Creating Computer-Generated Heraldic Graphics with MS Paint

Microsoft Paint is a free computer-graphics program that comes free with Microsoft Windows. All PCs running Windows will have MS Paint.

I prefer to use Paint because it's a simple program, it's free, and it works well when creating simple black/white line-drawings for SCA submission forms. Unless you run UNIX or own an Apple, you probably already have Paint on your computer. It may not have the versatility of more complex programs (such as GIMP or Photoshop), but it will do the job.

If you are certain you do not already have Paint, do a web search for "Microsoft Paint download" and find a site where you can download Paint for free. Make sure you are downloading a version that is compatible with your operating system!!!!

Special note about Clicking:
"Click" means to press the primary mouse button <u>once</u>. If the mouse is adjusted for a right-handed person, this means the left button.
"Off-click" means to press the secondary mouse button <u>once</u>. If the mouse is adjusted for a right-handed person, this means the right button.

Special note about File Formats:
I save my graphics in TIFF and PNG format. When used with MS Paint, these file types are "lossless," meaning the image quality will not degrade when you edit and re-save them. They produce small file sizes (relative to the BMP file format) and are compatible with almost all Microsoft software. TIFF tends to be best for black/white, and PNG tends to be best for color graphics.
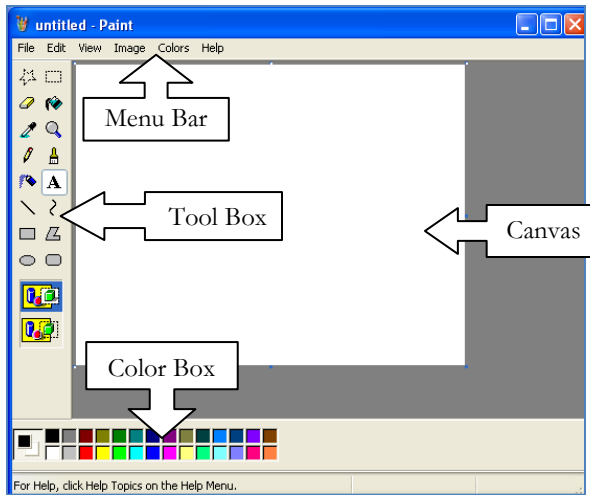JPEG and GIF are "lossy" formats, meaning they lose resolution when you edit and re-save them. I do NOT recommend using these formats!! They are common because they compress to a tiny file size, but the image quality is usually quite poor when you try to use them in MS Paint.

HANDOUT CONTENTS

I.   PAINT BASICS

When you open MS Paint, this is approximately what you will see:
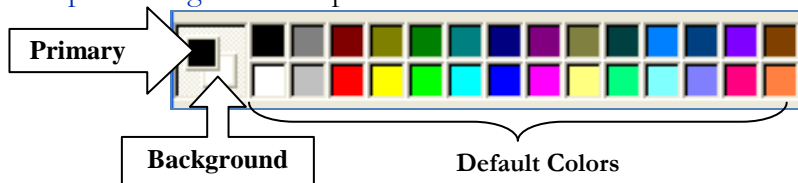

THE MENU BAR

The File and Edit menus are the same as most other Microsoft software. View allows you to uncheck the boxes you don't wish to see (such as Tool Box), as well as zoom and "view bitmap" (I don't find the "view bitmap" option useful). The Image Menu offers the following options: Flip/Rotate, Stretch/Skew, Invert Colors, Image Attributes, Clear Image, and Draw Opaque. The "Colors" menu allows the user to Edit Colors (the only menu option under Colors).   The Help menu is actually pretty useful, which is a pleasant surprise for a Microsoft product.
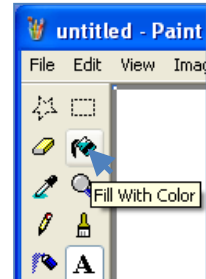
THE COLOR BOX

From Wikipedia:

> The default colors in the Color Box are the following: Black, White, Gray, Silver, Maroon, Red, Olive, Yellow, Dark Green, Green, Teal, Cyan, Navy blue, Blue, Purple, Magenta, Old Gold, Lemon Yellow, Slate gray, Kelly green, Dark Carolina blue, Aquamarine, Midnight blue, Periwinkle, Violet-blue, Coral, Brown, and Pumpkin orange. A color palette is also available.

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On the left end of the Color Box is an icon that shows you the primary color (selected with the main mouse button) and "background" color (selected with the secondary mouse button). The default is primary = black and background = white. To access the color palette, double-click a color in the Color Box that you wish to replace with the new color; you can create custom colors this way. If you close Paint and re-open it, the Color Box will revert to its default colors.

THE TOOL BOX

If you hover your mouse pointer over any of the tools, a little text box will pop up and tell you what the tool does (see image at right). When you activate some tools, note that additional options sometimes appear at the bottom of the Tool Box.

Starting at the top left and proceeding in reading order (left to right, then down), here are what the tools do:

- Irregular Cut-out : cut out an irregular shape by clicking the icon once and then holding down the mouse button and tracing the exact outline you wish to move. Letting up on the mouse button does the "cutting," you can then click and drag the cut-out to any location on the canvas.

- Rectangular select : cuts out a rectangular/square shape by clicking the icon once and then clicking and dragging the mouse. Letting up on the mouse button does the "cutting," you can then click and drag the cut-out to any location on the canvas. Hit the Esc key to set the cut-out in place.
  NOTE: when you activate any of the cut-out tools, note that at the bottom of the Tool Box you can choose to make the "background" color opaque (top option) or transparent (bottom option). This is VERY important for later: it can allow you to remove the color from a charge, insert a charge so that a field treatment doesn't show through, and more helpful tricks.

- Eraser : replaces a square of your image with the background color. You can choose the size of square (see image at right). Click and drag to erase a large swatch of the image.

- Fill : click the tippy bucket icon and then click an area of the canvas you wish to fill with color. Left-clicking will fill with the "foreground" color and off-clicking will fill with the "background" color.

- Color sample : click the eye-dropper icon and the cursor icon will change to an eye-dropper. Place the tip of the eye-dropper on a color <u>in the image</u> you wish to copy. This color will replace your foreground color in your Color Box and you can use it any time until you close Paint.

- Magnifying glass : click the magnifying glass and click a spot in the graphic to zoom in on that spot. It automatically zooms by 4X. You can choose a different magnification (see image at upper right).

- Pencil : use the pencil to draw a single pixel (dot), or click and drag to draw a free-hand line.

- Paintbrush: use the paintbrush like the pencil, but you can choose different sizes and shapes (see image at right) including circles, squares, and slashes.
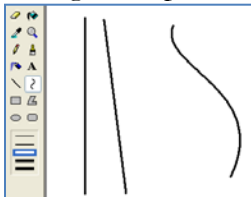
- Airbrush: similar to the pencil, but deposits lots of little dots. Clicking and holding down slowly increases the density of dots until a perfect circle is filled in. You can choose different spray sizes (see image at right).

- Lettering: you must be at the default zoom level (1X) to use this. Click the letter A on the Tool Box, then click and drag on the canvas to create a text box. The Text Tool Box will pop up, allowing you to choose different fonts, font sizes, and text formatting (such as **bold**, *Italic*, and <u>underline</u> – see image below). I often use this tool to type in the blazon of the device off to one side or in a corner so I and/or the client have the blazon handy with the graphic. Note that you can either have an opaque background so the white space within the text box covers the image behind it (see the example at right); or a transparent background.

- Straight line: click in the place you wish to start a straight line, and drag to the place you wish to end the straight line. You can choose the thickness of the line (see image at right). Holding the Shift key as you do this will make the line either a perfect 45 degree or perfectly straight horizontal or vertical line.

- Curvy line: like the straight line, but you get up to 2 "click-and-pulls" to add curves to the line (see image at right). This tool requires some playing around and patience to figure out. It has the same line-thickness options as the straight line

- Rectangle: Click and drag to make a rectangle. To make a perfect square (equal length on all 4 sides), hold down the Shift key while you click and drag the cursor. You can choose different color-filling options (see image at right). The default is to have an outline in the "foreground" color and no fill-in (the underlying graphic will be visible within the rectangle). You can choose to have the rectangle outline in the "foreground" color and filled in with the "background" color. The third option is to not have an outline but to have a solid rectangle in the background color.

- Irregular shape: creates a trapezoid with straight edges. Click and drag to start the first segment, and then click where you want the other corners to be. This tool has the same color-filling options as the Rectangle tool.

- Ellipse: same color-fill options as the Rectangle tool. To make a perfect circle (equal radius in all 360 degrees), hold down the shift key while you click and drag the cursor to make the circle. This tool has the same color-filling options as the Rectangle tool.

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- Rounded rectangle : creates a rectangle with rounded corners and has the same color-filling options as the Rectangle tool.
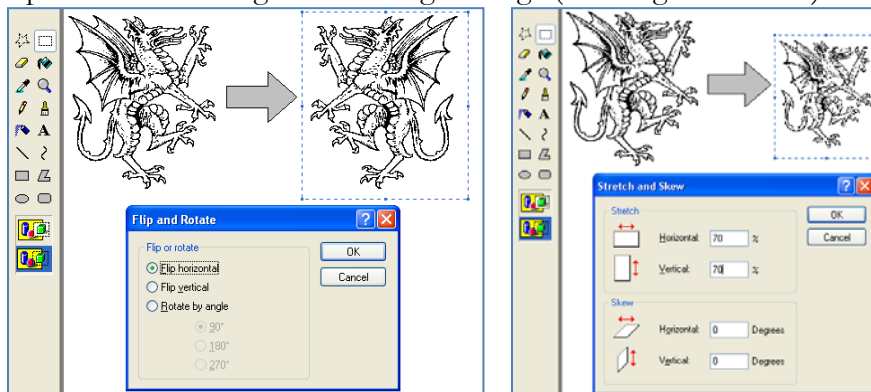
II.   HOW TO ACQUIRE GRAPHICS:

Try to find/create graphics that are as similar as possible to the images in the PicDic… lest you be required to document your "unique variant" of a charge or find that it conflicts with something totally random. Also, double-check the list of default postures/orientations in the SCA College of Arms' Glossary of Terms to make sure your em-/blazon is accurate.

- http://www.heraldicclipart.com/ has TONS of images.
- Online armorials: exercise caution as many of these are saved in JPEG or GIF format to save bandwidth, and so they may contain lower-quality graphics that are difficult to use in Paint.
- Post a request to an heraldic listserve (such as Calontir heralds or SCAHrlds).
- Google and click the Images option at the top to look through images. You will have better odds of finding usable images if you search for the blazon (*lion's head erased*) or add the word "heraldry." Bing allows you to narrow your search to include only black and white images.
- Scan a black/white line drawing of the image from a book (especially the PicDic).
- If the graphic you need is geometric, build it yourself in Paint. This is tedious work at first, but it really helps you learn the program and its shortcuts. If you think you might use the graphic in the future on other designs, save just the graphic by itself. Most computer-aided heraldic artists have a computer folder full of graphics they have created or modified.

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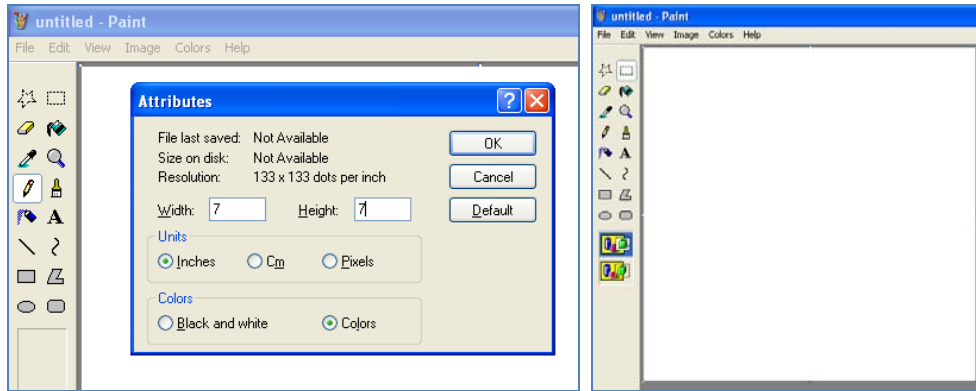
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III.   BASIC IMAGE MANIPULATIONS

Most of these options are available by keyboard shortcut (pressing Ctrl and a letter) or by going through the Image or Edit Menus. To use any of these options, you must first click the Rectangular Cut-out tool and highlight the portion of the graphic you wish to manipulate.
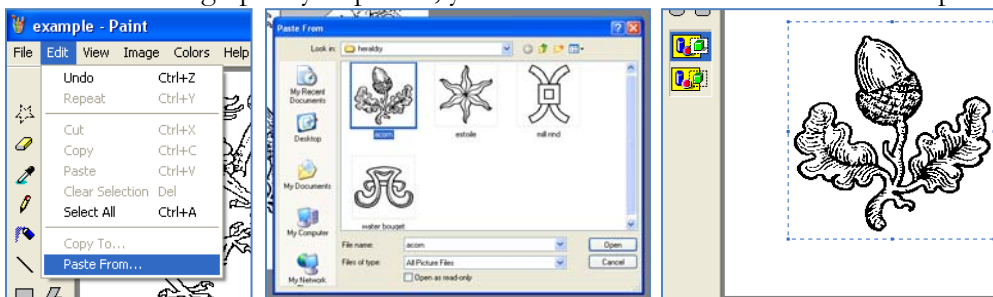
- Select All: Ctrl-A to select all of the canvas and everything on it.
- Copy: Ctrl-C to copy a graphic without removing the original.
- Paste: Ctrl-V to paste. This reproduces the image as many times as you like. Useful for creating semy fields.
- Cut: Ctrl-X. This removes the original graphic AND copies it to the program's clip-board so you can paste a copy elsewhere.
- Undo: Ctrl-Z. You can only use this up to 3 times.
- Re-do: Ctrl-Y. This will repeat the last command.
- Flip/Rotate: accessed by pressing Ctrl-R. Select whether you wish to flip the graphic horizontally (from left to right), vertically (top to bottom), or rotate it to the right by 90, 180, or 270 degrees. Then click OK. To create respectant beasts, copy the first charge, then paste it, press Ctrl-R and flip the duplicate horizontally. This is a VERY useful tool for achieving a perfect mirror image or inverting a charge (see image below left).

- Stretch/skew: Ctrl-W. Resizes an image; less than 100% shrinks the image, 100% doesn't change it, and more than 100% makes the image bigger (see image above right). Shrinking can be bad for the image resolution, and stretching it bigger can make it look "pixilated," so use at your own risk (or re-size everything else around it). I don't recommend using the skew function – it usually distorts the image into something unusable.
- Change Attributes: Ctrl-E. Allows you to re-size the canvas (see the image below left). You can also re-size the canvas by "grabbing" the tiny blue squares on the bottom and right side and moving them. Note: if you shrink the canvas too much, you will lose any part of the graphic that doesn't fit. This tool is only somewhat useful for making sure your image is the right size for a submission form; I prefer to paste the image into a word processing document and re-size it there. I do not recommend changing the colors to black & white – you cannot change it back later if the client wants a color copy of the graphic for their personal use.
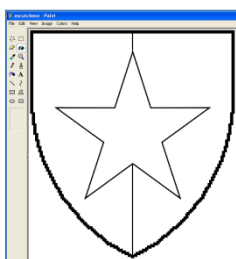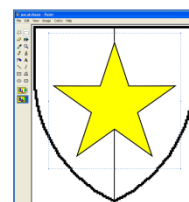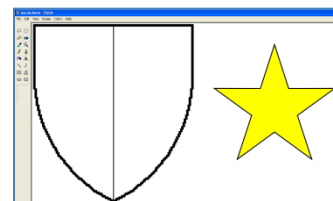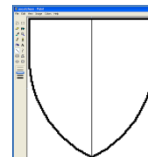
- Clear Image: Ctrl-Shift-N removes everything from the canvas and turns it white (see image above right). Basically, this is like hitting a "reset" button.
- Click Edit and then Paste From…: this allows you to paste an image from a folder on your computer. A new window will pop up, allowing you to search for the folder in which you keep your heraldry graphics (see images below). Double-clicking the graphic you want will paste the graphic into your existing file; as long as you only click within the blue "cut-out" box around the graphic you pasted, you can move it around to the correct spot.
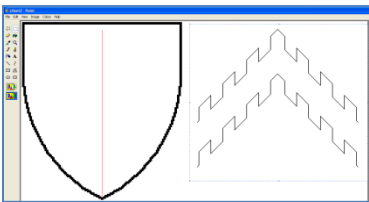
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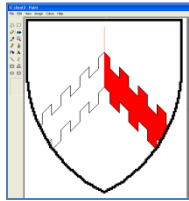
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IV.   HOW TO MAKE DEVICES: TWO EXAMPLES

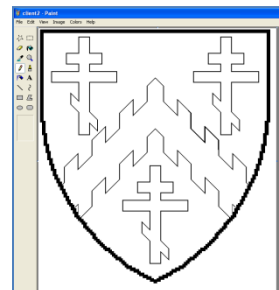**I:** Your client wants this device: *Per pale argent and sable, a mullet gules.* Remember that you do NOT use the computer to generate the tinctures!! They must be colored in by hand – even if the tincture is sable.

1. Open paint.
2. From the Menu, select File, then Save As.
3. Type the client's name, select file type TIFF and hit the enter key to save it.
4. Click Edit and Paste From… to insert a submission-form-style escutcheon OR off-click and copy an graphic from a website.
5. Use the straight line tool to divide the escutcheon vertically. Start from the point at the bottom, press the shift key, and trace the line straight up. You also have the option of drawing the *per pale* line by hand after you print it – but what's the fun in doing it by hand?
6. Hit Ctrl-E to make the canvas wider (at least twice as wide as the escutcheon). This will give you room to manipulate the mullet.
7. Click Edit and Paste From… to insert a mullet. Insert it off to one side of the escutcheon, NOT in the location it will eventually occupy on the center of the shield.
8. Use the fill tool to fill the mullet's interior with any color other than black or white. I usually use yellow or red.
9. Click the rectangular select tool , change the background to transparent , select the mullet, and hover it over the escutcheon. Note that the color fill of the mullet prevents the vertical field division from showing through. If the mullet were counterchanged, we wouldn't bother with the color-fill since we'd want the vertical line to bisect the mullet.
10. Use Ctrl-W to re-size the mullet so it takes up as much space as possible without touching the edges of the escutcheon. You may need to use Ctrl-Z to undo any re-sizing mistakes until you find the right size.
11. Hit the Esc key to leave the mullet in place on the escutcheon.
12. Click the fill tool and off-click the yellow portion of the mullet to change the mullet's interior from yellow to white.
13. Save, and you're done!! You now have a line-drawing graphic ready for the submission form.

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EXAMPLE II: Your client wants this device: *Gules, a chevron raguly between three Russian orthodox crosses Or.* We're going to do this the easy way (insert an existing chevron from a file or webpage):
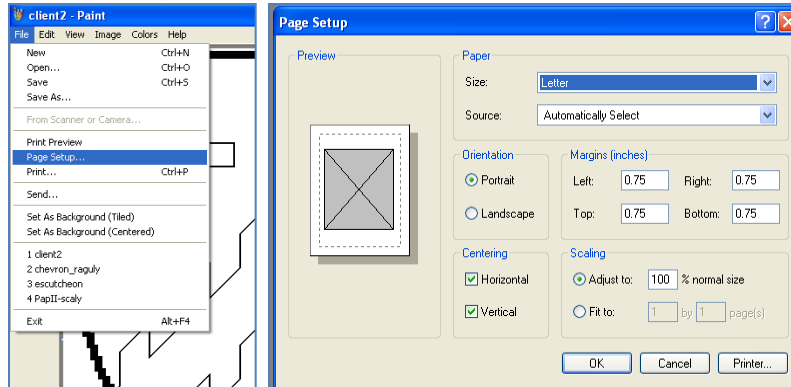
1. Open your escutcheon in MS Paint.
2. From the Menu, select File, then Save As.
3. Type the client's name, select a file type and hit the enter key to save it. I recommend saving it into a different folder for clients, separate from the folder for graphics.
4. Click the color red to change your primary color to red
5. Select the straight line tool from the Tools menu
6. Hold down the Shift key and draw a vertical line. Start *not quite* at the bottom, press the shift key, and trace the line straight up. The ends of the line should not touch the escutcheon. This will be a guide-line for centering the chevron and lower cross.
7. Click Edit and Paste From… to insert a chevron raguly from your file of heraldic graphics. Insert it off to one side of the escutcheon, NOT in the location it will eventually occupy on the center of the shield.
8. Click the rectangular select tool and click the invisible

   background selection at the bottom of the Tools menu
9. Cut out the chevron and hover it over the escutcheon without placing it.
10. Use Ctrl-W to re-size the chevron, and then move it into position. Use the red guide-line to center the chevron. Hit the Esc key to set it in place.
11. Use the Fill tool to fill the escutcheon AND the chevron with red. Use the right mouse button to fill them with white. Notice that the red line disappears.
12. You may need to use the Straight-line tool to connect the ends of the chevron to the edges of the escutcheon. Make sure you change the "foreground" color back to black!
13. Alternatively to step 12, you may have "overhanging" chevron
14. Click Edit and Paste From… to insert a Russian Orthodox cross. Insert it off to one side of the escutcheon, NOT in the location it will eventually occupy on the shield.
15. Click the rectangular select tool , cut out the cross, and move it over the escutcheon without placing it.
16. Use Ctrl-W to re-size the cross. It may wind up a little distorted from re-sizing, but as long as it's recognizable as a Russian orthodox cross, it's okay.
17. Use Ctrl-C to copy the cross, then hit the Esc key to set it in place
18. Use Ctrl-V to paste a copy of the re-sized cross and move the copy into position then hit the Esc key to set the copy in place.
19. Repeat the previous step to place the 3rd cross.
20. Save and you're done!

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V.   PRINTING YOUR HERALDIC GRAPHICS

I usually do this using one of two methods:
1. Print from Paint
    a. Open the graphic in Paint.
    b. Carefully re-size the canvas, THEN the image to the dimensions asked for on the submission form.
    c. Click "File" and "Page Set-Up" to ensure that it is printing onto 1 page and at 100% size (if not, you're going to have a mess coming out of your printer!). Set the margins to the minimum required by your printer, or take it to a printing shop.

    d. Press Ctrl-P to print and click OK.
2. Print from a word-processing program, such as MS Word. This works very well if the graphic isn't going to re-size clearly in Paint.
    a. Open the folder where you keep the graphic. Right-click it and select Copy.
    b. Open a word-processing program.
    c. Off-click on the document and select Paste.
    d. Click the graphic once, then grab the black squares that appear in its corners to re-size it.
    e.   Make sure the image is the right size by using the ruler along the top/side as a guide, OR by right-clicking the image, selecting Format Picture…, and entering the desired size (see image below).
    f. Press Ctrl-P to print and click OK.

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