3D Studio®

IPAS Plug-In Reference

Tim Forcade

CD-ROM Included!

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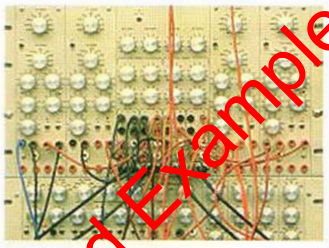
IPAS Plug-Ins: A Virtual Image Synthesizer

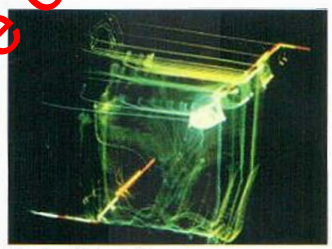
Beginning in the late 1960s and continuing into the early 1980s, I designed and built a number of analog image synthesizers that I called light machines. Light machines began as manually controlled, incandescent and fluorescent display devices designed for the purpose of creating expressive light and color compositions. The early manual-control devices evolved through multichannel, sound-driven light arrays into a series of light machines that used semiconductor chaos to synthesize, colorize, and animate 3D "sonic objects."

Most of the light machines had one essential notion in common: they were designed for use as a series of discrete image processing modules that could be controlled with numerous switches and dials as well as patched together in any combination. My fascination with analog image synthesis was centered on devising new ways of creating, connecting, and adjusting these numerous modules to reveal and manipulate complex color imagery. Interestingly, after years of experimentation I never saw the same object twice.

This is the essence of 3D Studio IPAS plug-ins. They give you the ability to create an endless variety of unique animated imagery using your own custom image synthesizer—an image synthesizer that you design, on the fly, each time you apply one or more IPAS plug-ins to your 3D Studio illustrations and animations. Instead of knob twiddling and numerous patch cord connections, you can adjust IPAS plug-ins using an interface consisting of multiple sliders and radio buttons. Furthermore, IPAS plug-ins are considerably more robust and predictable than light machines, which could occasionally take hours to visualize anything more than a single white dot.

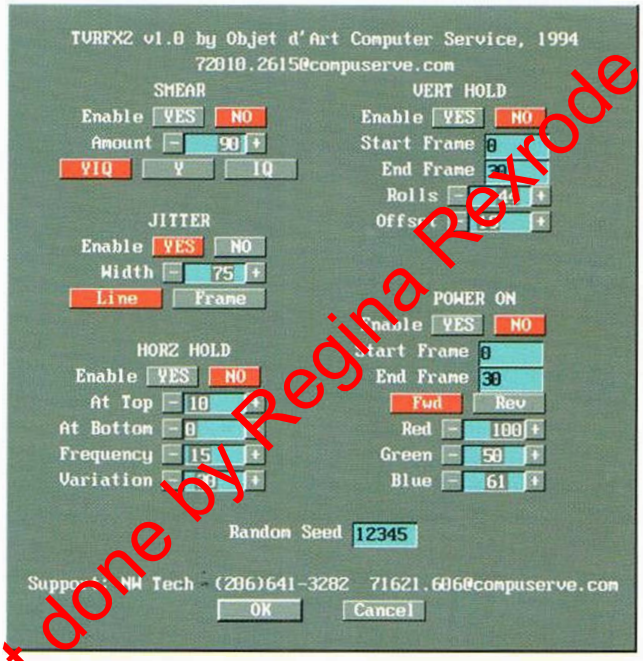


Light Machine 4



Sonic Object 6

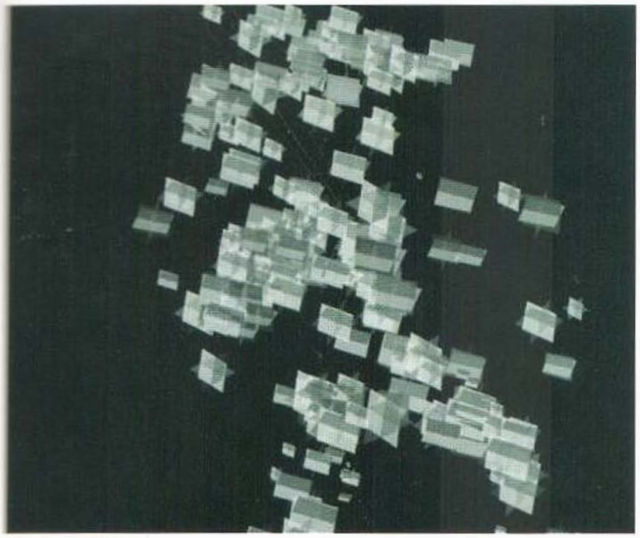
Light Machine 4, an analog image synthesizer, used numerous dials, switches, and patch connections to create 3D animated "sonic objects." This sonic object image was created with a lot of knob twiddling and patch editing using Light Machine 4 and a vector graphic display.



IPAS plug-ins such as Television Reception Effects provide dialog boxes consisting of sliders and radio buttons, giving you 3D graphics and animation at the touch of a button.

IPAS plug-ins offer artists and animators outstanding flexibility, quality and variety. For all the complexity that must always accompany such sophistication, IPAS plug-ins are, for the most part, easy to understand and apply. Imagine being able to apply rich animated and optical effects as directly as you might a particular brush or palette knife, and you begin to understand the power of IPAS plug-ins.

However, IPAS plug-ins are more than just a group of effects and utilities; they comprise a unique philosophy of CGI (computer-generated imagery) media design as well. 3D Studio/IPAS is the first 3D computer graphic program to successfully share the process of media development with the artists themselves—you can create your own plug-ins from scratch. Such extensibility offers artists the means to shape their medium on their own terms while maintaining professional quality standards. This has made the notion of 3D plug-ins universal and, in a sense, larger than 3D Studio, the program that spawned them.



Basic particles

Mapped particles

Texture and opacity mapping are used to turn simple geometry into a steam effect.

For the more complex variables, study the effect of each separately before you set each of several variables to its maximum setting. Keep in mind that many particle variables are interdependent and that thoughtlessly maximizing one or all of them will likely cause your computer to grind away for hours with no apparent benefit over a lower and faster setting. Above all, be sure to perform numerous test renders at key points in your animation to determine which parameters are most essential to your desired effect.

Using AXP Plug-Ins

Before you use an AXP plug-in, be sure that it is properly installed using its installation program or instructions. Furthermore, be sure to read and follow any accompanying instructions exactly. Attempting to shortcut the process, particularly with complex plug-ins, is a mistake. At the least you will likely receive regular error messages as the plug-in attempts to find its resource files, or the plug-in could either cause a crash or simply fail to run.

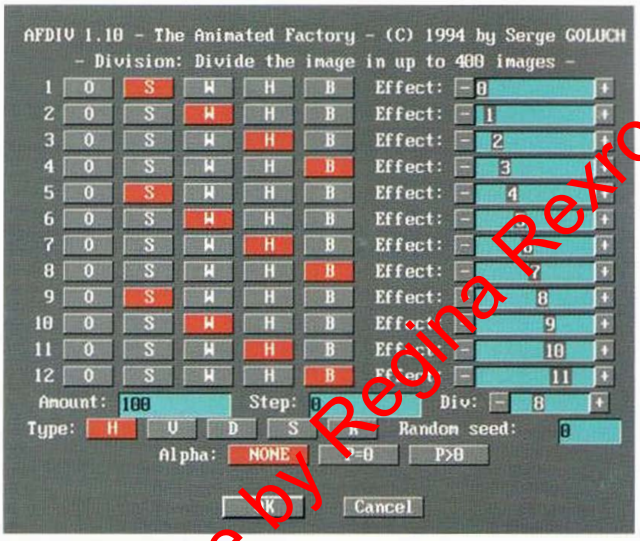
For those times when there is no installation program or documentation, copy the plug-in—*XXXXXX*_1.AXP—into your 3D Studio \Proces directory.

AXP plug-ins can be applied and adjusted from either the 3D Editor or Keyframer using the Modify/Object/Attributes command and clicking on the Axpbox or object. This displays the Object Attributes dialog box. From here, click on the Name box under External Process to display the AXP Selector. Scroll through your installed AXP plug-ins and click on the name of the AXP you want to use. Click on OK and you will be returned to the Object Attributes dialog box.

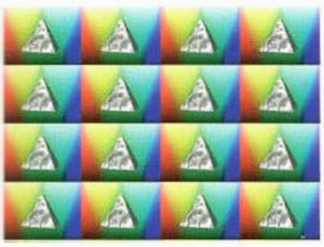
Note: *Some AXP plug-ins, such as Refraction Mapping, Flame, and Vapor, require the application of PXP plug-ins for them to work properly.*

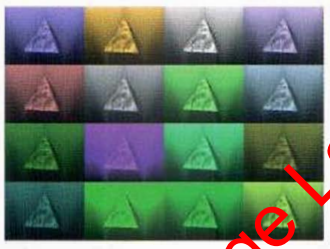
To adjust an AXP plug-in, click on the Settings button in the Object Attributes dialog box to display the selected plug-in's dialog box. With all your plug-in parameters set, exit the AXP dialog box by clicking on OK, then click on OK in the Object Attributes dialog box to return you to the 3D Editor or Keyframer. To see the results of your AXP edits, choose the render method you want from the command column and the view you want to render. Then set up the render parameters using the Render Still Image or Render Animation dialog box and click on Render.

Effect [E] (0–14) — Selects a predefined image effect for each subimage.
Amount [A] (0.0–100.0) — Sets the strength of the effects as a percentage.
Step [S] (–100–100) — Varies the amount of effect per frame.
Div [D] (2–20) — Sets the number of images in the matrix. A value of 4 would mean 16 images (4x4).
Sequence type [St] h, v, d, s, r — Controls the sequence that effects cycling uses. Options are Horizontal, Vertical, Diagonal, Serial, and Random.
Random seed [R] — Sets the random number that controls the random color effect and the random sequence control.
Alpha [Al] w, =0, >0 (whole, =0, >0) — Whole applies the effect to the entire image, =0 applies the effect outside the alpha channel, and >0 applies the effect inside the alpha channel.

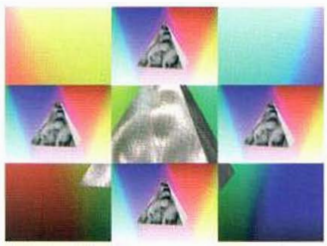


The Divide by Any dialog box.


[T]S [E]0 [D]4 [A]100
64 subimages, random tinting,


[E]11 [St]R
diagonal sequence with alpha mask,


[E]3,4,5 [St]D [Al]=0
random tinting with alpha mask.

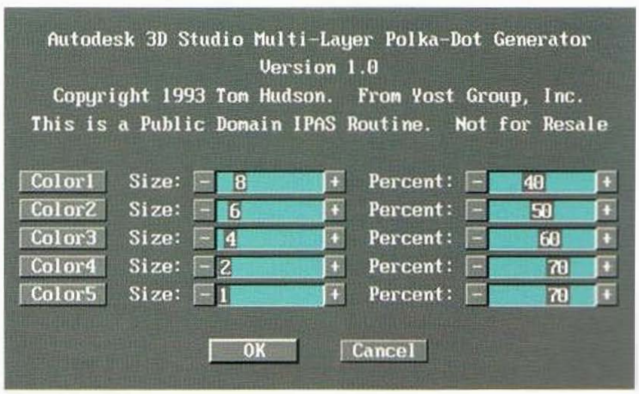

[E]11 [Al]=0

Summary

Dots is included with 3D Studio Release 4 and is available as a shareware plug-in from Yost Group. It generates a range of random animated patterns, consisting of five layers of colored dots. The dot layers are built one atop the next, with layer 1 at the back and layer 5 at the front.

Dots Parameters

Color 1, 2, 3, 4, 5 [C] 1,2,3,4,5 — Specifies the dot color for each layer via the 3D Studio color picker.
Size 1, 2, 3, 4, 5 [S] 1,2,3,4,5 (1–40) — Sets the size of the dots for each layer, with larger dots requiring more time to generate.
Percent 1, 2, 3, 4, 5 [P] 1,2,3,4,5 (0–100) — Specifies the percentage of dot coverage for that layer.
Note: *It is possible to hide the dots on a given layer depending on a combination of its position, front to back, and the dot size.*



The Dots dialog box.