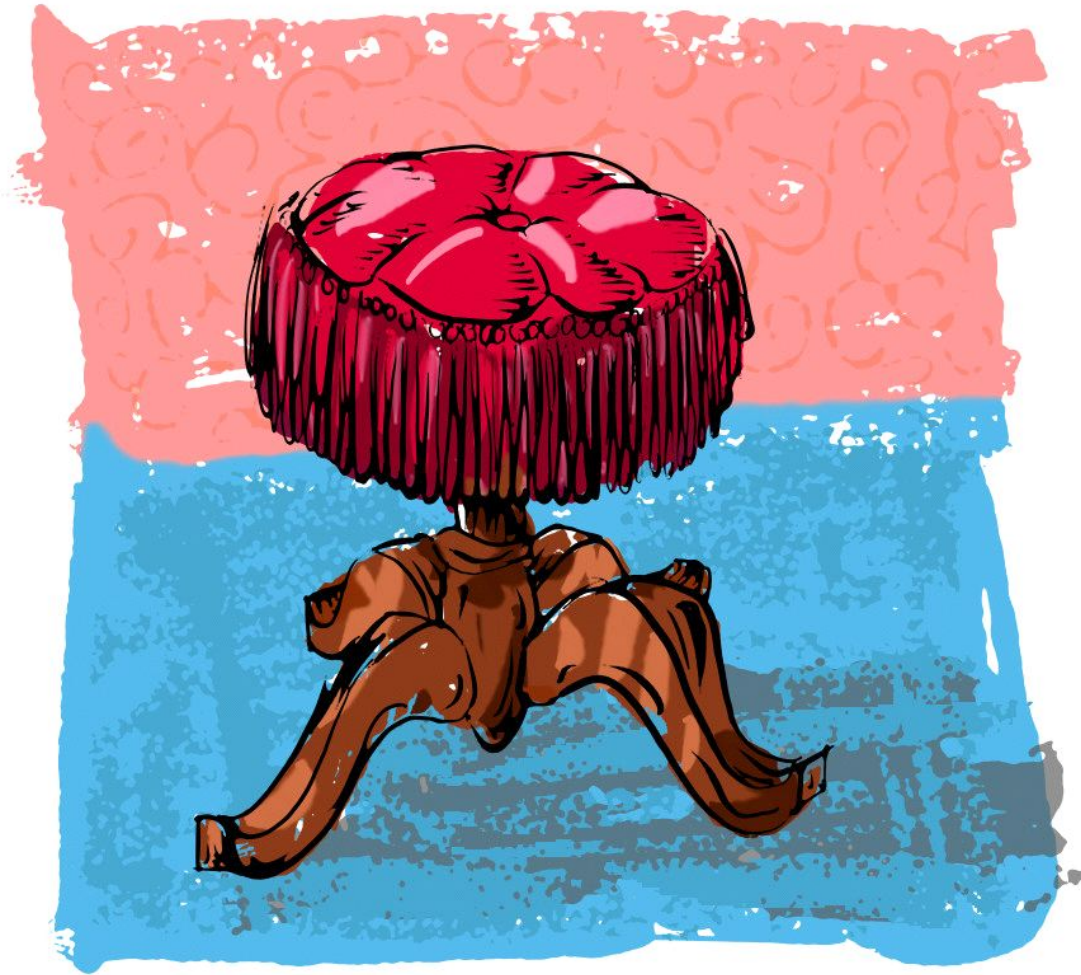


A Visual Guide
To Corel Painter™ 7
Liquid Ink



5/16/2001
John Derry

Liquid Ink in Painter 7

John Derry

Introduction

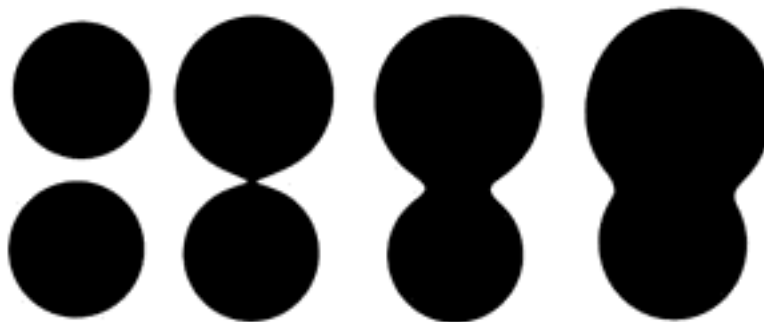
Liquid Ink represents a new Layer type in Painter 7. This new Layer type is not intended to replace existing ink media in Painter. Instead, it is designed to extend its visual vocabulary. Ink is often used for graphic purposes. The term *graphic*, as used here, describes artwork that is intended for some form of print reproduction.

Many print-oriented technologies use ink as its primary medium. In some graphic media, the ink is transferred from an image carrier (woodblock, linoleum, etc.) to a receiver (paper). In others, the ink is applied directly to the receiver with a stylus-based instrument (pen & ink, brush & ink). The unique properties of ink, combined with the methods used to apply it to an appropriate receiver, imbue the resulting imagery with a distinct visual character.

The Liquid Ink technology encapsulates several attributes associated with traditional ink-based media. Some of these attributes include:

Adhesion

Viscous media, like ink and enamel, tend to “self-adhere”. In other words, viscous media is attracted to itself. A simple example is the manner in which 2 drops of ink will tend to merge as they come into proximity with each other. The point of contact tends to congeal together until the former individual drops become one large drop. Liquid Ink can be adjusted to act more or less self-adhesive.



It is precisely this unique quality of adhesion that characterizes the visual appearance of many ink-based images. The edges of the visual elements within these images to exhibit a rounded, slightly “melted” appearance.

Surface Depth

When thick enough, viscous media will exhibit a 3-dimensional appearance that is influenced by the manner in which it is lit. In some media, like enamel, this 3D appearance is desirable. Other media, like pen & ink, look better with a flat, graphic appearance. By default, Liquid Ink layers appear flat, but they can be adjusted to exhibit a 3-dimensional appearance. Like Impasto, the character of the lighting can be adjusted as well.



Flat Representation



With Surface Relief

Resistive Media

Several ink/oil-based mediums can utilize a resistive media like water or wax for creative effects. Wax and water are mediums that will repel ink and oil. Just as ink's self-attracting quality congeals image elements, interaction with a resistive media will still cause the ink to exhibit a "self-simplifying" congealing of elements. The combination of both a positive and negative form of ink interacting with each other can lead to very interesting visual results.



Original Strokes



Horizontal Resist Strokes Applied

In the example above, a set of vertical ink strokes were drawn. A series of horizontal resistive strokes were then applied over the original vertical strokes. Notice that the resistive strokes do not simply erase the original strokes. Instead, the remaining portions of the original strokes self-simplify and reduce the remaining ink to a simpler representation. It is this self-simplification that is one of the primary visual hallmarks of viscous media.

Softening

The term “soften” is used in conjunction with Liquid Ink to describe the application of a self-simplifying force to existing Liquid Ink imagery. It is similar to the application of heat to wax or ice. The original shape will reductively simplify its form. Liquid Ink Softening tools impart a similar visual result to existing Liquid Ink visual elements.



Original Ink Strokes



Strokes with Softening Tool Applied

Primary Divisions of Liquid Ink Control

Like the new Water Color technology in Painter 7, Liquid Ink is primarily embodied in a specific media Layer. These Layers, which currently include Water Color and Liquid Ink, can be acted upon only by brushes specific to the particular layer. For example, you can not apply Water Color brushes to a Liquid Ink Layer. The inverse is true, as well.

Besides the Liquid Ink Layer, Painter 7 has a set of Liquid Ink-specific Dab Types. The primary areas in Painter that control the appearance and performance of Liquid Ink are:

- General palette** (Brush Controls)
- Size palette** (Brush Controls)
- Liquid Ink palette** (Brush Controls)
- Expression palette** (Brush Controls)
- Layers palette** (Objects)
- Surface Lighting Dialog** (Canvas Menu)

The following sections will describe each of these palettes.

General Palette: Liquid Ink Dab Types

In Painter, the “Dab” is responsible for the shape and behavior of the mark that is used to create a visible stroke on the Canvas or Layer. Prior to Painter 6, the available Dab Types simulated a continuous stroke by tightly spacing individual Brush Dabs together.

Painter 6 introduced the “Continuous Stroke” Dab type, which renders brushstrokes with a definable set of continuous, anti-aliased 1-pixel lines. These lines represent the marks created by the individual hairs that make up a brush. When a sufficient number of these lines are used, a remarkably faithful approximation of a traditional brush stroke is realized.

Painter 7 includes a new set of Liquid Ink-specific Dabs:

Liquid Ink Camel Hair
Liquid Ink Flat
Liquid Ink Palette Knife
Liquid Ink Bristle Spray
Liquid Ink Airbrush



Camel Hair

Flat

Palette Knife

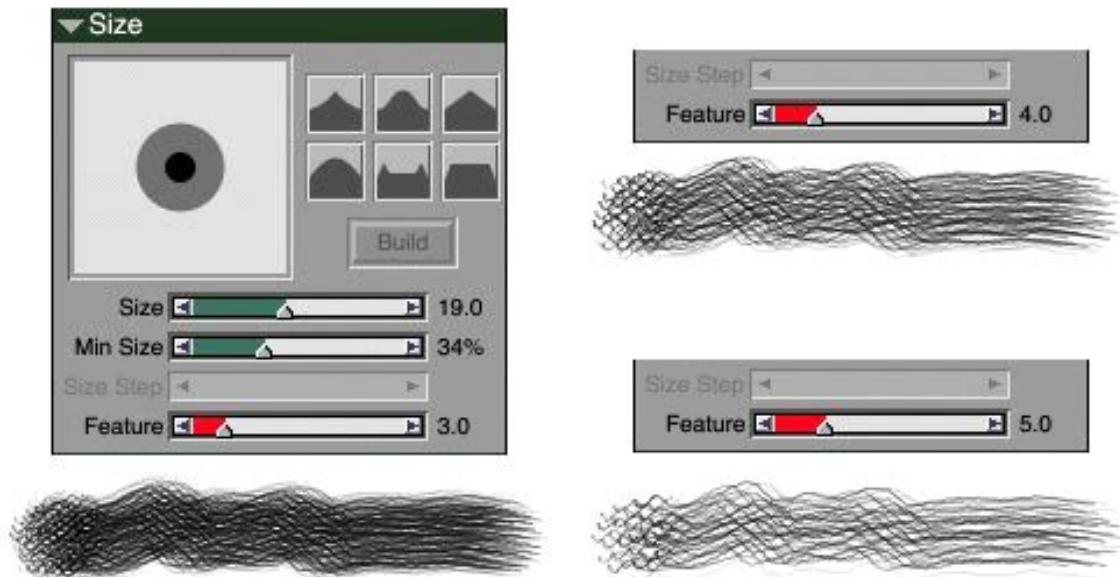
Bristle Spray

Airbrush

Size Palette: Continuous Stroke Feature Control

The density of the “bundle” of hairs that make up a Continuous Stroke is controlled with the “Feature” slider in the Size palette. As the Feature slider is adjusted to the left, the number of hairs increases. Conversely, as the slider is adjusted to the right, the number of hairs decreases.

It is important to understand that CPU overhead is increased as Continuous Stroke brush hair density is increased (adjusting the Feature slider to the left). By adjusting the Feature slider to the right, brush performance will improve. As a result, there is a “sweet spot” that will balance the visual density of the brush hairs with the performance of the brush on the Liquid Ink Layer.



The above strokes were created with a non-Liquid Ink brush to illustrate how adjusting the Feature slider affects the visual density of the rendered hairs. The examples below use the same brush adjusted to work as a Liquid brush. Notice that the Liquid Ink’s self adhesion of the stroke elements tends to eliminate the appearance of individual hairs in the stroke.



Liquid Ink Palette: Primary Liquid Ink Control

The Liquid Ink palette contains the primary controls for adjusting the Liquid Ink-specific features of the Liquid Ink Brushes.. Because the various dimensions of control can affect each other, the interaction of these adjustments is complex.



Note: In creating the examples visualizing each control, it was necessary to adjust other controls in order to highlight the particular attribute being explained. As a result, the settings shown in the examples will not necessarily produce the same result for individual brushes.

The following section will describe the application of each of the controls.

Liquid Ink Type

The Liquid Ink Type pop-up menu controls the basic character of ink deposition on a Layer. Liquid Ink is divided into two basic properties: Ink and Color. The Ink component is responsible for the “plastic” quality of Liquid Ink: the tendency towards simplified rounded forms. The Color component applies the colorant to the Ink form.

The Ink and Color components can be used together or controlled separately. Additionally, they can be modified with Softening, which is used to alter their visual character. A special form of “negative ink”, called “Resist”, is used to repel the positive form of Ink. “Erase” is used to completely delete Ink and Color.

Based on these parameters, there are 8 types of Liquid Ink. Each one is described below:

Ink Plus Color

Ink Plus Color is the most common form of Liquid Ink. The Current Color is used to fill the form the Liquid Ink assumes as it is deposited. Note that overlaid Ink Plus Color will slightly soften and spread into the underlying stroke.



Ink Only

Ink Only applies only the Ink component of Liquid Ink. Ink Only ignores the Current Color and always appears as Black.



Color Only

Color Only deposits the Color component of Liquid Ink using the Current Color. The previous Ink Only example has been painted over with Color Only strokes. This Liquid Ink type is particularly useful for editing the color of existing Liquid Ink artwork.



Soften Ink Plus Color

Soften Ink Plus Color acts on both Liquid Ink components. The Ink component will behave as if melting. This causes the Ink to expand and coalesce with any adjacent Liquid Ink strokes. The Color component is blended together. In this example, Soften Ink Plus Color has been applied to the previous Color Only example.



Soften Ink Only

Soften Ink Only is applied to the Ink component only. Any existing internal color is unaffected. This example has been applied to the previous Color Only example.



Soften Color Only

Soften Color Only is applied to the Color component only. The Ink component is unaffected. This example has been applied to the previous Color Only example. Note that a large amount of Color Only softening will tend to “pull” some Black into the internal color of existing Liquid Ink art.

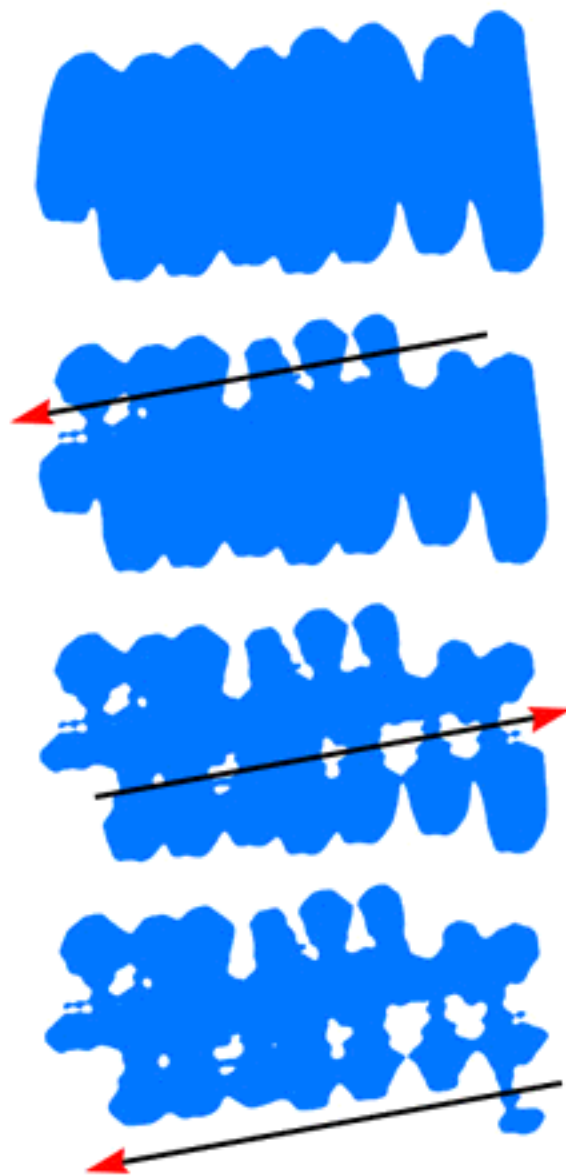


Resist

Resist has the same properties on normal Ink, except that it acts negatively. It is invisible. If a Resist brush is first scribbled on a blank Liquid Ink Layer, subsequently applied Ink component strokes will be repelled by the Resist strokes. Alternatively, when a Resist brush is applied to existing Ink component strokes, it is reduced by the Resist.

An important concept to understand with regard to the Ink component is that it builds up density as strokes are overlaid. Consequently, Liquid Ink art that has had multiple strokes applied in generating the art will contain areas of varying density. As a Resist brush is applied to such art, the areas of least density will be reduced first. The areas with more density will require more “scrubbing” by the Resist brush to reduce the greater density.

The example below visualizes the path of multiple Resist strokes applied to Liquid Ink art.



Erase

Erase completely removes existing Liquid Ink art. Note that its erasure marks are dependant upon the Liquid Ink Dab Type used.



In the example below, the initial lettering has been edited with an Erase variant of the same brush. Note that Erase behaves like other Liquid Ink Types in that it tends to reduce existing Ink towards a rounded simplification.

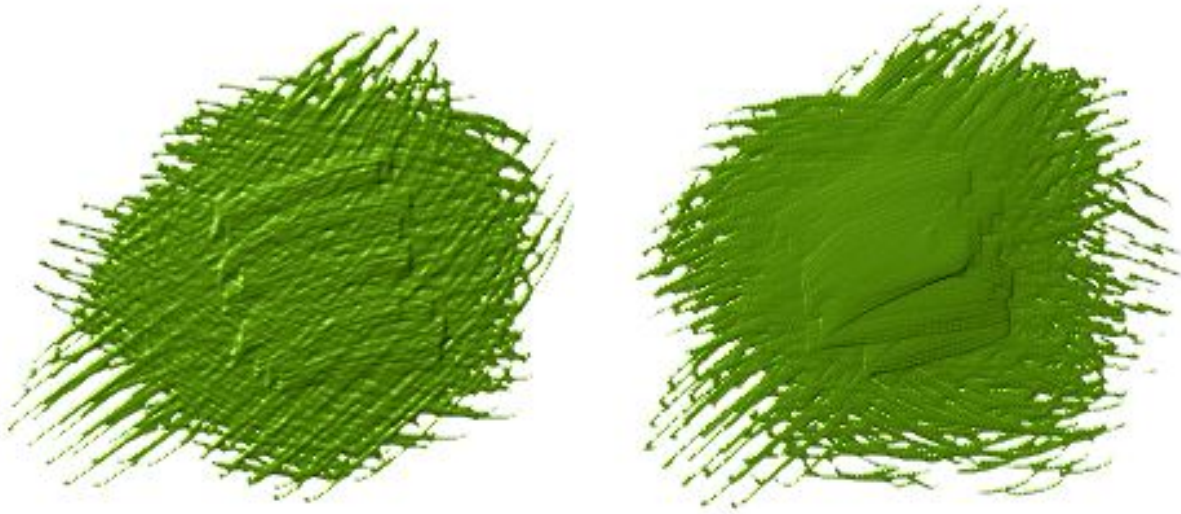
INK INK

Pre-softened Ink Plus Color

Pre-softened Ink Plus Color is used in conjunction with implied surface depth. When the Depth Amount control (explained later) is used to create the appearance of height with respect to a Liquid Ink Layer, applied strokes will contribute to an appearance of surface depth.

When used in conjunction with this appearance, the earlier-described Ink Plus Color Type will not additively built up the appearance of height. Instead, the applied Ink Plus Color will tend to remain at the same surface height. Sometimes this behavior is desirable, especially when simulating a more flowing ink medium.

Pre-softened Ink Plus Color is designed to simulate more thick-acting ink media. As successive strokes are overlaid, they appear to cover the earlier strokes and build up height.



Ink Plus Color

Presoftened Ink Plus Color

Note that the Pre-softened Ink Plus Color requires more CPU processing to accomplish this appearance. Consequentially, Pre-softened Ink Plus Color exhibits a slightly lower performance when compared to Ink Plus Color brushes.

Smoothness Slider

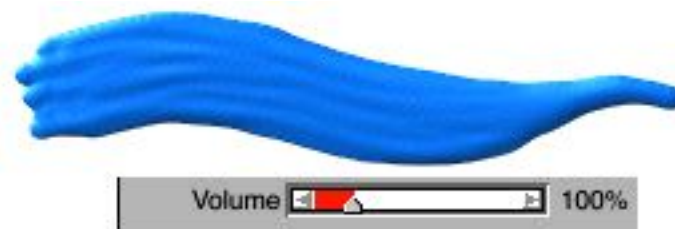
Adjust this slider to control the “tack” of the Ink. Low values cause brush strokes to exhibit less affinity for other strokes – “short” tack. High values cause brush strokes to have a high affinity for each other – “long” tack. The brush is slower with higher smooth values.



Volume Slider

Volume is primarily used in conjunction with implied surface depth. When the Depth Amount control (explained later) is used to create the appearance of height with respect to a Liquid Ink Layer, applied strokes will contribute to an appearance of surface depth.

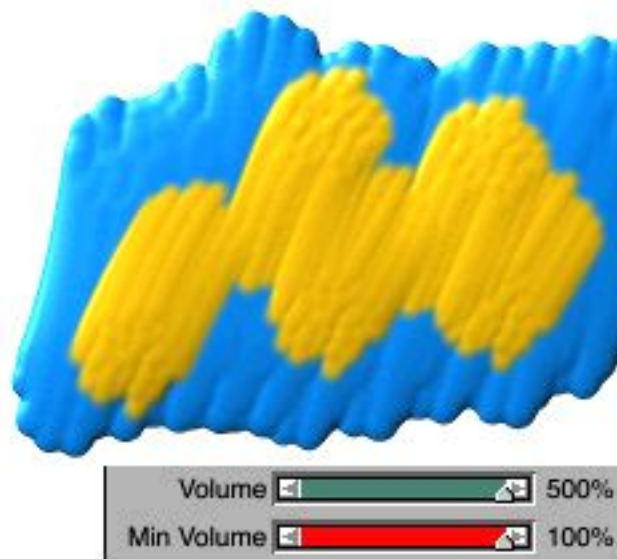
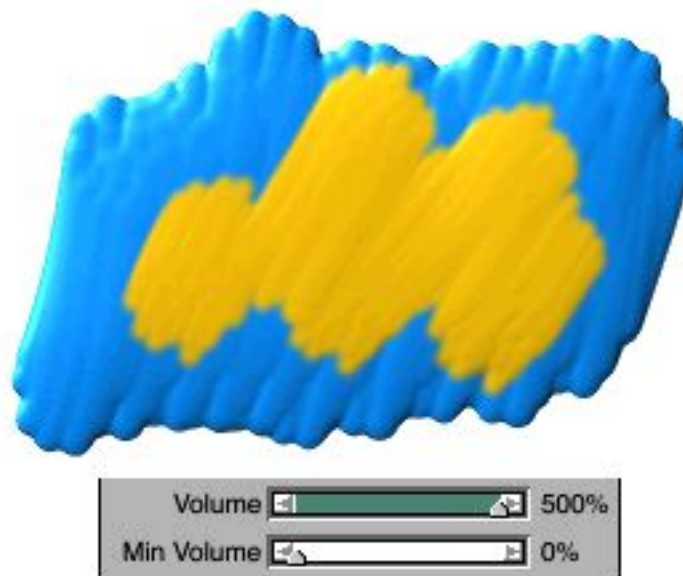
Adjust this slider to control the height of the brush stroke. This controls how quickly the stroke appears, and affects the edge of the ink. Adjustment of Volume will have minimal effect on flat, non-depth simulating Liquid Ink Layers.



Minimum Volume Slider

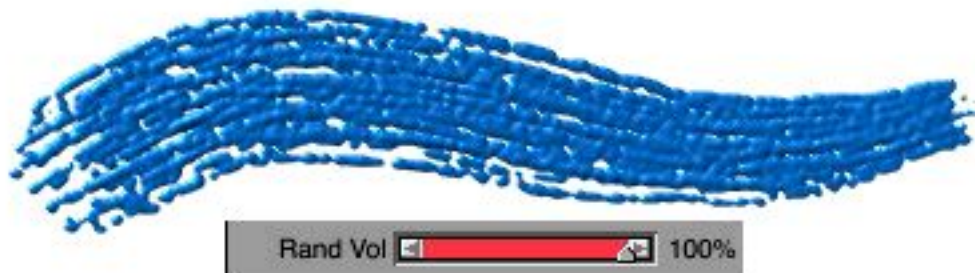
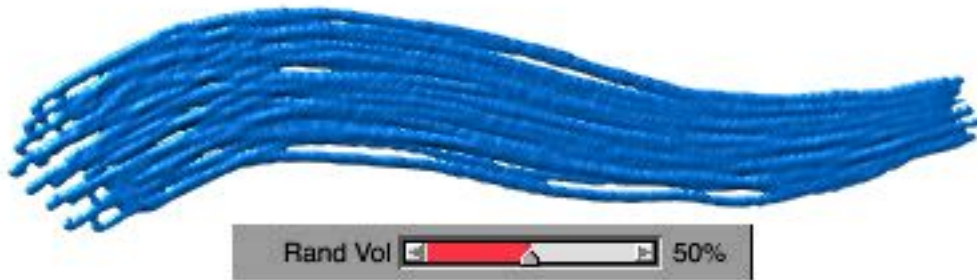
Minimum Volume is a companion slider to the Volume slider. Minimum Volume is used in conjunction with Expression palette's "Volume" category (explained later). The combination of both the Volume and Minimum Volume sliders enables subtle control over the lower and upper limits of the "thickness" of a Liquid Ink stroke. As with the previously-described Volume slider, the Minimum Volume slider is primarily useful when a Liquid Ink Layer has been adjusted to display implied surface depth.

In the first example below, Minimum Value is adjusted so light pen pressure will produce a "thin" application of Liquid Ink. In the second example, Minimum Value has been set to produce the "thickest" Liquid Ink. Combined with the use of Pressure to control Volume in the Expression palette, Liquid Ink strokes can be made to modulate between thin and thick appearing Liquid Ink.



Random Volume Slider

Adjust this slider to control the randomness in volume within the brush stroke. A value of 0 gives a perfectly smooth brush stroke.



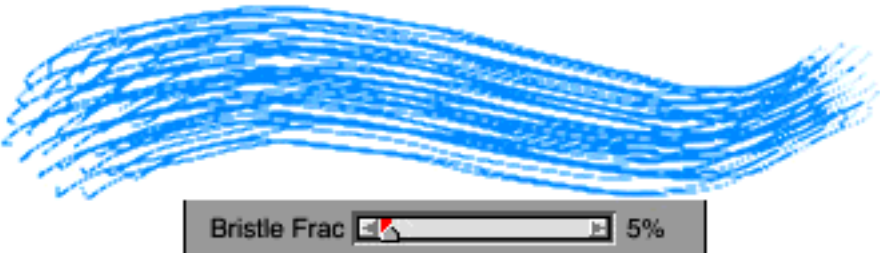
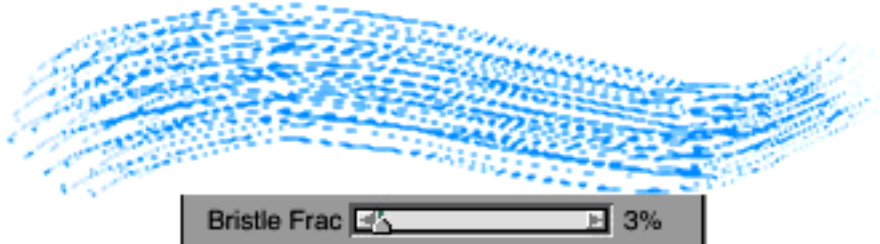
Random Size Slider

Adjust this slider to control the randomness in size within the brush stroke. A value of 0 gives a perfectly smooth brush stroke.



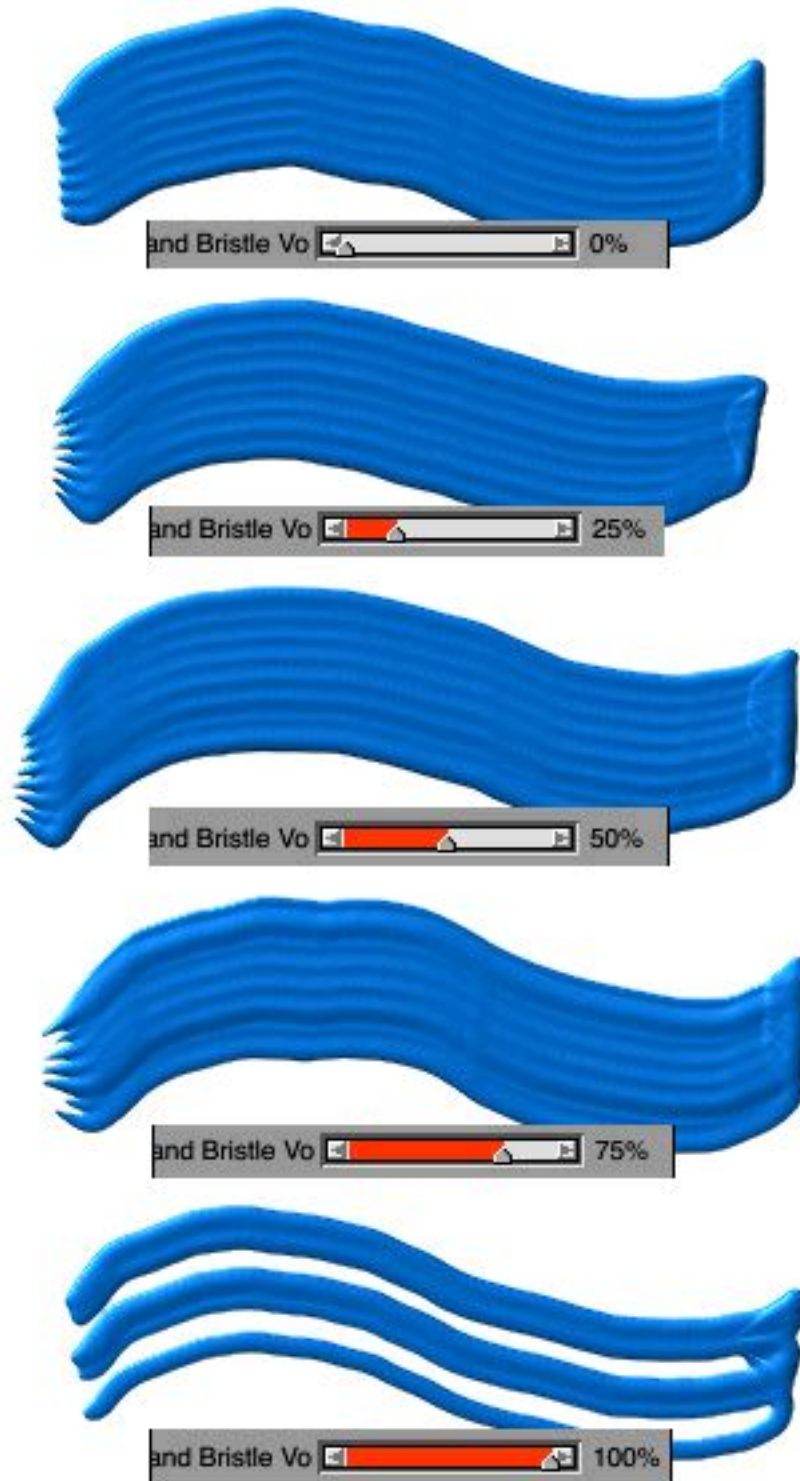
Bristle Fraction Slider

Adjust this slider to control the thickness of the bristles. Higher values will make the bristles stick together and close up. Lower values will render the bristles individually visible. Note that Bristle Fraction is particularly sensitive to weight changes at the lower end of the scale.



Random Bristle Volume Slider

Adjust this slider to control the variation in bristle heights (contribution). A value of 0 gives all the bristles equal height..



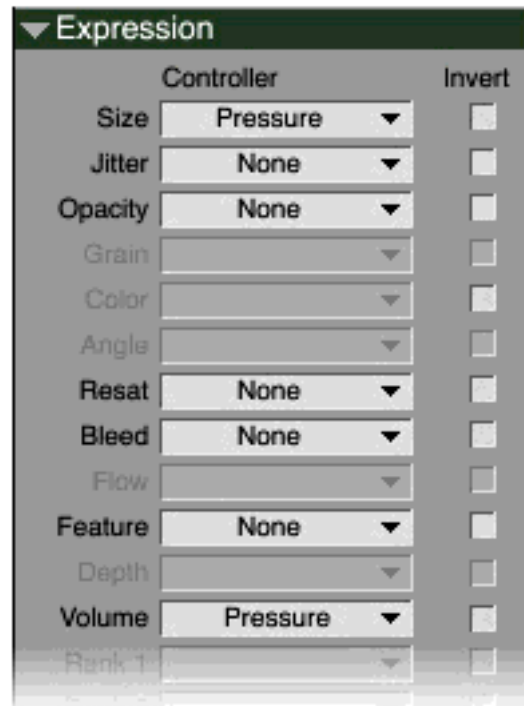
Random Bristle Size Slider

Adjust this slider to control the variation in bristle widths. A value of 0 gives all the bristles equal width.

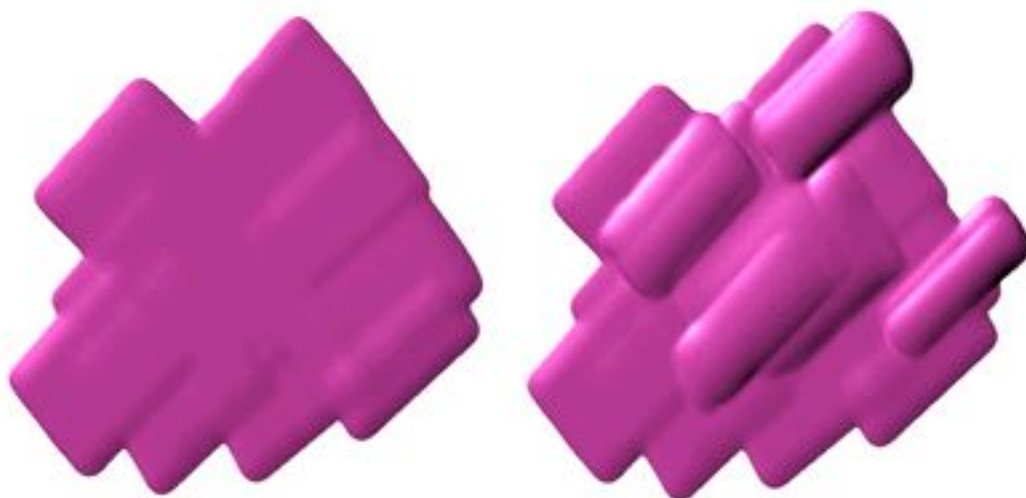


Expression Palette

The Expression Palette can be used to modulate the Liquid Ink attribute of Volume with a variety of controlling sources. These controllers include: Velocity, Direction, Pressure, Wheel, Tilt, Bearing, Source, and Random. In particular, the Pressure controller is useful for “layering” Liquid Ink strokes. The effect is similar to applying frosting to a cake.



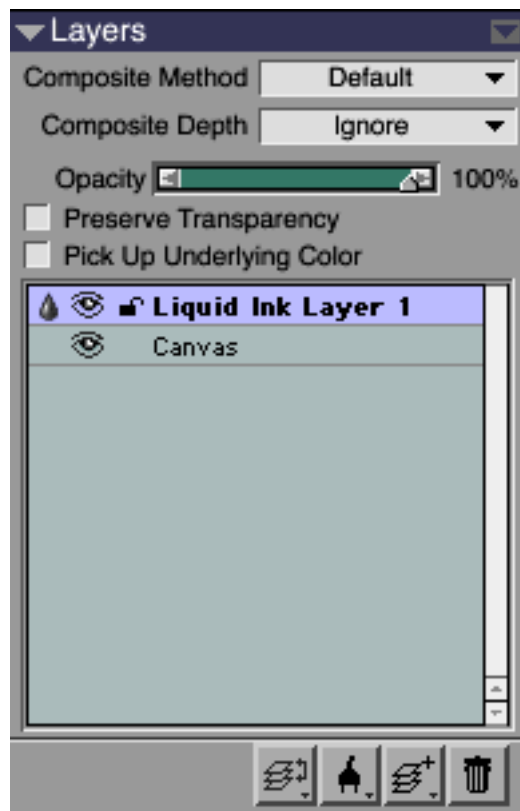
In the example below, pressure has been assigned to modulate the Volume of a Liquid Ink Palette Knife variant. On the left, light pressure has been used to apply overlapping strokes. On the right, the pressure has been increased to produce a heavier layering of Liquid Ink via the increased Volume.



Layers Palette

Liquid Ink Layers are displayed in the Layers palette. Liquid Ink Layers are identified by their “Ink Drop” icon at the left of a layer entry. A new Liquid Ink Layer is automatically created when a Liquid Ink brush is applied to an image that either has no Liquid Ink Layer or does not have a currently selected Liquid Ink Layer in the palette.

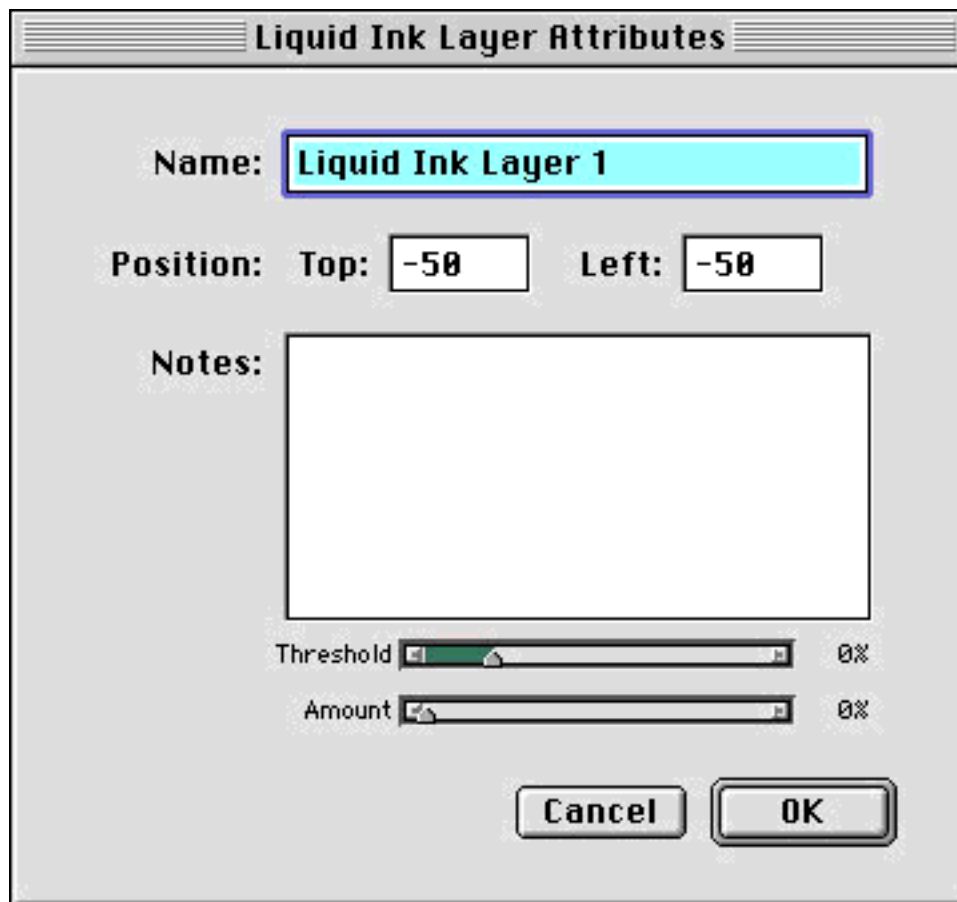
Alternatively, a new Liquid Ink Layer can be created via the “New Liquid Ink Layer” command, available in both the Layer palette Command Menu and the pop-up list associated with the Layer Commands iconic button located at the bottom of the Layers palette.



Layers Palette: Liquid Ink Layer Attributes Dialog

The Liquid Ink Layer Attributes Dialog is available by either double-clicking on a Liquid Ink layer entry in the Layers palette or hitting the RTN key when a Liquid Ink Layer is currently selected.

This dialog contains the primary control for enabling a Liquid Ink layer's appearance of depth, as well as adjusting the threshold of the edges of Liquid Ink art.



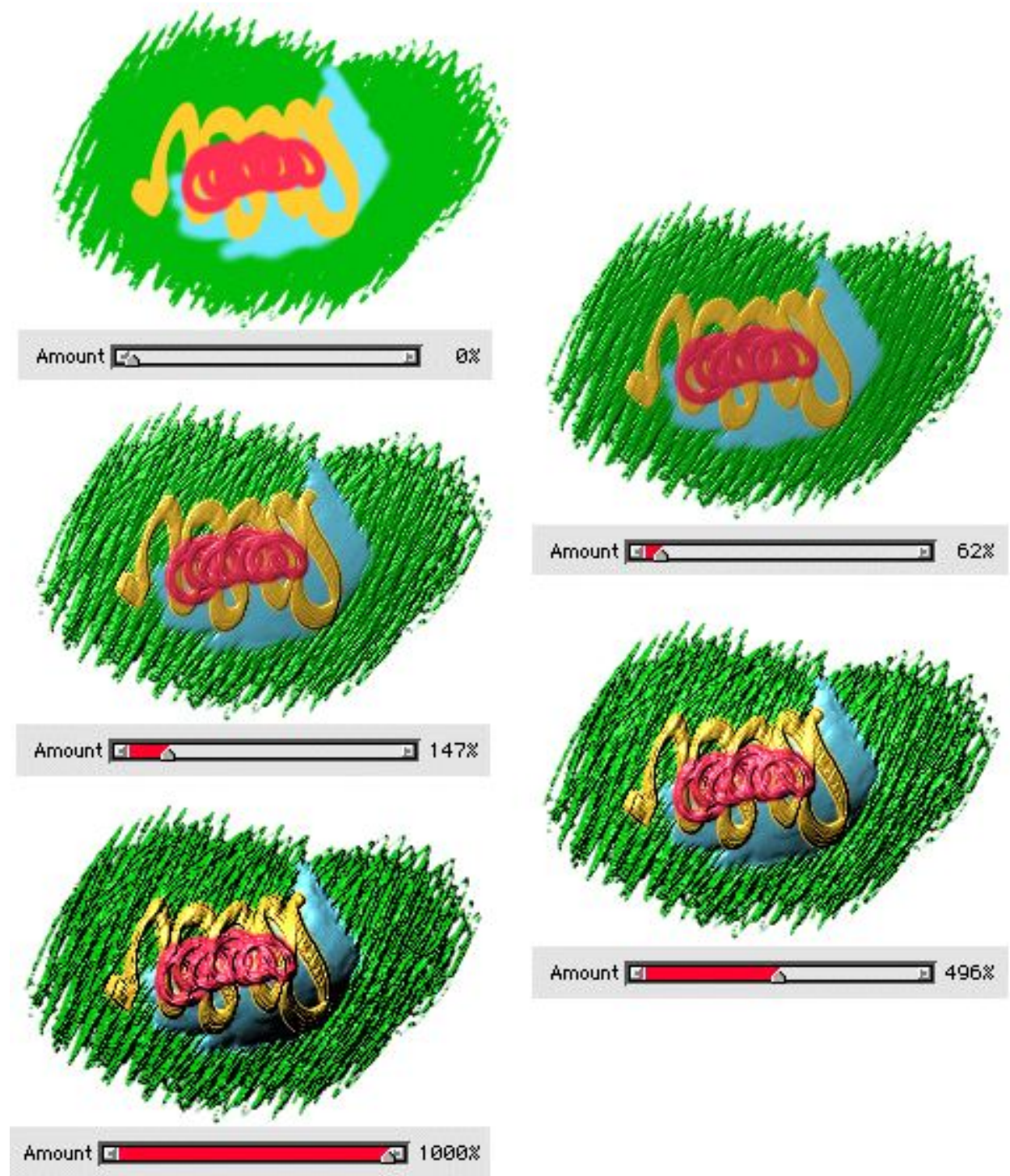
Threshold Slider

Adjust this slider to control the overall threshold value used in calculating the edge of the ink. The value 0 is the nominal default. Adjust the value higher to thin out (or dry up) the paint. This erodes the edge of the ink (non-destructively).



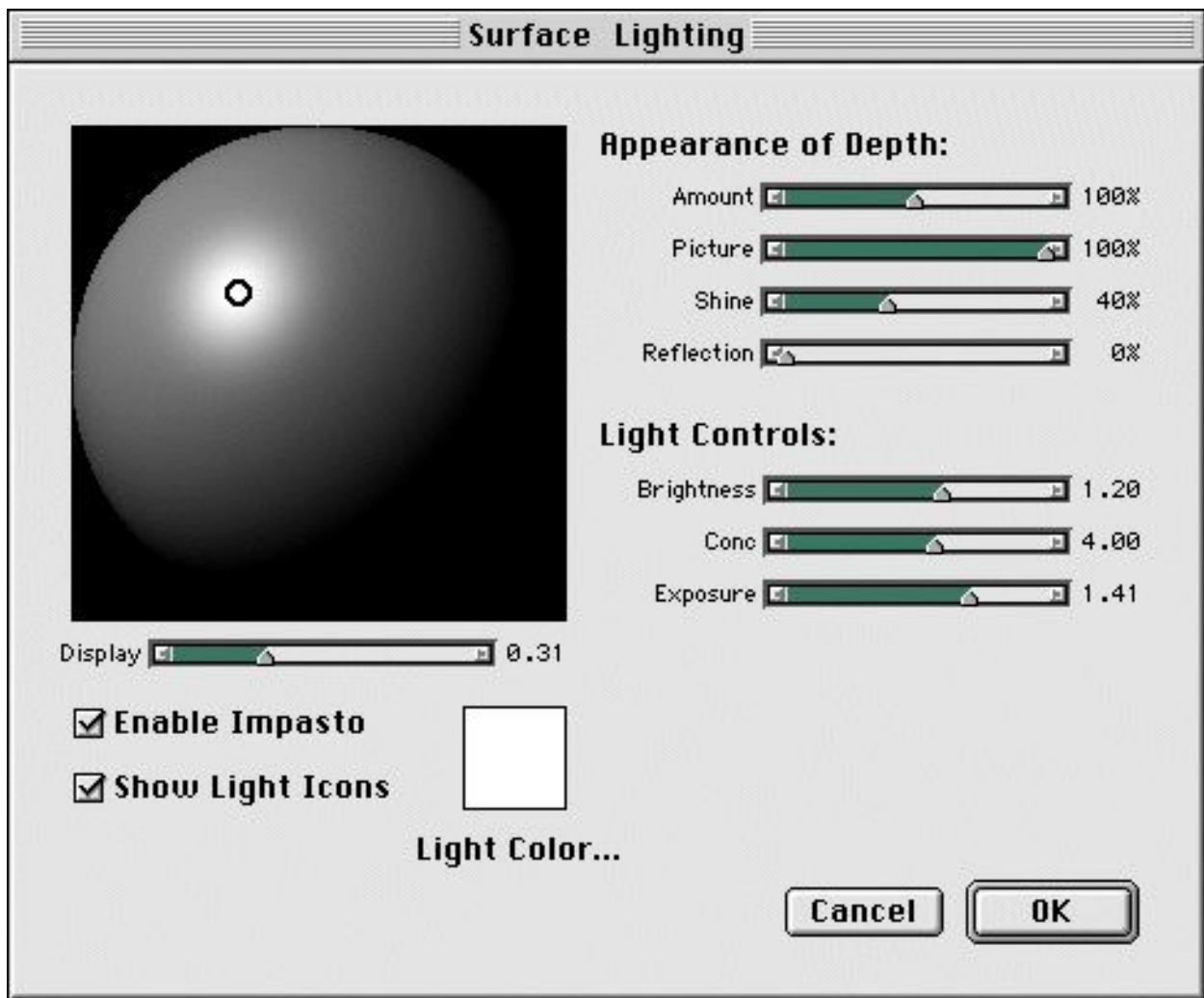
Amount Slider

Adjust this slider to control the appearance of depth in the liquid ink medium. A value of 0 implies a perfectly flat matte surface (this is useful for ink). Higher values are useful for simulating paint surfaces.



Surface Lighting Dialog

The Surface Lighting Dialog controls the effect of lighting on Liquid Ink layers that have been to simulate the appearance of height adjusted (via the previously described Adjustment Slider in the Liquid Ink Layer Attribute Dialog).



The following examples illustrate how changing the lighting angles, as well as adding multiple light sources, will affect the appearance of Liquid Ink art adjusted to simulate the appearance of height.

