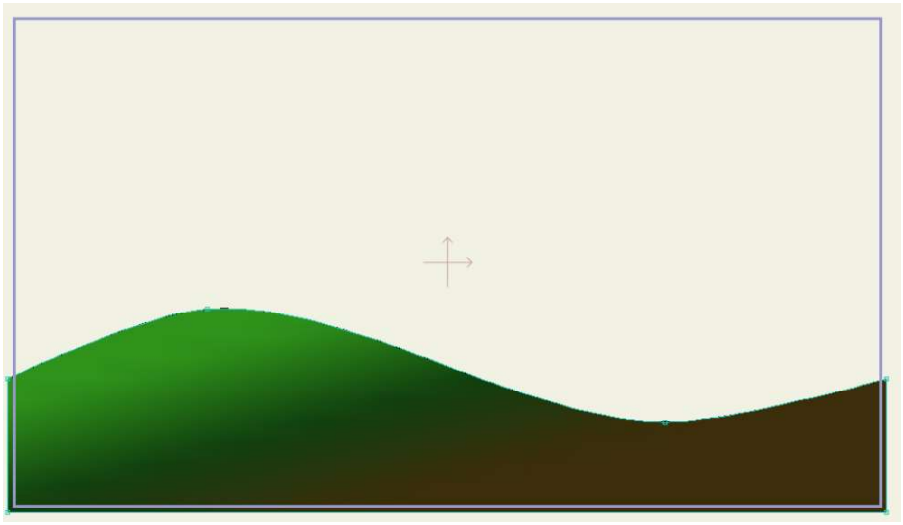
(Tutorial 1.3 begins on the next page.)

Tutorial 1.3: Drawing Complex Shapes

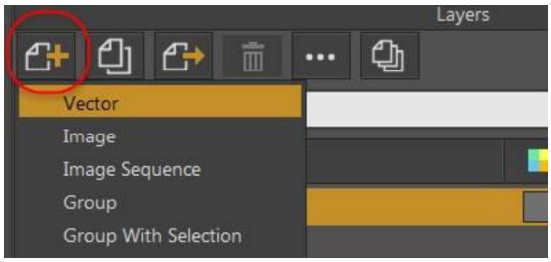
(See next page.)



Starting point

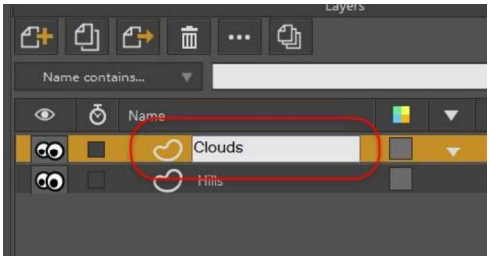
Creating a New Layer

Click the New Layer button in the Layer window to create a new layer. In the popup menu that appears, choose "Vector".



Create a Vector layer

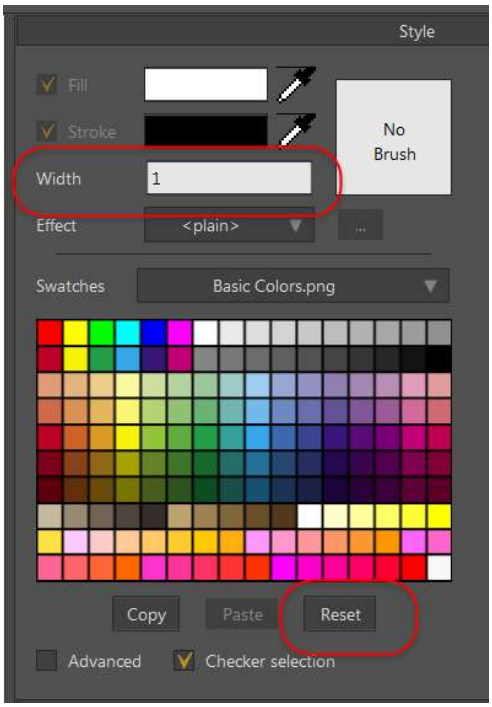
You can assign the name "Clouds" to the new layer when you create it, or double-click this new layer and rename it "Clouds" in the Layer Settings dialog.



Rename the layer Clouds

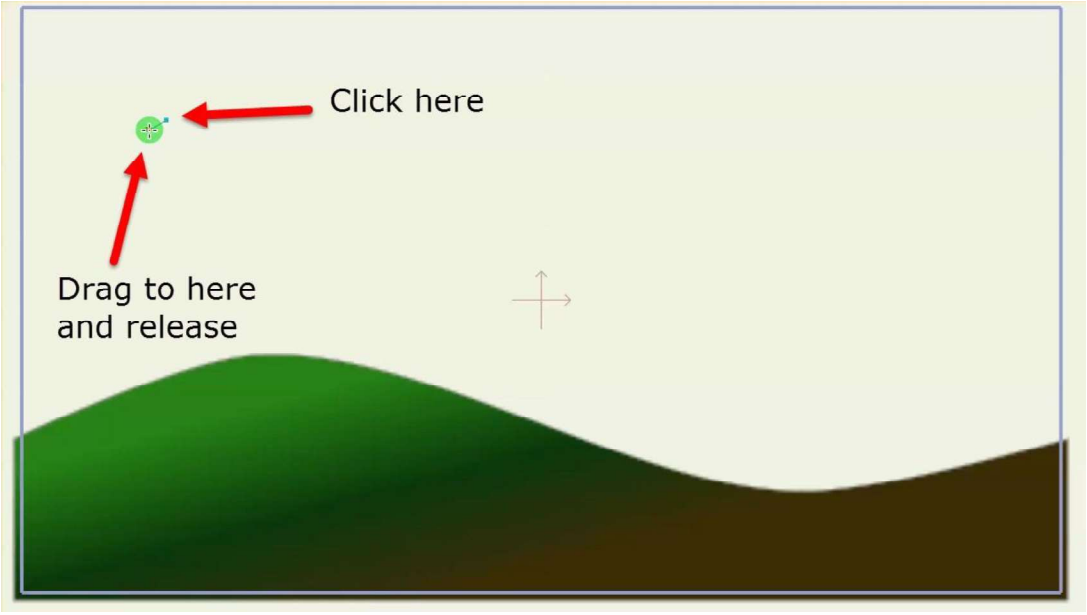
Now select the **Add Point** tool.

Click the **Reset** button in the Style panel to reset the colors to their default. Set the line width to 1.



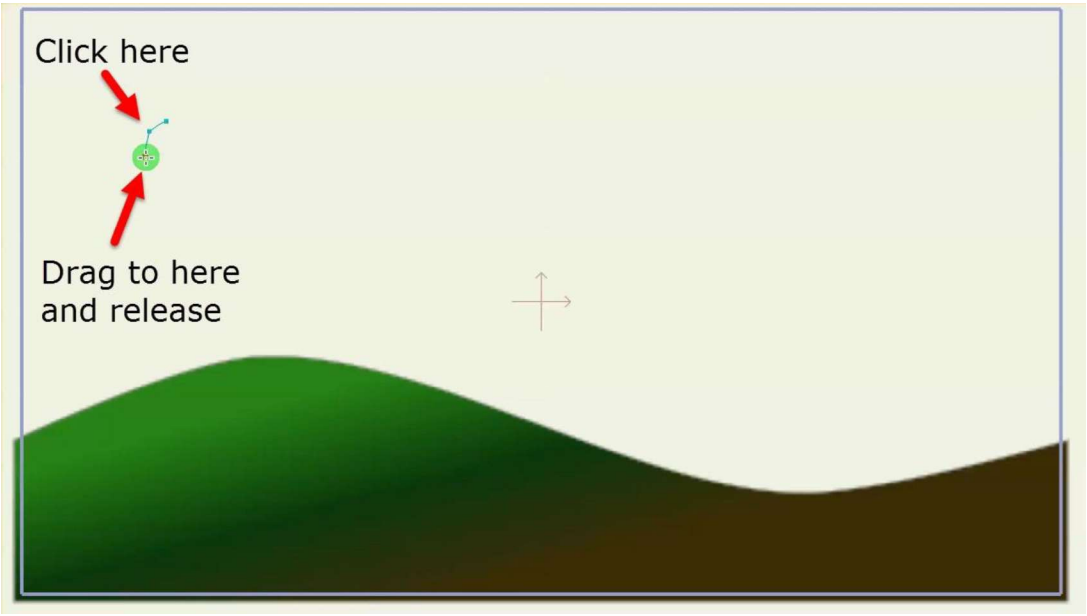
Reset colors and set line width to 1

Click to set the start point for a new line segment. Without releasing the mouse, drag the cursor and release the mouse to create the end of the segment. The finished segment is shown below.



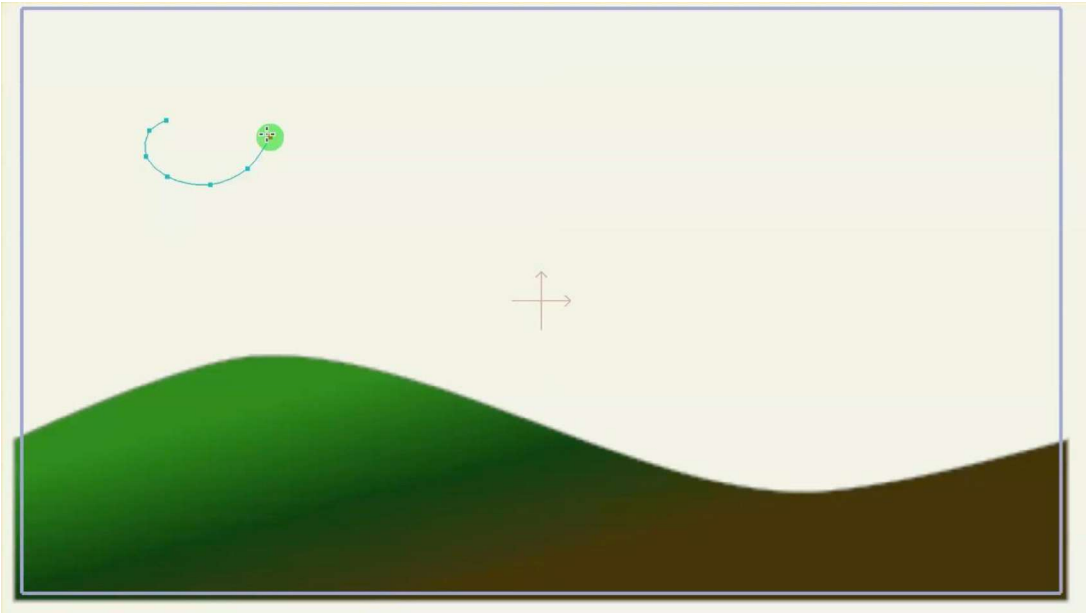
Add a line segment

Next, click on the end of the new line segment and drag to stretch the curve out like this:



Add another segment to the end of the curve

Do this a few more times until you have the curve below:

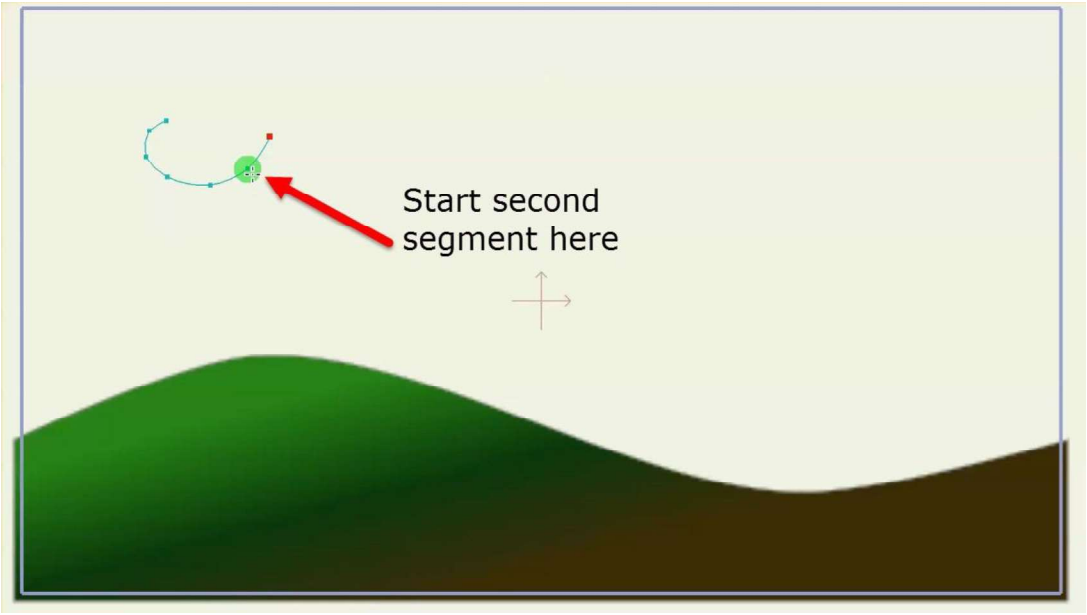


Several more segments added

The key point to remember is in order to extend a curve, you need to click on one of its endpoints and then drag the mouse to where you want the new point to be. Remember, if you make a mistake at any time, just choose the **Edit > Undo** menu command.

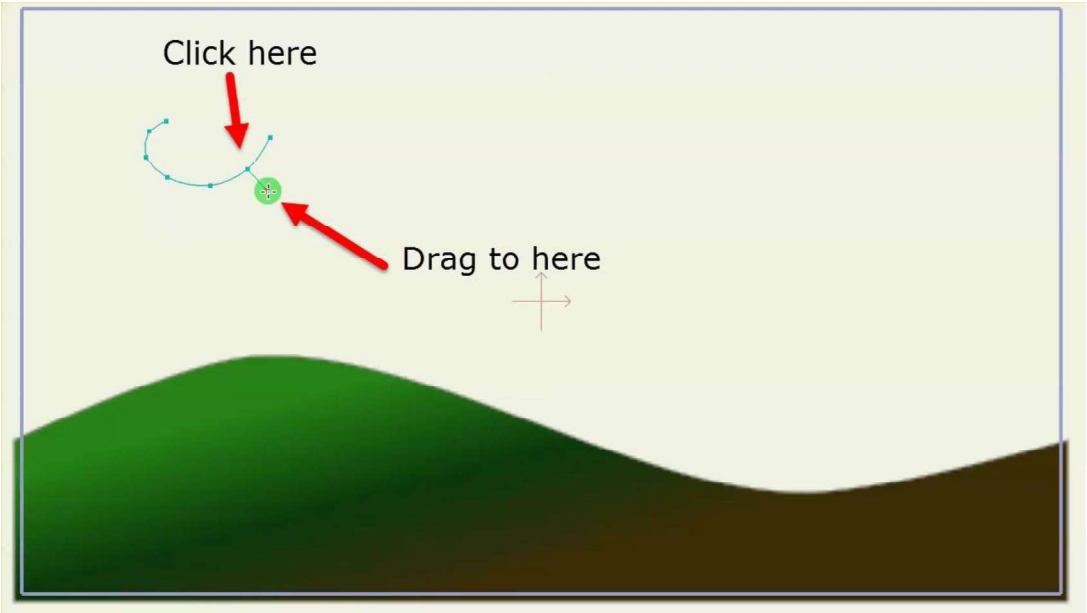
Now we're going to add a second puff to the cloud. Move your mouse to the point just before the end of the previous segment. When the "Auto Weld" option for the Add Point tool is turned on, the node will turn green when you can automatically

weld the new segment to the existing one. When Auto Fill is turned on, the cloud will automatically fill with color when the shape is closed.



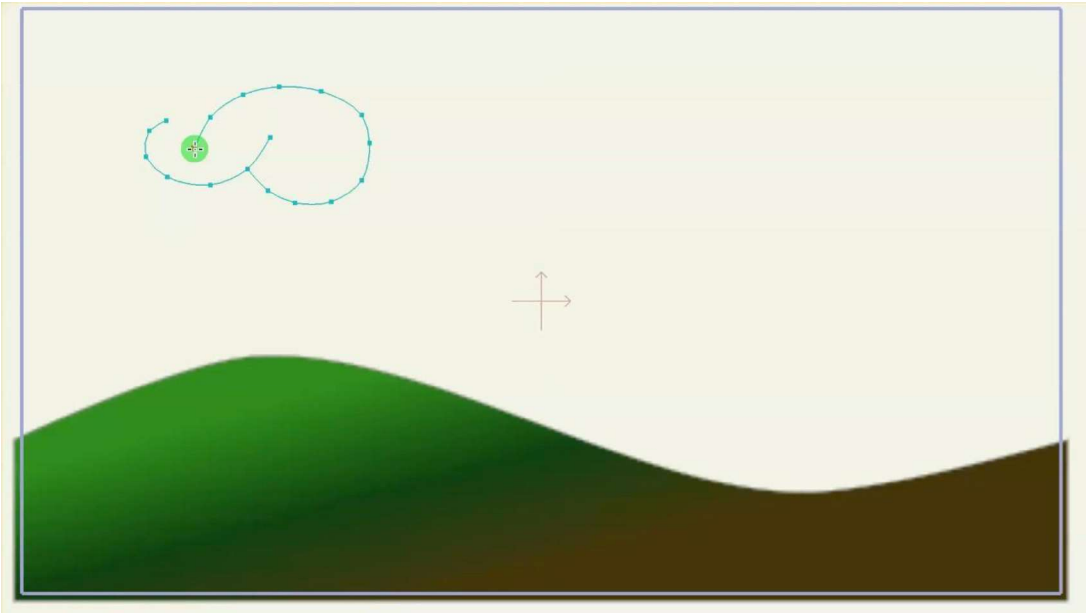
Add a new curve at this point

Click on the second to last point in the curve, and drag down and to the right, as shown below. When you use the **Add Point** tool on a point that is in the middle of a curve, what happens is that you start a new curve that is automatically welded to that point in the first curve. These two curves are permanently joined at that point, which becomes important when we get to filling the shape with color. Here's what your project should look like after adding the new curve segment:



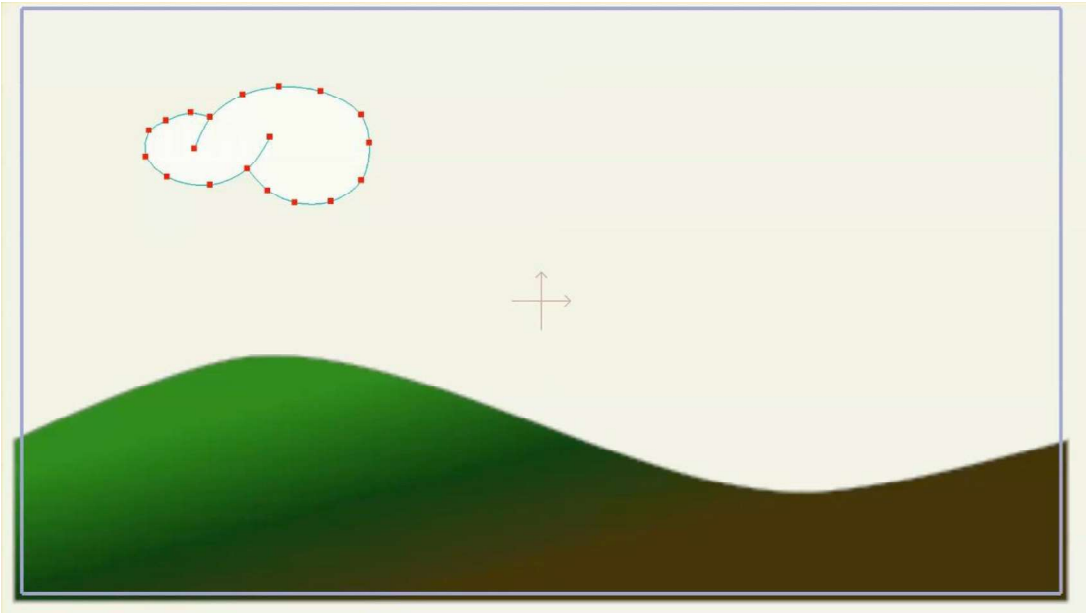
A new segment welded to an existing curve

Add some points to the end of this new curve to get the shape below. Remember, to add a point to the end of a curve, click just on the last point of that curve.



More new points

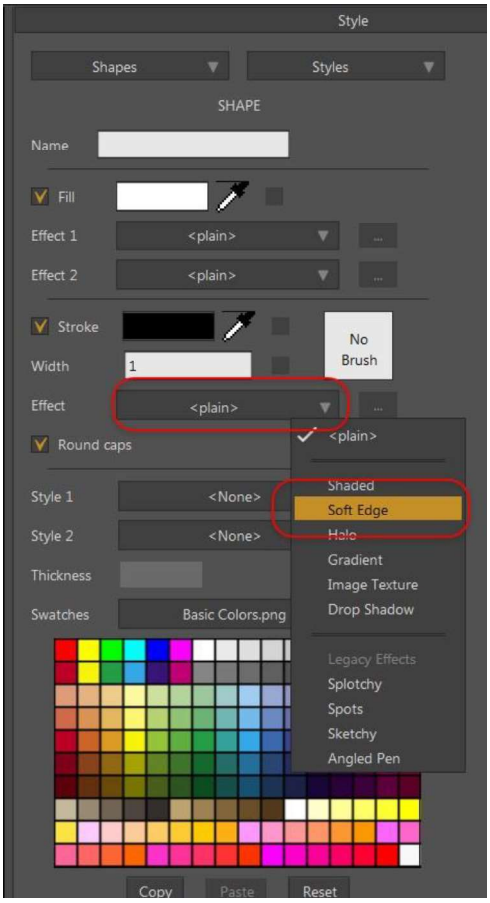
Finally, add two or three more points at the beginning of the original curve. When you add the last point, drag it over to the right and line it up with the next to last point of the second curve before letting go of the mouse. Moho will automatically weld those points together and fill the cloud with color to get the final shape below:



Finished cloud

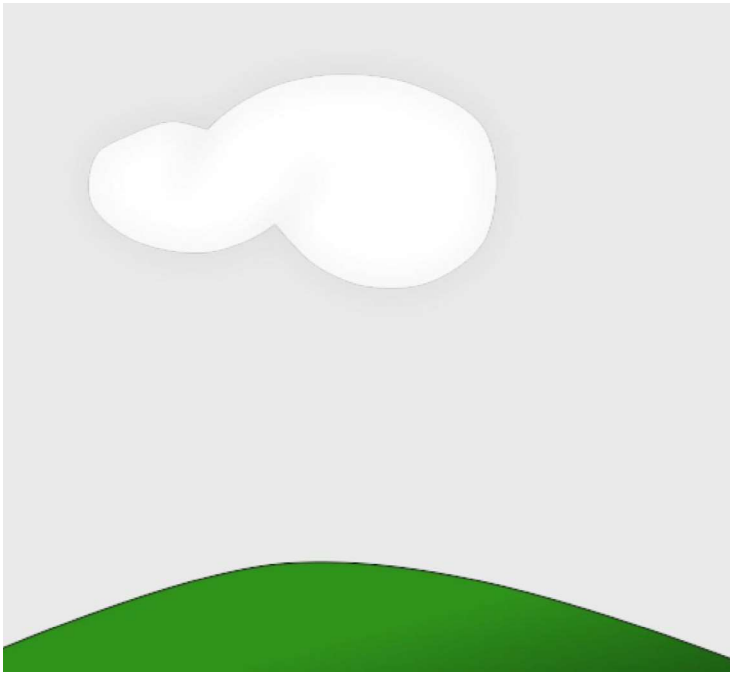
Sometimes it can be hard to follow this sequence of steps - let's take a moment to watch a movie of the cloud being created in Moho. Pay special attention to where the mouse is clicked in order to weld the two curves together.

We will add a line effect to make the cloud a bit softer. In the Style window, check the Advanced button to display the advanced style options. Select 'Soft Edge' from the Stroke Effect pop-up menu. Accept the default settings and click OK.



Soft Edge effect

Now would be a good time to select the **File > Preview** command to see what your final result looks like:

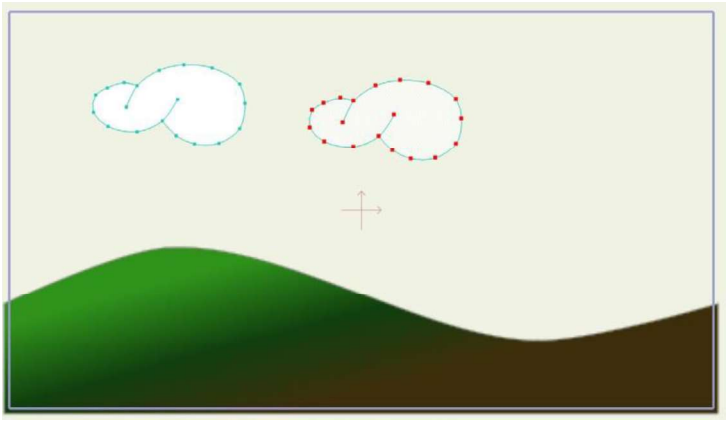


The rendered cloud

A Second Cloud

Let's make another cloud. With the Clouds layer selected, choose **Edit > Select All** from the menu. Now choose **Edit > Copy**, followed by **Edit > Paste**. Next, pick the **Transform Points** tool from the toolbar.

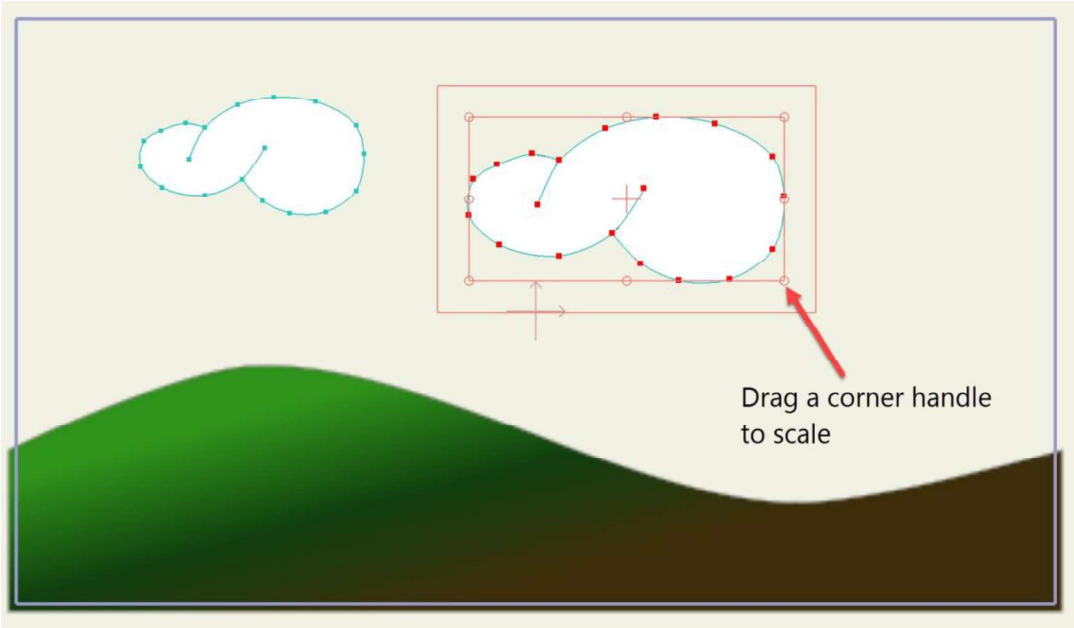
In the working area, click and drag to the right to move the new cloud away from the original. (When you paste an object from the clipboard, it is positioned directly on top of the original.)



Duplicated cloud

Use the **Transform Points** tool to resize this new cloud, making it larger or smaller than the original, as preferred (here we make ours larger).

The Transform Points tool can resize an object both vertically and horizontally, and will scale whether or not the object is selected beforehand. In this case, we don't really want to change the cloud's shape like that. With the Transform Points tool active, click and drag one of the corner handles that appears around the cloud, thus making it smaller or larger without changing its overall shape. Continue using the Transform Points tool until you get the new cloud in a position you like.

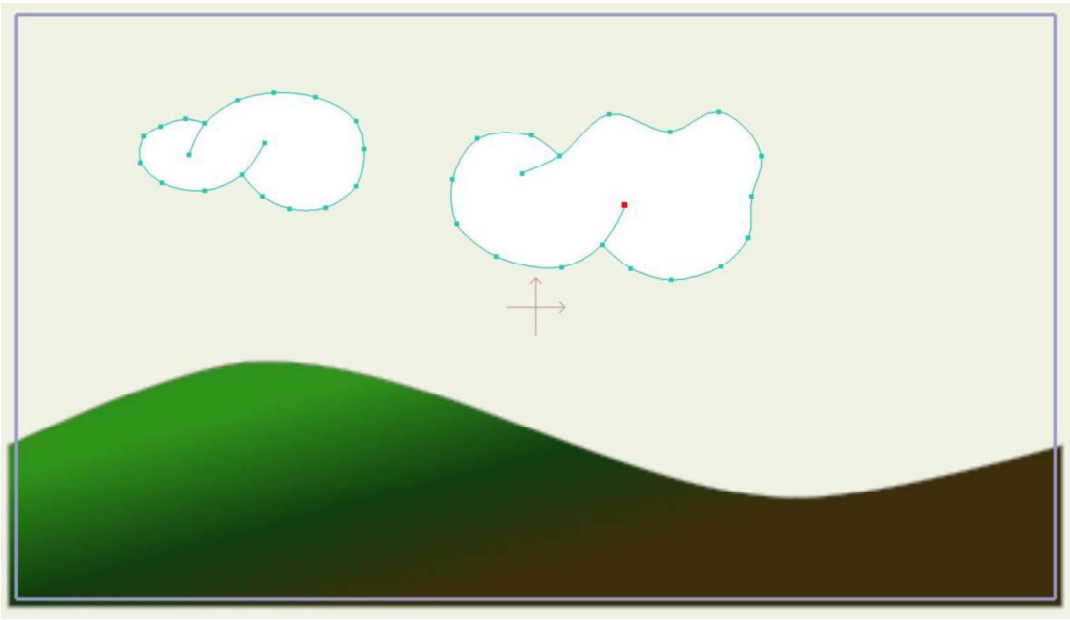


Second cloud scaled and positioned

To deselect all of the points in the cloud, use the **Edit > Select None** command, or press the Enter key, or click outside the cloud to de-select the points.

Now you can use the Transform Points tool to click and drag individual points to reshape the second cloud.

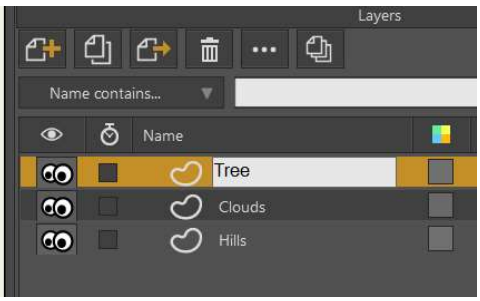
In this case, since only one point is selected at a time, the Transform Points tool is used to re-shape the cloud, not move the entire object. Just re-shape a few points here and there so that the two clouds don't look exactly the same.



Modify some points

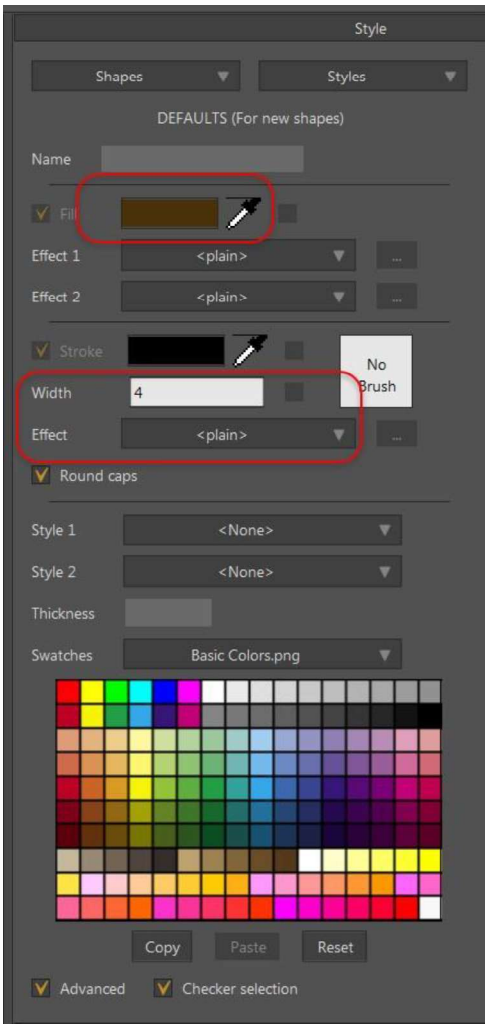
Plant a Tree

Good - we're moving right along, but this scene needs some plant life. Add a new layer to the project by clicking the new layer button in the Layer window. Again, choose "Vector" from the popup menu. Name it "Tree".



Rename the layer to Tree

Select a brown fill color from the Style panel. Set Stroke Width to 4, and set the effect to <plain>.



Select a brown fill color

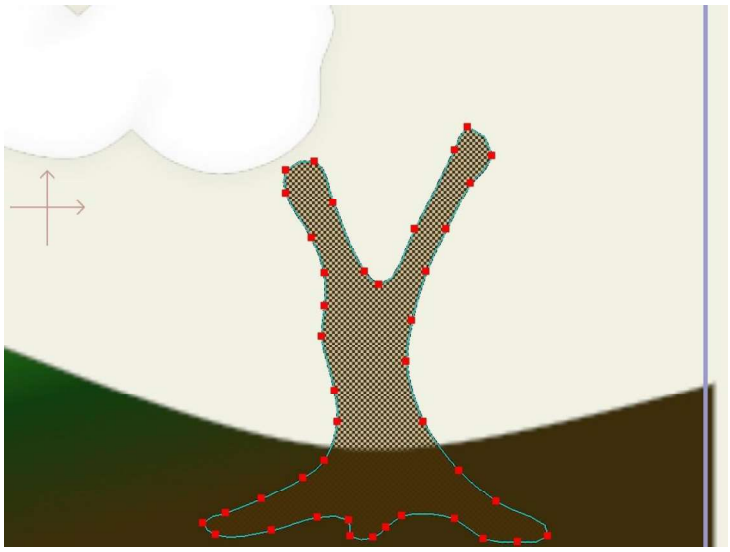
Using the **Add Point** tool, along with the welding feature, draw a shape that resembles the trunk of a tree.

Here are a few things to remember as you go: First, you can always use the **Edit > Undo** command to back up if you make a mistake.

Second, you can switch to using the **Transform Points** tool to reshape part of the object, even if you haven't finished drawing the whole thing yet.

Third, the Transform Points tool lets you pick individual points by clicking on them - if you want to get rid of a point, but it's too far back to use undo, select it with the Transform Points tool and press the backspace or delete key on your keyboard.

Feel free to be creative with your tree trunk, you don't really have to stick to the sample below.

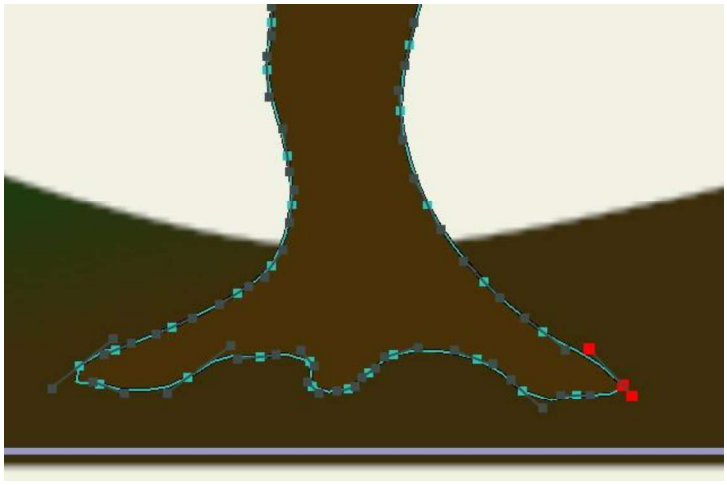


Draw a tree trunk

  There are a few tools that may be useful when building your tree that haven't been introduced yet. The **Pan Workspace** and **Zoom Workspace** tools can be used to move around the workspace.

Note that these tools are not used to manipulate your drawing - they just let you move your view so that you can focus in on a particular area of interest. To reset your view to its original position, select the **View > Reset** command from the menu bar.

 Another useful tool is the **Curvature** tool. Using this tool, you can click and drag on a point to adjust how round or pointy the curve is as it passes through that point.



Use the Curvature tool to adjust the curves

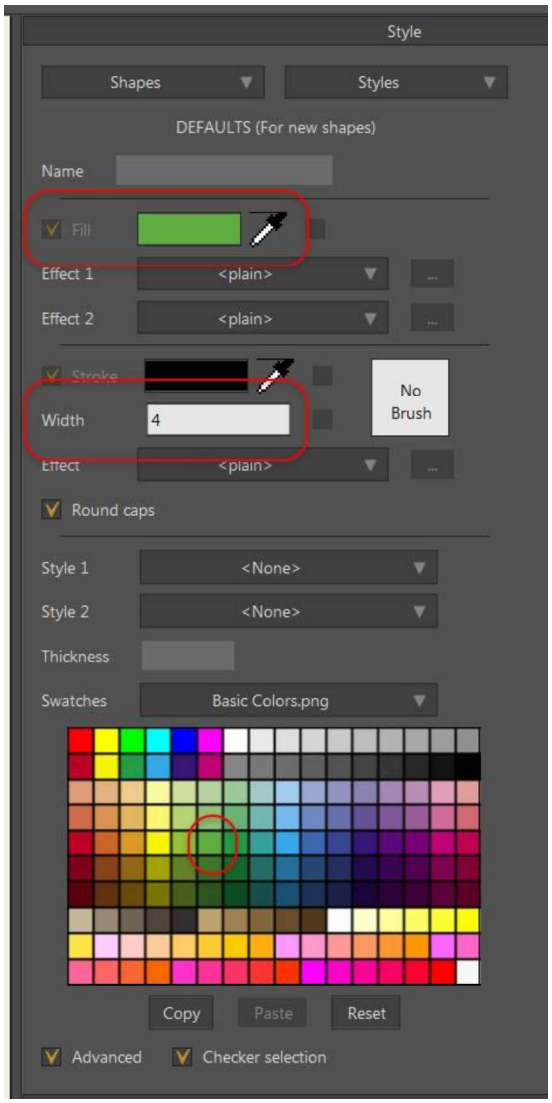
The last thing we'll add in this tutorial is some greenery to the top of the tree. The shape for the treetop will be similar to the clouds, so follow similar steps to create it, but there is one tricky part. Because the treetop overlaps the trunk of the tree, it can

be easy to click on the wrong part and add a new point to the trunk instead of the treetop.

There are two ways to avoid this problem.

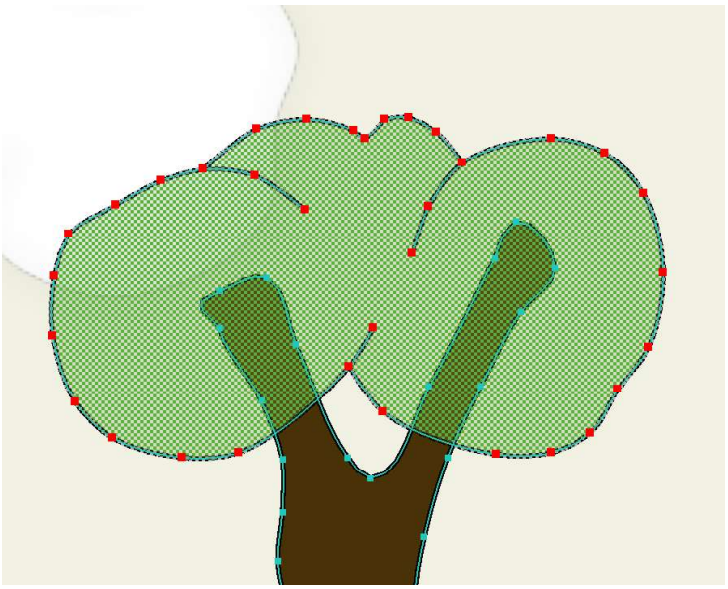
- One, use the Pan and Zoom tools to move in close to the top of the tree so that it's easier to avoid clicking on the wrong thing.
- The second approach is to draw the treetop off to the side where there's plenty of empty space. Then, when the treetop is finished, drag it back into position at the top of the tree.
- For the second approach, when you're ready to move it back into position, use the Transform Points tool and click to select one point on the treetop. Then use the **Edit > Select Connected** command to select the rest of the treetop. Finally, drag the treetop into place, and use the Transform Points tool to resize it if necessary.

Select a nice leafy green fill color in the Style panel. Set the line width to 4, you'll see why later.



Select a green fill color and set line width to 4

Use the Add Point tool to draw your treetop. Here's the kind of look we're going for:

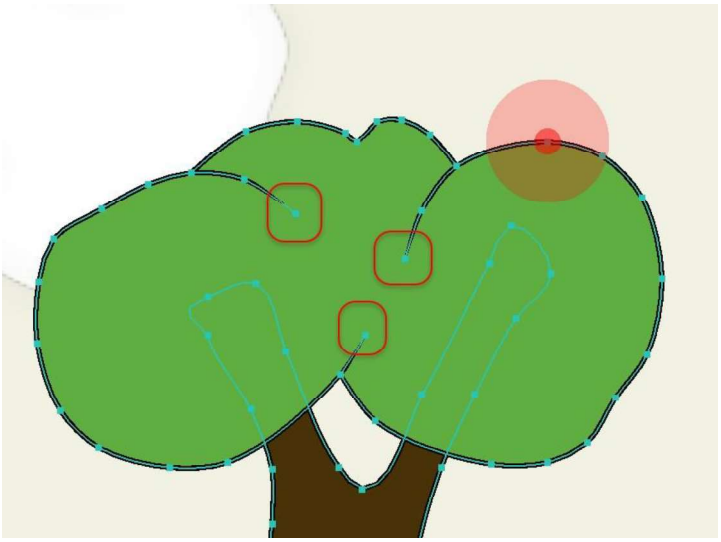


The treetop

Choose **File > Preview** to see how the treetop looks. Notice how the ends of line segments look kind of squared off and blocky. We'll fix that using Moho's variable line width feature.

Exit the render window and press Enter to de-select all points in the treetop.

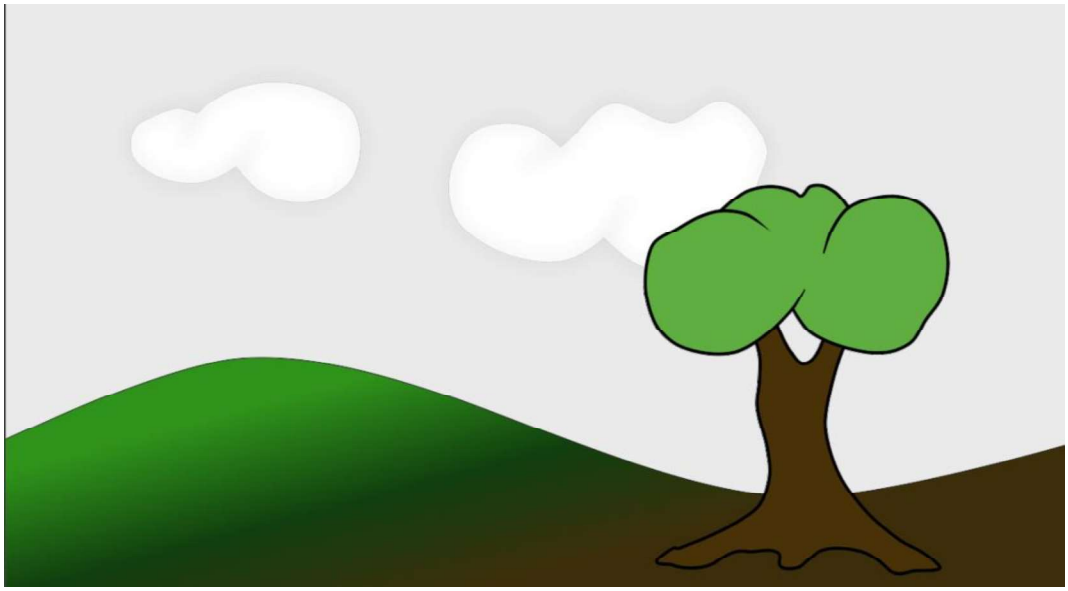
Now, using the **Line Width** tool, click on each of the points in the treetop that is at the end of a line segment and drag to the left to tapper the endpoint. The area that the Line Width tool affects is indicated by a semi-transparent red circle. The default width is .5, which is quite large. Decrease the width to around .1 or less to obtain finer control over the area that you want to affect.



Changing line width

Choose **File > Preview** again, and notice how the endpoints are now nicely tapered. This feature isn't limited to endpoints - experiment with using it on other points along

a curve. Also, try dragging the Line Width tool back and forth to make lines thinner or thicker.



The completed background