The Graphics Factory

Table of Contents

Introduction

The Graphics Factory is a fascinating and useful way to create and explore patterns and graphics that can be used for hundreds of applications.   Explore the infinite world or fractals or experiment with artifical life with cellular automatons.   Create marble backgrounds or cloud textures.   Generate repeatable patterns that can be tiled.   Employ modules which randomly build entire landscape pictures.   Interactively control the flow of drawing or let your module run overnight to produce hundreds of patterns automatically.

The Graphics Factory can be used at two distinct levels.   At one level you as the user can load existing modules and use these modules to create the images.   But the second level is where the real power is.   At the second level you modify or create your own modules, controlling each factory in the module by setting the numerous parameters available for each.

You can consider The Graphics Factory as a procedural drawing program.   So rather than drawing each stroke of a picture, advanced algorithms are employed to do the work for you.   But don't be alarmed, no programming is needed.   All options, settings and parameters are set with dialog boxes.

Contacting Kamyan Software

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You can leave us a message on our BBS:
    708-372-0174

Go to our Web page at:
    http://members.aol.com/kamyansoft/home.htm

Postal Service at:
    Kamyan Software
    1228 Narragansett Drive
    Carol Stream Il. 60188

Or as a last resort you can try to reach us by voice at:
    708-372-6134

Features

General Features

- Save modules to disk.
- Save individual factories to disk.
- Number of factories in a module limited only by memory.
- Save bitmap image of your current drawing area.
- Randomize factory location.
- Module drawing size up to 1024 X 768.
- All drawing performed in high quality true color graphics using 16 million colors.
- Interactive controls allow dynamic control of effects in real time.
- Debugging tracer allows viewing internal values of modules as they run.
- Hide or show factories while module is running.
- Selectable screen refresh rate to improve performance.
- Automatically reset the module at set time intervals or on set cycle intervals.
- Automatically save a sequence of bitmaps to disk on set cycle intervals.
- Option to automatically start running a module when it is loaded.
- Option to automatically show the interactive controls when a module is loaded.
- Module designer credit dialog can optionally appear when a module is loaded.
- Extensive popup hints which dynamically change when needed.

Factory General Features

- Assign names and descriptions to individual factories.
- Selectable number of factory draws per cycle.
- Control starting, interval and ending life of factories.
- Factory control points can be repeated symmetrically, horizontally mirrored, vertically mirrored in any combination.
- Factories can be individually disabled and enabled.
- Factories can be draggable or in a fixed location.
- Optionally activate a factory on a mouse click.
- Optional buffer drawing to achieve different effects.
- Almost all factory value settings can be further defined by advanced value controls. These advanced control types include:
- Wrapping from high value to low
- Wrapping from low value to high
- Bouncing from high value to low
- Bouncing from low value to high
- Interactive control of values while module is running
- Random
- Wrap jitter
- Bounce jitter
- Screen width value
- Screen height value
- Screen Center
- Control point locations
- Factory locations
- Values from a file
- Values from a constant list

Factory Color Features

- All 16 million colors available per factory.
- Seven programmable color control points to design custom color gradiants for each factory.
- Selectable random variance levels for each color control point.
- Blend color for smooth gradiants or set for hard edge color changes.
- Selectable interval of color range table.
- Special selected hilight color used for certain drawing effects.

Factory Color Point Features

- Each factory has two independent control points used to drawing coordinates.
- Selectable minimum and maximum velocity of control points.
- Selectable minimum and maximum tethering distance to factory location.
- Selectable minimum and maximum tethering distance to other control point.
- Definable starting location to control points, in absolute position or relative to factory location.
- Selectable friction of each control to add or remove power from control point each cycle.
- Define for each control point its starting velocity.
- Select control point reaction at the edge of the draw surface.   Choose from bounce, random bounce, wrap, drift, clockwise edge or counter clockwise edge.
- Powerful control point path correction feature each with programmable values. Correction types include:
- Relative
- Follow
- Circle
- Wave
- Archimedean spiral
- Archimedean spiral trianglulated
- Mandela partial 2D XY
- Mandela partial 2D XZ
- Banchoff Klein Bottle 2D XY
- Banchoff Klein Bottle 2D XZ
- Feather fractal
- Cover left to right
- Cover top to bottom
- Cover Right to left
- Cover bottom to top
- Jitter
- Absolute position
- Selectable mix the control point location and path correction.

Factory Magnetics Features

- Any factory or combination of factories can generate magnetic effects.
- Selectable magnetic channel.   (Allows selecting which objects will be effected by the magnetics)
- Definable strength of magnetic pull.
- Strength can fade over distance or remain constant.
- Controllable life intervals for the magnetic pull.
- Attract to the factory location or a control point.
- Option to pull to the distance radius of the factory.
- Allow negitive pull values.

- Allow pull beyond the center point.
- Option to evenly distribute the pull across the x and y axis.
- Magnetic pull can effect the location of other factory control points or effect drawing effects for other factories.

Factory Drawing Features

- Large selection of base drawing types each with programmable parameters which allow detail customization.
- Drawing types include:
  - Dot
  - Line
  - Ellipse
  - Box
  - Circle
  - Filled ellipse
  - Filled box
  - Filled circle
  - Sphere
  - Pyramid
  - Line end high-light
  - Line center high-light
  - High-light right
  - High-light left
  - High-light bottom
  - High-light top
  - High-light bottom right
  - High-light bottom left
  - High-light top right
  - High-light top left
  - Pixel storm
  - Shrink
  - Grow
  - Shift up
  - Shift down
  - Shift left
  - Shift right
  - Pickup
  - Bitmap
  - Large Line Fade
  - Small Line Fade
  - Time escape quadratic fractal
  - Turtle drawing
  - Mandelbrot fractal
  - Julia Set fractal
- Drawing types can be process by up to 10 levels of pixel effects.
- Effect Types include:
  - Value function
  - Random function
  - Jitter function
  - Symmetry
  - Overlay
  - Fat dot
  - Miscellaneous patterns 1 - 4

- XY wave add function
- XY wave mul function
- Lined
- Bared
- Interference
- Magnetic
- Mirror
- Dither
- Color filter function
- Naturalize color
- Checker function
- Circle function
- Box function
- Rectangle function
- Horizontal bar function
- Vertical bar function
- Concentric circle function
- Concentric box function
- Interlaced function
- Blur image process
- Sharpen image process
- Edge detect image process
- Emboss image process
- Anti-alias
- Rotate
- Shear
- Split
- Turbulence function
- Screen Luminance function
- Working luminance function
- Spectral synthesis function
- fBm function
- XY screen position function
- XY draw position function
- Cellular automaton 3 base
- Cellular automaton 8 base
- Cellular automaton function
- Magnify
- Sawtooth function
- Pulse function
- Sphere projection
- Contour tiles function
- Erase flag function
- All function effects can be modifed prior to application to an object by the following modifiers:
- Invert
- Absolute
- Negate
- Add
- Subtract
- Multiply
- Divide
- Modulus
- Mix
- Use previous function value

- Add previous function value
- Subtract previous function value
- Multiply previous function value
- Divide previous function value
- Modulus previous function value
- Mix previous function value
- Function result values can be applied to a variety of objects these include the following:
- New RGB
- New xy
- Index RGB
- Screen RGB add
- Working RGB add
- XY add
- Screen RGB and working RGB add
- Screen RGB subtract
- Working RGB subtract
- XY subtract
- Screen RGB and working RGB subtract
- Screen RGB multiply
- Working RGB multiply
- XY multiply
- Screen RGB and working RGB multiply
- Screen RGB divide
- Working RGB divide
- XY divide
- Screen RGB and working RGB divide
- Screen minimum
- Working minimum
- XY minimum
- Screen RGB and working RGB minimum
- Screen maximum
- Working maximum
- XY maximum
- Screen RGB and working RGB maximum
- Screen RGB and working RGB mix
- Working RGB filter
- Description area for each of the 10 effects levels.

Ordering Information

The easiest way to order is to select ORDER FORM from the HELP menu.   There you will see payment methods accepted include check, credit card and pay via Compuserve.

The registered version of The Graphics Factory is $39.00 plus $3.00 shipping and handling. If you wish to pay by check send payment to;

Kamyan Software
1228 Narragansett Drive
Carol Stream Il. 60188

To pay by other methods please select ORDER FORM from the HELP menu.

Quick Hints

This section will give you some helpful hints to get you up and running as quick as possible.

1. Use existing modules by selecting Load Module from the File menu, and then selecting one of the files shown in the list box on the left.

2. Most modules that come with The Graphics Factory will automatically start running when loaded.   You can stop the running of the module by selecting Stop from the Module menu.

3. To start or restart loaded modules select Run or Restart from the Module menu.

4. To get to the settings for a factory double click on the factory.   This will bring up the Setting Dialog with six buttons to access various parameters for the factory.

5. To change the colors that an existing factory is generating go to the Settings Dialog by double clicking on the factory and then press the Color button.   This will show the Color dialog.   Double click on each color box to select a new color.

6. Make good use of the popup hints on all dialogs.   Leave the mouse cursor over each control for a second to get a popup hint that describes what the control does.

7. Within the various factory setting dailogs any control with the aqua color background can be double clicked to bring up the Advanced Value Control dialog.

Overview

This section is designed to give you a general understanding of how The Graphics Factory works.   This understanding is important to successfully edit or create modules.

The Graphics Factory is an software application which is designed to create graphic images. The largest logical unit upon which this application operates is a module.   A module can be saved and loaded to and from disk.   A module contains all the information that can be configured by a user.   A module can be broken down into two parts.   The first are module settings.   These are general settings which effect the overall operation of a module.   The second part is the factories.   A module can contain any number of factories.   Each factory operates independently from each other.

Factories can also be saved and loaded to and from disk, but when loaded they are always part of a module.   Factories are where the actual work is done.   Factories have a large number of programmable settings, that can be broken down into the following areas; general settings, draw settings, color settings, control point settings and magnetic settings. You can visualize a factory as consisting of a base, this is what you see on screen as a box, and two control points.   You do not directly see the two control points.   The control points of a factory often move with each drawing cycle.   The control points in most cases determine where drawing will occur during that cycle.   For example, if a box drawing type is select for a factory, the box upper left point will be at the location of control point 1 and the lower right point will be at the location of control point 2.

A module when loaded into The Graphics Factory can either be running or idle.   When idle no drawing will take place.   When running each factory has an opportunity to draw each cycle.   A cycle is the process in which each factory is processed one at a time and preforms one drawing operation.   At the start of each cycle programmable values that are configurated with advanced value control are set, otherwise they remain constant.

A factory when asked to draw will first determine its generat drawing type, such as a line, box or cicle.   The color table for the factory will be accessed to get the current color to draw with.   Now each pixel of the drawing type will go through the effects processor.   Up to 10 levels of effects can occur before a pixel is actually ploted to screen.   During this time it may be moved, replicated, blended, rotated, waved, filtered out, or any number of different effects.   Once all effects have been preformed on this pixel it is ploted to the off screen bitmap and the next pixel is processed.   This continues for all pixels for all factories.   When all factories are processed the screen will be updated with all factory actions for that cycle. Now the next cycle can begin.

This is simplification of the process but should give you a general idea about the structure and flow of things.

Menus

This section gives a brief overview of the menu choices.

File | New Module
    Close any current module and start a new one.

File | Open Module
    Load a saved module from disk.

File | Save Module
    Save a currently loaded module to disk.

File | Save Module As
    Save a currently loaded module to a new name.

File | Open Factory
    Loads a saved factory from disk into the current module.

File | Save Factory
    Save the currently highlighted factory to disk.

File | Save Image
    Save a copy of the current image on the canvas to disk in 24 bit BMP format.

Factory | Add
    Add a new factory to the current module.

Factory | Duplicate
    Makes a copy of the currently selected factory and places it in the current module.

Factory | Change
    Shows the Settings dialog for the currently selected factory.

Factory | Delete
    Deletes the currently selected factory.

Module | Run
    Starts the execution of the current module.

Module | Stop
    Stops a currently running module.

Module | Clear
    Clears the current canvas.   This can be used both if the module is running or not.

Module | Restart
    The same as selecting stop and then start.

Module | Randomize Locations
    Randomly place each factory of the current module on the canvas.

Module | Resize Canvas
    Allows changing the size of the canvas.   The current image on the canvas will be lost
when this is done.

Module | Interactive Controls
    Show the Interactive Controls dialog.

Module | Show Trace
    Show the Trace dialog.

Module | Show Factories
    Show all factories that were previously hidden.   Does not affect the running status of a module.

Module | Hide Factories
s   Hide all factories for the currently loaded module.   Running status is not affected.

Module | Setting
    Brings up the Module settings dialog.

Module | Credits
    Brings up the Module credits dialog.

Module | Update Wallpaper
    Changes your Windows wallpaper to the current canvas image.

Help | Help
    Starts up this help file.

Help | Catalog
    Starts up the Kamyan Software Product Catalog / Order Form.

Help | Order Form
    Starts up the Kamyan Software Product Catalog / Order Form.

Help | About
    Brings up the About dialog for this product.

Creating Your Own Modules

Currently due to lack of documentation on creating your own modules the best approach would be to look at existing modules as examples.   Experiment until you get the results you want.   Be sure to read all other topics in this help file including the full feature list.

Double click on factories to bring up the factory settings dialog.   Double click any control with a aqua color background to bring up an additional Advanced Value dialog (when you want a value to change over time).

When creating a module it is very easy to select a value within a dialog box which can cause an error.   Most errors will occur while running the module.   In many case when an error occurs a message box will display on screen indicating the problem, along with the factory name.   At this point the factory will be disabled until the module is restart.