



Cutwork With Generations® Automatic Digitizing Software

By Bernadette Griffith,
Director of Educational Services, Notcina Corp

In this lesson we are going to create a cutwork pattern using our scanner, an old pattern, a black felt tip marker (if necessary) and the editing tools in **Generations®**.

You will need to understand the basics of your particular scanner and may want to read to manual or help files that are included with it.

Here is what you will need to know about your scanner:

- What make and model scanner it is.
- How can you set the scanner to scan in black and white only.
- How to change the resolution or DPI setting on your scanner.
- How to select only the area needed for scanning into the program.

Here are the supplies that you will need:

- Cutwork pattern attached to this lesson printed out or a pattern of your choice from another source.
- Felt tip marker with a 0.45mm point or writing tip.

My favorite is the Zip Millennium since it won't smudge and I use the 05 size.

- Tracing paper or a light box and white paper
- If using tracing paper, you will need a blank sheet of white paper.

Here are instructions on the basic image preparation.

The Cutwork pattern attached to this lesson will not work well unless we manually punch it or edit the areas a great deal in the program so we need to trace this image to eliminate the black solid areas.

(Most of the cutwork patterns I have seen are colored in this fashion – if you happen to have one that isn't but the lines are a bit disconnected, make a copy of the pattern and then touch up the lines with the black marker on the copy and scan it into the program)

- Keep the original image, as you will need it as a reference to cut out or fiber etch the correct areas.
- Place the tracing paper over the image and paperclip to top edges so that the paper will not shift as you trace over the image.
- Trace the outline of all the areas with the black felt tip pen using even pressure and taking care not to cross over the lines.

(Tip: You can trace over the original image with a pencil lightly and then cover the pencil with the marker if that would be easier. That way you can erase any mistakes along the way should the paper underneath shift or you make an error on the lines)

- Place the image on the bed of your scanner or into the paper feed bed for page scanners. Take care to align the image squarely on the scanner.

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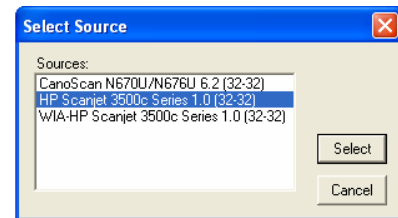
Note: If you have a digitizing tablet, place the paper under the plastic on the tablet and trace the image with your mouse or tablet pen and skip the stuff about scanning 😊

We are ready to begin creating our cutwork design.

1. Open the **Generations®** program using the icon on your desktop or from the Start menu in windows.
2. Select **View** and then **View Preferences** from the menu.
3. On the **General tab**, there is a section marked **Measure Unit**. Please make sure that the **Measure Unit** is set to **MM or millimeters**.
4. After setting that to **MM** instead of inches, click **OK** and return to the main window.

5. Select **File** from the menu at the top of the program window.

6. Click on the **Select TWAIN Source** and a small box will open displaying all the TWAIN drivers on your computer system.



7. Select the correct driver for your scanner and click on the **Select** button and your **Generations®** program is ready to scanning.

Note: You will only have to do this once in the Generations® program since it will remember the TWAIN driver selected for future scanning projects. – Like the lace lesson coming soon.

8. Select **Insert from TWAIN Source** from the **Create menu** or click on



the icon located on the **Create toolbar**.

9. Your scanner controls should open automatically and you may begin to scan your image.
10. It is always wise to **preview the image** in your scanner so that you can select only the area needed for scanning. If you have a Preview option on your scanner, select that now and preview the image.

Cutwork With Generations® Automatic Digitizing Software

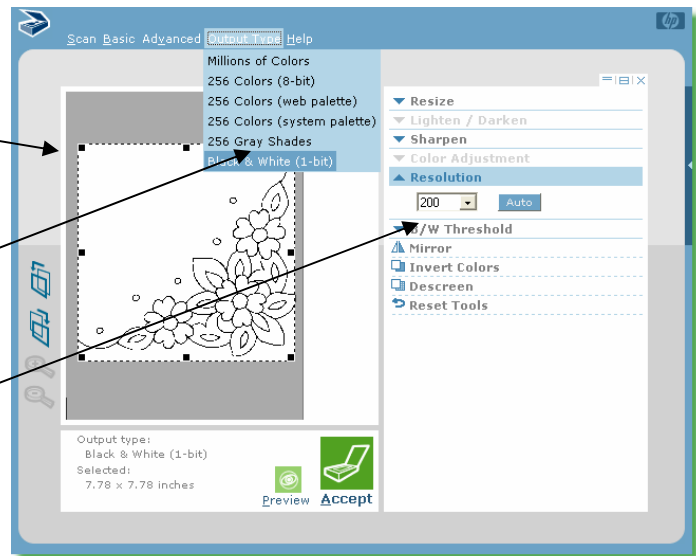
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Scanned images are generally larger than clipart images and the smaller the area you can scan the easier it will be for the program and your computer to handle the image.

This is a screen shot of my scanner – your controls may be different.

Note that I am selecting certain features in the scanner controls.

- I have previewed my scan.
- Selected only the area on the design that I would like to have scanned in.
- And the scanner is being told to scan only in black and white.
- Set my screen resolution to 300 DPI



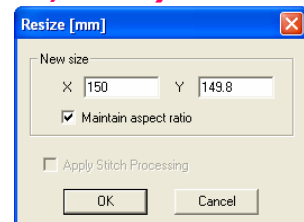
11. Once the program is finished scanning the selected area, the **Image Processing** window will open.

Even though this is a scanned image, the image processor is showing that it is a simple artwork image. That is because it is black and white line art and a simple image.

12. We do not need to change any default settings for this image so click on the **OK** button and insert the image into the Generations® program.

Don't be alarmed if this is taking a minute – this is a large scanned image and depending on your computer resources, it may take a bit.

13. The Resize box will open and we need to resize this image. Make sure that the **Maintain Aspect Ratio** option is checked and then **Change X= 150**. The Y value will automatically adjust.



Cutwork With Generations® Automatic Digitizing Software

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14. Click on **Ok** and insert the image into the **Generations®** program.



15. Click on the **Generate** icon and place stitches in the design.



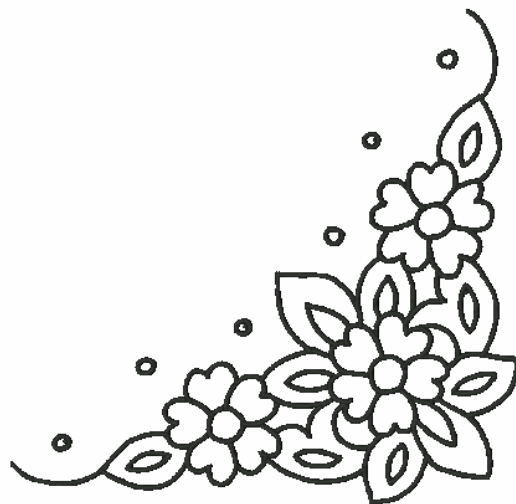
16. Click on the 3D icon to see what your stitching looks like.

17. Select **File** and then **Save** and save your work - just in case.

If your lines were even enough, you will have little to no editing to clean up this design and it may very well be a Completed Cutwork Design – Seriously – it's that easy!

In the design shown here, we have satin stitching all around the areas and with the automatic underlay in the Generations® program, if I were using Fiber Etch™, I would be able to stop here and have a finished design.

Since all the hard work is done we can spend our time now really fine-tuning and turn this cutwork into a one of a kind design. We will use the Angle and Outline editing tools to do this. We will also show an easy way for those of us who are chemically challenged or are using a fabric that Fiber Etch™ will not work well on to create an outline that we can cutout the areas with.



Ready to start working? Take a deep breath, stand up and stretch a bit and get relaxed before you start. It's not that this is hard – its that once you start you just can't stop ☺

1. Click on the **color chip** located on the upper left of your window. All the areas in the design should be surrounded by blue flashing lines.



Cutwork With Generations® Automatic Digitizing Software

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2. On the Quick Properties Bar, change the color from black to a more pleasant green. To do this click on the color chip, and the windows color palette will open and you may select green from there.



3. Click OK and the color will be changed.
Or, if you have version 1.2 (coming soon), click on the color green from the thread catalog open at the bottom of your screen and the color will change automatically.

4. Click on the **Stitch Type** and change the type to **Satin**.



5. Generate to make the changes take effect.
6. Right click off to the side of the image on a blank spot on your screen to deselect all areas.

7. Open the **Stitch Sequence viewer** by clicking on the icon.



8. In the **Stitch Sequence viewer**, there are many smaller areas and one main area. Locate the larger main area and **left click** on that frame to select only that area.



9. The area will be surrounded by blue flashing lines showing that it is selected.
10. Click on **Stitch** from the menu at the top of the screen.
11. Select the **Create Outline from Area Edges** option and a small box will open with outline options.
12. Set the **Offset to -0.4** (this will move the outlines inside of the satin stitching). *We will move them in the stitching order later to and hide them underneath the satin stitching.*
13. Select **All Borders** for outline creation.
14. Set the line type to **Double Running** and click **OK** to create the outlines.

Cutwork With Generations® Automatic Digitizing Software

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We are going to use these outlines for stabilization, strength and guidelines to cut out the areas for those not using Fiber Etch™.

Do not be alarmed if it takes a minute to create the outlines on your computer. It will depend on the resources of your computer as to how fast these are created.

15. Once the lines are created, the hourglass will vanish and you will see blue flashing lines on your screen.

16. **Before you Generate** the stitches, click on the **color chip** on the **Quick Bar** and change that to a different color from the outline.



17. Generate to place the outline in your design.

18. You will see a new **color chip** (the color that you selected before generating) appear on the **color chip strip** to the left side of the window, there will be more areas in the **Stitch Sequence viewer** and you will have lines on top of the satin outline of the design.

19. Look in the **Stitch Sequence Viewer** for the main **outline around the outside** of the design that was just created.



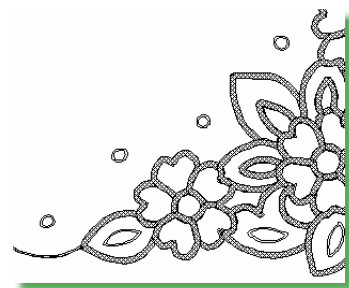
20. When you located it in the **Stitch Sequence Viewer**, **press and hold the [CTRL] key on your keyboard and left click** on the square.

21. The **shading will be removed** from the square and that section of the outline is no longer selected. All other outlines should still be shaded and selected.



22. Click on the **Outline View** icon on the top of the work area window and the selected outlines will be shaded in the design. They are ready for some editing.

23. Click on the **Outline** option from the menu and then select **Merge**.



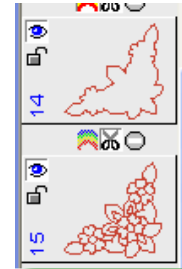
24. **Generate** to create the newly merged inner outline.

Cutwork With Generations® Automatic Digitizing Software

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25. Your **Stitch Sequence viewer** has become much less cluttered.

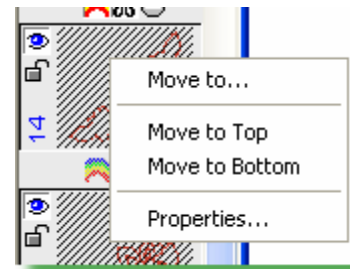
26. We also need to move the outlines to the top of the stitching order. **Left click on the first square containing the outline.** That square will be shaded and the line is selected.



27. **Press and hold the [Shift] key** on your keyboard and **left click** on the **second part of the outline.** Now both outlines are shaded and selected.

28. **Right click** on one of the shaded areas and a small menu will open.

29. Select the **Move to Top** option and the outlines are move to the top of the stitching order.



Now we have an outer outline and an inner outline and it will stitch before the satin outline.

Note: If you are using Fiber Etch™ or really good with your heat knife, you will still need these lines for stability in the design.

We need to edit a little bit more so that the flower areas can be a different color than the leaves.

1. To make moving around the program easier while we separate the flowers from the main outline, click on **View** and then **Navigator**.

A small Window will open and you may left click and drag this where you would like to place it on your screen.



2. Select the **Zoom In** icon from the **Zoom toolbar**.

3. **Left click and hold the left mouse button in, drag a square** around the top flower in the design. This will make separating the flower easier by enlarging it.

Cutwork With Generations® Automatic Digitizing Software

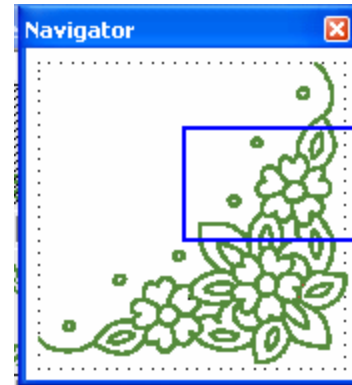
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4. **Right click** to **disengage** the **Zoom In** tool.

If you loose your design, don't panic, press the [ESC] key on the keyboard and then press the letter 'A'. Your design will display in the center of the screen and you can try zooming in on the area again.

5. Your Navigator window should display similar to this:

The blue outline box should be around the area on your screen that you have zoomed in on and the whole design should be visible in the navigator window.



Left click and hold the mouse button on the blue square and drag this to another section of the design. The area that is surrounded by the blue outline box is now zoomed in on your screen.

Drag the blue box to the top flower again and let's start editing.

6. **Right click** on the green outline of the flower. The whole area will be surrounded by blue flashing lines showing that it is selected.



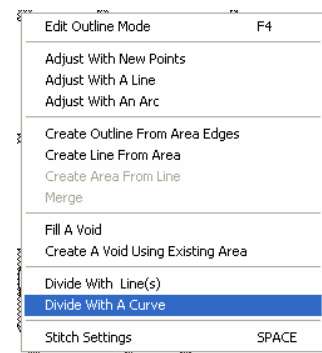
7. Click on the **View Outline** icon located at the top of the work area window. The outline will now be a shaded outline and a new menu option has opened at the top of the screen.

8. To open the **editing menu**, you can **right click** on the shaded area or click on the **Outline** option at the top of the menu.

9. Select the option from the drop down menu to **Divide With a Curve**. Your cursor will now be a bulls eye cursor.

10. Move the bulls eye to the edge of one of the pedals of the flower.

11. **Left click outside** of the shaded area and a **small node** is placed on the screen with a **magenta line extending** when you move the mouse.



Cutwork With Generations® Automatic Digitizing Software

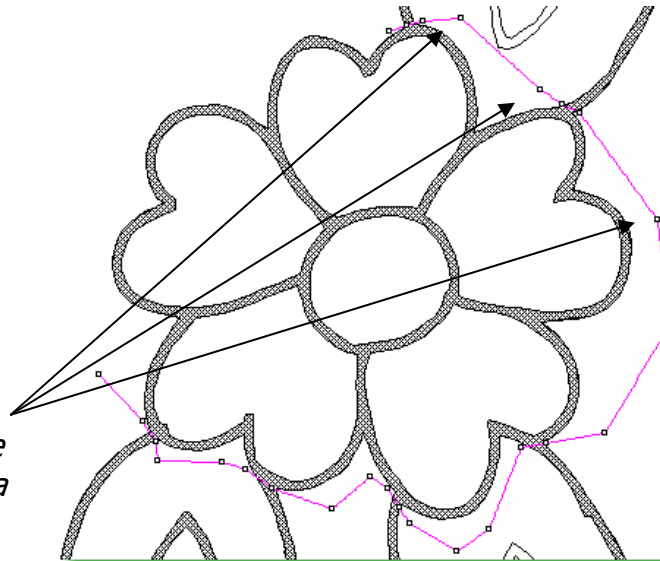
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We can use this tool to separate all the leave areas from the flower at one time.

12. A **right click** will give you a **curved line** and a **left click** will give you a **straight line**. Follow the outline as shown here to separate the flower from the rest of the outline.

The lines here have been placed so that the dividing lines that will separate the flower from the rest of the outline will only slice where needed.

Note: Nodes have been placed in the white areas of the design to route to the next area without crossing shaded areas.



Note: There are help files displaying at the bottom of your screen that will give you pointers as you use the outline editing tools in the program. If these are not showing on your screen, left click on the small black arrow on the lower left hand side of your screen. If that will not open the Help files, then you need to go to View from the menu. Select Toolbars and make sure that there is a check mark placed next to the Help toolbar option.

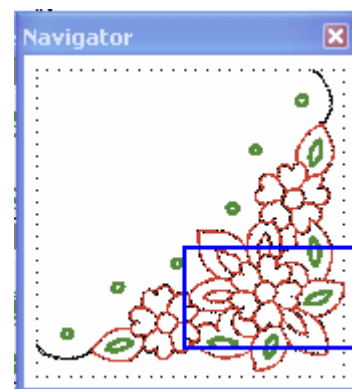
| | | |
|---------------------------|----------------------------|---------------------------------|
| Enter : end inputting | Esc : cancel | |
| left-click : corner point | right-click : smooth point | BkSpace : delete previous point |

13. When you have finished creating the line that will divide the area, press **[Enter]** on the keyboard.

14. Press the **[ESC]** (escape) key on the keyboard.

15. **Left click on the blue box in the Navigator** window and drag the **blue box** to the next flower in the design.

The newly selected area will now be enlarged on your screen. Look over the area to determine where the lines need to be divided and **repeat** the process above to separate the flower from the outline.



Cutwork With Generations® Automatic Digitizing Software

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16. When you have separated the entire flower from the main outline, zoom



out on the design using the **Zoom Design** tool.

17. **Generate**  the stitches in the design.

18. **Close the Navigator** window by clicking on the 'X' in the corner of the window.

19. In the **Stitch Sequence Viewer**, locate the three flowers and select them as follows: **Press the [CTRL] key and hold it. Left click** on each flower to select them all. The squares in the Stitch Sequence Viewer will be **shaded** and the flowers will be surrounded by **blue flashing lines**.



20. Change the color of the flowers by **left clicking** on the color chip on the **Quick Bar** and selecting a pink shade from the color palette.

21. With the flowers still selected, **right click** on one of the shaded areas in the **Stitch Sequence viewer** and select **Move to Bottom** from the menu.

We should have three colors in the design now. The outlines, the green cutwork outline and the pink flower outlines.


Now we need to set the stitching order.

This can be done in a couple of different ways. If you don't want to have complete control over the stitching order you can do this in two steps.

1. Select **Accessories** from the menu and then **Optimize Stitching Order**. The program will arrange the sewing order for you.
2. Check the **stitch sequence in the viewer**. The outline will now be at the bottom of the stitching order – It is an outline and the program is determining that outlines stitch last.

Cutwork With Generations® Automatic Digitizing Software

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3. **Left click on the color chip** to the left of the screen that represents the outline and select both pieces at one time.
4. **Right click on one of the shaded squares** in the **Stitch Sequence Viewer** and select **Move to the Top**. That will place the stitching where we want it to be.
5. **Generate**  to allow the program to recalculate the in and out points, the traveling stitches and you are almost done.

For those that would like to have complete control over the stitching order piece by piece, you can do that as well.

First, we need to remove some areas that will interfere with the selecting of the areas.

1. **Right click** on the white areas that are surrounding the cutwork from the original image file. They will be surrounded by blue flashing lines.
2. **Press and hold the [CTRL] and then [DEL]** on the keyboard to remove them from the design for good.
3. Click on the **Edit** option from the menu. Choose **Select and then Select All Filled Areas**.
4. All areas on the screen will be highlighted with blue flashing lines.
Generate and check out the white areas in the design.
These are background areas that the program was told in the Image Processing not to generate.
5. **Left click** on the **white color chip** to select all the white areas at one time.
6. **Press and hold the [CTRL] and [DEL]** keys to remove the areas from the design.
If you see traveling stitching on the screen – don't worry they will go away when we regenerate the design.
7. **Left click on the color chip representing the outline**. The outline will be surrounded by blue flashing lines.

Cutwork With Generations® Automatic Digitizing Software

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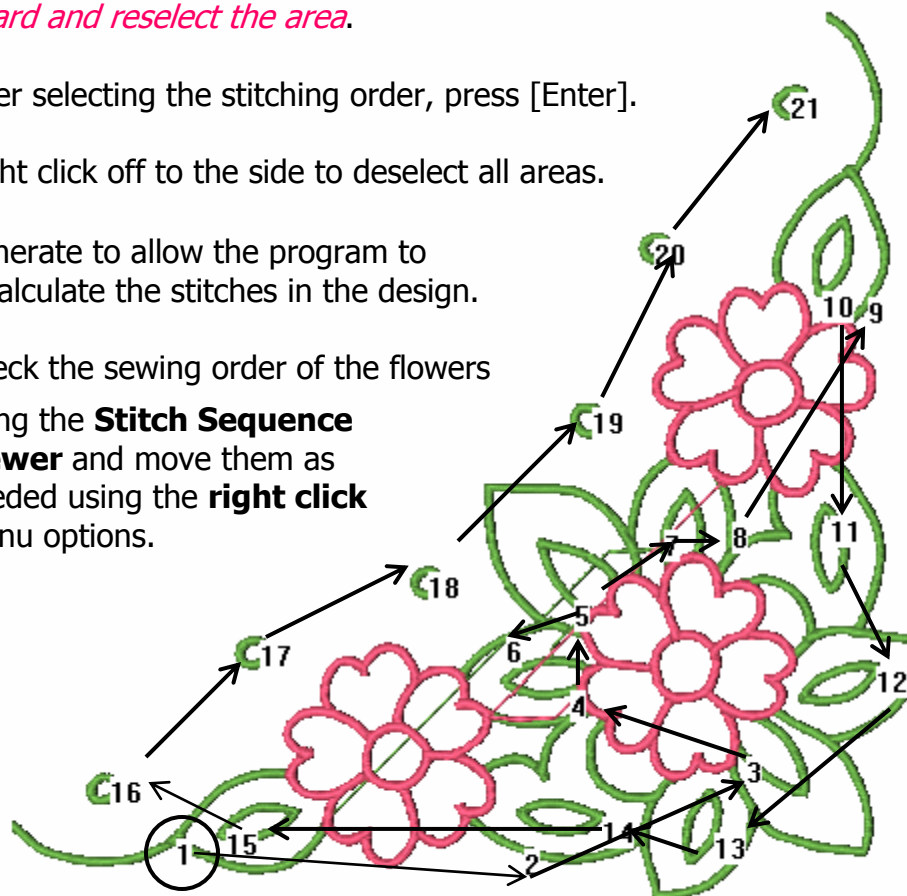
8. Click on the **Copy** icon to make a copy of the outline and paste it to the Windows® clipboard for future use.
9. **Press and hold the [CTRL] and [DEL] key** on the keyboard to remove the outline.

Now you are ready to start setting the stitching order.




1. **Zoom the whole design** on your screen to make this easier to select.
2. Select **Accessories** from the menu and then **Set Sewing Order**.
Your cursor will be a hand cursor now.
3. **Left click** where the number 1 is shown on the image here and the number 1 will be placed on the design.
If you make an error when selecting, press the Backspace key on the keyboard and reselect the area.

4. After selecting the stitching order, press [Enter].
5. Right click off to the side to deselect all areas.
6. Generate to allow the program to recalculate the stitches in the design.
7. Check the sewing order of the flowers using the **Stitch Sequence viewer** and move them as needed using the **right click** menu options.



Cutwork With Generations® Automatic Digitizing Software

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8. **Paste** the outline back into the design using the Paste  icon on the top of the program window.
9. Move the outlines back to the top of the stitching order using the **Stitch Sequence Viewer** and the **right click menu** options.
10. **Right click off to the side** of the design and **generate** the whole design.
11. **Save** the design and take a small break.

Stand up, stretch, move around and relax a bit. You should remember to take short breaks when working on the computer so that your limbs don't get stiff and your eyes don't get tired or strained.

We are now going to look over the design and tweak the outline a bit. Since this is satin stitching and we have added the outline for stability, we need to remove the underlay for the satin area outline.

1. Using the **Stitch Sequence Viewer**, select the **first green area** in the stitching order with a **left click**.
2. Use the **slider bars on the side of the Stitch Sequence Viewer** and slide all the way to the bottom of the design.
3. **Press and hold the [Shift] key and left click on the last flower** in the stitch sequence strip.

This will select the entire cutwork satin area outline and we can remove the underlay on them all at one time.

4. Click on the **Stitch Settings**  icon or press the [Space] bar on your keyboard to open the **Area Object Property Window** where we can change the settings.

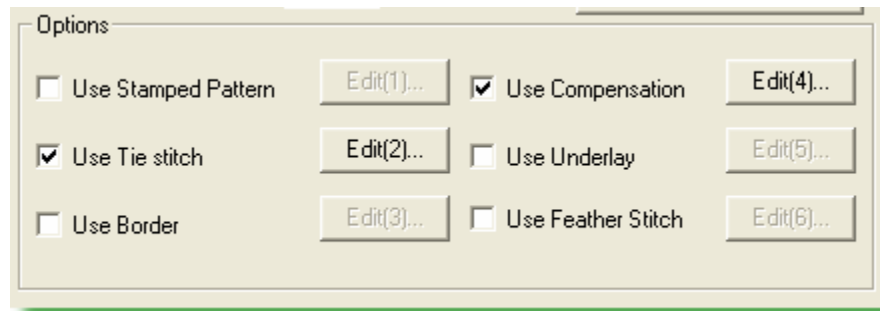
Note that the color chip is 'X'ed out. This is because there are two colors selected to be edited.

Cutwork With Generations® Automatic Digitizing Software

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5. In the **Options** section of the **Area Object Property Settings**, remove the check mark next to the **Underlay** option.

This will select the satin outline and we can remove any underlay options that were set in our default stitch settings at one time.



6. Click **OK** and then **generate** to make the changes to the design.

We are down the to last section of the lesson on the cutwork.

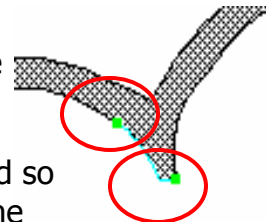
Since all of us draw differently some of you may have some areas in the design outline that are not that great. You can edit these using the tools in the Generations® program as follows.

For those small areas that are a bit jagged on the outline.

1. **Right click** on the area to select it.



2. Click on the **View Outline** icon and the area will become shaded showing that it is selected for editing.
3. When it is shaded, **right click** on the area again to open the editing menu or select **Outline** from the menu at the top of the screen.
4. For small areas that need smoothed, select the **Adjust With a Line** option from the menu.
5. **Left click** on one side of the area outline section to be edited and a small green node will appear.
6. **Left click on the other side of the area** to be edited so that the section of the outline of the area is between the **two green nodes**.



Cutwork With Generations® Automatic Digitizing Software

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7. **Move your mouse over the section between the two nodes** and the line will **highlight Blue**.
8. **Left click** on the **blue highlighted line** and the area will adjust immediately.
9. **Right click to disengage** the tool and **generate** to create the changes to the area.

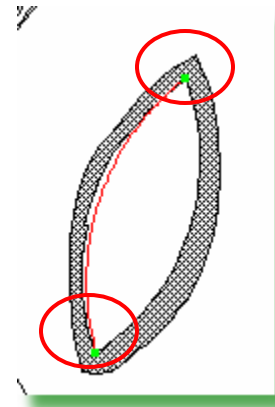
For those areas that need to be a bit more rounded you can use the **Adjust With an Arc option**.

Follow the instructions above to select the area and open the **Outline Editing**.

1. Select **Adjust With An Arc** from the **Outline** menu.
2. **Left click** on one side of the area outline section to be edited and a small green node will appear.
3. **Left click on the other side of the area** that needs editing so that the section of the outline of the area is between the **two green nodes**.
4. **Move your mouse over the section between the two nodes** and the Line will **highlight blue**.
5. **Left click** and **drag** the line. You will see the Arc form immediately.
6. When the arc is the size desired, **left click** to change the shape of the area.

***Tip:** Dragging the arc line in the center of the selected line will give you more control over the arcing. The closer you are to the green nodes, the faster the arc will be formed and the less control you will have over the arcing line.*

7. **Right click to disengage** the tool and **generate** to create the changes to the area.



Cutwork With Generations® Automatic Digitizing Software


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You can use both of these tools many times before ending the editing. If your image has more than one area, try using the Navigator to move around the area and edit as you go.

And now the finishing touches on the design! And we'll be ready to stitch and cut and stitch 😊

1. Use the View menu to open the **Navigator** window again.
2. **Zoom in** on one of the flowers in the design by **right clicking** on the flower outline. It will be surrounded with blue flashing lines.

3. Click on the **Zoom Selected**  icon and the selected area will be displayed as large as possible on your screen.

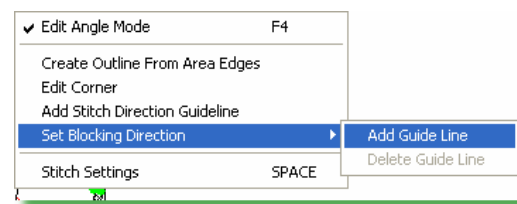
4. Click on the **3D** view  icon and look at the satin stitching in the area. We have a problem area here.

5. To smooth this area and make the circle stitch around the inner portion of the flower

differently, click on the **Angle View**  icon and the selected area will have **green nodes and lines** displayed in the shaded areas.

6. **Right click** on the shaded area or select **Angle** from the menu to open the **Angle editing menu**.

7. Select the **Set Blocking Direction** and then **Add Guide Lines** option from the menu.

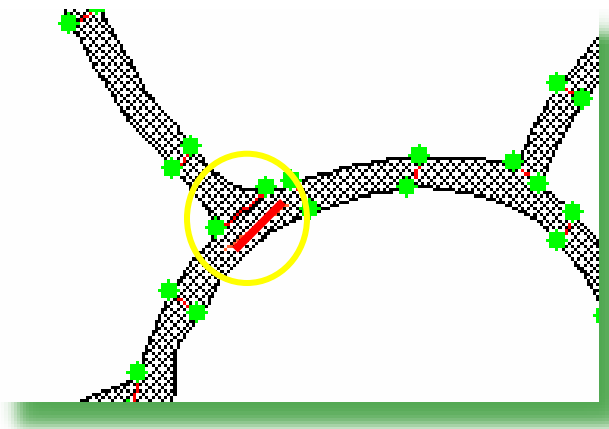


8. **Left click and hold the left mouse button in as you drag a line** across the area in the opposite direction that the stitching would be desired.

Cutwork With Generations® Automatic Digitizing Software

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For example if you want the stitching to go ||||| you would drag the line from left to right as shown here.

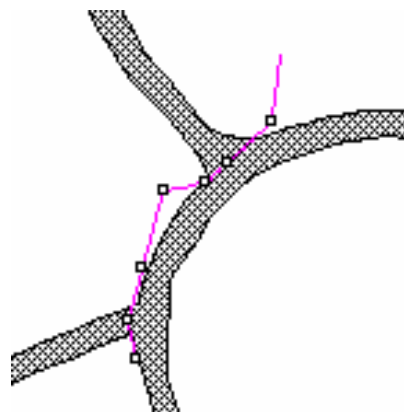


9. **Release the left mouse button** and editing is complete.
10. **Right click** to end the editing.
11. **Generate** the area to see if this has resolved the problem. If so, check the other sections of the design using the **Navigator** and see if other areas need editing.

There may be some areas where this will not resolve the issue. For those areas, use your **divide with a line or curve tools** and only **partially** cut the area.

This will keep the area as one but control the stitch direction better.

In this example we are only partially cutting the area away and the stitching will display as desired after the editing.



Cutwork With Generations® Automatic Digitizing Software

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And last but not least:

Remember to **right click** off to the side after all the editing is finished and **generate** the whole design.

This will ensure that all the changes you have made are generated and allow the program to recalculate the **in and out points and traveling stitches** as needed.

Save your design and then **export** it in the desired machine format.

Happy Stitching!!

Artwork sources: This pattern was found in my aunt's stash of patterns and has no origin references.

You can find many vintage and new cutwork and lace patterns at Lacis Publications on the internet: <http://www.lacis.com/catalog/publicat.html>

You may also try searching the local library for books on lace, white work and cutwork and see what turns up.

