

Studio Artist™

Graphics Synthesizer

from

Synthetic

Version 1.0

Tutorial

This is a Tutorial introduction to Studio Artist 1.0.

The Studio Artist User's Guide is the official reference for Studio Artist 1.0.

Studio Artist Tutorial and User's Guide by John Dalton with assistance by Candice Pacheco.

Studio Artist™ is developed and supported by Synthetik Software, Inc.

Synthetik Software Inc.

30 Sheridan Street

San Francisco ,CA 94103

Voice: (415)-864-6582

Fax: (415)-864-0433

Visit us online at: www.synthetik.com

Technical Support online: www.synthetik.com and techsupport@synthetik.com

Technical Support voice: (415) 864-6587, 10 a.m to 5 p.m. PST

(Please be near your computer with Studio Artist running, and have your serial number, printed on the CD Sleeve, ready when you contact Technical Support.)

Information in this document is subject to change without notice and does not represent a commitment on the part of Synthetik Software, Inc. The software described in this document is furnished under a license agreement or nondisclosure agreement. The software may be used or copied only in accordance of the terms of the agreement. It is against the law to copy this software on any medium except as specifically allowed in the agreement. No part of this document may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, for any purpose without the express written permission of Synthetik Software, Inc.

Copyright © 1999 Synthetik Software, Inc. All rights reserved.

Studio Artist is a registered trademark, and Synthetik, Graphics Synthesizer, Intelligent-Assisted Drawing, and the Synthetik Software logo are trademarks of Synthetik Software, Inc. Macintosh and Mac OS are trademarks of Apple Computer, Inc. Other products mentioned are trademarks of their respective holders.

Table of Contents

Chapter 1: Tutorial	5
Installing Studio Artist on your Hard Disk	5
Your First Art Session with Studio Artist	6
Starting the Application	6
How to Paint	7
Changing the Paint Source Color	7
Exploring Image Operations	8
Exploring Interactive Warping	9
Exploring the Paint Synthesizer in More Depth	10
Exploring the Different Paint Synthesizer Mouse Modes	10
Editing the Paint Source Color	13
Changing the Size of the Brush	14
Designing and Editing a Paint Brush	15
Using the Path End Parameters to Mask Interactive Drawing	16
Building a Self Tiling Texture Using Action Painting	17
For More Information	19



Chapter 1: Tutorial

Studio Artist is the world's first graphics synthesizer. This tutorial is designed to help you get started by introducing you to some of the basic features of the program. Refer to the Studio Artist Users Guide for more detailed information.

Installing Studio Artist on your Hard Disk

Although you can run Studio Artist directly from the CD-Rom, you should install it on your hard disk for maximum performance and utility.

1. Drag the "Studio Artist 1.0" folder from the CD-Rom onto your harddisk. This will copy the Studio Artist application as well as the various Preset folders that need to reside next to the application.
2. You should adjust Studio Artist's memory allocation (via the Get Info dialog in the Macintosh Finder). Select the **Studio Artist 1.0** application icon in the Finder and use the "**File : Get Info...**" menu command. Depending on the amount of memory in your Macintosh, you may need to adjust the factory default memory allocation.

The more memory you can allocate to Studio Artist, the better. This is particularly true if you plan to work with uncompressed RAM movies, which are very memory intensive. The maximum size of Studio Artist's working Canvas will also depend on the amount of memory you allocate to the application.

3. Studio Artist needs QuickTime 3.0 or greater to be installed on your Macintosh in order to run properly. A QuickTime 4.0 installer is included on the CD-ROM in case you need to install or upgrade QuickTime. Double click on the QuickTime 4.0 installer and follow it's instructions if you need to install QuickTime. You can also download

the latest version of QuickTime from www.apple.com. (A QuickTime 3.0 installer is included on the CD-Rom in the Extras folder if you do not have access to an internet connection and need to upgrade QuickTime)

Your First Art Session with Studio Artist

You've installed Studio Artist on your hard drive and now it's time to make some art. Here's how to get started.

Starting the Application

Double-click on the Studio Artist application icon. A standard file dialog will come up. Select the Source Image you wish to work with. To get started, open the "A Few Source Images" folder and choose the image file "A Sunflower".

After you choose your source image and click **OK**, a dialog will come up that allows you to specify the working Canvas size. Typically, you might choose a Canvas size different than the original Source Image. The Source Image is not modified in any way. The Canvas Image will be the final output image.

The Sunflower demo image is 640x480 pixels, which is an adequate Canvas size to get started. So, click **OK** for the default 100% Canvas size.

After you click **OK** in the Set Canvas Size dialog, the cursor will spin for a short period of time while Studio Artist examines your Source Image. Then, the main Studio Artist Canvas window will appear. Studio Artist boots into the **Paint Preset** Operation control pane. This is where you can choose Paint Synthesizer Preset Patches.

A Preset Patch is a pre-edited set of Paint Synthesizer parameters. Presets are an easy way to switch between different paint looks or drawing styles quickly while you work.

How to Paint

Use the mouse or pressure sensitive pen to start drawing into the Canvas. Watch how the thickness of the paint stroke changes as you press the pen harder or softer. Each Preset Paint Patch contains a large set of editable parameters that determine the look and feel of the paint and interactive drawing brush. By changing these parameters, you can completely change the visual appearance and tactile feel of the resulting interactive paint brush.

Now, click the **Action** button (or use the **Cmd-spacebar** hot key) and watch Studio Artist autopaint without any manual assistance. To stop autopainting, either use the **spacebar** key or mouse down anywhere in the interface. Each Preset Paint Patch also contains a large set of editable parameters that determine how Studio Artist autopaints. By changing these parameters, you can completely change the visual appearance of the resulting Paint Action.

To switch to a different Preset Paint Patch, use the controls in the Presets control pane located on the left side of the main Studio Artist window. Either click on the colored icons that are visual representations of specific Presets or choose a Preset using the **Category** and **Patch** popups that are located directly above the Preset icons. Try out different Presets to get a feel for the large range of potential paint looks and feels. You can paint manually using the pen or mouse, or click **Action** to see how a particular Preset autodraws.

To undo a particular painting action, use the “**Edit : Undo**” menu command. To erase the Canvas, use the erase button located directly above the Canvas (on the right hand side) to the left of the Canvas Background popup.

Changing the Paint Source Color

You may be wondering how Studio Artist is choosing the different colors you’ve been painting with. Look in the top left corner of the Studio Artist main window and you should see a small representation

of the source image you originally choose to work with when you started the application. This area of the Studio Artist interface is called the Source area.

You can use the popup to the right of the Source Image to change the color source. Switch the popup from **Source Image** to **Source Color**. The small picture of the Source Image will disappear and a color picker will appear in its place. You can mouse down in the color picker to change the current color's hue and saturation. Use the slider to change the color luminance or lightness. The small color square directly below the color picker shows the current color.

Try switching back and forth between **Source Image** and **Source Color** while painting with the pen or mouse. Notice how Studio Artist clones the paint color of a paint stroke from the Source Image when it is the current source. Notice how Studio Artist uses your chosen color as the paint color when Source Color is the current source.

Exploring Image Operations

Now that you have tried out painting and drawing with the Paint Synthesizer, you are ready to explore some other features of the program. Image Operations allow the Canvas to be processed with different image processing effects or filters.

To start, load the Source Image into the Canvas by changing the Canvas Background popup to Image. The Canvas Background popup is located directly above the right side of the Canvas. If the Background popup is already set to Image, use the button directly to the left of the popup to reset the Canvas to the Image background.

Now, use the "Operation : Image Operations : Smart Contrast" menu command to switch the active Studio Artist control pane to the Smart Contrast Image Operation. The individual editable controls in the pane all adjust some aspect of the current Smart Contrast effect.

Image Operations do not currently use the mouse to interact directly with the Canvas. To execute the current Smart Contrast image pro-

cessing effect, press the **Action** button (or use the “**Action : Do Current Action**” menu command or it’s **Cmd-spacebar** key equivalent).

After Studio Artist is finished processing the Canvas image, the result of the Smart Contrast effect will be placed in the current Canvas. The default settings of the Smart Contrast effect generate a transformed representation that looks like a color photocopy of the original Canvas image. To undo the effect, use the “**Edit : Undo**” menu command.

Try changing some of the different editable parameters associated with the Smart Contrast effect and see what influence they have on the resulting processed Canvas.

Use the **IP Op** popup to switch to different Image Operation effects. Try different effects and see how they transform the current Canvas image.

Exploring Interactive Warping

Interactive warping is a way to dynamically stretch, rotate, move, or mutilate the Canvas. Many of the warps are pressure and position sensitive.

To start, load the Source Image into the Canvas by changing the Canvas Background popup to Image. The Canvas Background popup is located directly above the right side of the Canvas. If the background popup is already set to Image, use the button directly to the left of the popup to reset the Canvas to the Image background.

Now, use the “**Operation : Warp : Sphere2**” menu command to switch the active Studio Artist control panel to interactive Warp Operations. Use the pen or mouse to dynamically stretch the current Canvas image with a spherical warp. If you have a pressure sensitive pen, notice how changing the pressure changes the radius of the dynamic spherical warp.

Try holding down the ‘t’ or translate hot key while interactively warping the Canvas. You can reposition the center of the spherical

warp on the canvas while the ‘t’ hot key is down. Releasing the hot key allows you to continue changing the spherical warp in a new location.

To try a different kind of warping, switch the **Type** popup from **Sphere2** to **Translate**. You can now use the mouse or pen to move the Canvas in real time. Try moving the Canvas several different times using the Translate warp. Notice the symmetry effect that the Translate warp generates. The Translate warp can be used as a way to quickly generate an artistic symmetry pattern from a Source image in a few seconds.

Use the **Type** popup to experiment and try out the different interactive Warp Operations.

Exploring the Paint Synthesizer in More Depth

Exploring the Different Paint Synthesizer Mouse Modes

The Paint Synthesizer provides a number of different interactive mouse modes. Each of these mouse modes is a totally different way of using the pen or mouse to draw or paint.

To start exploring the different Paint Synthesizer Mouse Modes, do the following. First, you need to choose a starting Paint Patch. Use the “**Operation : Preset : Paint Patch**” menu command to switch to the Paint Preset Operation pane. Choose the “Tutorial” Preset **Category** and the “Flat Paint 2” **Patch** from the popups in the control pane.

Look above the left side of the Canvas and you will see a **Mouse Mode** popup. The popup should be set to **Interactive Pen**. Changing this popup is the way to choose a new interactive mouse mode. Each Preset Paint Patch remembers this mouse mode setting as a part of its stored parameters. This is because changing the mouse mode can have

a profound effect on the resulting look and feel of the Paint Patch.

Interactive Pen

Start drawing to try out the **Interactive Pen** mouse mode. Notice that the pen draws paint immediately into the Canvas as you move and press the pen.

Freestyle

Switch to the **Freestyle** mouse mode. Drawing with the pen will now draw a marching ants style thin line. This line represents a path that will be stroked with paint when you are done drawing it. When you finish drawing the thin line and mouse up, the path will then be filled in with paint. Pen pressure information is recorded in the path, so the resulting paint stroke will still be pressure sensitive.

While you are drawing in **Freestyle** mode, hold down the 't' or translate hot key. You can reposition the path on the canvas while the 't' hot key is down. Releasing the hot key allows you to continue drawing the path in a new location.

Freestyle Autodraw

Switch to the **Freestyle Autodraw** mouse mode. Drawing with the pen will again draw a freestyle marching ants style thin line. This line represents a path that will be used to start a second set of autodrawn paths. Each autodrawn path will start from a location along the drawn freestyle path. When you finish drawing the thin line and mouse up, the series of autodrawn paths will each be individually calculated and then filled in with paint. Pen pressure information is recorded in the original freestyle path, and will be used to modulate the series of secondary autodrawn paths and their resulting paint strokes.

Try drawing with your chosen Flat Paint 2 patch using the **Freestyle Autodraw** mouse mode. Draw the freestyle marching ants path and then mouse up. Watch how a series of circles are now drawn along the original freestyle path. Notice how the size of the circles changes depending on your original pen pressure when you specified the freestyle path.

This is a simple example of **Freestyle Autodraw**. Depending on the

settings in the Paint Synthesizer, a complex set of autodrwn paths that interact with the Source Image and the current Canvas could have been generated based on your originally drawn freestyle path.

Autodraw One Click

Switch to **Autodraw One Click** mouse mode. When you click on the Canvas with the pen or mouse, one autodrwn path will be stroked with paint at the position you clicked on.

Autodraw Interactive

Switch to **Autodraw Interactive** mouse mode. When you click on the Canvas with the pen or mouse, a stream of autodrwn paths will be stroked with paint as you move the pen. The “Flat Paint 2” patch you chose to draw with will generate a series of circle paths that change size depending on how hard you press down the pen as you draw.

Region Draw

Switch to **Region Draw** mouse mode. Use the pen or mouse to pull out an interactive marching ants ellipse that changes it’s size and orientation as you change the pen position. If you have a pressure sensitive pen, watch how the shape of the ellipse changes as you change your pen pressure.

When you have the size and position of the ellipse where you would like it, touch the **spacebar** to fill the ellipse. Watch as Studio Artist fills the specified ellipse area with a series of autodrwn hatching paths. There are a number of different algorithms to generated the autodrwn paths that will fill the specified region. You can use the “1,2,...,9,0” hot keys to try out some of them now.

Bezier Curve

Switch to **Bezier Curve** mouse mode. Use the pen or mouse to pull out an interactive marching ants Bezier curve. Move the pen to drag the endpoint of the curve. If you have a tilt sensitive pen, watch how the curve changes shape as you tilt and rotate the pen’s tilt orientation. If you don’t have a tilt sensitive pen, use the option key to change the shape of the curve by moving the mouse.

To add a new curve segment, press the **Cmd** key. Use the ‘t’ and ‘r’

hot keys to translate and rotate the curve to a different location on the canvas. When you release the hot key, you can continue editing the shape of the curve in it's new location. When you mouse up or touch the **spacebar**, the curved path will then be stroked with paint.

Editing the Paint Source Color

As mentioned previously, you can use the popup to the right of the Source Image to change the color source used for painting. The Paint Synthesizer provides many ways to modulate or change this initial starting color for individual paint strokes. This modulation could be subtle or outrageous, depending on how you adjust the Paint Synthesizer's editable parameters.

Try switching back and forth between **Source Image** and **Source Color** while painting with the pen or mouse. Notice how Studio Artist clones the paint color of a paint stroke from the Source Image when it is the current source. Notice how Studio Artist uses your chosen color as the paint color when Source Color is the current source.

If you look closely while in Source Color mode, you may notice some subtle variations in the color of the different paint strokes. This is because the Paint Synthesizer provides a large number of controls to dynamically change and randomize the paint color as you draw.

If you have a taste for adventure, you can explore some ways to modify the Paint Color Source. Use the "**Operation : Paint Synthesizer : Paint Color Source**" menu command. Notice how the control area or pane on the left side of the Studio Artist interface changes from the **Paint Preset** pane to the Paint Synthesizer's **Paint Color Source** parameter pane.

If you mouse down in the **Parameter** popup, you will see all of the different editing panes associated with the Paint Synthesizer. You can use this popup as an alternative to the **Operation** main menu to move from one editing pane to another. Each parameter pane contains a number of editable controls associated with one particular aspect of the paint synthesizer.

For now, stay in the **Paint Color Source** parameter pane. Change the **Randomize** slider to 100. Now, paint a series of short paint strokes. Notice how each paint stroke has a different luminance or lightness value. Change the **Randomize** slider back to a small value. Paint another series of short paint strokes. Notice how the individual strokes are now the same color.

Try changing the **Color Mode** popup and paint a short stroke to see it's effect. Notice how you can completely transform the original source color into something new. Experiment with the different sliders and controls in the **Paint Source Color** pane while painting a series of short strokes to compare their effects. Notice how you can subtly or radically change the color of the overall paint stroke as well as change how the paint color varies along the stroke path.

Changing the Size of the Brush

The actual brush used for painting is typically the result of a dynamic computational process that may depend on several interacting parameters. Often times you may want to ignore all of this underlying complexity and just change the overall brush size while you are painting. There is an easy way to do this.

Use the '**Operation : Paint Synthesizer : Brush Modulation**' menu command to move to the **Brush Modulation** parameter pane. The parameters on this pane specify how the Paint Synthesizer dynamically modulates the brush size and orientation.

Use the **Brush Size Range** slider to quickly adjust the overall brush sizing while you are painting.

Depending on the settings of the **Size Mod** popup, the actual brush size may be dynamically modulating between the minimum and maximum settings of the **Brush Size Range** control. For example, if the **Size Mod** popup is set to **Path Pressure**, then the size of the brush will dynamically change between the min and max size depending on how hard you press the pen.

The **Brush Size Range** control specifies a percent size adjustment for the final drawing brush. The specific brush size that is being adjusted depends on the settings in the **Brush Source** and **Brush Type** parameter panes. Typically, these settings would be specified once when you design a particular Paint Patch and the **Brush Size Range** slider would be used for on-the-fly size adjustments while working.

Designing and Editing a Paint Brush

Now you are ready to start experimenting with editing a paint brush. The Paint Synthesizer is based on a model of applying dabs of paint to the Canvas along a path. How the dabs are applied to the path and the shape of the path itself can be extensively modulated under interactive control.

A dab of paint is generated from a dynamic computational brush and dynamic computational paint. Both dynamic elements (brush and paint) can be changing under your interactive control, or the Paint Synthesizer may be modulating them on it's own.

The dynamic brush is generated from a **Brush Source** and a **Brush Type** computational generation algorithm. **Brush Modulation** parameters specify additional parameters to modulate the dynamic brush size and orientation. Each time the brush is used to apply a dab of paint, it could be the same or unique. It all depends on how the Paint Synthesizer editable parameters are configured.

A dab of paint is generated at a particular path location using the current dynamic brush and two **Paint Fill** sources. They are called **Fill From** and **Fill To**. The dynamic brush, the two paint sources, and several **Fill Option** parameters act together to generate a unique dab of paint to be applied at a particular path position.

The dab of paint is then applied to the Canvas with a particular painting **Algorithm**. Different **Compositing** and **Masking** options can be chosen for the particular painting algorithm. The application of the dab to the Canvas can be modulated interactively or algorithmically.

Certain painting Algorithms may spawn a second interacting **Paint Fill** process with it's own **Compositing** and **Blending** parameters. The combination of this complicated generation process allows for total flexibility in creating unique and different paint visual looks and tactile feels. A Paint Patch can be built to emulate traditional media or to create something totally wild and new.

After a Paint Patch is created and edited, it can be accessed as a Preset for ease of use in creative drawing and painting. The Paint Synthesizer gives you extreme control over creating your own painting tools. The Presets allows you to access pre-built painting tools without getting under the hood into their internal complexity unless you so choose.

There are no artificial limitations in this Paint Synthesis approach. Unlike other painting programs, we don't make your decisions for you. Other programs provide a few nonuser configurable paints with very limited editability and interactivity. This generic approach to providing painting tools really limits your freedom of creative expression.

Using the Path End Parameters to Mask Interactive Drawing

The **Path End** synthesizer parameters are used to define a set of conditions that will stop path generation if those conditions are met. For example, you could specify that path generation would stop if the current path enters a portion of the Canvas that isn't white. To do this, you would check the **Not White** checkbox. Or, you could specify that the path only draws the Source Image's edges by using the **Texture Range** parameters to specify a range from minimum 40 to maximum 255. To turn on **Texture Range** masking, you would need to also check the **Texture Range** checkbox.

Typically, the **Path End** parameters are used to terminate autopath generation when the specified **Path End** conditions are met. However, you can also use these parameters to mask drawing with the pen or

mouse in real time. Click the **Mask Interactive Pen** checkbox to turn on masking for interactive pen drawing.

To demonstrate interactive path masking, do the following. First, you need to choose a starting Paint Patch. Use the “**Operation : Preset : Paint Patch**” menu command to switch to the Paint Preset Operation pane. Choose the “Default Flat Paint1” Patch from the Tutorial Preset category.

Then, switch to the Paint Synthesizer by using the “**Operation : Paint Synthesizer : Path End**” menu command. Click the **Mask Interactive Pen** checkbox to turn on interactive masking.

Then, turn on **Local Color Range** masking by clicking it’s checkbox. Set the **Local Color Range** slider to 40. Now, try painting with the pen or mouse in the Canvas. Notice that as you move the pen, the paint will drop out or reappear. The Paint Synthesizer is assisting your drawing by examining the Source Image and seeing how close the color of the current pen’s positional mapping in the Source image is to the original start position color. If the positional mapping color varies by more than the **Local Color Range** setting, the paint will drop out.

Try different **Local Color Range** settings and see what happens when you draw. Turn **Mask Interactive Pen** on and off and see how that influences your drawing. Turn off **Local Color Range** masking and turn on the **Texture Range** masking. Try different minimum and maximum settings for the **Texture Range** and see what effect they have on how the interactive pen mode draws.

Building a Self Tiling Texture Using Action Painting

Suppose you need to generate a texture pattern that will tile with itself when laid out in a repeating rectangular grid. You can use a series of Paint Action steps to quickly generate a visually interesting texture that will tile with itself.

First, you need to choose a starting Paint Patch. Use the “**Operation :**

Preset : Paint Patch” menu command to switch to the Paint Preset Operation pane. Choose the “Default Flat Paint1” **Patch** from the “**Tutorial**” Preset **Category**.

Then, switch to the Paint Synthesizer by using the “**Operation : Paint Synthesizer : Path Shape**” menu command.

Change the **Path Type** parameter from **Curved** to **Line**. If you wish, use the **Action** button to compare the effect of the two settings on automatic painting. Hit the **spacebar** or mouse down in the interface to stop autopainting. You can use the “**Edit : Undo**” menu command to erase the results of a particular action painting step.

What you should see is that Action painting will generate a series of straight line paths when the **Path Type** is set to **Line**. In order to generate a self-tiling texture, a drawing line that leaves the Canvas should reappear and continue on the other side of the Canvas.

To specify self-tiling drawing, use the Paint Synthesizer Parameters pane popup to switch from **Path Shape** to **Path End**. Check the **Wrap Path at Edge** checkbox. Now, if you click **Action** to start autopainting, you will see that any lines that draw off of one side of the Canvas will enter the other side of the Canvas and finish drawing. This behavior will insure the texture pattern you are creating will self tile when laid out in a repeating grid.

Use the **Parameters** pane popup to switch back to the **Path Shape** pane. Switch the **Path Type** parameter to **Circle**. Auto draw some more. Try changing the **Path Length** maximum parameter and watch what happens to the circles. Switch the **Path Mod** setting from **None** to **Random**. Click **Action** and watch how the autodrawn circles are now randomly modulated in size.

If you have a pen that supports tilt (like the Wacom Intuos tablets), switch the **Path Mod** setting to **Tilt**. Click **Action** and then hold the pen over the tablet without touching it. By changing the tilt of the pen, you can change the size of the autodrawing circles in real time.

Try adjusting different **Path Shape** parameters and see what affect

they have on the resulting autodrawn paint strokes. When you have generated a tiling texture you like, you can save the current Canvas to a diskfile by using the “**File : Save Canvas Image As...**” menu command.

For More Information

This Tutorial is designed as a gentle introduction of Studio Artist. The Studio Artist Users Guide contains more detailed information regarding all aspects of program. This includes the different modal Operations and their associated control panes as well as the different menu commands.

You should also check the Synthetik web site at www.synthetik.com for information regarding updates to both the Tutorial and the Users Guide.

It's important that you mail in your registration card with your serial number, or register electronically online at www.synthetik.com so that we can keep you informed of future updates and enhancements as they become available.

