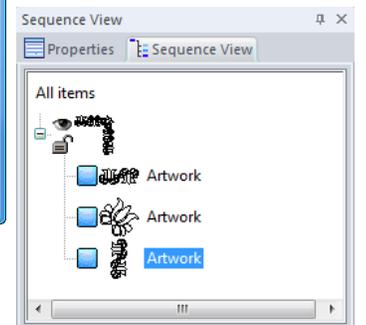


Tip: to prevent little loops when connecting:

Take the Reshape tool and change the first and last points of the corner element to Cusp type by right-clicking the points and choosing "Cusp". Still with the Reshape tool, move the "useless" anchor of the Cusp that points away from the curve back on top of the point. Now the anchor won't get in the way when connecting the objects. Repeat for the other dangling point.



Before connecting, change the Sequence: First the horizontal tulip, then the corner, then the vertical tulip. Easiest way is to select the vertical tulip in Sequence View, then right-click and choose Move > Down.





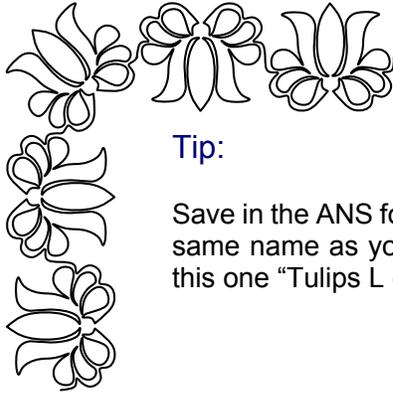
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Creating L corners from border designs - Using a part of the border - Cont'd



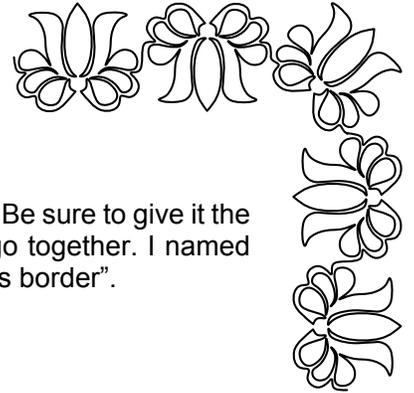
Finally, Select All and click on the button “Connect Objects” in the Artwork toolbar. You now have a Tulips corner, matching the original Tulips border pattern.

Assign stitches and check the sew simulator to see how it sews.



**Tip:**

Save in the ANS format and also in your machine's format. Be sure to give it the same name as your matching border so you know they go together. I named this one “Tulips L corner” since the border is named “Tulips border”.





## Creating L corners from border designs - Reshaping a part of the border

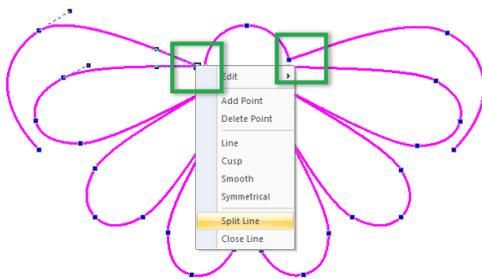
Open the Daisy border from the Custom Shapes Library.

Just like in the previous example we will copy, paste, rotate, and flip, and drag guidelines to line up the border elements.

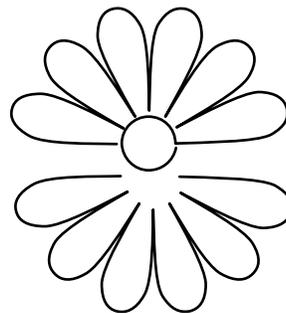
Duplicate one element, move it aside and split one of the daisies away just like we did with the tulips. Delete the other part of the duplicate.

Remove the echo connecting lines. Take the Reshape tool and split the echo lines in the corners. Select and delete them. See left image below.

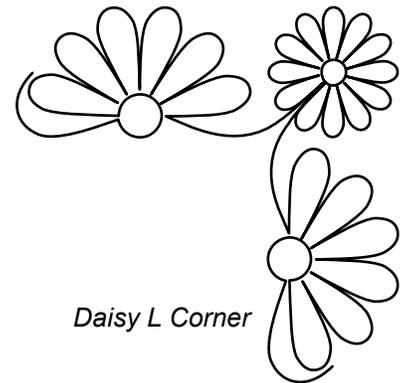
Copy, paste and flip vertical. From the copy, remove the circle center. I did this with the Reshape tool by simply selecting and deleting points. You should have something that looks like the middle image below:



*Split the lines and delete the connectors.*



*Duplicate, flip and delete the points of one of the circles.*



*Daisy L Corner*

Using the Reshape tool, change the end points into “Cusp” by right-clicking on the points and choosing Cusp. Select the Cusp point and move the anchor that points away from the curve back on top of the point. See tip in previous section “To prevent little loops when connecting”. Select and move the bottom portion up so that the right petal end aligns with the end point of the circle center. Select all > right click > Connect objects.

If you apply stitches and use the sew simulator you will see that the start and stop are near the center circle at the 9 or the 3 o'clock position (depends which element of the daisy border you used). Select the daisy and rotate 45 degrees: the start/end point must point diagonally down. Convert back to artwork using the blue Back to Artwork button under the Stitch tool bar.



Move the daisy to the cornerstone and resize it by dragging the corner handles inwards.

Take the reshape tool and select the top border element. Zoom in on the corner for a closer view. Move the last point over to the first point of the corner daisy. Using the anchors reshape the line till it looks pleasing. Right click on the point before the last one on the border element and choose “Smooth” to get rid of a pointed bump there. Do the same process for the first point of the side border element.

When you are happy with the look of the connectors, look in sequence view and place the elements in the order you want them to sew. Border, corner, border.

Select the first border then hold down control and also select the corner. With both selected, right click and choose connect objects. Select All > right-click > Connect objects.

Apply stitches, check with the sew simulator, save in ANS format and in the format of your machine.

Daisy L corner !

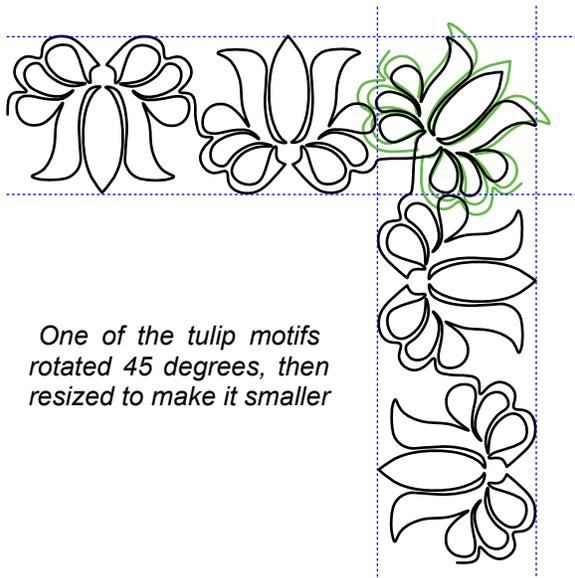


Dilemma: the size of the corner - let "Center to Grid" help you

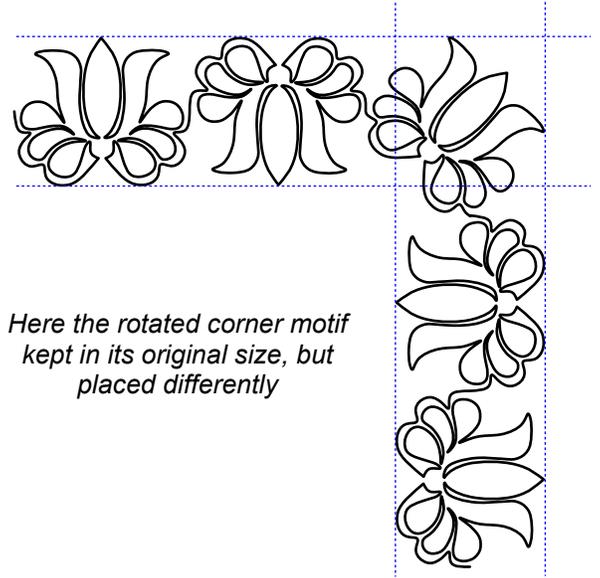
When rotating a motif 45 degrees to create a corner, the rotated motif will be a different size than the original motif.

If the original's dimensions were rectangular, the corner will be larger, e.g. Tulips. In this case you can simply resize to make it smaller. But when positioned nicely into the corner it works well too. See the two tulips borders below.

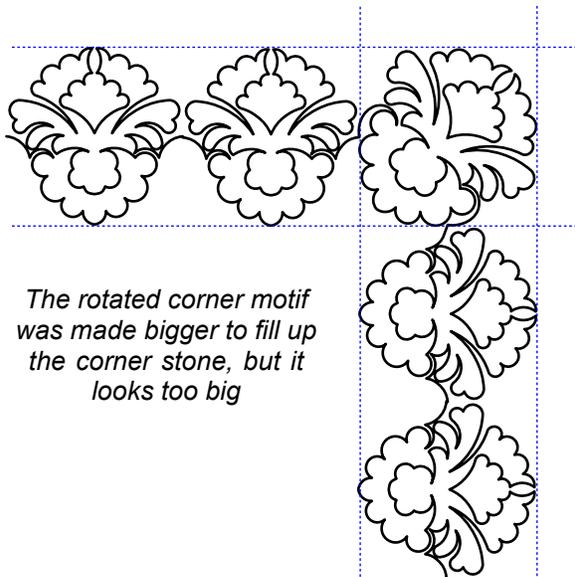
If the original's dimensions were square (equal height and width), the corner will be smaller, e.g. Classic1. In this case you could make the corner pattern bigger before connecting it, but often that will look funny. As an alternative you can keep it in the original size and place the rotated corner pattern so that it looks most pleasing to the eye, even if it doesn't fill up the corner stone. It's a decision you have to make.



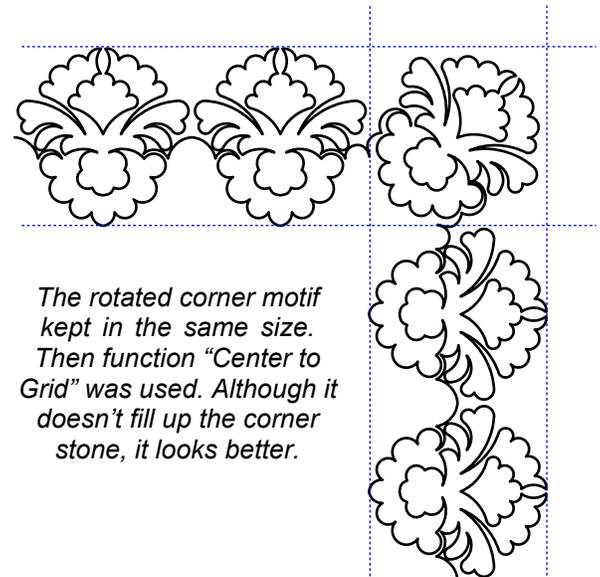
*One of the tulip motifs rotated 45 degrees, then resized to make it smaller*



*Here the rotated corner motif kept in its original size, but placed differently*



*The rotated corner motif was made bigger to fill up the corner stone, but it looks too big*



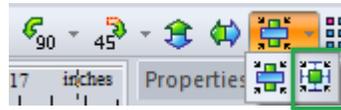
*The rotated corner motif kept in the same size. Then function "Center to Grid" was used. Although it doesn't fill up the corner stone, it looks better.*



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## Dilemma: the size of the corner - let "Center to Grid" help you

If you don't resize, and simply rotate 45 degrees there's a wonderful help for you: the function in the Alignment tools in the General Toolbar to "Center to Grid". You will find it under the Center button, using the little triangle for the flyout.



To let this function help you in placement of the corner element, change the grid settings first. Right-click in one of the rulers next to the Design Page and choose Grid Settings. Change the grid spacing to the size of the border pattern (in this example 8 inch).

Here are the steps to create the sample below.

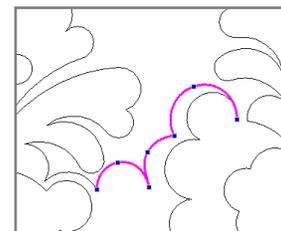
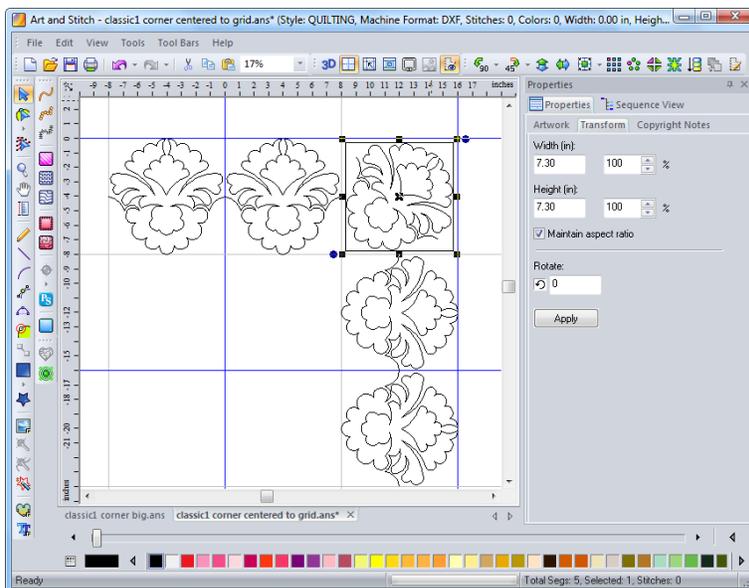
From the Library, folder Panto E2E open Classic1.

While this is still selected, click on the Repeat button and choose 3 repeats across, 1 down and click on OK.

Move one of the 3 aside and rotate it 45 degrees: this will be your corner

Duplicate the other two and rotate 90 degrees left. Now move all parts in place.

Then, one by one, select each design and click on the Alignment button "Center to Grid".



Tip: instead of reshaping the connectors between border and corner you can also draw the connectors: here with the 3pt arc tool. Then connect.



## Using the Mitered Border mask and Creative Fill effect

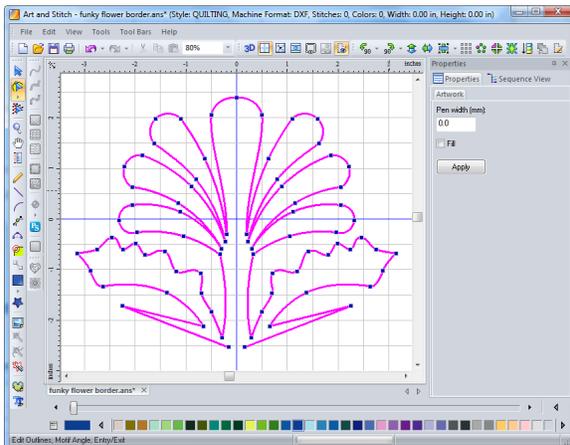
The mitered Border Mask is a great tool to use when designing L corners. You can use it in conjunction with the creative fill button or use it as a guide to cut your design apart.

The one caveat to using this tool with the creative fill button is that **your design must be a closed shape in order for it to work properly.**

If you have a design that is not a closed shape, you can use the mitered border mask as a guide to split your design on the 45 degree angle to create your L corner.

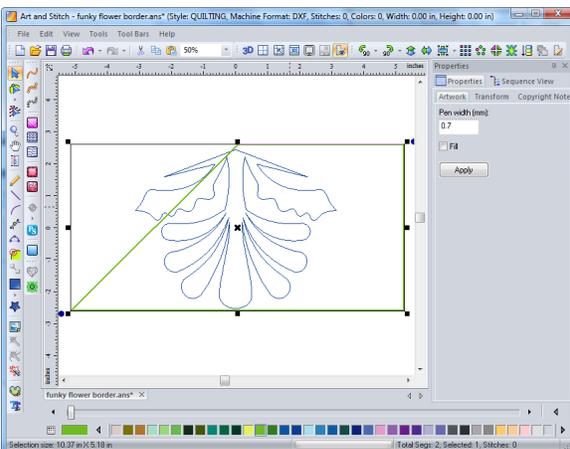
There is a wonderful explanation of this process in the Art and Stitch User Guide Part 5.4 page 12.

I will give you another example to show you another style of L corner, using a design I created, Funky Flower Border (available in Library, folder Miscellaneous Designs).



Remember... to use the creative fill function, the design must be a closed shape. So we will create a closed shape from this design.

Take the Reshape tool. Delete the first and last points by right clicking on them and pressing delete on the keyboard. Drag the new first and last points closer together under the center of the design. Select the object and click the Close Shape button. Take the reshape tool and delete one of the points and move the other point to the center bottom.



Select the design and flip vertical.

From the Library open the Mitered Corner Mask. Resize the mask so it fits more closely around the design by dragging the upper right corner.

Move the mask to where you want to crop the design. I want to keep part of the leaf on the left so I moved it as in the image on the left.

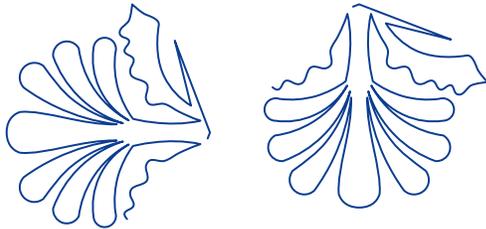
Select all using control A on the keyboard. Then click the Creative Fill button. The part outside of the mask will be cropped.

Select the Mitered Corner Mask and delete it. The pattern will now look similar to this image:



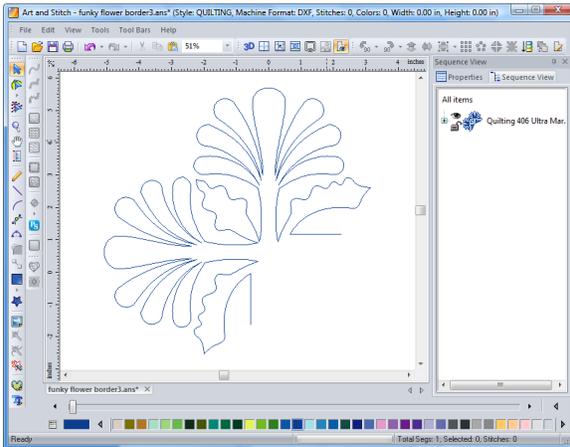


Using the Mitered Border mask and Creative Fill effect - Cont'd



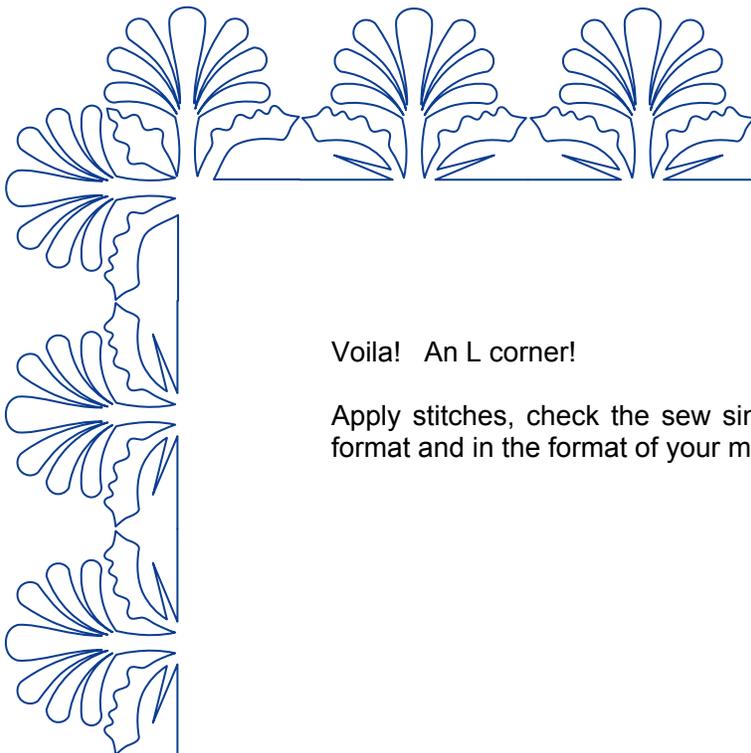
Copy and paste the remaining part of the design. Rotate right and flip vertical, then move the copy to align it to create the corner.

Select all and connect objects. Flip vertical.



Take the reshape tool. Delete a point from the top of the middle leaf and reshape the top. Drag the 2 end points to create connectors on the horizontal and vertical planes. Use the grid and Snap to Grid for better precision.

Tip: To move points very precisely: select a point with the Reshape tool, hold down Shift key and use the arrow keys on your keyboard to move the selected point in tiny steps.



Voila! An L corner!

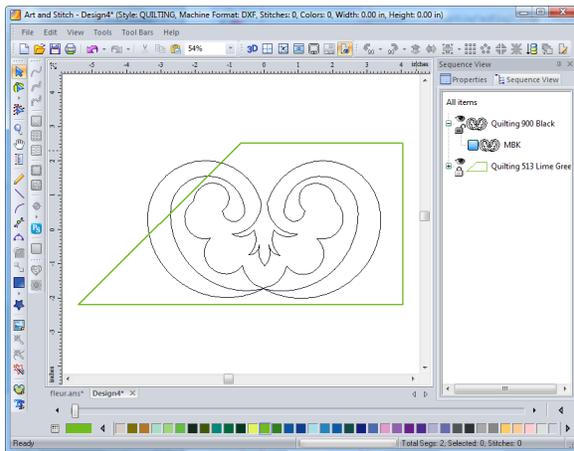
Apply stitches, check the sew simulator and save in ANS format and in the format of your machine.



### Using the Mitered Border mask as a guide to split your design

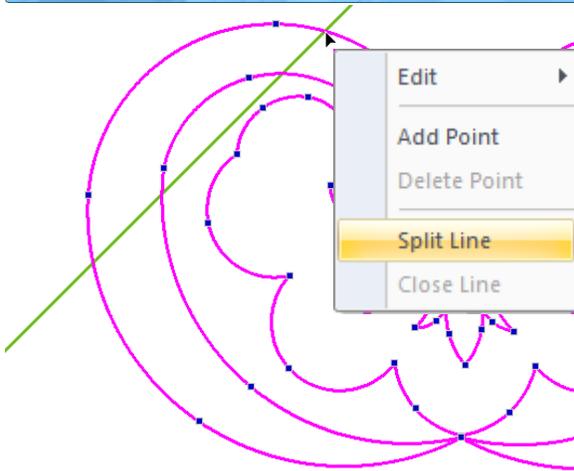
If the motif you want to use to create your corner is not a closed shape, you cannot use the creative fill effect, but you can use the mitered border mask as a guide to split your design manually. For this example I am using a design I created, called Fleur.

From the Library, folder Miscellaneous Designs, open the design Fleur.  
From the Library, folder Block Patterns, open the mitered border mask.

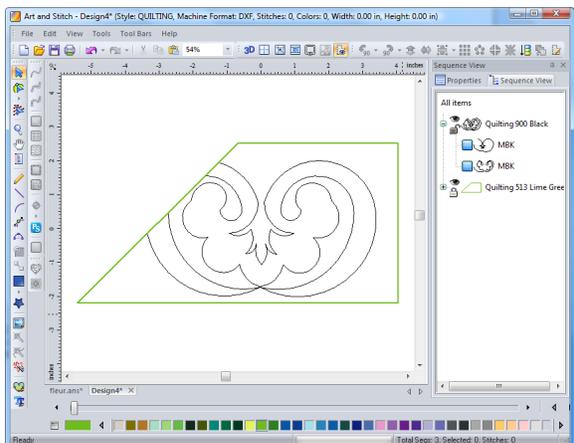


Resize the mask so that it fits around the design. It is important to only use the upper right corner handle when resizing the mask. This maintains the 45 degree angle of the mask. The angle is important in creating corners. Move the mask over the design until the 45 degree angle line is where you want to cut your design.

In the Sequence View panel on the right, select the green mask object and click on the little lock icon. Then click in the design page. The mask is now locked, making the next tasks easier.



Take the reshape tool. Wherever the mask crosses the line of the design right click on that position of the line and choose "Split line".



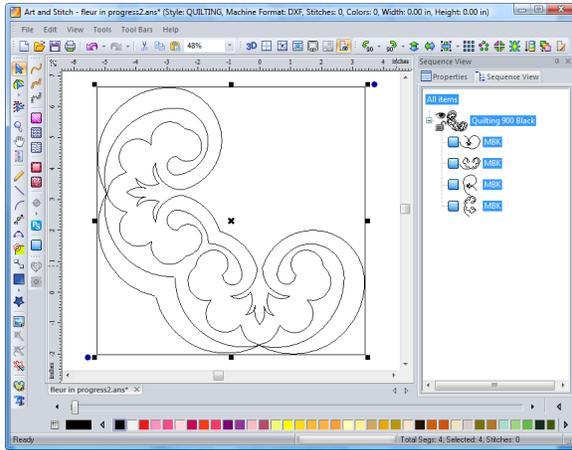
Once you have split the line everywhere the mask crosses the design, take the Select tool. Using Sequence View in the Properties panel, select and delete any parts that are outside of the mask.

Select the mask, unlock it and delete it.

Take the Reshape tool and change all the points where you just split the design into "Cusp". Then, still with the Reshape tool, move the anchors pointing away from the curve back onto the point, so that they cannot cause "loops" when connecting later. See tip on page 9 of this Addendum.



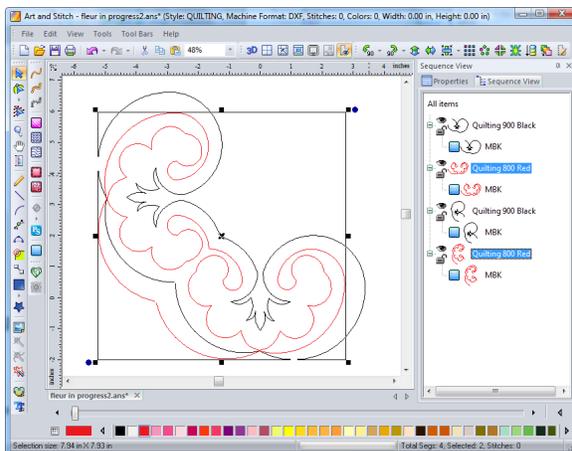
Using the Mitered Border mask as a guide to split your design - Cont'd



After changing all dangling points into Cusp and removing the 'useless' anchors, select all of the design that is left on the workspace. It may be in more than one piece.

Copy, paste, rotate right and flip vertical.

Move the copy into place to fit with the original.



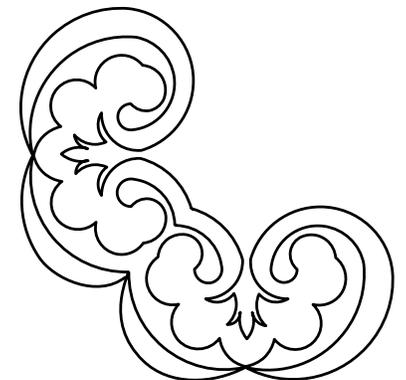
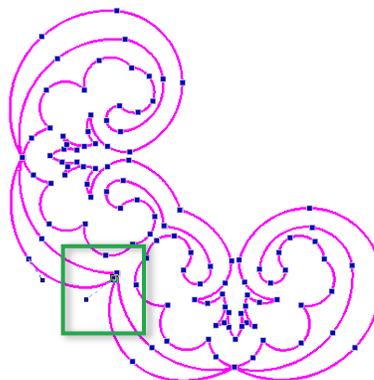
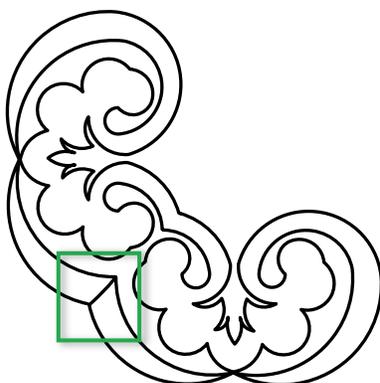
In Sequence View select the two inner objects of the design: changing the color will help in seeing exactly what you selected.

Then right-click and choose Connect Objects.

Then select this connected object, hold down Ctrl and select one of the two outer objects, right-click > Connect Objects.

Finally, Select all (Ctrl+A), right-click > Connect Objects.

For this design, an extra straight line of stitching was created. You can leave it as is if you don't mind that line. Or you can take the reshape tool and move some points to eliminate the line. Zoom in on the line and move the two points as shown here:





Using the Mitered Border mask as a guide to split your design - Cont'd

You may have noticed this design does not have “connectors”. They are not needed with this design. The corners would be sewn out first and then the border with the necessary number of repeats needed for your quilt would be placed exactly between them. The connectors of the border design would just touch the sides of the corners. This is accomplished at your quilting machine.

If you prefer to lay out the entire top border including corners and stitch it out all as one, then add connectors to the corner design to enable the corners and border to sew out as one continuous pattern with one start and one stop.

Select the design, apply stitches. Check the sew simulator to see how it stitches. Save it in .ANS format and in the format of your machine.

Combine this corner with the border design and create something beautiful!



