CREATING MAPS

A map is an efficient method of providing easy to understand visual information. Creating a map to meet project-specific needs can be a daunting task; however, if you have Canvas at your command, there is no need to worry. With Canvas and a little instruction, you are well on your way to creating a professional looking map for your next project.

In the following tutorial, you will learn how to use Canvas to create a sophisticated geographic map.

Professional graphic designers, engineers, geologists, and others within the science and business community know that a map is an efficient method of providing information. As a result, maps are found within a vast array of scientific, engineering, and other business-related projects. Today, geographical maps are found within sales brochures, newsletters, annual reports, engineering survey projects, business cards, and presentations.

When creating maps, you should ensure that your map provides information that specifically targets the needs of the project or presentation. Will you be providing directions to a particular location or will it be a geological topography map? In most cases, the specifications of a project dictate the need to create a map illustration that is simply not available in a generic or ready-made form, which means that someone has to create one.

While some maps are based on collected data such as seismic or geological information, other professionals create their map illustrations from images or drawings that have been scanned into their computer. A large number of these images are available from the public domain. Entering a search criteria into any of the more popular Web search engines will provide a good selection of choices.

Next, you will need to create the Canvas document and prepare it for this project. Begin with Step 1 below and within a short time you will be creating your own set of professional maps.

STEP 1: PREPARING A NEW DOCUMENT

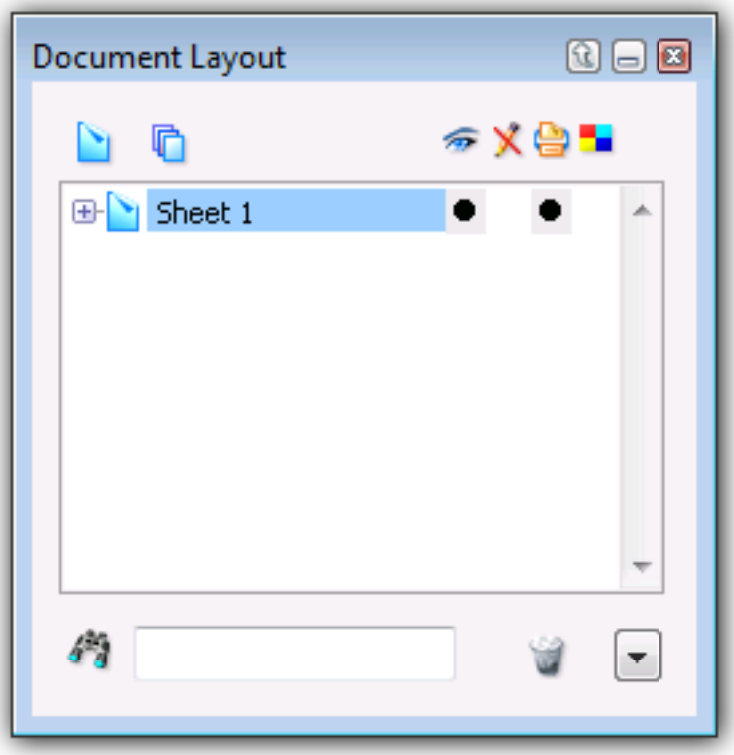
We begin by opening a new document. Choose File > New. In the New dialog interface, choose Illustration as the file type and press OK.

STEP 2: USING LAYERS

Next, we will prepare the Canvas document to manage all of the components that will make up our map project.

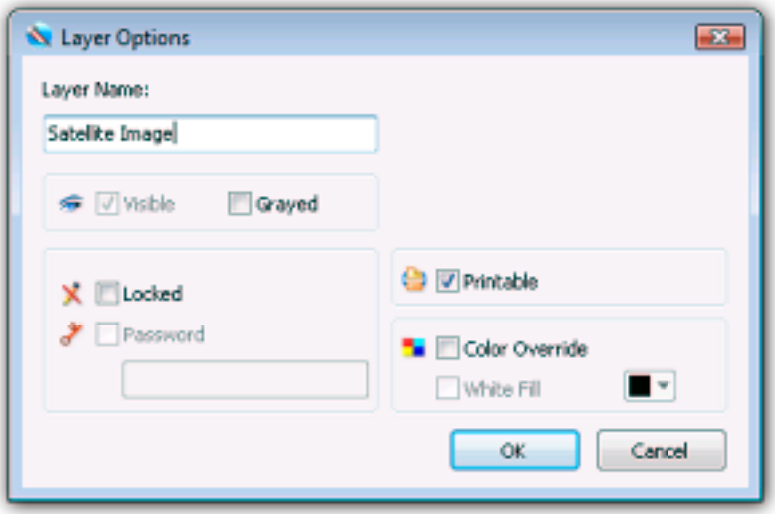
Open the Document Layout palette by choosing Layout > Document Layout.

When the palette opens, expand the sheet and view the layer inside. To do this, you must click on the icon just to the left of Sheet 1.



As you may recall from previous tutorials, the Document Layout palette functions as the "main control center" for your Canvas document. These next steps will allow you to understand how to quickly deal with the various objects that will compose your map illustration.

After expanding the view, you will be able to see the layer inside of Sheet 1. Now, double-click on Layer #1 to open the Layer Options dialog box.

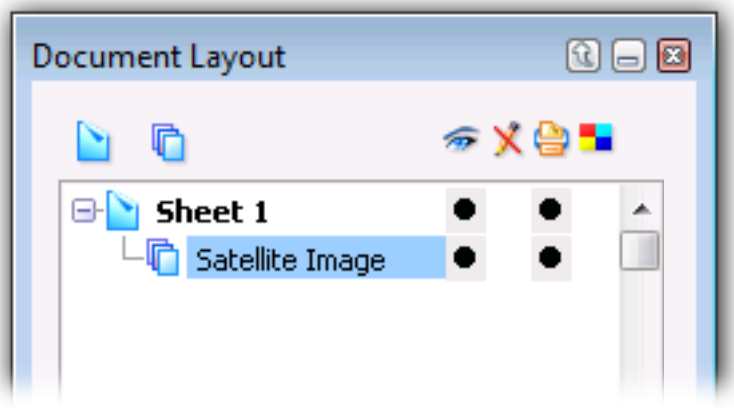


When the Layer Options dialog box opens, enter the name "Satellite Image" and press OK.

This layer will be the location of the satellite image that will be the basis of our map. Placing this image on its own layer protects the image from accidental modifications. Remember, you may view additional information surrounding layers and how they function within our tutorial Working with Layers.

Note: You can also apply names to layers by double-clicking on the Layer tab at the bottom of the document window.

he Document Layout palette should now display the Satellite Image layer. Now click on the layer to select it.



Note: You can also select the Satellite Image layer by clicking on its tab at the bottom of the document window.

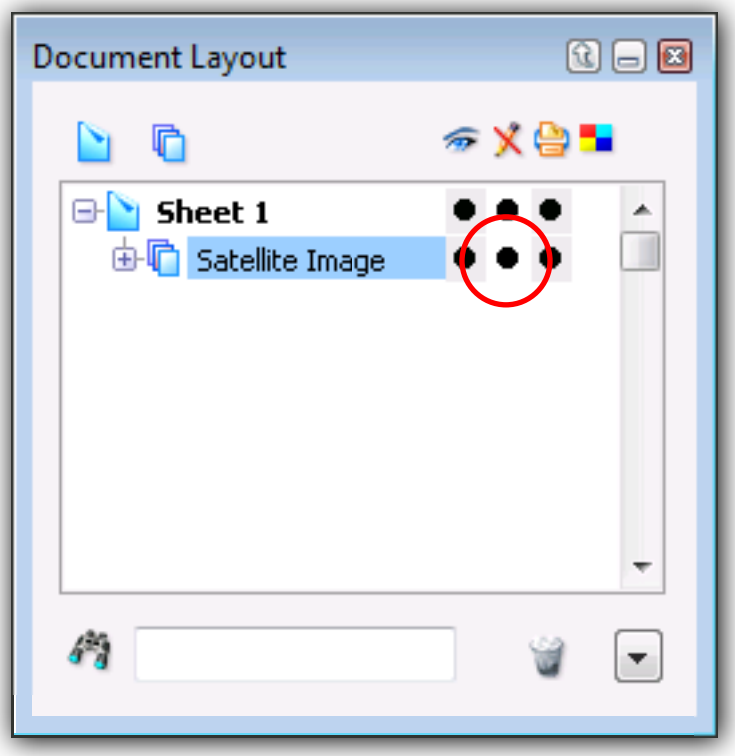
STEP 3: PLACING AN IMAGE

Next we need to place or bring in the image that we have chosen to use as the basis for our map.

Our project guidelines have dictated that we use this satellite image of a coastline. However, you are free to experiment with other sources of imagery, such as a scanned photo, RF data, CGM files, or images from a photo CD. You can also use images that may be available from NASA or other geographic-specific Web sites.

To place the image in our document, choose File > Place Image. Locate the image and then press Place. The Place pointer appears. Click the pointer within the work area. The image you will be tracing in the next few steps will appear in the work area.

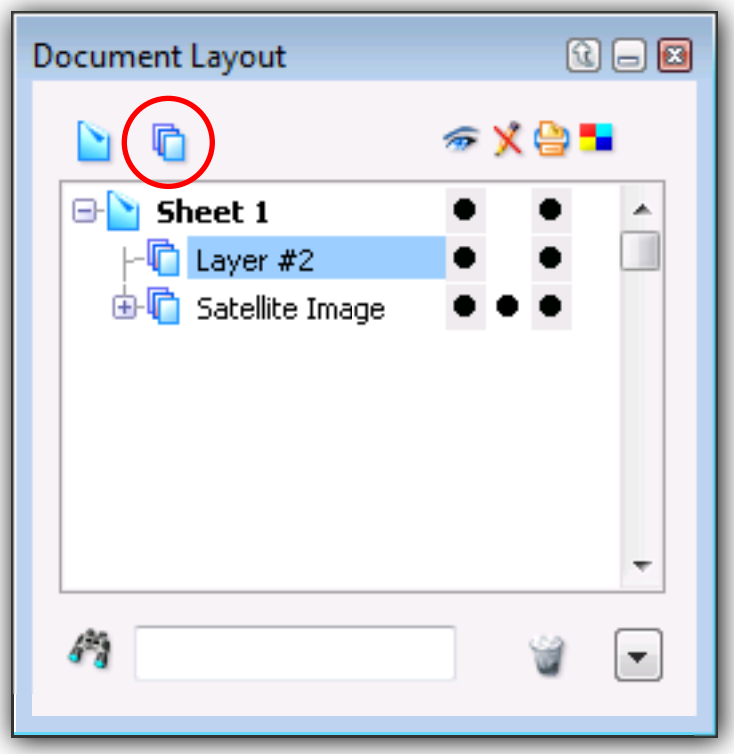
After the image has appeared and you have positioned it in the work area, click on the Lock symbol that is located next to the Satellite Image label within the Document Layout palette to lock the satellite image.



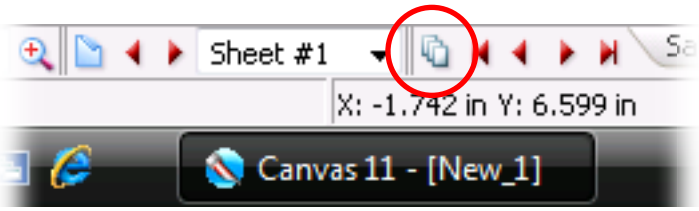
Locking a layer prevents changes to the layer's contents. Locked items cannot be selected, deleted, moved, or edited.

STEP 4: USING THE DRAWING TOOLS

Next we will create a new layer for the land components of our map. To do this, click the New Layer icon in the Document layout palette. When the new layer appears (Layer #2), double-click on it to open the Layer Options dialog box.

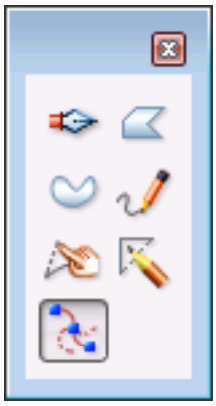


Note: You can also add layers by clicking the New Layer icon at the bottom of the document window. The Insert Layers dialog box appears.



To make layers easier to work with, it is a good idea to provide an easy to recognize name for each layer. Take a minute and repeat the techniques we used in Step 2 and change the name of "Layer #2" to "Land".

Remember, you can add as many layers as your Canvas project requires.



Now we will begin to trace the satellite image with the Auto Curve tool. This tool will allow you to create smooth curved paths with very little effort. If you are unfamiliar with this tool, you might want to take a minute and experiment with it before proceed-ing. Or you might want to revisit this neat tutorial.

Our map will consist of a land mass that will be created with the Auto Curve tool. We begin by selecting it from the Toolbox and creating the first anchor point on the edge of a small triangular island. The anchor points are represented by small blue squares.

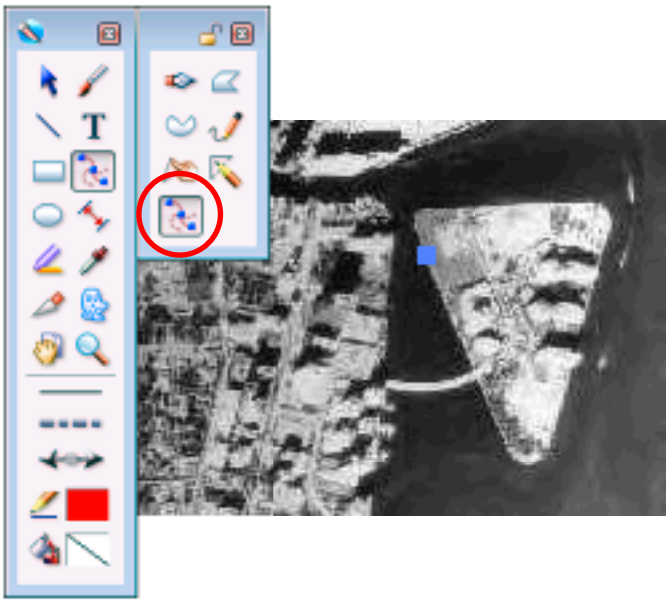
To ensure accuracy while tracing, you should set the Pen Ink so that it will dramatically contrast with the image we will be tracing. Since our original image is mostly black and white, let's select a bright red color for our Pen Ink so that it will stand out.

Also, we are going to set the Fill Ink to "No Ink," so that we can trace without adding a fill ink to our drawing. Later, we will go back and add a fill color.

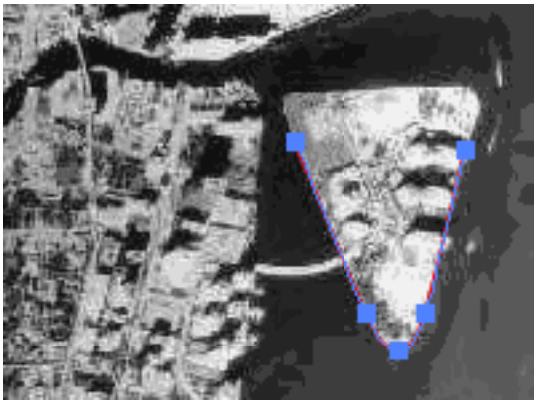
To change the Fill and Pen Ink defaults, press the Esc key several times to deselect all objects.

Then, click on the Pen Ink icon and select bright red from the popout Presets palette. Next, click on the Fill Ink icon and select "No Ink" from the popout Presets palette. "No Ink" is represented by the white box with a slash through it.

Your ink settings should look like the example on the right.



Continue to click around the island until you are back at the starting anchor point. Complete the path by clicking on it. Remember for higher accuracy you can zoom in on the area that you are working with.



Continue to click around the island

Complete the path by clicking on the starting anchor point

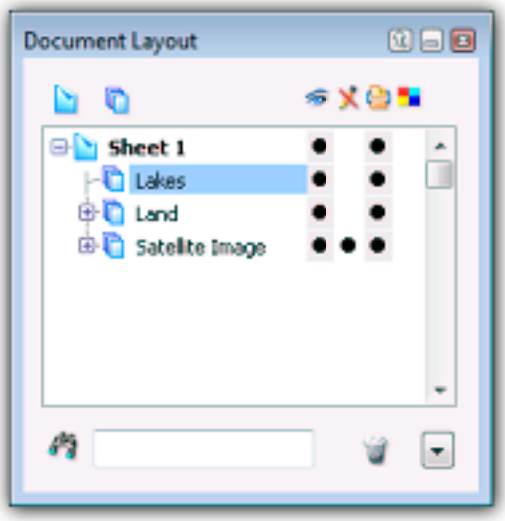
When you have finished with the island, continue to trace the remaining sections of the map. Do not be concerned with the lakes that you see in this photo. They will be handled in another step.

After tracing the map, you will need to select all the vector objects that you have traced. This can be quickly done by pressing Ctrl + A (Windows). Next, change the Fill Ink to a soft yellow color and the Pen Ink to "No Ink." The results should be very similar to the image on the right.

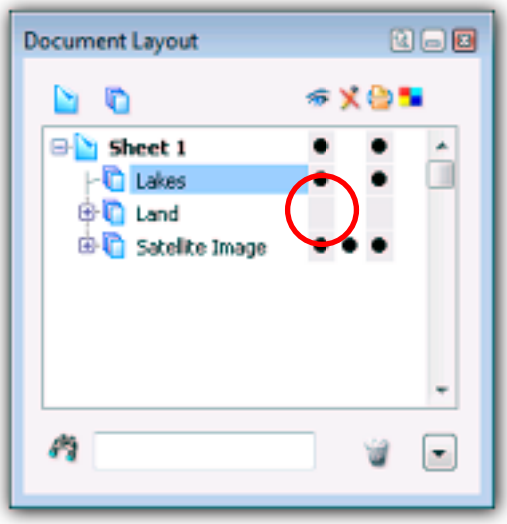
This step completes the creation of the land objects.

As you have probably noticed the satellite image contains a number of small lakes. These are important landmarks that need to be represented within our map. We will begin by creating a new layer for them, which we will name "Lakes".

Create this new layer as previously described. When you are finished, the Document Layout palette should look something like the example on the right.



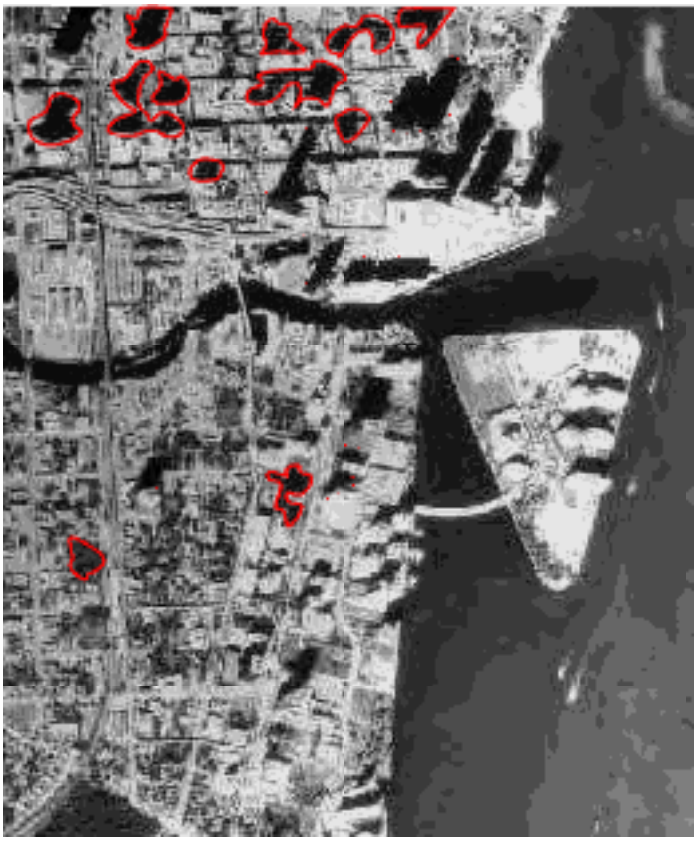
To avoid confusion during the next step, it might be a good idea to hide the Land layer. This simple procedure allows you to hide the layers you are not using for better visualization. Remember, you can go back at any time and display this layer, if you wish to check your work.



To hide the Land layer, click on the Visible icon that is next to the Land layer label within the Document Layout palette.

Note: An active layer cannot be hidden. You must click on another layer before being able to hide the Land layer.

The satellite image will now be visible. Use the Auto Curve tool to trace the lakes within the image. If needed, use the Magnifying Glass tool to magnify the area that you are tracing.

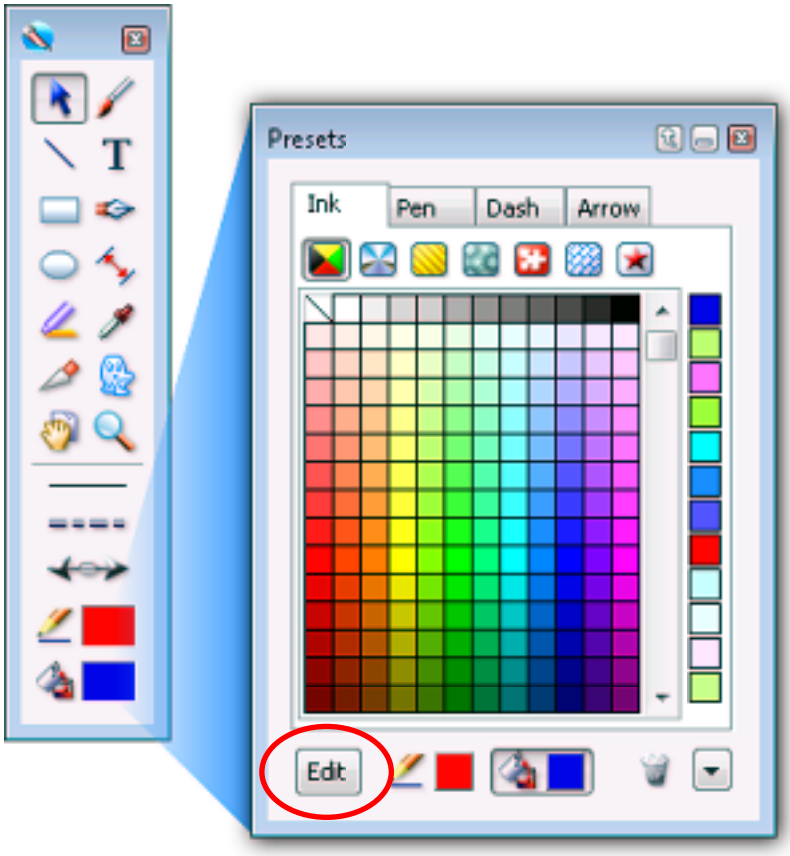


STEP 5: CREATING CUSTOM PATTERN INKS

The bodies of water that will be within our map need to be easily distinguishable from the land objects and other surroundings. To accomplish this and attain some appealing visual effects, we are going to create a Pattern ink.

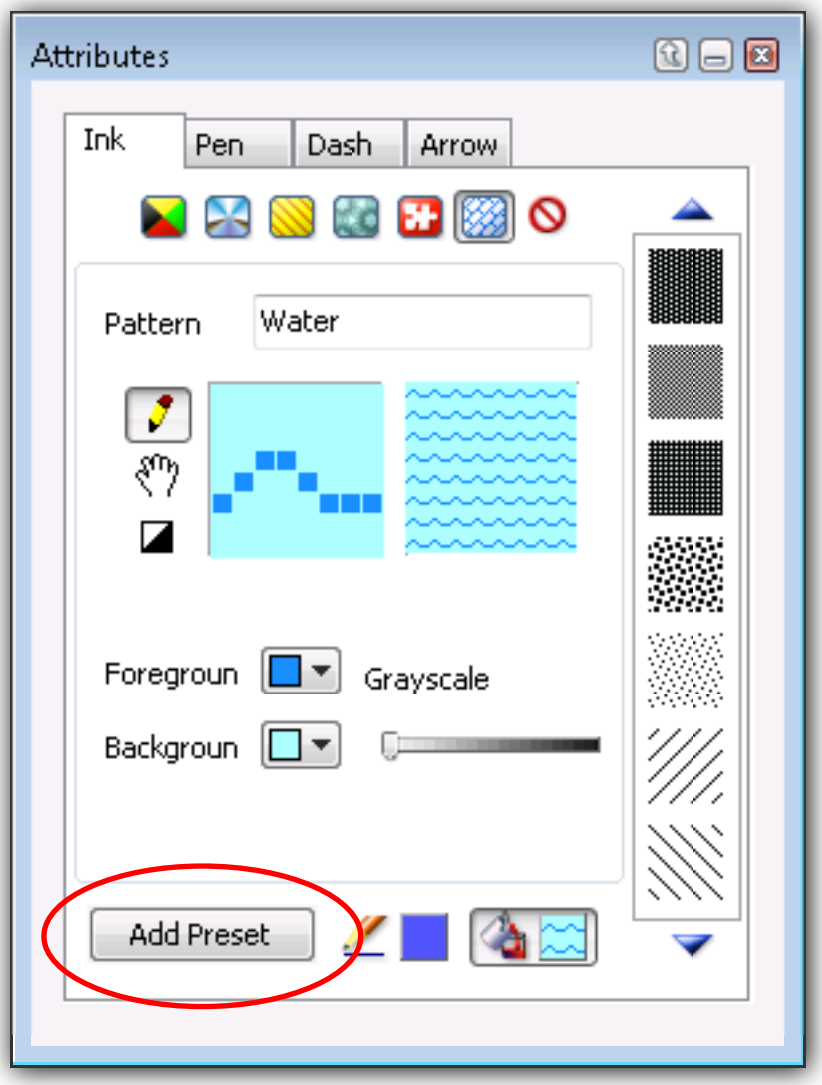
A Pattern ink consists of a bicolor, 72 dpi, bitmap representation that is fixed in size to 8 x 8 pixels. Any Pattern ink can be applied to a vector, stroke, or text object.

To create a custom Pattern ink, first, open the Presets palette by dragging it from the Toolbox. Then open the Attributes palette by clicking the Edit button located in the lower left corner of the palette.



When the Attributes palette appears, click on the Pattern ink icon. Now the Pattern Editor will be available. Select the solid blue color for the Foreground and light blue for the Background.

Use the Pencil tool to create a pattern within the Editing Window. Remember that each click of the Pencil tool represents one single pixel. The Preview Window, located next to the Editing Window, provides instant feedback for the editing process.

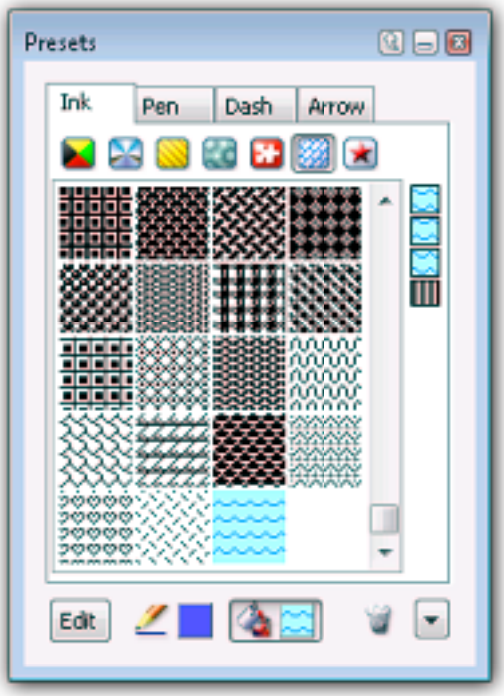


After you are satisfied with your efforts, you will need to assign a name to the Pattern ink. In the Label field, enter the name "Water," and then save it by clicking the Add Preset button to add it to the Presets palette.

Remember, in addition to water, you could create and save an unlimited number of Pattern inks. Each one may represent varied terrains or topographies.

Now every time you need to apply this pattern it will be available within the Pattern inks in the Presets palette.

Note: If you create custom inks for specific projects, you should save the ink palette for future use; e.g., for the Pattern ink that you just created, click on the Pattern ink icon to view the Pattern inks. Open the palette and select Save Pattern Inks. Enter a file name, navigate to the desired folder, and click Save. You can even share saved ink files among coworkers for project consistency.



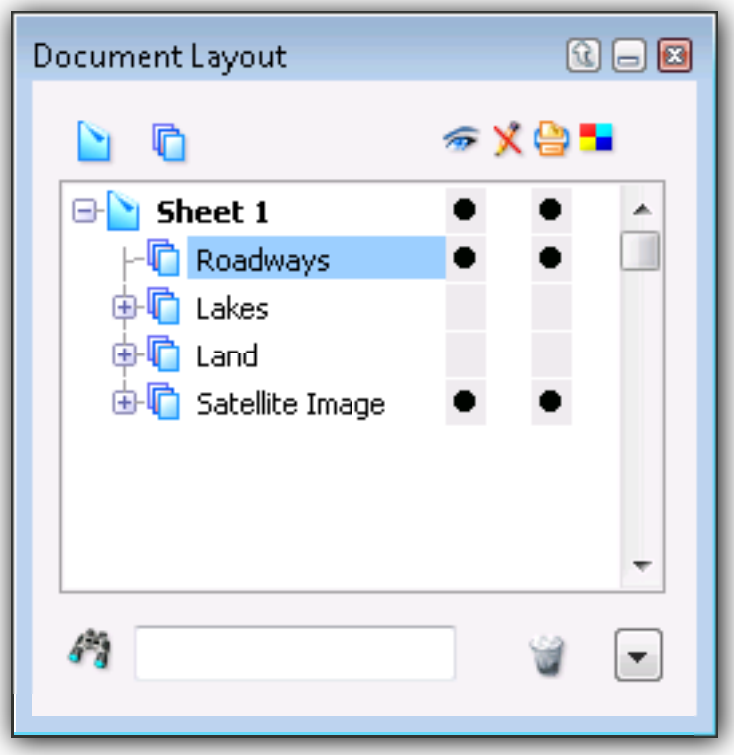
Now this new Pattern ink has to be applied to the bodies of water that we previously traced.

To apply the Pattern ink to these objects, press Ctrl + A (Windows) or Command + A (Mac) to select all of the objects that are contained within that layer. Then, click on the Fill Ink icon in the Toolbox and choose the "Water" Pattern ink from the popout Presets palette.

Lastly, for the selected water objects, apply a "No Ink" setting for the Pen ink. When you are finished, your results should be similar to the ones on the right.

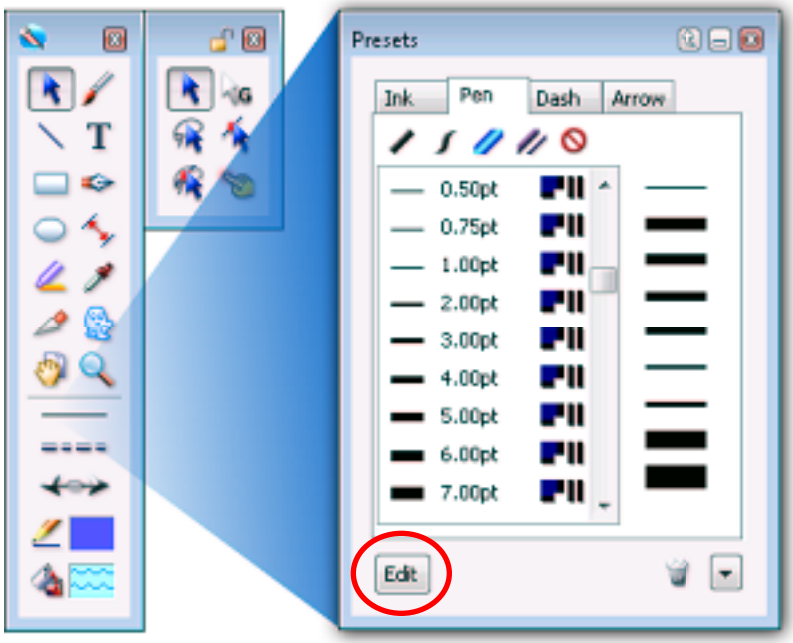
STEP 6: CREATING ROADWAYS

The next series of items for this project will be the creation of roads and highways. As we did before, we are going to create a separate layer for these objects. Use the techniques in this tutorial and create a new layer and name it "Roadways." To avoid confusion and ease the creative process, we will hide the Lakes layer.



To create a highway in Canvas, we will begin by clicking on the Pen stroke icon in the Toolbox and opening the Presets palette. The Presets palette should open with the Pen tab selected.

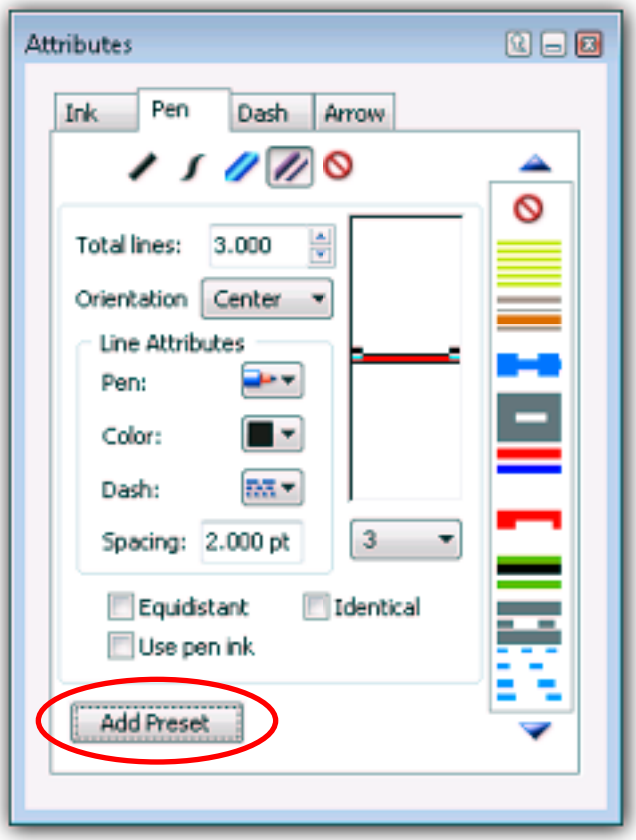
Click on the Edit button to open the Attributes palette.



Customizing a Parallel Stroke
Click on the Parallel ink icon to reveal its options. Now, we are going to create a custom parallel stroke with the Parallel manager. This interface will give you the ability to specify and edit the number of lines as well as the color, pen size, and spacing of each line.

First, enter 3 as the number of lines we want to use. Then, set the orientation to "Center" to guarantee that the placement of the parallel lines will be relative to the center of the path.

From the drop-down menu, select the line that will be edited ("1" is the bottom line). You can also click a line in the preview window to select it.



To replicate our parallel stroke use the following settings:

Line 1:	**Line 2:**	**Line 3:**
Pen = 1 pt.	Pen = 3 pt.	Pen = 1 pt.
Color = Black	Color =Red	Color = Black
Dashed = N/A	Dashed = N/A	Dashed = N/A
Spacing = 2	Spacing = 2	Spacing = 2

To save the Parallel stroke for future use, click the Add Preset button to add it to the Presets palette. Once you have created your custom pen strokes, ensure to save them as indicated previously.

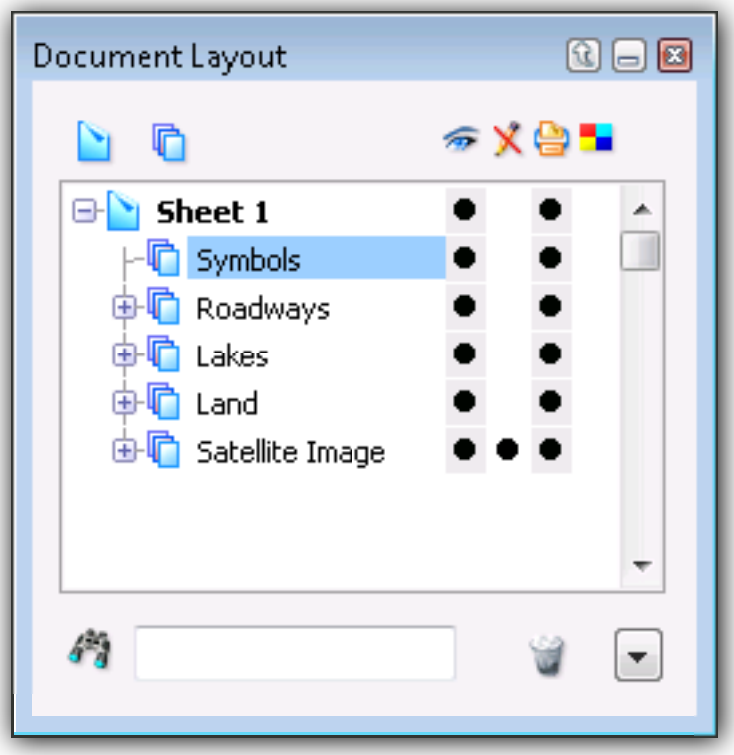
Note: Many more Parallel strokes could be created to represent different kinds of roadways including expressways, service roads, and residential streets.

When you are finished creating your custom stroke, all you have to do is select the Auto Curve tool and trace the highways. When you are completed, you will have created a full roadway system.

STEP 7: ADDING LANDMARKS

Almost all maps have symbols that represent key features or landmarks.

In this step, we are going to use the Personal Library palette to apply symbols to our map that represent landmarks like schools, churches, airports, or hospitals. Before we get started, we need to create a new layer, which will be named "Symbols." Follow the previously described procedure for creating and renaming layers.



The Symbol Library palette contains Library Objects that are illustrations that can be stored. A Library Object can be created from any vector, text, or paint object. The purpose of a Library Object is to make short work of creating items that will be widely used within a design project. Logos, symbols, or other frequently used items can be stored in the Symbol Library palette.

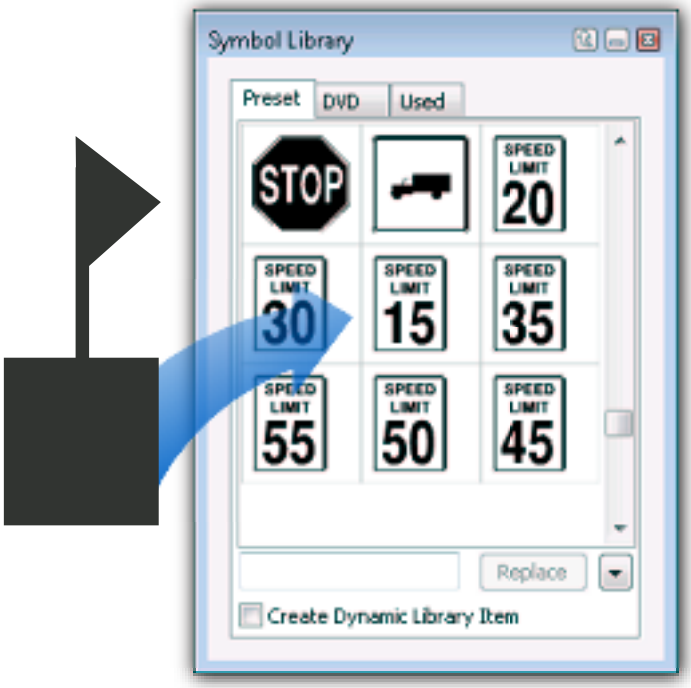
Begin by opening the Symbol Library palette by choosing Window > Palettes > Symbol Library.

First, use the Canvas tools to create an object that represents the symbol with which you want to form a Library Object. You can also search the Canvas clipart library to find ready-made illustrations that you may want to use.

Note: Clipart must be placed within the drawing area to be used as a Library Object.

Once you have designed or selected your object, resize it to the dimensions you want it to appear on your map. Then drag it into the Symbol Library palette. A dialog box will ask you to name the Library Object. Enter a name and press OK.

As you drag your Library Objects into the palette, they will become visible in the selection window.



Saving Library Objects

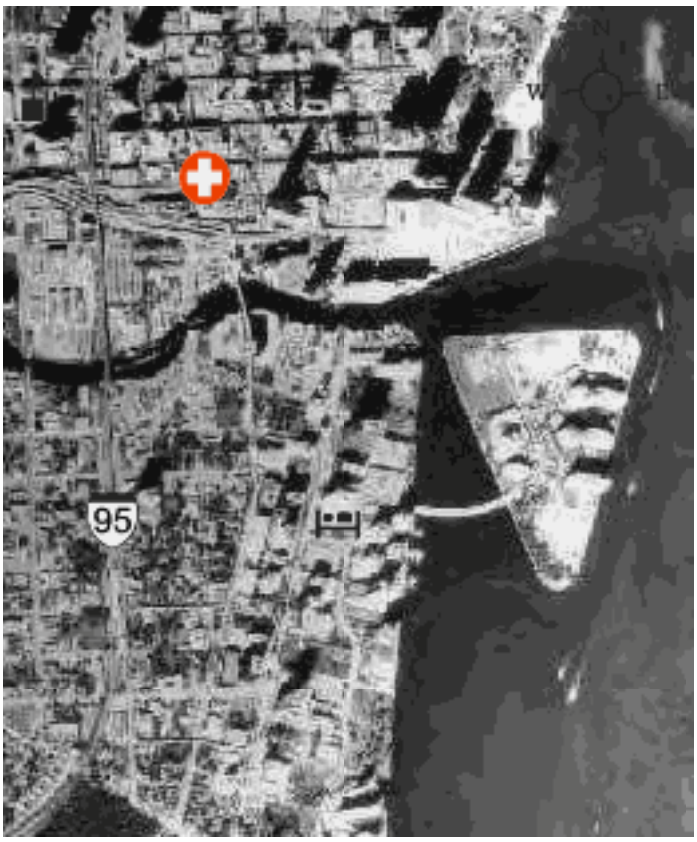
To save your Library Object set, click on the menu button and choose "Save Set". Be aware that after saving a Library Object set, you can share it with friends or coworkers by attaching the file to an e-mail or making it available on a network.

Using Library Objects

To use a Library Object just select it from the Symbol Library palette and then click on the Canvas work area where you want it to appear.

To scale a Library Object, as you place it, drag the pointer to set the size of the bounding box of the object you are placing. Canvas will scale the object to fit the bounding box.

Here is the satellite image with some of the Library Objects added. The Personal Library palette is a powerful and very useful tool. Take a moment and review the section of the Canvas User's Guide or the online documentation to learn more.



STEP 8: APPLYING TEXT

As you can see our project is really beginning to take shape. These last few steps will put the final professional touches on our project.

Let's finish by creating a new layer and naming it "Text." This layer will be the new home of the text labels that we will add to the map.

Because this time we need to view our illustrated map, we are going to make all the other layers visible. With all of our layers visible, we will have an accurate view of our map and see precisely where to place the text that will label our points of interest.

Up to this point, our map looks like the image on the right with all the layers visible. Now, using the Text tool, we will add text to indicate the main roads and landmarks in our map.

Select the Text tool. Click once and type the needed text to create the labels for the various main roads, highways, and other land-marks that reside within the map.

You can rotate the text on your map to align it with the roadways they describe by selecting the text object and then choosing Effects > Rotate Right or Left. You also have the option to Freeform Rotate a selected object if you wish.

Tip: Remember that an object, such as a text object, can be "nudged," one pixel at a time. After an object is created, select it and then use the arrow keys on your keyboard to move it -- up, down, left or right -- one pixel at a time.

STEP 9: FINISHING TOUCHES

Our map is almost finished. As you can see, the vast dark areas of the ocean and bays are still viewable within our map area. Obvi-ously, this section of the original satellite image is not very flattering and needs to be dealt with.

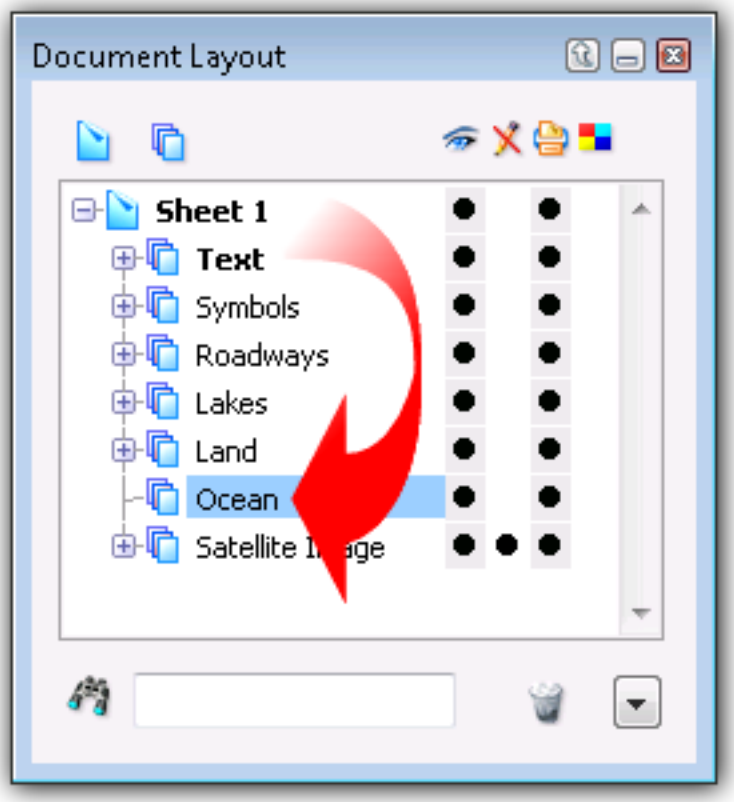
To make this final enhancement, we will create a new layer. This layer will become the container for the background ocean pattern.

Create a new layer, as you did previously, and name it "Ocean."

Then, move the Ocean layer below the Land layer. Do this by simply clicking on the newly created Ocean layer and drag it just below the Land layer.

Now the ocean water will appear behind the Land layer.

To create the ocean object, select the Rectangle tool and drag it diagonally to cover the original satellite image. Make any size adjustments that are needed to completely cover the original image.



On the right is the completed map. Take a moment and, if closed, open the Document Layout palette.

Note that since the map was created using several different layers, it is possible to hide any of them to see alternate versions of the map.

Experiment with these various steps. You will see how quickly a map can be created and, if necessary, edited for reuse within other projects.