ImageFX

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Chapter 1

ImageFX

1.1 ImageFX Help System

This help system is designed to cover the highlights of ImageFX ←
. It
is not a substitute for the manual which you should keep handy as a
reference.

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1.2 Main Menu Gadgets

Below are the Main Menu gadgets available for use throughout ←
the
ImageFX system. Click any of them to learn more about how they are used.

```
         Zz

          ?

          >
          filename (type)    0x0
         RGB/GREY

          +
          -
         1:1

          #

         Scanner

         Palette
         ("StatusBar")
   ("Action Menu")
         Toolbox

         Render

         Load

         Save

         Printer

         Prefs

         Quit
```

1.3 Introduction to ImageFX

```
   ImageFX 2.6
   Copyright © 1992-1996 Nova Design, Inc.
   All Rights Reserved

   Nova Design, Inc.
   1910 Byrd Avenue, Suite 214
   Richmond, VA  23230
   USA
```

   ImageFX is an image processing program. The basic theory is that you
load, scan, or framegrab images into ImageFX, manipulate them with a
variety of tools, and then output them to a file, display device, or
print device.

   ImageFX always works internally in full 24-bit accuracy. However, since
not everyone has a 24-bit display for their Amiga, ImageFX uses what we

call a "preview" display to show you what it's doing. The preview display is a quick representation of the internal 24-bit image, scaled so that you see the entire image at once, no matter how large it is. The preview display can be configured by you to show itself in color or shades of gray.

With this preview display is the ImageFX menu panel, covering the lower portion of the screen, or available in a separate window. You can toggle the menu on or off at any time by pressing the right mouse button.

1.4 Sleep Gadget

"Zz"

The Sleep gadget will shut down the ImageFX interface and iconify the program on your Workbench. You have the option of deleting all your image buffers (to free up as much memory as possible) or keeping them intact until you restore the program.

ImageFX normally multitasks quite happily with other programs running in your Amiga. As long as you have sufficient processor and memory resources, you can perform a wide range of ImageFX processing tasks while simultaneously running other background processes. If you wish to put ImageFX to sleep click the Iconify gadget. A secondary requester will appear, providing some options.

To awaken the program, double-click on the ImageFX icon.

(If you're running 1.3, you need to activate the iconify window and then press the right mouse button.)

1.5 About Gadget

"?"

Click this gadget for information about the current state of ImageFX. A window will open, displaying current memory usage and other useful details. If you click the More button at the bottom of this window, you will be treated to several more windows containing information about ImageFX's authors and publishers.

1.6 Channel Gadgets

"RGB/GREY"

The RGB Channel gadgets are used to turn any or all of the three color channels off, masking them from any image processing effects. These three gadgets are replaced with a single GREY indicator when the main image is 8-bit greyscale.

1.7   Magnify Gadgets

```
"+" "-"
```

The Magnify gadgets are used to zoom into and out of the preview
display, for detailed work. All ImageFX painting and processing operations
can be used from any level of magnification.

Once magnified, the arrow keys will pan around in the image.

1.8   1:1 Mode Gadget

```
"1:1"
```

The 1:1 gadget is a toggle between "exact" mode, such that each
pixel in the image buffer corresponds exactly to each preview display
pixel, and "normal" mode where pixels may be expanded or discarded in
order to fit the image within the display in the correct aspect.

1.9   Screen To Back Gadget

```
"Screen To Back Gadget"
```

The Screen To Back gadget will send all of ImageFX's screens to the back,
allowing you to get to Workbench or other programs.

Note that some preview modules (such as the Firecracker) will need to
be re-enabled when you return to the ImageFX screen. This can be done
by pressing Shift-F9.

1.10   Quit Gadget

```
              "Quit"
```

The Quit gadget will exit ImageFX, freeing all image
              buffers
                 .

1.11   Loading Images

```
              "Load"
```

Load presents a file requester from which you can choose the name of an
image to load into the main
              buffer

. ImageFX will automatically detect
the file format of the image you are attempting to load and call the
appropriate Loader module if it is one of the supported formats. If the
file format is not recognized, the Load As requester will automatically be
shown so you can manually select the file format.

ImageFX 2.0 now supports loading as many images as memory will permit.
These are maintained independently of any other images loaded into the
Swap or Alpha Channel buffers.

All images are converted to 8- or 24-bits as they are loaded.

Some Loader modules may ask for additional information before
performing the load; for example, the ANIM Loader will ask for the frame
number to extract from the animation.

New to ImageFX 2.0 is the "thumbnail" requester. This requester
opens a window and provides filename-captioned miniature or "thumbnail"
versions of your disk-based images from which to choose.

ImageFX 2.0 ships with this new requester turned on by default. If you
wish to turn it off and revert to a regular text-style file requester,
you may do so by clicking the Main Panel Prefs button, then clicking the
File Requester button in the Settings column, and finally making your
choices in the File Requester. Be sure to save your changes if you wish
ImageFX to behave the same way the next time you run it.

ImageFX will load any image file that conforms to one of the following
formats

```
 ALIAS       Image file format used Alias Animator software.
 ANIM        Standard Amiga file format for storing multi-frame
             animations.
 BMP         PC/Windows standard BitMaP image format
 DCTV        Special Y/U/V encoded image format viewable only on DCTV
             hardware.
 DPIIE       File format used by the PC version of Electronic Arts'
             Deluxe Paint.
 FAXX        Amiga standard format for Fax transmissible page images.
 FITS        Flexible Image Transfer Standard from NASA for stellar
             image data.
 FLI/FLC     PC formats for multi-frame animations.
 Framestore  Video Toaster proprietary composite format.
 GIF         CompuServe standard file format for 8-bit color-mapped
             images.
 GRASP/DL    GRaphic Animation system for Professionals animation format.
 HAME        File format supporting Black Belt Systems' HamE display
             system only.
 ICO         PC standard for Windows 3.1 icon images.
 ILBM        Amiga standard format for virtually all image types.
 IMG8        Special format for PP&S FrameGrabber 256.
 Impulse     Special format used by Imagine 3-D.
 info        Amiga standard format for Workbench icons.
 JPEG        Highly compressed (and lossy) file format developed by
             Joint Photographic Experts' Group for photo-realistic images.
 Koala       Color bitmap format used by Commodore C-64 programs
 MacPaint    Special 1-bit format used by Macintosh painting programs.
```

```
 PBM          A public domain image file format found on PC, Unix and other
              platforms.  Includes PGM, PPM as well.
 PCD          Compatible format used for Kodak CD images (supported via Public
              Domain utility).
 PCX          Special format originated by PC Paintbrush for PC bitmap images.
 PDS          Planetary Data Sciences image format.
 PIC          PC image format for 1-bit to 24-bit images.
 PICT         Macintosh (QuickDraw) bitmap and vector drawing image format.
 PostScript   Loads PS and EPS Bitmap and structured object art.
 QRT          Bitmap format used by Quick Ray Tracer, a public domain renderer.
 Rendition    32-bit data format used by Caligari and compatible 3-D systems.
 Sculpt       Format used in Byte-by-Byte's Sculpt 3-D (also combines Raw RGB).
 SGI          Silicon Graphics RGB bitmap format.
 Softimage    Silicon Graphics bitmap formats.
 SunRaster    RGB format used on Sun computers.
 Targa        24-bit and 32-bit image standard used widely on the PC platform.
 TIFF         24-bit and 32-bit image standard used widely on the Macintosh
              platform.
 VICAR        Format used for image data from stellar probes.
 Wavefront    Silicon Graphics bitmap formats.
 YUVN         Image file format used by VLAB video frame grabber.
```

1.12 Preview Display

   ImageFX always works internally in full 24-bit accuracy. However, since
not everyone has a 24-bit display for their Amiga, ImageFX uses what we
call a "preview" display to show you what it's doing. The preview display
is a quick representation of the internal 24-bit image, scaled so that you
see the entire image at once, no matter how large it is. It appears
behind the main menu panel or on a separate window.

1.13 ImageFX Buffers

                    ImageFX manipulates images in what we call "buffers." A buffer ←
                     is a
storage place for either a color or greyscale image. ImageFX maintains a
"main" buffer (the one visible to you on the
                  preview
                display), a "swap" buffer (a hidden buffer used for performing ←
                  compositing
effects, or as a scratchpad), an "undo" buffer (where a copy of the area
you last modified is kept for later restoral), and an "alpha channel"
buffer (used to control several of the image processing effects and
drawing tools).

   ImageFX always maintains image buffers internally in either 24-bit color
or 8-bit greyscale.

   The Toolbox menu for buffers has these options:

   Create Buffer...   Create a new buffer.

```
Delete Buffer...      Delete any existing buffer.

Clear Buffer...       Clear main buffer to black or palette color.

Load New Buffer       ImageFX can load as many images as will
                      fit into memory.  You can swap the main buffer
                      into the alternate buffers list ('Shift' + 'm')
                      and then load a new image into Main.  You can also
                      load picture files directly into the alternate
                      buffers list by clicking this button.  Buffers
                      loaded in this way are not visible until you
                      select one, by name, using the Alternate Buffer
                      Selector.

Load As...            Load a file in a specific file format.  Required
                      to load some file formats (such as Sculpt RGB or
                      Targa files) that cannot be automatically detected.

Load from Clipboard     Load image from the clipboard.

Grab Screen...        Grab a current Amiga screen as the main buffer.

Open MAGIC            Nova Design, Inc. has published a standard for
                      real-time 24 bit image data interchange called
                      MAGIC.  MAGIC allows a number of programs to
                      share and work on the same set of image data
                      simultaneously.  Assuming you let ImageFX's
                      installer put the MAGIC files on your system,
                      when you click the Open MAGIC button, a requester
                      appears showing all the "published" pictures.

Copy to Swap          Copies the main buffer to the swap buffer.

Swap Buffers          Exchanges the main and swap buffers.

Redo                  Repeats the last executed ImageFX command. This
                      is slightly different than an Undo-Undo operation
                      which reverses the effect of an Undo.

Light Table           Lets you work between the Main and Swap buffers
                      when using tools such as Rub Through and Trace
                      Through.
```

1.14 Toolbox: Brush Menu

ImageFX uses the standard Amiga brush metaphor for cutting and pasting
pieces of the image. These brushes can be used for drawing and can be
treated as image buffers of their own. By using the region selector, you
can resize, rotate and image process a brush as you would an image.

The brush menu on the Toolbox contains the following selections:

```
Load Brush...      Load an image from disk as a brush.

Load New Brush     Loads one or more brushes into the alternate brush
                   buffers.  It does not become the current brush until
                   you choose it with Select Brush (see below)

Load from Clipboard    Load image from clipboard as a brush.

Save Brush As...   Save the current brush to disk.

Grab Screen...     Grab an existing Amiga screen as a brush.

Pickup Swap        Pick up entire swap buffer as a brush.

Pickup Region      Pick up a marked region of the Preview Screen to
                   use as the current brush.

Copy to Swap       Copy current brush to the swap buffer.

Set Handle         Modify current brush's "handle" (location of the
                   pointer over the brush).

Outline Edges      Add a 1-pixel outline of the current drawing color
                   around the outside of the brush.

Trim Edges         Trim 1 pixel from the edges of the current brush.
```

1.15 Toolbox: Alpha Menu

The alpha channel is a separate image buffer (generally greyscale)
whose main purpose is to control image processing effects done to the
main buffer. While the alpha channel can be color, only the first 8
bits are used (ie. the Red plane for a color image).

Toolbox menu items for the Alpha menu are:

```
    Create...          Similar to the Create Buffer option.  Opens the
                       Alpha Channel Creation subpanel, with options
                       for creating an Alpha channel in various ways:

    Black              Creates a black Alpha Channel

    White              Creates a white Alpha Channel

    Wave Generator...  Presents options to create a special
                       Alpha Channel for waving and rippling effects

    From Brush         Creates an Alpha Channel from a brush

    From Region        Creates an Alpha Channel from a region of
                       the Preview Screen

    Load...            Allows you to load an image, or mask, into
                       the alpha channel without having to swap to it.
```

```
Save As...              Lets you save the alpha channel without
                        swapping to it.

Swap                    Exchanges the main buffer and alpha channel,
                        allowing you to edit the contents of the alpha
                        channel.

Copy to Alpha           Copies the main buffer into the alpha channel.

Copy from Alpha         Copies the alpha channel into the main buffer.

Delete                  Deletes the alpha channel, freeing its memory.

Show Alpha              Shows the Alpha Channel image in light table
                        fashion, behind the main buffer image.
```

1.16 Toolbox: Hook Programs

Presents a file requester from which you can select an ImageFX
Hook program to run.

Executing Hooks

To execute a Hook, click the Hook Toolbox button. In the file requester
that results, select the desired hook by name and click Okay. Depending
on what the hook does, a secondary requester or control panel will appear.
Some hooks require user input. Others work automatically and the result
is displayed as soon as the processing is done.

The contents of the Hooks directory may be different from that
documented here. Please check the ImageFX distribution diskettes for a
ReadMe file describing new hooks added to the ImageFX system.

Included Hooks

At the time this Guide was prepared, the following hooks were available:

```
AutoFX      The Automatic ImageFX batch processor.

Balance     Quick Brighten and Gamma curve process for print
            reproduction.

BlackOut    UnderColor removal for color printing reproduction.

CineMorph   (CMIFX/CMIFXFP)
            The ImageFX morphing animation system.

GrabFC      Grabs the contents of the Firecracker 24 board's
            display memory into the ImageFX main buffer.

Hist        Red, Green, Blue and Grey histographic evaluation of
            the main image buffer.

Imp         The original ImageFX Multi-Processor batch system.
```

Measure   Simple tool to determine the size of onscreen objects.

Variance   Analysis of the color distribution within an image.

Each hook is fully described in the manual. Please read it to learn
their capabilities.

1.17   Toolbox: ARexx Programs

Presents a file requester from which you can launch an Arexx
program to control ImageFX.

If you have not installed or enabled ARexx on your system, this
button will be ghosted and thus not available to you until you do.
ARexx has been included "free" with every version of the Amiga operating
system since 2.04.

We recommend you enable ARexx on your Amiga. It requires very little
system memory and having it available will greatly increase the
utility and capabilities of ImageFX.

You do not have to be a programming genius or an ARexx wizard since
ImageFX comes supplied with dozens of pre-written and tested ARexx scripts
for you to use.

The basic ImageFX functionality can be expanded through the use of
Hooks and ARexx programs. Another section discusses the hooks
available for use when you click the Hook button in the ImageFX Toolbox
panel.

This requester lists all of the ARexx scripts included with your ImageFX
distribution. Any ARexx scripts you write yourself should probably be
kept in this same directory.

The total number of ARexx scripts available for use with ImageFX is
constantly growing. As a result, the programs described here
are only a representative sampling of scripts.

Please consult the manual for more information on what each script is
and what it does. They are simply listed here for convenience. If you are
conversant in the ARexx language, you may wish to examine the scripts
in a text editor. You are, of course, free to modify any of the
provided scripts to customize them for your needs. Before doing so,
you may wish to make a backup copy of the original script so you can
revert back to it should your own script not perform as anticipated.

Analyze JPEG
Border
BuildMPEG
CreateNails
Demo Programs
    Designs
    DrawAnim
    Flying

```
        ReqDemo
        Scroller
FastTimeLapse/TimeLapse
Find
GrabScreen
HalveAnim
JPEG
MaptoWB
PostRedraw
PrintFAX
ReAspect
Scaler
ScanFAX
Smear, StartWedge, & StopWedge
Snapshot
UnJPEG
UserMenu
Wipe
```

1.18 Saving Images

                    "Save"

   The Save Format requester allows you to choose the file format in which
to save your images. You can choose to save the
                    preview
                    screen
(basically a screen grab), a
                    rendered image
                  , or the main 8- or 24-bit

                  buffer
                  . You can also choose to save out a color separated image from
here.

   Some file formats may not support 24-bit images; only those formats
that can will be listed in the Save Buffer list.

   Clicking the Save button produces a file requester for saving pictures
to disk. A secondary requester appears, allowing you to select which
of several active image buffers is to be saved:

   Working Screen   This selection saves to disk the image in the current
                    Preview Screen. Its dimensions and color depth are
                    those specified in the Preview Options panel for the
                    selected Preview module.

   Rendered Image   The image in the render buffer is saved to disk.
                    Its dimensions and color depth are those specified in
                    the Render panel for the selected Render module.

   24-Bit Buffer   The contents of the currently active true-color 24-bit
                    image buffer are saved to disk. If the current image
                    is greyscale only this will be an 8-bit file.

Separate Buffer Opens the secondary Color Separation requester

The scrollable list in the right portion of this requester allows you to
specify an image file type to use when saving. Files intended for export
to other computer systems may be saved in a format commonly associated
with the target system.

Save As displays a file requester allowing you to choose a new filename
under which to save the selected image.

Cancel will return without saving.

ImageFX will save image data to any of the following File Formats

```
 ALIAS      can be used on various high-end UNIX graphics systems.
 ANIM       an animation that can be played on all Amigas.
 ANIM7      a high-color variant of the IFF ANIM standard.
 BMP        can be used with virtually all Windows graphics systems.
 DCTV       Special YUV encoded image format viewable only on DCTV hardware.
 DPIIE      can be directly used with the PC version of Electronic Arts'
            Deluxe Paint.
 FAXX       can be send and received by several Amiga-based Fax systems.
 FITS       Flexible Image Transfer Standard from NASA for stellar
            image data.
 FLC        an animation, up to 8-bits, that can be played on virtually
            any PC-based system.
 Framestore Video Toaster proprietary composite YUV format.
 GIF        can be viewed online via CompuServe or used in any GIF-able
            program.
 HAME       File format supporting Black Belt Systems' HamE display
            system only.
 ILBM       can be used with virtually ALL Amiga programs
 info       produces an Amiga Workbench icon file
 JPEG       produces highly compressed images usable across many platforms
 PBM        can be used by many UNIX resident graphics programs
 PCX        can be used by virtually all PC resident graphics programs
 PICT       Macintosh (QuickDraw) bitmap and vector drawing image format.
 QRT        can be used by any Quick Ray Tracer implementation across
            various platforms
 SunRaster  can be used on Sun workstations
 Rendition  can be used by various 3-D modeling systems (typically as
            texture maps)
 Sculpt     can be used by Sculpt 3-D compatible programs
 SGI        Silicon Graphics RGB bitmap format.
 Softimage  Silicon Graphics bitmap formats.
 Targa      can be used by virtually all graphics systems across platforms
 TIFF       can be used by virtually all graphics systems across platforms
 Wavefront  Silicon Graphics bitmap formats.
 YUVSPLIT   a raw image format used by ImageFX 2.0's new MPEG encoder
```

1.19   ImageFX Preferences

"Prefs"

Preferences allows you to customize ImageFX for use on your
particular Amiga system configuration. You can permanently set your
default preview mode and options, scanner, renderer, printer module and
even which color quantizer you would like to use. All of the
preferences options are covered in detail in the manual, and because
ImageFX can be configured in so many ways, you are advised to
definitely read that section of the manual.

You can Load, Save and Use different preferences from this menu. If
you select Use, the preferences you have selected will only be kept for
this ImageFX session. If you select Save, you will be prompted to save
the preferences to their default file, and you will then be returned to
the menu.

The Preferences panel is divided gnerally into three vertical columns of
selectors.

FIRST COLUMN: MODULE DEFAULTS

The first grouping of buttons in the leftmost column of the Preferences
panel determines which of the various modules ImageFX will use for defaults
whenever it is started.

Preview
Clicking this button produces a file requester allowing you to select
a Preview module as default for your ImageFX system. If you have an
enhanced display system (such as EGS or IV-24 videographics boards), you
should choose the Preview module that is appropriate. Thereafter, ImageFX
will calculate its Preview buffer display for the selected display
device.

Preview Options
Once a Preview module has been selected, you must use the Preview
Options controls located at the top of the second column of Preferences
gadgets to configure the Preview module's particular display
characteristics.

Clicking the Preview Options button produces a different requester,
depending on the selected Preview Module.

Scanner
The second button in the leftmost column of the Preferences control
panel lets you choose which ImageFX scanner module will be loaded at
startup. Whichever scanner module you choose, you are always able to
select another at any point thereafter. Clicking this button produces a
file requester listing the available scanner modules.

Render
The third button in the leftmost column of the Preferences control
panel lets you choose which ImageFX render module will be loaded at
startup. Whichever render module you choose, you are always able to
select another at any point thereafter. Clicking this button produces a
file requester listing the available render modules.

Printer
The fourth button in the leftmost column of the Preferences control
panel lets you choose which ImageFX printer module will be loaded at

startup. Whichever printer module you choose, you are always able to
select another at any point thereafter. Clcking this button produces a
file requester listing the available printer modules.

   Quantize
   The fifth button in the leftmost column of the Preferences control panel
lets you choose which ImageFX Quantization module will be loaded at
startup. Quantization is the process ImageFX uses to reduce 24-bit colors
as required when creating Preview screens and rendering to lower-color
display systems. Several different Quantize modules are supplied
with ImageFX. Clicking the Quantize button produces a file requester
listing the available Quantize modules. You can select the module that
suits your needs. Consult the manual to learn how they differ.

   ImageFX Keyboard Shortcuts
   As mentioned previously, ImageFX is fully user configurable. Most of
its functions may be invoked through keyboard shortcuts. A simple text
file in the ImageFX: directory "Default.keys" contains the definitions for
all the keyboard shortcuts that are not encoded directly into ImageFX.
This allows you to alter most keyboard assignments to suit your own needs,
simply by editing the text file. All the default ImageFX keyboard shortcut
assignments are listed in the manual, in Appendix A.

   Load Keys
   Clicking this button produces a file requester allowing you to select
an alternative text file containing the definitions for your own keyboard
shortcuts.

   Save Keys
   Clicking this button produces a file requester allowing you to save the
currently defined keyboard shortcuts as a new text file. You should supply
your own, unique, name for this file.

   Screen Mode Selection
   At the bottom of the left-hand column of Preferences controls is a
ScreenMode selector similar to that found in the Amiga ScreenMode
Preferences utility. This selector allows you to specify what type of
Screen ImageFX will use to display its various user interface
elements.

SECOND COLUMN: ENVIRONMENT DEFAULTS

   The second column of gadgets in the Preferences control panel allow for
the customization of various factors related to the environment ImageFX
runs in. The first button "Preview Options" has already been discussed in
conjunction with Preview Module selection.

   Default Paths
   ImageFX maintains different path information for a variety of different
painting related functions. This enables you to load images from one
directory or disk and save them to another without continually reselecting
the path in every file requester. As with most ImageFX default conditions,
you are free to override the default at any time.

   Clicking the Choose button to the right of each Path default produces
a file requester to simplify the path selection process.

Virtual Memory
    Working with 24-bit data files can consume a vast amount of memory
resources. Generally, it is best to have as much RAM as you can afford,
but ImageFX provides a disk-based virtual memory management system for
those with limited resources; or for those who must work with truly
frightening amounts of data. By copying portions of the image in and out
of actual RAM, ImageFX lets you treat a portion of your hard disk as
virtual RAM space.

File Requester
    The fourth button in the middle column of Preferences panel controls
allows you to pick your favorite file requester. File requesters are a
matter of taste among Amiga users and some prefer to use one that is
different from the Amiga's own ASL.library requester. In addition,
ImageFX 2.0 now offers its own thumbnail-based file requester for selecting
images.

Screen Palette
    Also a matter of taste among discriminating Amiga users, the colors
used to render the ImageFX toolbox can be edited and saved independently
of the Workbench or any other screen colors currently in use. This simple
palette editor works the same as the Amiga's palette preferences utility.

Maximum Undo Levels
    Each time you make a change to your image, ImageFX stores the changed
pixels in an Undo buffer in memory. Then, if you select Undo from the
main Toolbox panel, those pixels are restored to the image. ImageFX
supports multiple levels of Undo. That is, you may recover each of
several successive painting or processing operations by repeatedly
clicking the Undo button.

    In theory, ImageFX's Undo capability is limitless; allowing you to
retrace all your steps and arrive at the very same image originally loaded
from disk or scanned. However, as a practical matter, your ability to
Undo will be limited by the amount of memory you have available. The more
Undo levels you specify in the Maximum Undo Levels gadget, the more memory
will be consumed by Undo buffers (resulting in less memory available for
real work).

    If you find yourself frequently running out of memory, it's probably
because you are attempting to maintain too many levels of Undo capability.
Even professional users rarely need more than three levels of Undo.

THIRD COLUMN: MISCELLANEOUS OPTIONS

The last column of controls in the Preferences panel are on/off toggles
governing a number of default options. Most of these will be set once,
at installation, and never changed.

Aspect Lock
    When Aspect Lock is not selected, ImageFX always stretches the image
to fill the entire Preview buffer. This provides a distorted view, but
permits easier detail editing. When Aspect Lock is selected, the image
will be displayed in its proper pixel aspect ratio. The surrounding dead
area of the Preview screen will be blanked.

Disable Verify
Normally, ImageFX, like most computer programs, will politely ask
whether you really want to perform some instruction you just gave it. This
verification requester can save you from making a serious mistake. If
you choose to do so, however, you can prevent such verification prompts
from ever appearing again. To do so, set the Disable Verify toggle
ON.

Close Workbench
When the Close Workbench toggle is set ON, ImageFX will attempt to
close the Workbench screen and recover the CHIP RAM resources allocated to
it. This is one way to increase ImageFX's share of system memory in an
Amiga with limited resources. Workbench will be reopened when you quit
ImageFX.

ImageFX's attempt to close the Workbench will fail if any other programs
are running and have Workbench windows open. Be sure to shut down any
other Workbench resident programs if you want to close the Workbench.

Disable Undo
Another way to recover memory in an underpowered machine is to disable
the Undo capability of ImageFX. Any memory that it does not have to use
for Undo buffers, ImageFX can devote to painting or image processing
operations.

Use Coordinates
If you select Use Coordinates, the current mouse pointer position will
be displayed in the menu bar at the top of the ImageFX main panel. These
coordinate values take the form x,y, where x is the number of pixels away
from the top, left corner of the screen (0,0) in the horizontal dimension
and y is the number of pixels in the vertical dimension. When performing
drawing operations with Coordinates selected, the original coordinates
will be displayed, followed by the destination coordinates. You can
toggle coordinates at any time by typing the "|" (shifted "\") key.

Create Icons
When Create Icons is selected, ImageFX will make Workbench icons for
all image and brush files it saves. When Create Icons is not selected,
files will be saved without icons.

Use Metric Units
ImageFX users who prefer to use metric units of measure may select
Use Metric Units. Most ImageFX operations are calculated in terms of
pixels, but some factors, such as printer resolution or scaling operations
may be expressed in terms of inches. When Use Metric Units is selected,
these factors are expressed in terms of centimeters.

Toolbox Palette
When Toolbox Palette is selected, a set of color wells representing the
currently active palette colors is displayed along with the ImageFX
control panels. When Toolbox Palette is not selected, these colors can
only be viewed by accessing the Palette panel.

Save Nails
When Save Nails is selected, ImageFX will save scaled-down versions of
your images for use in the thumbnail based image preview and selection

tools. Keeping thumbnail files exacts a small price in hard disk storage
overhead, but it offers exceptional versatility; greatly simplifying the
task of file management.

   Use Previews
   When Use Previews is selected, ImageFX will use scaled-down thumbnail
views of your image to preview certain of its compute-intensive
operations. These previews can help you fine-tune the settings before
actually performing the operation. When Use Previews is not selected,
previews will not be performed.

   Opaque Panel Toggle
   Depending on the Preview module you have selected and the display
hardware you are using, you may need to turn the Opaque Panel toggle on.
This is particularly true in video environments where the ImageFX screen
is genlocked or keyed against an active video background. In such a case,
the normal ImageFX panel would be mostly transparent, since the background
color of the default palette uses register 0 (the Amiga's key color).
Selecting Opaque Panel rotates the color registers, producing a mostly
opaque panel with one of the detail pens assigned as register 0.

   Save
   When you have set all the controls in the Preferences panel to your
liking, click Save to record them permanently. A file requester will
appear, allowing you to save these settings with a particular file name.
By default, the settings are stored as Default.prefs. ImageFX will always
load with the preferences settings recorded in Default.prefs. If you
wish to use some other setup, use the Load button to access a settings
file with some other name.

   Load
   Use the Load button to configure ImageFX with settings saved to a
preferences file with a name other than Default.prefs. When you click the
Load button, a file requester will appear. Use the file requester to
locate and select the settings file you wish to load.

   Use
   When you have made changes to the Preferences panel controls, but do
not wish to save them permanently, click the Use button. This will return
you to ImageFX with the current settings in effect. These settings will
be lost when you quit the program. Be sure to use the Save button to
permanently record any settings you may want to use again.

   Cancel
Click Cancel to abandon any changed settings and return to ImageFX.

   After closing this help window, click the Prefs button to open the
Preferences requester, and then press your Help key again for more
detailed on-line help on that requester.

1.20 Scanner Modules

   ImageFX currently can scan images from the Epson family of flatbed
scanners, the Sharp JX100 handy scanner, the Progressive Peripherals and
Software framegrabber, the VLab and VLab Y/C framegrabbers, as well as

GVP's own Impact Vision 24 framegrabber.

   Whichever scanner module you choose, you are always able to select
another at any point thereafter. Clicking this button produces a file
requester listing the available scanner modules. Each scanner will be
completely detailed in the ImageFX manual.

   The particular scanner control panel that opens when you press the
Scanner button will depend on which Scanner module you selected in the
Preferences control panel, earlier. If you have not already selected an
appropriate Scanner module, or you wish to select a module other than the
Preferences default, click the topmost button at the extreme left of the
Scanner control panel. A file requester will appear, displaying a list of
the ImageFX supported Scanner modules. Select the Scanner module you wish
to use and click OK.

   Please consult the manual for detailed information about each of
the Scanning systems supported by ImageFX.

1.21 Palette Menu

               Below is a representation of the ImageFX Palette Menu. Select ←
                  a
function to learn more about it's use.

Palette Menu:

          @| RGB

          R ==============================

          ^

          v

          G ==============================

          @| All

          B ==============================

          @|Draw1

          Range

            Copy

            Swap

            Pick

            Load

```
                        Render

                        Lock

                        Spread

                         Sort

                         Grab

                         Save

                         Undo
```

1.22   Palette: Raise Palette

" ^ "

This gadget will raise the palette screen to expose another row of
palette entries. Up to 8 rows, or 256 colors, may be visible.

1.23   Palette: Lower Palette

" v "

This gadget will lower the palette screen to reduce the number of
visible palette entries. As few as two colors can be visible.

1.24   Palette: Which Palette

"Draw1-Draw7/Rend"

This cycle gadget controls which palette is currently being viewed.
ImageFX maintains eight separate palettes; seven to hold drawing colors
and the eighth is for colors for rendered images.

1.25   Palette: Color Space Cycler

"RGB/HSV/CMY/CMYK/YIQ/YUV"

This cycling gadget allows you to change the color space in which the
palette registers are displayed. The palette slider labels will change to
match the new colorspace.

```
    RGB  = Red-Green-Blue
    HSV  = Hue-Saturation-Value
    CMY  = Cyan-Magenta-Yellow
```

```
        CMYK = Subtractive color plus black
        YIQ  = American video colorspace
        YUV  = European video colorspace
```

1.26   Palette: Palette Sliders

```
                "R,G,B" "H,S,V" "C,M,Y" "C,M,Y,K" "Y,I,Q" "Y,U,V"
```

   These sliders are used to adjust the color of the active palette
register. The active register is shown on the palette screen with a white
box surrounding it. The palette display is updated in real time as you
adjust the sliders. The behavior of the sliders depends on the colorspace
you have chosen (with the
                color space cycler
                ), but as a general rule
the farther you move each slider to the right, the brighter the color will
be.

1.27   Palette: Range Cycler

```
                "ALL/R1/R2/R3/R4/R5/R6/R7/R8"
```

   This cycle gadget indicates which palette range you want to work with.
There are eight palette ranges available, plus a special range called the
"ALL" range. Selecting the ALL range indicates that you want to manipulate
the entire palette at once; it saves you from having to define a range
covering the entire palette.

   Ranges are used for palette
                locking
                and
                sorting
            ,
as well as color gradient fills and color transparencies in the toolbox.

1.28   Palette: Set Range Gadget

```
                "Range"
```

   This gadget allows you to define a color range. To do this choose a
starting and ending color; all the colors between these two (inclusive)
will become the range.

   Click on the starting color from the palette. It will become the
active color (a white box will appear around it). Now click the "Range"
gadget. Your pointer will turn into an arrow with the word "TO" under
it. Now select the ending color from the palette. The range will be
defined at this point, indicated by the black dots in the span of colors

```
you chose.  You may now
                sort
                or
                lock
                this range, or
use it as a color gradient fill or transparency in the Toolbox.
```

1.29   Palette: Lock/Unlock Range Gadget

```
                "Lock/Unlock"
```

   When this gadget is labelled "Lock", pressing it will lock the range
of colors in the current range (you can set the current range with the

```
                range cycler
```
). Locked colors may not be modified. This is especially
useful in conjunction with rendering; you can selectively control which
palette colors the render module will not touch.

   When this gadget is labelled "Unlock", it indicates that the current
range has been locked already. Clicking Unlock will unlock the range
and return the gadget to its normal "Lock" label.

1.30   Palette: Sort Range Gadget

```
   "Sort"
```

   This gadget allows you to sort the colors in the current range in
either dark-to-light or light-to-dark order.

1.31   Palette: Grab Palette Color Gadget

```
   "Grab"
```

   This gadget allows you to grab the palette from any active Amiga screen
currently in memory.

1.32   Palette: Load Palette Gadget

```
   "Load"
```

   This allows you to load a palette from any supported rendered image
format, and use that palette for the draw or render palette. You may
also select from many pre-defined palettes in the Storage/Palettes
drawer installed along with ImageFX.

1.33   Palette: Save Palette Gadget

`"Save"`

This allows you to save the current palette for use later.

1.34   Palette: Render Palette Gadget

`"Render"`

This will render an entire 256 color palette from the current image.
The result will be the colors that best represent the spread of colors in
the entire image.

1.35   Palette: Undo Palette Change Gadget

`"Undo"`

This will restore the palette to what it was before you made your most
current change.

1.36   Palette: Spread Palette Colors Gadget

`"Spread"`

This will create a 24-bit color spread between the current color, and
the one you select when prompted with the "To?" pointer.

1.37   Palette: Swap Palette Colors Gadget

`"Swap"`

This will exchange the current color with the one you select when you
are prompted with the "To?" pointer.

1.38   Palette: Copy Palette Color Gadget

`"Copy"`

This will copy the current color to another position you select when
you are prompted with the "To?" pointer.

1.39   Palette: Pick Palette Color Gadget

```
"Pick"
```

This will choose a color, in 24-bits, from the image onscreen. As long
as you continue to hold the left mouse button down, it will continue to
show you the values of the color under the pointer. When you release the
button, that color is copied into the current palette position.

See the ARexx script "Find" for a method to simply find the closest
palette color to the chosen onscreen pointer.

1.40   ImageFX Toolbox Menu

```
                ImageFX's Toolbox has a set of 24-bit painting tools and image  ←
                      processing
effects that can be applied to the entire image or a region of the image.
```

All the painting gadgets can be double-clicked to reveal a menu of
options for the painting tools. Some of the painting gadgets have left
and right options. Most often the left side is unfilled and the right
is a filled version of that tool.

Below is a representation of the standard image processing menu items
that appear below the painting tools. Click these for more information.

```
                   @|  Full

                    Balance

                   Composite

                   Transform

                     Size

                    Color

                   Convolve

                    Filter

                   Distort

                    Effect

                    Buffer

                    Brush

                    Alpha

                    Hook
```

Arexx

1.41   Toolbox: Region Selector

ImageFX can limit any of it's image processing capabilities to a sub-
region of the entire image. This cycler gadget controls this. Normally it
will default to FULL, other selections allow you to BOX in a region, or
select with an OVAL (or circular) area, POLY(gon) area, FREE(hand) area,
FLOOD(fill) area (which is like the Magic Wand region selection available
on other platforms), and BRUSH to limit your image processing to your
brush.

Returning to the Full selection reactivates the entire screen for
painting and processing. ImageFX will remember any previously defined
region, however. Reselecting any of the region tools will restore the
last-active region. Double clicking in the center of the button
produces a Region control panel.

Regions are represented, onscreen by a familiar "crawling ant" marquee
border.

You can use the following drawing-style tools to define a region:

        Box   Draw rectangular areas for simple stencils.
        Oval   Draw elliptical areas for simple stencils.
        Poly   Use the polygon tool to trace intricate custom stencils.
        Free   Use the freehand tool to create fluid, amorphous stencils.
        Flood   Use the flood tool, in conjunction with the Flood Fill
                Threshold setting, to pour a stencil.

Returning to the Full selection reactivates the entire screen for
painting and processing. ImageFX will remember any previously defined
region, however. Reselecting any of the region tools will restore the
last-active region.

Defining a Region

Using any of the above listed tools to create a region involves the
same techniques when using their analogous tools to draw into the image
buffer.

As soon as it is drawn, the region becomes the only active part of the
image buffer. Also, by default, all the drawing tools are ghosted; only the
image processing functions of ImageFX are available for use in the
polygonal region.

Allow Painting

If you wish to use the painting tools inside the region, select the
Allow Painting toggle in the Region control panel. When checked, this
toggle reactivates the painting tools. While this toggle is checked, no
further region definition may take place.

Inverting a Region

   Regions are twice as effective when used as both stencils and masks.
Clicking the Invert Region button in the Region control panel will turn
a region into its opposite. Stencils become masks.

Adding to a Region

   You can add to an existing region by holding down the 'Alt' key and using
any of the region definition tools. The previous region is remembered and
the new area is combined with it. The resulting Region is the union of
the two areas.

Subtracting from a Region

   You can subtract from an existing region by holding down the 'Ctrl' key
and using any of the region definition tools. You can use this method
to trim along an image contour.

Loading and Saving Regions

   Once a region has been defined, it may be saved to disk for later use.
Clicking the Save Region button in the Region control panel produces a
file requester. Use the file requester controls to locate a path and
filename to save the region.

   Clicking the Load Region button in the Region control panel produces a
file requester. Use the file requester controls to locate and load a
previously saved region.

   Please refer to the manual for more information about ImageFX's Region
controls.

1.42 Toolbox: Size Menu

   This menu offers three selections:

   Scale   Allows you to scale your image with three scaling
               methods to any arbitrary size or scale automatically to
               a screen size.

   Halve   Quickly halves the pixel dimensions of the image in the
               main buffer. The method of scaling used is set in the
               Scale control panel.

   Double   Quickly doubles the pixel dimensions of the image in the
               main buffer. The method of scaling used is set in the
               Scale control panel.

   Crop   Allows you to crop your image so that only the area you
               desire is retained afterwards.

   Auto Crop   Automatically detects background information and crop/
               deletes it. Especially effective for scanned images.

    Set Aspect Allows you to set the aspect ratio and/or DPI of your
                current image. You can also optionally scale the image
                from it's previous aspect or DPI to the new setting.

1.43   ImageFX Render Modules

ImageFX can render to any Amiga mode, as well as to many high color
display enhancers such as DCTV, OpalVision, Firecracker-24, IV-24, EGS
and many others. There is also a FOREIGN render module that allows you to
render images that cannot necessarily be displayed, such as 256 color
images on a non-AGA Amiga, so that you may save the rendered result as a
GIF file or other format.

The ImageFX Render buffer serves two purposes: It is used to display
the actual 24-bit image data on one of a variety of enhanced display
adapters; and it is used to produce the highest-possible quality image for
a reduced-resolution display system. This latter case is invaluable when
preparing image files for Amiga-hosted multimedia systems and Macintosh
or PC-based graphics displays of any kind.

By default, ImageFX loads the Render module selected in the Preferences
control panel. You can select any other Render Panel you like by
clicking the Render Module name in the upper-left corner of the Render
Panel. Doing so produces a requester listing all available Render modules.
Selecting a name from this list causes the current Render module to be
replaced with the new one. Depending on the module selected, the buttons
and other controls displayed in the panel will change.

Rendering an image.

    Dither Options

When rendering to a reduced-resolution display system (such as standard
Amiga HAM or 32-color screen modes) ImageFX can create the appearance of
more colors through the use of dithering techniques. Dithering involves a
process of alternating the colors of adjacent pixels. When viewed on a
monitor, these colors appear to blend, suggesting some intermediate shade
or range of colors not actually present. Several different methods are
available.

        Floyd-Steinberg   Floyd-Steinberg Random distribution
        Ordered Dither   EDD Dither

In addition to the basic dithering method, you may also change the
dithering interpretation direction and the level of dithering applied to
the image. Many of the ImageFX Render modules include dithering controls.
Modules for rendering to 24-bit, true-color display devices do not
include dithering, since dithering to such systems is unnecessary,
because they can display so many colors there is no need to dither.

    Dither Method

The method you select will depend largely on your experience and personal
preferences.

The EDD method is recommended for HAM-E and Amiga Enhanced HAM modes.

Floyd and FloydR, because of the near-randomness of their patterns, are
about the only methods suitable for images that will be printed using
conventional publishing techniques.

    Dither Direction

All dithering techniques produce some form of repeating pattern in
the image. Depending on your use, these patterns can be highly
undesirable. Through careful use of the Dither Direction controls, you
can greatly reduce these repeating patterns.

    Dither Threshold

The Dither Threshold control allows you to limit the amount of dither
applied. When no Threshold is applied (None selected), you will frequently
notice the appearance of random individual pixels in areas that could
safely be one solid color. By raising the Dither Threshold setting, you
can filter out these random stray pixels while still applying the dither
to areas that need it.

    Render Modules

Following are all the Render modules supported by ImageFX 2.0. Please
refer to the manual for a detailed description of each, as they
have different capabilities.

        Amiga/Amiga 1.3
        DCTV
        EGS
        Firecracker
        Foreign
        HAM-E
        HARLEQUIN
        IV24
        OpalVision
        Retina
        Picasso
        SAGE
        Video Toaster

1.44 ImageFX Printer Modules

    There are two supported methods for printing. You can print via. the
Postscript module, which allows you to print to any device or save the
Postscript file for use in another program or machine, or you can print
via. your preferences printer.device. Although it uses the Amiga's
Preferences printer drivers, ImageFX allows you to derive much higher
quality printed results than printing from AmigaDOS or Workbench. This
is because ImageFX uses the same true-color rendering techniques for
printing as it does for its various rendering modules. Thus, even though
the Amiga's printing system is limited to 12-bit data (4,096 colors),
ImageFX is able to reproduce full 24-bit image quality through

the use of dithering and other color adjustment techniques.

   Selecting a Printer Module

   A default printer module may be specified using the Preferences control
panel. You can select an alternate printer module at any time thereafter
by first accessing the Printer panel (click the Printer panel selector
button).

   Choosing the Printer panel.

   In the Printer panel, you can click the Printer module name in the upper,
left hand corner. Doing so produces a requester listing the available
Printer modules. Selecting a name from this list causes the current
Printer module to be replaced with the new one. Depending on the module
selected, the buttons and other controls displayed in the panel
will change.

   Changing Printer modules.

   Please refer to the manual for detailed descriptions of the available
ImageFX Printer Modules.

1.45   Toolbox: Composite Menu

   The composite menu allows you to manipulate and merge your buffers in
several ways. You are provided many levels of transparency as well.

   The first button is a cycle gadget which determines the composite
operation to use. There are many choices here.

   Here is an overview of the different Composite Operations and
their effects:

Merge   Merge blends the Main and Swap image buffers together
                      according to the Blend slider setting.

Matte   The Matte operation is useful for replacing large,
                      discontiguous areas of one or more colors.

Fast Matte   The Fast Matte operation produces the same effect as
                      Matte. It achieves faster processing times by ignoring
                      any Alpha Channel options (and data) in calculating the
                      Matte.

HSV Matte   The HSV Matte operation produces the same effect as
                      Matte and Fast Matte and it works similarly. However,
                      in this case, you specify the color to be matted using
                      the Hue, Saturation, Value color space model.

Add   The Add operation performs an arithmetic combination
                      of pixels from the Main and Swap buffers.

Subtract   The Subtract operation performs an arithmetic
                      combination of pixels from the Main and Swap buffers.

Multiply   The Multiply compositing operation performs an
                    arithmetic combination of the main and swap buffer
                    images.

Divide   The Divide compositing operation performs an arithmetic
                    combination of the main and swap buffer images.

Absolute Add and
Absolute Subtract

                    These two operations are similar to Add and Subtract,
                    except that the results of the Add or Subtract pixel
                    combinations are not adjusted to compensation for
                    brightness shifts.

Minimum & Maximum

                    When the Minimum composite operation is selected,
                    ImageFX compares the Main buffer image with the Swap
                    buffer image on a pixel-by-pixel basis. In each
                    pixel-to-pixel comparison, ImageFX copies the lower
                    or minimum value into the main buffer. If the Main
                    buffer source pixel is lower, its value is maintained.
                    If the Swap buffer source pixel is lower, it is
                    substituted for the Main buffer source pixel.

                    When the Maximum composite operation is selected,
                    ImageFX compares the Main buffer image with the Swap
                    buffer image on a pixel-by-pixel basis. In each
                    pixel-to-pixel comparison, ImageFX copies the
                    higher or maximum value into the main buffer. If
                    the Main buffer source pixel is higher, its value is
                    maintained. If the Swap buffer source pixel is higher,
                    it is substituted for the Main buffer source pixel.

Map   ImageFX compares the main buffer image with the Swap
                    buffer image on a pixel-by-pixel basis. In each
                    pixel-to-pixel comparison, the Image Map composite
                    operation combines the color values (hue) from the
                    Swap buffer source pixel into the Main buffer pixel
                    without affecting the original brightness value of the
                    Main buffer pixel.

AND   performs a binary comparison of the Main and Swap
                    buffer pixels. All 24-bits representing the pixel are
                    compared on a bit-by-bit basis. Wherever both Main
                    and Swap bits are set, the result will be a 1. If one
                    or the other source bits is a 0, the result is also 0.

OR   performs a binary comparison of the Main and Swap
                    buffer pixels. All 24-bits representing the pixel
                    are compared on a bit-by-bit basis. Wherever either
                    Main or Swap bits are set, the result will be a 1.
                    If both source bits are 0, the result is 0.

XOR   (eXclusive OR) performs a binary comparison of the
                    Main and Swap buffer pixels. All 24-bits representing
                    the pixel are compared on a bit-by-bit basis.

Wherever only one of the Main or Swap pixel bits is
set, the result will be a 1. If both Main and Swap
pixel bits are set, then the result is 0.

Blend Slider

Regardless of the Compositing Operation selected, the Blend slider
determines how much of the Swap buffer image will be used to replace the
affected pixels in the Main buffer. You can change the Blend setting
either by grabbing and moving the slider knob or by directly
typing a value into the text entry gadget to the right.

Including and Excluding Color Ranges

For most of the Composite Operations, you can select to use specific color
ranges for inclusion or exclusion. The process by which this is done is
the same as that used for the other Drawing Modes and Styles. Refer to
the Pen Options control panel for further details on selecting and using
the include and exclude features.

Match Gadget

The one additional feature for including or excluding color ranges when
compositing is the Match gadget. Since a composite operation involves the
use of two image buffers you must select which buffer to test for color
range matching. In other words, if you are choosing to include only colors
that fall within a range of blues, do you want to include only the
blue pixels in the Main buffer, only the blue pixels in the Swap buffer,
or all pixels in either buffer that fit the specified range of blues?

Closeness slider

the Closeness slider in the Composite control panel functions identically
with that found in the Pen Options panel. The number specified by this
slider determines the variance from the values specified in the included
or excluded ranges that is still considered a match. This control also
includes a text entry gadget for typing in a value directly.

Alpha Channel

As with the other Drawing Modes and Styles, you can also use an image
in the Alpha Channel buffer as an additional filter to modify the
composite operation. In addition to the familiar Frisket and Texture
modes, the Composite panel also offers a Mask mode. Mask has the effect
of inverting the Frisket mode. That is, pixels that are transparent in
Frisket mode are opaque in Mask mode and vice versa. A pixel that is
60% transparent in Frisket mode is 60% opaque in Mask mode.

Swap Buffer handling

Normally, when compositing two images, you want the two image buffers
(Main and Swap) to be the same size. In some cases, however, this isn't
possible. When the buffers begin as unequal sizes, you can select to
scale the Swap buffer to fit the Main buffer, or to Tile the Swap buffer
so as to match the Main.

1.46   Toolbox: Balance Menu

   The controls here adjust color levels within the image. You
initially will see the R, G, and B sliders which adjust the amount of
red, green or blue present in the image. The V(alue), or Brightness,
slider adds, or subtracts, from the overall intensity of the RGB colors
or Grey content.

   The cycler gadget beneath these adjusts which color space you are
changing. You have the options of RGB, HSV, and CMYK. RGB is the
typical red-green-blue color arrangement and HSV provides an alternate
colorspace you can adjust by altering the Hue, Saturation or it's
Value/Brightness. CMYK, cyan-magenta-yellow and black, is the color
space used by printing systems.

   The CO(ntrast) slider works from the midpoint of the RGB colors or grey
content and makes the darks darker, and the lights, lighter as it's
increased. When decreased, the opposite occurs. The GA(mma) slider is
very similar to the Brightness, but it adjusts the brightness based on a
curve so that midtones are not immediately affected.

Interactive Preview   At the right of the Balance control panel is a pair
                       of small windows. If you have selected Use Previews
                       in the ImageFX Preferences panel these windows can
                       be used to preview any adjustments to the Balance
                       sliders before committing them to the actual image.

Preview   By clicking the Preview button, you can apply your
                       new settings on the thumbnail image. The resulting
                       modified image is displayed in the lower preview
                       window.

Real-Time Update   If you click to select the Real-Time Update toggle
                       switch, you need not continually click the Preview
                       button. Instead, the lower thumbnail will be
                       updated automatically, any time you adjust a slider.

1.47   Toolbox: Transform Menu

   The Transform menu provides a number of handy orthogonal and perspective
transformation tools. Clicking the Transform button on the ImageFX toolbox
produces the Transform pop-up menu.

 Simple 2D Rotate...   The Simple 2D Rotation controls provide the
                            easiest accomplish rotations around a point
                            fixed in the center of the image.

 Complex 2D Rotate...   The Complex 2D Rotation controls provide a
                            broader range of rotation effects.

```
Perspective 3D Rotate...   The third rotation method found in the Transform
                           pop-up menu provides for Complex 3-dimensional
                           perspective manipulation of images.

Flip Horizontal            This grouping of four buttons in the Transform
Flip Vertical              pop-up menu perform simple orthogonal
Mirror Horizontal          transforms upon the image.  Clicking any of
Mirror Vertical            these buttons initiates an operation.  No other
                           control panels or requesters appear.

Roll...                    The Roll Transform treats the image as if it
                           were one continuous geometric loop, or part of
                           a tiled matrix of identical images.  Using Roll
                           allows you to shift pixels from one edge of
                           the image to its opposite.

Shear...                   The Shear Transform allows you to skew the image
                           in the Main buffer along the X axis.

Interlace & De-Interlace   The Interlace and De-Interlace Transforms
                           constitute a complementary pair of functions.
                           When you click the Interlace button, the image
                           in the Swap buffer is combined, line-by-line,
                           with the image in the Main buffer.  The lines
                           are interleaved, producing an image with twice
                           the vertical resolution.

                           When you click the De-Interlace button, the
                           image in the Main buffer is separated,
                           line-by-line.  Every other line is moved to the
                           Swap buffer.  Any existing Swap buffer
                           image data is destroyed by this process.
```

1.48   Toolbox: Color Menu

```
This menu contains functions that alter the color of your image.

Custom...        Using the box you can enter a custom color transform
                 graph, or load one that is already saved.

Negative         Inverts the colors of the image to produce a photo-
                 negative image.

Solarize         Simulates re-exposing the image to light.  This over-
                 exposes certain areas of the image.

Posterize...     Reduces the colors, flattening them for a poster-like
                 effect.

False Color...   Alters the image based on remapping it's grey values to
                 a color palette.  You can use the standard palette or the
                 drawing palette.

Grey to Color    This changes a grey image into a color image.  No actual
```

color information is added, unlike False Color, the grey
image simply is moved from an 8-bit buffer into a 24-bit
buffer.

Color to Grey   This changes a color image into a grey image by sampling
                the color channels for specific grey levels.

B&W to Grey   This changes a B&W image, in the 8-bit buffer, into a
                grey image by examining the density of dithering the
                image.

Halftone...   Using print-oriented halftoning, this will convert a
                grey or color image into it's halftoned equivalent.

Change Color...Provides a means of globally changing some color
                value to another for all pixels in the current image.

Antique   Immediately applies an amber-colored wash to the image.
                This effect, often called sepia toning, makes digital
                images look like photographs that have turned yellow
                due to the passage of time or chemical oxidation.

1.49 Toolbox: Convolve Menu

    This menu contains functions that are based on convolutions. A convolve
is achieved by averaging two or more neighboring pixels with the current
pixel and then replacing that pixel with the new value.

Custom   Allows you to enter a 3x3 or 5x5 convolve matrix, or
                load a previously saved matrix. The matrix is kept
                in a text file which can be larger, or smaller, than
                any matrix you can directly edit within the program!

Sharpen...   Sharpens the image by an amount you enter. Higher
                sharpening can cause unwanted "noise" to disturb the
                image.

UnSharp Mask... Unlike what the name might imply, this photographic
                effect sharpens edges and is less prone to noise than
                Sharpen.

Blur...   Defocuses the image.

Motion Blur... This simulates moving the image in any angle for any
                specified distance. It's recommended that you
                composite the original in at 50% to retain some
                detail, while achieving the effect of motion.

Relief Map...   Most often used as a special effect. Its intended use,
                however, is in the analysis of low-contrast
                topographical photography. The Relief Map convolve is
                extremely helpful in bringing out three-dimensional
                features from such photographs.

Simple Edge Detect...

> The Simple Edge Detection convolution uses the least complicated technique to find apparent edges in the image.

Ramping Edge Detect...
> The Ramping Edge Detection convolution attempts to locate edges in the image and accentuate them with a sharp ramp or gradient blend.

Sobel Edge Detect...
> This convolution, for various reasons, is far more effective at eliminating image noise and deriving only the most significant edges. In the process, these edges are enhanced in such a way that the image, generally, requires little or no additional processing to be useful as line art.

1.50   Toolbox: Filter Menu

The image processing effects under this menu analyze the image and alter it based on that analysis. These are useful for processing images destined for limited-color display systems, such as multimedia and CD-ROM platforms. In these situations, you may have several hundred different images, all of which must share the same 256 color palette.

Dynamic Range...   Checks to see if the image is making full use of the 24-bit colorspace, and will then allow you to stretch or compress the colors to fit within a chosen range.

Histogram Equalization...
> A Histogram is a 2-dimensional graph of the color or brightness distribution in an image. Histogram Equalization is just another way to limit the dynamic range of an image.

Color Limit...   Similar to Dynamic Range, but operates on each RGB channel separately. Can also color-correct for NTSC output.

Anti-Alias...   Checks for diagonal lines in the image, and adds pixels where needed, in the appropriate color, to reduce perceived "jaggies" in the image.

R.I.P....   Remove Isolated Pixel. Given a threshold, this will remove pixels that have no similar neighboring pixels of a like color. Can reduce noise in an image.

Video Filter...   Uses well established video engineering specifications to adjust the brightness (luminance) and color (chrominance) of the image to make it broadcast legal.

Median Filter...   This Filter examines the sample area defined by the radius variable and converges the values for all the pixels toward the goal defined in the Mode selector.

```
Count Colors...    Causes ImageFX to examine each pixel in the
                   image and count the total number of unique colors
                   present.  The result is reported in an informational
                   requester.
```

1.51 Toolbox: Special Effects Menu

This menu contains image processing effects that optically distort and alter an image as well as effects that just don't fit anywhere else! With the help of these special effects functions, anyone can become an instant computer artist.

```
Remove Feature Must be used in conjunction with a selected region on the
               main image.  This will remove everything within that
               region from the image by pulling the edges together.

Oil Paint...   This creates an effect similar to that of an oil painting
               technique.

Disperse...    Randomly disperses any given pixel in any direction.

Roughen...     Randomly alters the color level of any pixel up or down
               which can add texture to an otherwise flat color.

Apply Texture...
               A complex, multi-functional texture mapping engine.

Straw...       The Straw effect provides yet another texturing method.
               This one is particularly effective when used as a
               backdrop for text screens or keyed video.

Crystallize... Performs a geometric decomposition, similar to the
               Mosaic and Polar Mosaic distortion effects.  In this
               case, however, the distortion can be manipulated in a
               planar dimension.


Radial Star... Allows you to place starburst-shaped highlights anywhere
               in your image.

Lens Flare...  Allows you to simulate the refractive artifacts of camera
               optics, to add that extra touch of realism.

PaintFX...     PaintFX is an automatic painting system that can turn any
               photographic or other bitmap image into a simulated work
               of art.  The control panel for PaintFX includes a wide
               variety of adjustments for altering your painting; it also
               includes a number of predefined effects styles such as
               Impressionist, and Charcoal Sketch that you can simply
               load and use. Due to the complexity and power of PaintFX,
               please refer to the manual for detailed descriptions of
               its controls.

Hockney Tiling...
               This effect subdivides the image into a grid of
```

user-specified mosaic tiles.

Lightning...   A powerful special effect for adding simulated lightning
                bolts to your still images or motion sequences.

1.52 Fill Options

In addition to the Drawing Modes and Styles, each of ImageFX's filled
painting tools may be configured to use one of several different Fill Modes.
Double-clicking any of the Filled Drawing Tools will produce a panel
similar to the Drawing Options panels.

Mode   Drawing mode.

Style   Drawing mode style.

Blend   Blend percentage.

Alpha   Controls how the alpha channel is used while drawing.

Edge   Edge mode.

Radius   Radius control for certain edge modes.

Type   Type of fill mode.

Range   Color range used for gradient fill types.

Smooth   When checked, color ranges are automatically blended to
            produce smooth gradients. Otherwise, banded patterns are
            produced.

Skew   Balance control for gradient fills; lets you skew the
            gradient to one side or the other.

Rough   Roughness control, adds random "noise" to the fill
            pattern to simulate a texture.

Flood   Flood fill closeness value, controls how close to the
            original seed color the flood fill will look to continue
            filling.

1.53 Drawing Options

Mode   Drawing mode.

Style   Drawing mode style.

Blend   Blend percentage.

Alpha   Controls how the alpha channel is used while drawing.

```
   Edge          Edge mode.

   Radius        Radius control for certain edge modes.
```

1.54 Pen Menu

```
Pen Options
```

   The first drawing tool governs drawing pen shape and size, and global
color transparency. Every other line-oriented drawing function is
affected by the settings made in the Pen Options subpanel. This tool also
provides access to the ImageFX Grid Options. You can use the Grid to
constrain painting operations to specific intervals and as an aid in
positioning brushes or other painting elements. Clicking once on the
Pen Options tool produces the Pen Options subpanel.

```
Grid Constraints
```

   Normally, painting into any ImageFX image buffer is unconstrained.
That is, you can paint freely into any pixel you choose. Sometimes,
however, it is desirable to use Grid constraints as an aid for uniformity.
For instance, with no grid, it is practically impossible to draw a series
of straight lines exactly the same length and the same distance apart.
Try it!

   Now, set the Grid Size Options in the Pen Options subpanel to 15
and try again. This time, you will find, you can create as many straight
lines as you like; and it's easy to keep them evenly spaced and exactly
the same length. If the spacing is too close, or too far apart, simply
adjust the Grid Size values. If you wish, you may enter different values
for width and height.

```
Dotted Freehand
```

   When you select the Dotted Freehand tool, you are able to apply paint
to the image in rapid, discrete increments; pixel-by-pixel. Depending on
the size and shape of your pen, this results in a series of individual
spots that follows along behind the mouse. The faster you move the mouse,
the greater the space between each spot. Dotted Freehand is the default
drawing tool.

   When a standard pen is in use, the pixels are painted according to the
currently selected Draw Mode and Style (see below) and using the currently
selected palette color. When a custom brush is in use, individual copies
of the brush will be pasted into the image as you move the mouse. This
mode provides the fastest screen updates for working with custom brushes.


```
Line/Curve
```

   The Line/Curve tool has two functions.

```
Line Draw
```

   When you click the top, left corner, you are able to draw straight

lines.

   When a standard pen is in use, the line is painted according to the
currently selected Draw Mode and Style (see below) and using the currently
selected palette color. You can use Line mode with a custom brush, but
screen recalculation may take a long time.

Curve Draw/Bezier Curve

   When you click in the bottom, right corner, you are able to draw using
three- and four-point Bezier Curves.

   When a standard pen is in use, the curve is painted according to the
currently selected Draw Mode and using the currently selected palette
color. You can use Curve mode with a custom brush, but screen
recalculation may take a very long time.

Freehand/Filled Freehand

   The Freehand/Filled Freehand tool has two functions.

Freehand Draw

   When you click the top, left corner, you are able to draw continuous,
freeform lines.

   Whenever you move the mouse while the left mouse button is pressed, a
continuous line of pixels will be painted into the image.

   As you are drawing, the screen will be updated exactly as it is during
dotted freehand painting; with individual dots. When you release the left
mouse button, however, ImageFX redraws the screen, connecting all the
points you passed over with a continuous line of color.

   When a standard pen is in use, the line is painted according to the
currently selected Draw Mode and Style and using the currently selected
palette color. You can use Freehand mode with a custom brush, but screen
recalculation may take a very long time.

Filled Freehand

   When you click in the bottom, right corner, the continuous freehand
lines you draw will become shapes. If you have not described a fully
closed shape when you release the left mouse button, ImageFX will connect
the start and end points with a straight line.

   This shape is then filled according to the currently selected Draw,
Style and Fill Modes and using the currently selected palette color.
Filled Freehand mode can be used in conjunction with the Cut Custom Brush
tool to copy freehand shapes to the brush buffer. This is similar to the
Lasso tool used in other painting systems.

Open/Filled Rectangle, Ellipse, Polygon

   Each of these Open/Filled Geometric tools has two functions.

Open Geometric Tools

   When you click the top, left corner, you are able to draw hollow
Rectangles, Ellipses and Polygons. Techniques for each tool are
illustrated in the manual.

   When a standard pen is in use, the line is painted according to the
currently selected Draw Mode and Style and using the currently selected
palette color. You can use the Open Geometric tools with a custom brush,
but screen recalculations may take a very long time.

Filled Geometric Tools

   When you click in the bottom, right corner, the geometric shapes you
draw will be filled according to the currently selected Draw, Style and
Fill Modes and using the currently selected palette color. The filled
Geometric tools can be used in conjunction with the Cut Custom Brush tool
to copy geometric shapes to the brush buffer. This is similar to
rectangular, elliptical and polygonal custom brush tools used in other
painting systems.

1.55 Airbrush Menu

Mode	This pop-up menu allows you to select a Draw Mode for use with the Airbrush tool.
Style	This pop-up menu allows you to select a Draw Style for use with the Airbrush tool.
Blend	This slider controls the maximum amount of paint applied when painting with the Airbrush tool.
Alpha	This pop-up menu allows you to enable ImageFX's Alpha Channel for use as a frisket or as a texture.
Radius	The slider controls the size of the basic Airbrush shape. It is measured in pixels from the center to the outermost edge of the spot.
Nozzle	This slider controls the distribution of paint within the basic Airbrush spot.
Rough	This slider controls the smoothness or amount of spatter present in the airbrush effect.
Realtime	When selected (checked), this toggle switch turns on real time painting update. When this toggle is not selected, the Airbrush tool reverts to its default paint/redraw mode.
Okay	Accept these airbrush settings.
Cancel	Return to toolbox, aborting any changes made.

1.56 Create Buffer

The Create Buffer requester has the following features & functions:

Size Controls: Typ directly into the text gadgets or use the
  "auto-sizing" buttons below. Each buffer is defined in terms of
   width, height, horizontal and vertical dots per inch and
   horizontal and vertical pixel aspect ratio.

Width   Width of new image buffer.

Height   Height of new image buffer.

X DPI   Horizontal dots per inch.

Y DPI   Vertical dots per inch.

X Aspect   Horizontal pixel aspect ratio.

Y Aspect   Vertical pixel aspect ratio.

Color   This cycle gadget specifies whether the buffer
                     is to be created in 8-bit grey or 24-bit color

Pixels   This cycle gadget specifies whether the width
                    and height size readouts are exprssed in
                    pixels or in ruler units (inches/metric).

Size Presets...   Allows you to choose one of the size presets from
                  a scrolling list requester. The presets are found
                  in a text file called "Default.presets"; it may be
                  edited with any standard text editor.

Size to Swap   Sets the size of the new buffer to be the same as
                  the size of the swap buffer.

Okay   accept any changes made in the Create Buffer
                   requester and return to the Preview Screen

Cancel   cancel any changes made in the Create Buffer
                   requester and return to the Preview Screen

1.57 Screen Grabbing

This requester allows you choose a screen to be loaded as a buffer
or brush. When you click the Grab Screen... button, a small list
requester will appear. All screens currently logged into the Amiga's
display system will be listed in this requester. By selecting one of
them, you can load a copy of its screen data into the main image buffer.

Choose the name of a screen from the scrolling list requester, and
press Okay when you are done or Cancel to abort the operation.

1.58   Color Limiting

Color limiting allows you to clip the color values in the main buffer to certain minimum and/or maximum values.

Red   Select the lower and upper limit of the red channel.

Green   Select the lower and upper limit of the green channel.

Blue   Select the lower and upper limit of the blue channel.

NTSC Limit   Set preset values to clip the colors to those that
             are legal NTSC values.

Okay   Perform the color limiting.

Cancel   Abort back to the toolbox.

1.59   Matte Composite

Matte is used to composite the main and swap buffers together using a single transparent color.

R, G, B   RGB value of color to be considered transparent in
             the main buffer.

Black   Preset the transparent color to black (0,0,0).

Draw Color   Preset the transparent color to whatever the current
             drawing color is.

Okay   Perform the matte composite.

Cancel   Abort back to the toolbox.

1.60   Motion Blur

Motion blur simulates the blur produced by moving objects.

Angle   Selects the direction of the blur, in degrees.

Length   Length of the blur, in pixels.

Okay   Perform the motion blur.

Cancel   Abort back to toolbox.

1.61   Scale

Scaling is used to transform an image from one resolution into another; for example, to turn a 640x400 image into a 320x200 image.

Size   New image size, in pixels.

Percent   New image size, expressed as a percentage of the old
                image size.

Width   Width adjustment.

Height   Height adjustment.

Units   Select display units in either pixels or ruled.

Mode   Select one of three scaling modes; "Smooth" is the
                standard anti-aliased scaling, "Fast" is a faster
                non-anti-aliased scaling, and "Border" adds a black
                border around the image to build it up to the new
                size.

Size of Swap   Sets the new image size to the same size as the
                image in the swap buffer.

Size Presets   Allows you to choose one of the preset sizes
                from a requester.

1.62 Default Path Settings

Load   This is the path that will be searched first
                 when you attempt to load an image.

Save   This is the path to which 24-bit image files
                 will be saved.

Render   Allows you to specify an alternate path for
                 saving Rendered files.

Brush Load   This is the path that will be searched when you
                 attempt to load a brush.

Texture   This is the path to 8-bit grey texture maps.

Hooks   The default directory where ImageFX program
                 Hooks are found.

Convolve   The default directory where custom Convolve
                 matrices are found.

Transform   The default directory where custom Transform
                 operators are found.

REXX   The default directory where ImageFX ARexx
                 programs are found.

Clicking the Choose button to the right of each Path default produces a
file requester to simplify the path selection process.

1.63 Screen Palette

Adjust the R, G, and B sliders to change the screen colors to your
liking. Select OKAY to use the new colors or CANCEL to abort.

1.64 Color Separation

Type	Type of color separation, CMYK, CMY, or RGB.
Planes	Which planes to separate.
Depth	Selects either 24-bit or 12-bit output.
Colormap	Selects either greyscale (the standard) or color output.
UCR	Under color removal. Percentage of CMY to replace with black ink.
GCR	Grey component removal. Intensity of black ink used to replace CMY.
Mag	Magenta ink correction.
Yel	Yellow ink correction.
Separate	Perform the color separation, saving the results to the file format selected in the Save Format requester.
Load	Load separation settings from disk.
Save	Save separation settings to disk.
Cancel	Abort color separation.

1.65 Virtual Memory Preferences

Path	Directory to store virtual memory files.
Choose	Allows you to choose the virtual memory path using a file requester.
Disk Buffer Size	Size of buffers read from and written to disk, in kilobytes.
Max RAM To Use	Sets the maximum amount of RAM that will

```
                          be used by the virtual memory system,
                          in kilobytes.

    Defaults              Chooses suitable defaults based on your
                          current system configuration.
```

The cycle gadget allows you to control when ImageFX uses virtual
memory.

A note about calculating the values for your Virtual Memory
preferences:

Working with 24-bit data files can consume a vast amount of memory
resources. Generally, it is best to have as much RAM as you can afford,
but ImageFX provides a disk-based virtual memory management system for
those with limited resources; or for those who must work with truly
frightening amounts of data. By copying portions of the image in and out
of actual RAM, ImageFX lets you treat a portion of your hard disk as
virtual RAM space.

Be sure to specify a hard disk with sufficient free storage space.
Scanned images at 200 or 300 dots per inch resolution can require tens of
megabytes of VMEM swap space.

Disk Buffer Size sets the maximum size of any one chunk written to the
virtual memory disk buffer. It is measured in kiloBytes. Each chunk
written to disk represents some number of rows of pixels from the image.
Since each 24-bit pixel requires 3 Bytes of storage, a single line of
2,500 pixels would represent a chunk 7.5 kiloBytes in size. A default
buffer size of 250 kiloBytes, then, would mean that ImageFX could page
portions of the active image to disk in 33-line chunks. Depending on the
operation, you would want to increase the buffer size significantly.

Max RAM to Use limits the amount of system RAM that ImageFX will use for
managing the virtual memory disk buffers. The program must always know
how many buffers have been written and in what order to retrieve them.
The mechanisms by which this is achieved are kept in RAM and added to or
deleted as necessary. Dedicating too much system RAM to virtual memory
management decreases the amount of RAM available for processing the image.

CAUTION: Be sure that the Maximum RAM setting is never set to more than
one half the total amount of available FAST RAM.

ImageFX also supports other, third party and public domain, virtual
memory implementations. If you wish to use a virtual memory system from
another manufacturer, make sure that the ImageFX VMEM authorization selector
is set to Never Use VMEM and that your third party virtual memory system is
properly configured (according to that product's documentation).

1.66 Toolbox: Distort Menu

The Distort menu provides a number of interesting image decomposition
methods. Some of these involve the use of an Alpha Channel buffer as a
displacement mask. Others are self-contained special effects programs.
Most can be automated and, when applied to sequences of frames, produce

breathtaking animated effects.

Clicking the Distort button in the ImageFX Toolbox produces the Distortion
pop-up menu.

Manual Distort... provides the simplest image warping technique. It
                   requires you to prepare a greyscale Alpha Channel image
                   beforehand. If you attempt to use the Distort...
                   operator with no Alpha Channel present, an error
                   requester will appear.

Wave Distort...   In addition to the wave generator in the Alpha Channel
                   creation menu, the Distort menu also contains a full
                   featured wave distortion engine. This tool is extremely
                   flexible and the effect is stunningly beautiful when
                   applied to animation sequences.

Swirl...   The Swirl distortion is useful mainly as a special effect
                   and, when animated, has been used in movies and on
                   television, to suggest a dreamlike transition.

Pinch/Punch...   The Distort menu also contains a general warping function
                   called Pinch/Punch. Pinch has the effect of squeezing
                   together pixels toward some user-defined point. Punch
                   has the opposite effect of pushing out pixels away from
                   a point. Punch can be useful for simulating blister
                   effects, the magnifying qualities of water droplets or a
                   fisheye lens.

Polar Blur...   The Polar Blur distortion is similar to the Swirl
                   distortion in that if allows for the angular displacement
                   of pixels around a center point. Where Swirl moves
                   pixels from their point of origin and relocates them at
                   their point of displacement, Polar Blur repeats each
                   pixel at every point along the angle. The result is an
                   image with a circular blur. In this respect, it is also
                   similar to the Motion Blur convolution.

Mosaic...   One of the most popular, and characteristically
                   computer-like distortion effects actually recalls the
                   days of low-resolution computer graphics. The Mosaic
                   distortion effect allows you to pixelize your image,
                   effectively reducing its resolution. This effect is
                   often used in television "cop" shows, for example, to
                   make the face of a person unrecognizable.

Polar Mosaic...   The Polar Mosaic distortion produces one of the most
                   spectacular effects available with ImageFX. A mosaic is
                   an image composed of geometric tiles; and a polar
                   mosaic is one that is constructed, in radial fashion,
                   around a center point. The Polar Mosaic effect often
                   creates images that look like stained-glass windows.

Spherize...   The Spherize distortion operator allows you to map any

image onto a sphere. This tool performs a ray-traced
surface mapping effect that can be applied across
moving sequences for highly entertaining animation
effects.

Dream...   The Distort menu contains yet another image warping
system for producing dreamlike special effects. Anyone
who knows old black and white Science Fiction movies
will instantly recognize the Dream distortion effect.

1.67 Wave Generator

The wave generator will create an alpha channel filled with a wave
pattern which can then be used in another operation, such as a distort or
merge function.

Wavelength   Distance between wave "crests", in pixels.

Center X   X coordinate of wave origin, in pixels (need not be
on screen).

Center Y   Y coordinate of wave origin, in pixels (need not be
on screen).

Angle   Wave movement angle, vary this value from 0 - 359 to achieve
an animated wave pattern.

Dampening   Amount of dampening in the waves. Dampening makes the
wave intensity smaller the farther away from the center you
go.

1.68 Standard Keyboard Shortcuts

These keys may be modified by editing the "Default.keys" file, or
you may program them by pressing SHIFT-HELP and then entering the key
sequence you want to modify. Press SHIFT-HELP again to leave the
key programming mode.

Universal Keys:

Escape   Open command shell.

Up Arrow   Scroll up.
Down Arrow   Scroll down.
Left Arrow   Scroll left.
Right Arrow   Scroll right.

Shift-Up Arrow   Scroll up a little.
Shift-Down Arrow   Scroll down a little.

Shift-Left Arrow   Scroll left a little.

```
Shift-Right Arrow        Scroll right a little.

F1                       Jump to scanner menu.
F2                       Jump to palette menu.
F3                       Jump to toolbox menu.
F4                       Jump to render menu.
F5                       Jump to print menu.


F9                       Push ImageFX screen to the back.
Shift-F9                 Bring ImageFX screen to the front.


A                        Swap main buffer with alpha channel.
C                        Toggle preview aspect lock.
G                        Convert buffer to NTSC greyscale.
J                        Toggle between the main and swap buffers.
M                        Zoom into the current mouse location.
R                        Redraw buffer.
S                        Open scaling window.
U                        Undo last change (forward).
Shift-U                  Un-Undo last change (backward).
X                        Flip image horizontally.
Y                        Flip image vertically.
Z                        Rotate image 90 degrees counter-clockwise.


Shift-1                  Begin macro recording.
Shift-2                  Stop macro recording.
Shift-3                  Run Arexx macro.


?                        Open preferences window.


|                        Toggle coordinates display.
.                        Delete the current brush.
+                        Zoom into the center of the image.
-                        Zoom out of the image.
_                        Zoom all the way back out of the image.




Toolbox Keys:


F6                       Open drawing modes window.
F7                       Open fill options window.
F8                       Open airbrush options window.


DEL                      Restore all modes, blends, etc. to normal.


B                        Pickup brush.
F                        Toggle "Use As Frisket" alpha channel mode.
H                        Set brush handle.
I                        Set coordinates display units.
K                        Clear buffer to black.
L                        Toggle the light table on or off.
N                        Create a new buffer.
O                        Outline brush with current drawing color.
P                        Toggle pressure sensitivity.
T                        Enter the text window.
V                        Toggle light table view between swap/alpha.
```

```
Shift-M                  Zoom out.
Shift-O                  Trim edges off of brush.
Shift-R                  Redo last operation.

9                        Turn on the "ghost brush".
0                        Turn off the "ghost brush".

Control-I                Invert current region.
Control-R                Swap regions between main and swap buffers.

,                        Pick color.

[                        Activate previous color palette entry.
]                        Activate next color palette entry.
(                        Cycle down through region selections.
)                        Cycle up through region selections.
```

   Gadgets with a single underlined letter in the label may be activated
by pressing the Right Amiga key along with the underlined key.

1.69   Toolbox: Select Multiple Buffers

You can select among loaded alternate buffers by clicking the Alternate
Buffer Selector button, found in the title bar of the ImageFX main
panel to the right of the About button and left of the filename or
coordinates display. If no alternate buffers are loaded, the selector
button remains ghosted and unavailable.

Click the Alternate Buffer Selector button. A list requester will open,
containing the filenames of all the images currently loaded into memory.

To move one of the loaded images into the main image buffer, select its
name from the list and click Okay. The image presently occupying the main
buffer will be swapped out and its name will appear in the alternate
buffer list, replacing the other file.

In order to move one of the alternate images into either the Swap or Alpha
Channel buffers, it is necessary to swap them into the main buffer first.
Then, it can be copied or exchanged into the Swap or Alpha buffer.

1.70   Text

Text

   ImageFX 2.0 offers significantly enhanced Text formatting and handling
capabilities. Its new interactive Text composition panel offers onscreen
preview of the selected font, as well as style, justification and
rendering control.

   Clicking the Text tool in the ImageFX 2.0 Toolbox produces the Text

Composition panel.

   Entering Text
   When you access the Text Composition panel, a single line of text is
already defined and ready for you to modify. Click the line in the Text
Composition Field that reads "Test Text." This line is then selected and
it appears in the Text Editing Field below.

   The Text Editing Field is like any normal Amiga string gadget. You can
click the mouse cursor into the field to activate it for entering text.
When you are finished, press Return and the new text will appear in the
Composition Field, replacing the previous text.

   To add a second line, click the Add button. A new line will appear in
the Composition Field. This line, reading "new," also appears in the
Text Editing Field where it can be modified as before. To remove a line
from the Composition Field, select it by clicking on it with the left
mouse button. Then click the Del button.

   Choosing a Font
   Clicking the Choose Font... button produces a standard Amiga font
requester (unless you have selected a replacement font requester in your
Preferences/File Requester settings). Use the font requester controls to
select a suitable font and size. ImageFX supports all Amiga supported font
types, including CG Compugraphic and Color Fonts.

   Font Style Controls
   The Font Style controls provide familiar stylistic options: Boldface,
Italic and Underline. These may be applied singly or in combination.

   Font Preview
   You can preview the selected combination of font, size and style by
typing a word or two into the Font Preview text entry field. If your
text contains a critical logotype or other special characters, you can
use the preview to determine that ImageFX will render the text
correctly.

   Justification Controls
   Use the Justification Controls to specify how the rendered text will
be aligned: Left, Centered, or Right justified. When rendered, all the
lines in the Composition Field will be aligned according to this setting.

   Rendering Controls
   The Rendering Controls affect how ImageFX will render the text to
suit the current image buffer's color depth and pixel resolution.

        Remap colors produces the best rendition of Color Fonts into a
                       limited palette buffer.

        Extra Border adds a pixel around the edges of the letterforms.
                       This is useful for creating drop-shadows and other
                       text effects.

        Anti-Alias   applies the Anti-Aliasing edge smoothing algorithm
                       to help the text blend into existing background
                       colors.

```
    Load and Save Controls
    You can Load Text documents created in other word processing programs.
You can also Save Text you create in the Composition Field for later use.
If you wish to save your font, rendering and justification settings as
well, choose Save All.  These settings can be reused at any time
thereafter by selecting Load All.
```

```
    Default Settings
    Clicking the Default button clears all existing text and settings,
restoring the Text Composition panel to its default condition.
```

```
    Rendering Text
    When the panel is configured satisfactorily, click Okay.  The text
will be rendered according to the settings in the panel and attached
to the mouse as a custom brush.  You can then position the text brush
anywhere you like in the image buffer and click the left mouse button to
place it.
```

```
    The text is rendered into the image according to the currently
selected Drawing Mode and style and using the currently selected palette
color.
```

```
    If you wish to exit the Text Composition panel without rendering
any text, click Cancel.
```

1.71   Crop

```
Cropping Controls
```

```
    The middle set of controls in the Size menu are for reducing the
image dimensions by discarding pixels.  Cropping is a familiar graphic
arts term for cutting away unwanted picture information and, thereby,
drawing attention to the most important elements of the
image.
```

```
Auto Crop
```

```
    ImageFX 2.0 has an automatic cropping capability that can
intelligently detect blank background information and simply delete it.
Auto Crop is especially effective with scanned images.
```

```
Cropping Control Panel
```

```
    When a more interactive method of cropping is desired, click the
Crop... button in the Size menu.  This produces the Cropping control
panel.
```

1.72   Palette pot

```
    Double-clicking on any color well produces an Edit Color Register
requester.  This requester contains string gadgets with values
describing the currently defined color in terms of the currently
```

selected color space components, either RGB, CMY, CMYK, HSV,
YIQ or YUV. By typing in new values for each component you can alter
the hue of the color well. These requesters all have three string
gadgets except for CMYK which has four.

1.73   File Requester prefs

   The fourth button in the middle column of Preferences panel controls
allows you to pick your favorite file requester. File requesters are a
matter of taste among Amiga users and some prefer to use one that is
different from the Amiga's own ASL.library requester. In addition, ImageFX
2.0 now offers its own thumbnail-based file requester for selecting
images.

   If you indicated in the Preferences/File Requester... options panel
that you wished to use the ImageFX Thumbnail File Requester when loading
pictures, this is the requester that will open. Otherwise a standard
Amiga file requester will be used.

   Image selection using the Thumbnail File Requester is accomplished the
same as any standard file requester. Locate the image you wish to load
and double-click using the left mouse button. If necessary, use the scroll
bar to move unseen thumbnails into view. The Thumbnail requester also has
two pull-down menus, described in the ImageFX Program Reference.

   Images that have not had a thumbnail previously created, and all
directories, will display in a blank square with a ? character. ImageFX
2.0 includes a Hook program to search your image directories and create
thumbnails automatically.

1.74   Color2Grey

   The complement to Grey to Color, this operator reduces a 24-bit image
to 8-bit greyscale. This process requires a method for scaling Red, Green
and Blue color data to an appropriate greyscale brightness level. Since
the ideal scaling method may vary from one picture to another, ImageFX
provides several choices.

   Clicking the Color to Grey... button produces the following requester.
It provides two standard scaling methods and the means to create your own.

   Grey   This method assigns equal weight to Red, Green and Blue
              image data.
   Luma   This method weights the interpretation of Red, Green and Blue
              data according to the sensitivity of the human eye. In this
              case, green is counted almost twice as bright as red which,
              itself, is more than twice as bright as blue. This is the
              default setting.
   Custom   If you wish, you can edit the individual weighting values to
              any number you like.

1.75 Custom convolve

When you click the Custom... button in the Convolve pop-up menu, the
Custom Convolution control panel appears.

You can create your own custom convolution matrices, either by typing
values into the Matrix Definition Field and clicking Save, or by typing a
set of values into a file using your favorite text editor. The following,
taken from the Matrix subdirectory of ImageFX:, is an example of such a
text file.

```
Custom Matrix Specification  Diagonal
      3 3 3

      -1 -1  2
      -1  3 -1
       2 -1 -1

      -1 -1  2
      -1  3 -1
       2 -1 -1

      -1 -1  2
      -1  3 -1
       2 -1 -1
```

1.76 Set aspect

Different display and publication uses for digital images impose
different characteristics on the pixels that comprise the image. For
instance, most Amigas support a number of different display modes, each of
which uses pixels of a different rectangular shape. All Macintoshes, by
contrast, use perfectly square pixels, no matter what display dimensions
they use. If you were to load a Macintosh image on your Amiga, you might
wonder why it looks vertically or horizontally squashed.

In fact, the image is not squashed, it just uses a different Pixel Aspect
Ratio. Pixel aspect ratio is the relationship of pixel width to pixel
height. ImageFX provides the necessary tools to correct for any type of
pixel aspect ratio mismatch.

Clicking the Set Aspect... button in the Size menu produces the Aspect
Ratio control panel.

Dots Per Inch/Dots Per Centimeter

The Aspect Ratio control panel also has entries for setting the image's
default Dots Per Inch (dpi) resolution. Normally, ImageFX defaults to
300 dpi laser printer resolution, but images destined for monitor display
only are commonly used with either a 72 or 75 dpi setting. Many image
file formats include aspect ratio and dpi information along with the
file.

Dimensions

Finally, the image's Width and Height, either in terms of inches or in terms of inches or centimeters may also be set. These values change as you adjust the DPI/DPM setting.

1.77   Dynamic range

The first Filter adjustment method allows you to adjust the Dynamic Range for the image in the Main buffer. Dynamic range is an expression of the image's informational bandwidth; the volume of its graphical content. Normally, when scanning or frame grabbing, you want to acquire and maintain the broadest dynamic range possible.

Video signal transmission and low-resolution printing technology are media with limited dynamic range capabilities, however. If the images are to be distributed using either of these methods, they should be filtered first. Picture information that exceeds the dynamic range limits of a given medium turns into noise.

Clicking the Dynamic Range... button in the Filter pop-up menu produces the Dynamic Range adjustment subpanel.

The normal dynamic range for computer graphics is 0 255: The maximum range of brightness values carried by 8 bits of data. Video signals degrade if they are asked to carry picture information that is too dark or too bright. Generally, a suitable dynamic range for video is 12 210.

Thus, to adjust an image for video, using the Dynamic Range filter, you would raise the Lower Limit slider to 12 and lower the Upper Limit slider to 210.

1.78   Scale

The top portion of the Size menu contains two Quick-Scaling buttons and a Scale subpanel selector.

Quick Halve and Double

The buttons marked Halve and Double, when clicked, immediately and automatically either halve or double the pixel dimensions of the image in the main buffer. The method of scaling used is set in the Scale control panel described below. Normally, the Fast scaling method is used.

Scale subpanel

When you need to scale an image by some factor other than 2, click the Scale... button to produce the Scale control panel.

Scale Mode

Scaling can be performed according to several user preferences. The
Smooth method interpolates the picture data and produces the highest
quality image at the expense of speed. The Fast method scales the image
much faster, but simply discards or repeats pixels, rather than
interpreting new color information.

The Border method provides a way to increase the image's pixel
dimensions without changing the actual size of the picture data.
When Border is selected, the original image, at its original size, is
placed against a black background of your specified dimensions. Thus, when
scaling a 640 x 480 image to 800 x 600, 80 pixels of black are added to
either side and 60 pixels of black are added top and bottom.

1.79   Simple 2d rotate

The Simple 2D Rotation controls provide the easiest and most direct
method to accomplish rotations around a point fixed in the center of the
image. Clicking the Simple 2D Rotate... button produces the Simple
Rotation control panel.

1.80   Custom color transform

Clicking the Custom... button produces the Custom Color Curve Editor.

Color Curve Edit Field

The large field at the top, left of the Curve Editor represents, in
cartesian coordinate space, the brightness curve of the current image.
By default, this curve is a straight line.

The Curve Editor field is actually a small image buffer. You can edit
the Color Curve to alter the image by brightness levels. You can also
use the Curve Editor in combination with the R, G and B Color Channel
selectors to adjust the individual color components by brightness levels.

Curve Types and Editing Methods

Controls are provided to adjust the color curve using a line composed
of individual pixel-sized points, point-delimited Line segments or
Spline-curve segments.

Point-based

This method allows you to create a color curve composed of discontinuous
segments.

Line-based

This method is the easiest and quickest method, but can produce
unwanted brightness cusps if the points that separate line segments
produce sharp angles.

```
   Spline-based
```

Using Splines to shape the color curve takes a little more work to master, but produces the smoothest and most satisfying results.

When the Line-based or Spline-based method is selected, the Add Point and Remove Point buttons become available. Adding points increases the number of segments and permits greater flexibility in adjusting the overall curve.

```
   Preview Thumbnails
```

When you first open the Custom Curve Editor, the current image is rendered in reduced, thumbnail form in the upper of the Preview windows. Any time you make an adjustment to the color curve, you can check its effect by clicking the Preview button. The new curve will be applied to the thumbnail image and the new thumbnail will be displayed in the lower window.

```
   Loading and Saving custom curves
```

ImageFX ships with a number of pre-defined custom curves. These are stored in the Transform directory within your ImageFX main directory and may be recalled simply by clicking the Load button at the bottom of the Editor window.

Any curve you create using the Custom Curve Editor can be saved for later use by clicking the Save button and supplying a suitable name in the file requester that appears.

When you have selected a suitable Custom color curveor created one of your own and have previewed it to your satisfaction, click Okay to apply the curve to the data in ImageFX's main buffer. To exit without affecting your image data, click Cancel.

1.81 Disperse

Disperse mode produces a very interesting special effect. As you paint usually with a fairly large brush or pen the pixels in the image are scattered slightly. You can adjust the amount of dispersion by clicking the Options button to the right of the Mode selector. Doing so produces a Disperse Density slider.

1.82 Roughen

Like Disperse, the Roughen effect stylizes an image, making it appear more textural. This is useful when preparing an image as a background for superimposed text or other higher-priority information. The Roughen effect generally produces a slightly darker image than the original. Clicking the Roughen... button in the Effects menu produces the Roughen control subpanel.

1.83   Relief Map

   Relief Map is also most often used as a special effect. Its intended
use, however, is in the analysis of low-contrast topographical photography.
The Relief Map convolve is extremely helpful in bringing out
three-dimensional features from such photographs.

1.84   Roll

   The Roll Transform treats the image as if it were one continuous
geometric loop, or part of a tiled matrix of identical images. Using
Roll allows you to shift pixels from one edge of the image to its opposite.

1.85   Apply Texture

   While the Disperse and Roughen effects functions provide a general
texturing capability, the Apply Texture effect is a complex,
multi-functional texture mapping engine. Clicking the Apply Texture...
button in the Effects menu produces the Apply Texture control panel.
Refer to the manual for a complete description of its functions and
capabilities.

1.86   Median Filter

   This Filter examines the sample area defined by the radius variable
and converges the values for all the pixels toward the goal defined in
the Mode selector. If Minimum is selected, the pixels in the sample
area are biased downward toward the darkest pixels in the sample. If
Median is selected, the pixels are biased toward the median average. If
Maximum is selected, the pixels are biased toward the brightest pixels
in the sample. The larger the radius, the larger the sampling field
and, consequently, the more color distortion that takes place. As the
radius value is increased, greater and greater amounts of detail are lost.
Radius value also has a tremendous effect on calculation time. As the
radius increases, filtering computation time also increases by an order
of magnitude.

1.87   Change Color

   This button provides a means of globally changing some color value to
another for all pixels in the current image.

   When you specify the Red, Green and Blue value of the color you wish
to change, and the Red, Green and Blue values you wish to change them
to, ImageFX then examines each pixel in the current image buffer. If
the color for that pixel falls within the Closeness variance from the

Source color specified, it will be changed to the Destination color
specified. You can adjust the Closeness slider to include or exclude
similar, but not identical, colors.

1.88 Shear

   The Shear Transform allows you to skew the image in the Main buffer
along the X axis.

1.89 Dream

   The Distort menu contains yet another image warping system for
producing dreamlike special effects. Anyone who knows old black and
white Science Fiction movies will instantly recognize the Dream distortion
effect. Clicking the Dream... button in the Distort menu produces the
Dream distortion control panel.

1.90 Straw

Straw

Straw places a pattern of randomly oriented lines on the affected image,
producing an interesting texture.

Size:
   Size (ie. length) of the lines that are drawn, in pixels.

Spacing: (New for 2.6)
   Spacing between line centers, in pixels. Ie. draws a line every N pixels.

Angle Min, Max: (New for 2.6)
   Controls the minimum and maximum angles of the lines. By default, the lines
   can be drawn in any orientation, but you can limit the lines to a certain ←
      direction
   by changing the minimum and maximum angle.

Seed:
   The random number seed. Using the same random number seed will produce the
   same pattern of lines (useful for animation). Clicking the Randomize button
   creates a new seed value.

1.91 VideoFilter

The Video Filter uses well established video engineering
specifications to adjust the brightness (luminance) and color
(chrominance) of the image to make it broadcast legal. NTSC and PAL
video standards have different specifications, so be sure to select the
standard appropriate to your local system. NTSC, generally, is the
US video system. PAL is used in Europe and some Asian countries.

1.92 Composite

The composite menu allows you to manipulate and merge your buffers in
several ways. You are provided many levels of transparency as well.

The first button is a cycle gadget which determines the composite
operation to use. There are many choices here.

Here is an overview of the different Composite Operations and
their effects:

Merge   Merge blends the Main and Swap image buffers together
                      according to the Blend slider setting.

Matte   The Matte operation is useful for replacing large,
                      discontiguous areas of one or more colors.

Fast Matte   The Fast Matte operation produces the same effect as
                      Matte. It achieves faster processing times by ignoring
                      any Alpha Channel options (and data) in calculating the
                      Matte.

HSV Matte   The HSV Matte operation produces the same effect as
                      Matte and Fast Matte and it works similarly. However,
                      in this case, you specify the color to be matted using
                      the Hue, Saturation, Value color space model.

Add   The Add operation performs an arithmetic combination
                      of pixels from the Main and Swap buffers.

Subtract   The Subtract operation performs an arithmetic
                      combination of pixels from the Main and Swap buffers.

Multiply   The Multiply compositing operation performs an
                      arithmetic combination of the main and swap buffer
                      images.

Divide   The Divide compositing operation performs an arithmetic
                      combination of the main and swap buffer images.

Absolute Add and
Absolute Subtract
                      These two operations are similar to Add and Subtract,
                      except that the results of the Add or Subtract pixel
                      combinations are not adjusted to compensation for
                      brightness shifts.

Minimum & Maximum

When the Minimum composite operation is selected,
ImageFX compares the Main buffer image with the Swap
buffer image on a pixel-by-pixel basis. In each
pixel-to-pixel comparison, ImageFX copies the lower
or minimum value into the main buffer. If the Main
buffer source pixel is lower, its value is maintained.
If the Swap buffer source pixel is lower, it is
substituted for the Main buffer source pixel.

When the Maximum composite operation is selected,
ImageFX compares the Main buffer image with the Swap
buffer image on a pixel-by-pixel basis. In each
pixel-to-pixel comparison, ImageFX copies the
higher or maximum value into the main buffer. If
the Main buffer source pixel is higher, its value is
maintained. If the Swap buffer source pixel is higher,
it is substituted for the Main buffer source pixel.

Map   ImageFX compares the main buffer image with the Swap
                    buffer image on a pixel-by-pixel basis. In each
                    pixel-to-pixel comparison, the Image Map composite
                    operation combines the color values (hue) from the
                    Swap buffer source pixel into the Main buffer pixel
                    without affecting the original brightness value of the
                    Main buffer pixel.

AND   performs a binary comparison of the Main and Swap
                    buffer pixels. All 24-bits representing the pixel are
                    compared on a bit-by-bit basis. Wherever both Main
                    and Swap bits are set, the result will be a 1. If one
                    or the other source bits is a 0, the result is also 0.

OR   performs a binary comparison of the Main and Swap
                    buffer pixels. All 24-bits representing the pixel
                    are compared on a bit-by-bit basis. Wherever either
                    Main or Swap bits are set, the result will be a 1.
                    If both source bits are 0, the result is 0.

XOR   (eXclusive OR) performs a binary comparison of the
                    Main and Swap buffer pixels. All 24-bits representing
                    the pixel are compared on a bit-by-bit basis.
                    Wherever only one of the Main or Swap pixel bits is
                    set, the result will be a 1. If both Main and Swap
                    pixel bits are set, then the result is 0.

Blend Slider

Regardless of the Compositing Operation selected, the Blend slider
determines how much of the Swap buffer image will be used to replace the
affected pixels in the Main buffer. You can change the Blend setting
either by grabbing and moving the slider knob or by directly
typing a value into the text entry gadget to the right.

Including and Excluding Color Ranges

For most of the Composite Operations, you can select to use specific
color ranges for inclusion or exclusion. The process by which this is
done is the same as that used for the other Drawing Modes and Styles.
Refer to the Pen Options control panel for further details on selecting
and using the include and exclude features.

Match Gadget

   The one additional feature for including or excluding color ranges when
compositing is the Match gadget. Since a composite operation involves the
use of two image buffers you must select which buffer to test for color
range matching. In other words, if you are choosing to include only colors
that fall within a range of blues, do you want to include only the
blue pixels in the Main buffer, only the blue pixels in the Swap buffer,
or all pixels in either buffer that fit the specified range of blues?

Closeness slider

   The Closeness slider in the Composite control panel functions
identically with that found in the Pen Options panel. The number specified
by this slider determines the variance from the values specified in the
included or excluded ranges that is still considered a match. This control
also includes a text entry gadget for typing in a value directly.

Alpha Channel

   As with the other Drawing Modes and Styles, you can also use an image
in the Alpha Channel buffer as an additional filter to modify the
composite operation. In addition to the familiar Frisket and Texture
modes, the Composite panel also offers a Mask mode. Mask has the effect
of inverting the Frisket mode. That is, pixels that are transparent in
Frisket mode are opaque in Mask mode and vice versa. A pixel that is
60% transparent in Frisket mode is 60% opaque in Mask mode.

Swap Buffer handling

   Normally, when compositing two images, you want the two image buffers
(Main and Swap) to be the same size. In some cases, however, this isn't
possible. When the buffers begin as unequal sizes, you can select to
scale the Swap buffer to fit the Main buffer, or to Tile the Swap buffer
so as to match the Main.

1.93 PolarBlur

   The Polar Blur distortion is similar to the Swirl distortion in that
it allows for the angular displacement of pixels around a center point.
Where Swirl moves pixels from their point of origin and relocates them
at their point of displacement, Polar Blur repeats each pixel at every
point along the angle. The result is an image with a circular blur. In
this respect, it is also similar to the Motion Blur convolution. Clicking
the Polar Blur... button in the Distort menu produces the Polar Blur
control panel.

1.94   PolarMosaic

The Polar Mosaic distortion produces one of the most spectacular
effects available with ImageFX. A mosaic is an image composed of
geometric tiles; and a polar mosaic is one that is constructed, in radial
fashion, around a center point. The Polar Mosaic effect often creates
images that look like stained-glass windows. Clicking the Polar Mosaic...
button in the Distort menu produces the Polar Mosaic distortion control
panel.

1.95   Complex Rotate

The Complex Ration controls provide a broader range of rotation
effects. These include the ability to position the centerpoint of
rotation anywhere within the image area, the ability to specify
independent inner and outer rotation radii -- providing the mans to
achieve unlimited annular rotation effects; and variable blend
image superimposition.

1.96   Swirl

The Swirl distortion is useful mainly as a special effect and, when
animated, has been used in movies and on television, to suggest a
dreamlike transition.

1.97   Warp (ie. Punch/Pinch)

A general warping function called Pinch/Punch, Pinch has the effect of
squeezing together pixels toward some user-defined point while Punch
has the opposite effect of pushing out pixels away from a point. Punch
can be useful for simulating blister effects, the magnifying qualities
of water droplets or a fisheye lens.

1.98   Wave Generator

In addition to the wave generator in the Alpha Channel creation menu,
the Distort menu also contains a full featured wave distortion engine.
This tool is extremely flexible and the effect is stunningly beautiful
when applied to animation sequences. Clicking Wave Distort... produces
the Wave Distortion control panel. Please consult the manual for
detailed explanations of its controls and an explanation of Wave
Engine Technology.

1.99 LensFlare

Lens Flare

   The Lens Flare effect is an elaboration on the Radial Star effect
that allows you to simulate the refractive artifacts of camera optics.
Although optical engineers and photographers have labored for well over
a hundred years to eliminate such distortion effects from actual camera
lenses, including them in computer generated imagery often helps add that
extra touch of realism.

   Clicking the Lens Flare... button in the Effects menu produces the
Lens Flare control panel.

   Normally, you will use the Lens Flare effect by loading one of the
predefined styles and applying the style, with minimal parametric
adjustments, to an image. Under these circumstances, it isn't necessary
to understand much more than how the flare is generated.

   If you want to create your own Lens Flare styles, however, there is a
lot more to learn.

   Lens Flare Parameters

   The Lens Flare effect is composed of a number of separate elements,
each of which can be individually controlled. This provides the
flexibility to create virtually any kind of flare effect to simulate
practically any kind of lens.

   Flare Type

   The primary element of the Lens Flare effect is the flare, itself.
Several flare types are available, including no flare at all.

     None   In this case, no primary flare is rendered, but any
                    additional artifacts that may be defined are rendered
                    as they normally would be. Use None when you want to
                    generate artifacts for a starburst created with the
                    Radial Star Effect. In this way you can produce Lens
                    Flares with starbursts consisting of different numbers
                    of points.

     Small   Produces a PhotoShop-like effect with random spikes.

     Medium   A standard optical flare, employing an multi-point star.

     Large   An enhancement of the Medium flare that adds a second,
                    smaller Medium flare. The smaller flare has twice the
                    number of points, plus one, and can be independently
                    rotated.

   Additional parameters

   Anamorphic Stretch
                    Simulates the type of flat, wide flare created by an

anamorphic (wide-screen compression) lens.

  Glow   Normally, a lens flare occurs along with a glow or
                 diffuse halation artifact. The Glow and the Flare type,
                 in combination, produce the simplest form of Lens Flare
                 effect. You can set the color for the Glow independently
                 of the primary flare color. This is done in terms
                 of 0 - 255 Red, Green and Blue value text entry fields.

  Artifacts   Most real-world lens flare occurrences include a number
                 of refractive artifacts. These are actually reflections
                 of the primary flare, caught and refracted within the
                 several simple lenses that make up most of today's
                 compound photographic lenses. Normally, the higher the
                 optical quality of the lenses, the less artifacting is
                 visible, but most lenses, under some circumstances, will
                 exhibit a degree of flare.

1.100 PaintFX

PaintFX is an automatic painting system that can turn any photographic
or other bitmap image into a simulated work of art. The control panel
for PaintFX includes a wide variety of adjustments for altering your
painting; it also includes a number of predefined effects styles such as
Impressionist, and Charcoal Sketchthat you can simply load and use. These
images can then be used as single works of art or, when applied to sequences
of frames, for animation effects or transitions. When you click the
PaintFX... button in the Effects menu, the PaintFX control panel will
appear.

  How It Works

PaintFX achieves its unique qualities by applying algorithmic brush
strokes to your image. The manner in which these strokes is applied is
infinitely variable, which makes PaintFX very powerful. To begin with,
a brush shape is loaded (or, if none is specified, the current brush or
pen is used). The shape and size of this brush defines a sample area used
by PaintFX when color averaging or Swap/Alpha Channel mix throughs are
indicated.

When you click the Okay button, PaintFX starts painting over the image
in the main buffer. It has a fixed number of brush strokes to make and
these are executed according to all the other variables set in each of the
PaintFX control subpanels. These subpanels are organized into several
distinct categories:

  Main Controls

Depending on the set of variables you are editing, the lower portion
of the PaintFX control panel will change. The upper portion consisting
of the Main Controls remains constant, no matter which lower subpanel is
displayed.

  Style   This is a text readout, only. When a Style is loaded,

its name is displayed here. If you wish to provide your
own name to the current PaintFX state, click the Save
button. Type a name into the file requester that results
and save the settings as a Style file. The name you
supplied will then appear in the Style readout. If no
specific style has been loaded, the readout will display
<None>.

Brush   This item displays the current PaintFX brush specification.
               It is a fully functional text entry field and you may
               type any brush filename into it. If you prefer, click the
               Choose button to the right and a file requester will
               appear. If no brush is selected, PaintFX will use the
               current pen size and shape. This brush specification is
               local to PaintFX, only. It has no affect on other brush
               buffers in use with ImageFX.

Strokes   This slider and associated numerical readout are used to
               specify the total number of brush strokes PaintFX will
               produce. The default value is calculated at startup,
               based on the pixel dimensions of the image buffer. A
               320 x 200 buffer is automatically assigned 1,600 strokes.
               If you wish, you may set any other number of strokes. The
               slider's range is limited to 10,000. If you wish to use
               a higher number of strokes, type it directly into the text
               entry field.

               You should be aware that the execution speed of PaintFX
               is directly related to the number of strokes specified
               and the size of the brush used. Keep this in mind when
               setting these values.

               Different styles will produce very different results with
               images of different sizes, depend- ing on the Strokes
               setting. If you don't get the desired result on the first
               try, change the Strokes value and try again.

               In some cases, you might want to apply a PaintFX style to
               a sequence of frames. As long as the same brush, strokes
               and Random Seed settings are used, the effect on every
               frame should be the same.

   Control Groups

   When using the pre-defined Styles, you may not want or need to change
any of the settings in the lower PaintFX subpanels. Just click Okay and
let PaintFX do its job. To create your own Styles, however, you will have
to alter the subgroup settings.

   To simplify the main panel's design, PaintFX's enormous set of
parameters has been divided into separately displayable groups. Each
group of controls deals with a discrete part of the overall PaintFX
effect. The buttons and sliders in the lower portion of the PaintFX panel
will change, depending on which Control group you choose to edit.

   Layer

PaintFX tries to simulate real-world painting techniques in a literal
fashion. Its strokes continually cover each other, building up layers of
cumulative color changes (figurative paint). The controls in the first
subpanel affect how those layers are added.

Method   This cycle/pop-up gadget determines the order in which
              strokes are added to the canvas. The method you select
              affects the ultimate distribution of paint. Available
              methods include:

    – Random Truly random distribution of brush strokes across the
              canvas.

    – Ordered Random
              This method produces the same effect as Random. It has
              been optimized to enhance performance when processing
              large images that must use virtual memory.

    – Ordered Proceeds left-to-right, top-to-bottom through the image.

    – Radial Proceeds outward from the center.

    X Variance
              Every stroke can have some degree of horizontal variance
              or wander from its predicted path. The setting of this
              slider determines the extent (positive or negative) of
              that wander. The slider's range is from 0 to the full
              image width.

    Y Variance
              Every stroke can have some degree of vertical variance
              or wander from its predicted path. The setting of this
              slider determines the extent (positive or negative) of
              that wander. The slider's range is from 0 to the full
              image height.

    Most of the following groups of controls has a setting called Method.
Unlike the Method selector in the Layer subpanel, these other controls
refer to the method for choosing the default value for operations controlled
by that subpanel. First we will complete our discussion of the various
subpanels. We will, then, discuss default selection and the available
Methods.

    Size

    This group of controls affects the size of the brush used to make the
    PaintFX strokes.

    Method   Discussed below.

    Variance With every stroke of its brush, PaintFX can change the brush
              size by the amount you specify in the Variance setting. The
              slider ranges from 0 100 %.

    Minimum   This slider sets the minimum size the brush can be. It
              prevents the Variance control from making the brush too

small. The slider's range is from 0 500 pixels.

Maximum   This slider sets the maximum size the brush can be. It
            prevents the Variance control from making the brush too big.
            The slider's range is from 0 500 pixels.

Angle

Just as the brush's size can vary up and down in size, it can also be
rotated through 360 degrees. When an irregularly shaped brush is used,
this rotation simulates real brush work.

Method   Discussed below.

Variance   With every stroke, the brush may be rotated by the
            amount you specify in the Variance setting. The slider
            ranges from 0 100 %.

Minimum   This slider sets the minimum angle the brush may have.
            It prevents the Variance control from rotating the
            brush too much. The slider's range is from −360 360
            degrees.

Maximum   This slider sets the maximum angle the brush may have.
            It prevents the Variance control from rotating the
            brush too much. The slider's range is from −360 360
            degrees.

Blend

The Blend subpanel controls color blending of each stroke as it is
applied to the painting.

Method   Discussed below.

Variance   With every stroke, the brush stroke may be more or
            less smoothed into the painting. This slider determines
            the amount that the blending or smoothing may vary. The
            slider ranges from 0 100 %.

Minimum   This slider sets the minimum blending level. It prevents
            the Variance control from setting Blend too low. The
            slider's range is from 0 510.

Maximum   This slider sets the maximum blending level. It prevents
            the Variance control from setting Blend too high. The
            slider's range is from 0 510.

Brightness:

The Brightness subpanel controls how much the stroke to stroke
brightness variations can occur.

Method   Discussed below.

        Variance   With every stroke, the brush may be increased or
                    decreased in brightness. Your setting of the Variance
                    slider determines the extent of this variation. The
                    slider ranges from 0 100 %.

        Minimum   This slider sets the minimum brightness level. It
                    prevents the Variance control from setting the
                    brightness too low. The slider's range is from 0 200.

        Maximum   This slider sets the maximum brightness level. It
                    prevents the Variance control from setting the
                    brightness too high. The slider's range is from 0 200.

    Color

    This group of controls determines the amount of stroke-to-stroke color variance ←
        may occur
in both the brush color and the background color.

    Background

    This cycle/pop-up gadget permits the selection of a background color.
For instance, you may choose to have PaintFX render the current main
buffer image against a new, blank white or black canvas. Your selection
here determines what that background consists of. This setting determines
the starting color; background colors may be varied according to the
Red, Green and Blue value settings (described below).

            – Black   The PaintFX painting is rendered against a Black
                        background.

            – White   The PaintFX painting is rendered against a White
                        background.

            – Draw Color
                        The PaintFX painting is rendered against a solid
                        background of the currently selected draw color.

            – Main   The PaintFX painting is rendered against the Main
                        buffer image.

            – Swap   The PaintFX painting is rendered against the Swap
                        buffer image.

    Brush

    This cycle/pop-up gadget permits the selection of a beginning brush
color. With each stroke, this basic color setting will be varied
according to the Red, Green and Blue slider settings (described below).

            – Black   Brush begins as black.

            – White   Brush begins as white.

            – Draw Color

                         Brush begins as the currently selected draw color.

          – Random   Brush begins as a randomly selected color.

          – From Swap Starting brush color is taken from the image in the
                      Swap buffer at the coordinates that correspond with
                      the brush's position at the start of its stroke.

          Red Value   Determines the maximum amount that the red component
                       of the brush color may vary on a stroke-to-stroke
                       basis. The slider ranges from 0 255.

          Green Value Determines the maximum amount that the green component
                      of the brush color may vary on a stroke-to-stroke
                      basis. The slider ranges from 0 255.

          Blue Value Determines the maximum amount that the blue component
                      of the brush color may vary on a stroke-to-stroke
                      basis. The slider ranges from 0 255.

    Methods of Default Selection II

    As mentioned previously, each of the subpanels for Brush Size, Brush
Angle, Stroke Blending and Brightness variations share a common control
labeled Method. The method selected tells PaintFX what values to use as
the basis for a given brushstroke's color, brightness, size and shape.
This is best explained through the following procedure:

(As it prepares each brush stroke, PaintFX goes through these steps)

1)   A default brush stroke is generated, including data on its X and
        Y placement, color, brush size, brush angle, etc. This default
        stroke may be based on previous input or default conditions
        internal to PaintFX.

2)   PaintFX refers to the parameters you entered for the Layer
        subpanel and, depending on the Method, X-Variance and Y-Variance,
        it modifies the default brush stroke accordingly.

3)   PaintFX then refers to the Method of Selection for brush size
        and determines a default brush size. Depending on the Variance,
        Minimum and Maximum entries, it then alters the default brush size
        for that stroke.

4)   For each of the succeeding subpanels, PaintFX generates a default
        value using the Method of Selection specified in that panel. It
        then evaluates the given Variance, Minimum and Maximum parameters
        and makes adjustments to the stroke factors controlled by that
        subpanel. Thus, by the end of this procedure, the brush stroke
        PaintFX makes may bear no resemblance to the initial one created
        by default.

    Any PaintFX operation can choose to override the default value (which
most do), but it can't exceed the given Minimum and Maximum limits.

    There are two ways to vary the value. One is through the Method
selection (Normal does not vary the value, all others do), the other is

through the Variance. These two options act independently of each other.

   Methods Detailed

   Normal   Uses the initial default value assigned by PaintFX at the
               beginning of the stroke. The value may still be altered by
               the Variance setting, so long as it does not exceed the
               stated Minimum and Maximum values.

   Random   A new default value is spontaneously generated at random.
               This value supercedes any previous default, but it can still
               be altered by the Variance setting, so long as it does not
               exceed the stated Minimum and Maximum values.

   From Swap   The initial default value for the subpanel operation
               (brush size, angle, etc.) is determined from the image in
               the swap buffer. For instance, if the subpanel is concerned
               with brush angle, the default angle may be rotated from
               −360 to 360 degrees as the swap buffer image goes from black
               to white. There are also variations on this Swap
               buffer Method:

       − From Swap (Reverse) This works essentially the same as From
                              Swap, but the angle will be rotated from
                              −360 to 360 as the swap buffer image goes
                              from white to black.

       − From Swap (Hue)   This works similarly to From Swap; but
                              only the Hue portion of the swap buffer
                              image is used.

       − From Swap (Reverse Hue)
                              The Hue portion of the swap buffer is used,
                              but the effect is reversed (e.g.: +45
                              degrees becomes −45 degrees).

       − From Swap (Saturation)
                              Works the same as From Swap, but only the
                              swap buffer's Saturation is considered.

       − From Swap (Reverse Saturation)
                              The swap buffer's Saturation is used, but
                              the effect is reversed.

       − From Swap (Value)   Works the same as From Swap, but only the
                              swap buffer's Value is considered.

       − From Swap (Reverse Value)
                              The swap buffer's Value is used, but the
                              effect is reversed.

   From Alpha   The initial default value for the subpanel operation
                (brush size, angle, etc.) is determined from the image
                in the Alpha Channel buffer. For instance, if the
                subpanel controls brush angle, the default angle may be
                rotated from −360 to 360 degrees as the Alpha Channel
                buffer image goes from black to white. There are also

variations on this Swap buffer Method:

- From Alpha (Reverse)   This works essentially the same as From
                         Alpha, but the angle will be rotated from
                         -360 to 360 as the Alpha Channel buffer
                         image goes from white to black.

- From Alpha (Blur)   The image in the Alpha Channel buffer is
                         blurred and the value for the operation is
                         taken from the relative grey level of the
                         resulting pixels.

- From Alpha (Reverse Blur)
                         This works the same as From Alpha (Blur),
                         but the effect is reversed (e.g.: +45
                         degrees becomes -45 degrees).

- From Alpha (Gradient) The Alpha Channel image is softened through
                         the use of a gradient blend (producing a
                         more precise effect than Blur) and the value
                         for the operation is taken from the
                         resulting relative grey levels.

- From Alpha (Reverse Gradient)
                         Works the same as From Alpha (Gradient),
                         but the effect is reversed.

   For operations that use the swap or alpha buffers, if one does not
actually exist, it will be created for use by the effect and destroyed
when the effect is finished. Therefore, the only buffer you need to have
is the main buffer, since you can also temporarily load a brush from disk
for the duration of the operation.

       Left   The default value is determined by how far left the
                 stroke will fall.

       Right   The default value is determined by how far right the
                 stroke will fall.

       Up   The default value is determined by how far from the
                 bottom of the image the stroke will fall.

       Down   The default value is determined by how far from the
                 top of the image the stroke will fall.

       In   The default value is determined by how close to the
                 center of the image the stroke will fall.

       Out   The default value is determined by how far from the
                 center of the image the stroke will fall.

       Diagonal Right
                 The default value is determined by how far from the
                 upper right-hand corner of the image the stroke will fall.

```
Diagonal Right (Reverse)
        The default value returned from Diagonal Right is inverted
        or reversed (e.g.: -45 degrees becomes +45 degrees).

Diagonal Left
        The default value is determined by how far from the
        bottom left-hand corner of the image the stroke will fall.

Diagonal Left (Reverse)
        The default value returned from Diagonal Left is inverted
        or reversed.
```

```
What it means

At first glance, the preceeding methods might seem unnecessarily complex
and redundant.

However, if you consider how they might be applied with a brush stroke
growing larger as a function of its distance from the image center; and
rotating as it moves toward the lower left corner; with the colors changing
in response to the image of a kitten loaded into the Swap buffer it begins
to make some sense.

The whole reason for all this variability is to allow PaintFX a simple
machine to synthesize the wide range of visual expressions a painter
achieves through the subtlety of human motion.  In no case will PaintFX
ever replace Picasso or even come close to human generated art; but the
effects are pleasing and, when used in a production environment, take
considerably less time than attempting them by hand.
```

1.101 RadialStar

```
The Radial Star effect allows you to place starburst-shaped highlights
anywhere in your image.  The parameters for the star can be infinitely
varied and, when applied across a sequence of frames, can reproduce an
animated twinkling effect.
```

1.102 Tile

```
Another useful tool for creating backdrops and simulated abstracts
is the Hockney Tiling effect.  This effect subdivides the image into a
grid of user-specified mosaic tiles.  It then shifts each tile randomly
up or down, right or left, according to the variability values you
supply.  You can also choose to vary the hue, value and edge blending
to produce still greater variations.  Clicking the Hockney Tiling...
button in the Effects menu produces the Tiling control panel.
```

1.103 Lightning Effect

Lightning

The Lightning effect is a powerful special effect for adding simulated
lightning bolts to your still images or motion sequences. Full control
is given to create bolts of lightning to your exact specifications. And,
unlike in real life, you can predict exactly where each one will strike.

Random Seed:

    Determines the shape and branching pattern of a lightning bolt.

Paint:

    Alters how the bolt is painted to create various effects.

    Branch/Bolt paints the Branches, then the Bolt.

    Bold/Branch paints the Bolt, then the Branches.

    Bolt Only and Branches Only paint only the Bolt or only the
    Branches, this last option creates the appearance of many
    smaller lightning bolts that emanate from the path of the
    (not shown) main bolt.

Menu:

    Provides menus for specifying the appearance of the Bolt, it's
    Glow, the Branches, additional randomization options, or
    creating multiple lightning bolts.

    Bolt Parameters:

    The Bolt Parameters menu defines the overall appearance of
    the main lightning bolt.

    Bolt Radius:
       Controls the thickness, in pixels, of the main lightning
       bolt. The three values allow you to set the radius
       independently for each color component.

    Color RGB:
       The overall lightning bolt color.

    Contrast RGB:
       Allows you adjust the contract balance between bright and
       dark separately for each color component. The range is from
       1 to 160, low values produce fuzzy bolts, high values give
       sharp bolts.

    Deviation:
       This determines the angular deviation of the bolt from the
       desired path. The bolt will begin and end in the desired
       locations, a high Deviation will produce a larger divergence
       from the straight-line path.

    Count %:

Changes the possible deviation of the main bolt. A low value
will produce a straight-line bolt, a high value, up to a
maximum of 200, will generate a very convoluted bolt.

Glow Parameters:

A lightning bolt is a phenomenon of electrostatic energy discharge.
Part of the discharge is expressed by a diffuse radiant light that
brightens the scene in the immediate vicinity of the lightning
strike. The characteristics of this radiant light are controlled
by the Glow parameters subpanel, which lets you define two
separate glows around the bolt.

Inner Radius:
Inner Glow RGB:
    Defines the size, in pixels, and color of the inner glow.

Outer Radius:
Outer Glow RGB:
    Defines the size, in pixels, and color of the outer glow.

Branch Parameters:

The Branch Parameters subpanel controls the likelihood and extent
of sub-branches from the main bolt. These are generated in a
random fashion to simulate the variability of real lightning.

Probability %:
    The branching probability at each point. The bolt is created as
    a series of short segments, this is the probability that a branch
    will be created at the end of each segment. Sub-branches are
    created the same way, so this is also the probability that a
    branch will itself branch. Values much above 40% tend to generate
    large numbers of branches.

Radius %:
    The initial radius of a branch when it comes off the bolt,
    expressed as a percentage of the main bolt radius.

Segment Length Min/Max:
    The range of lengths of any segment that makes up either a bolt
    or a branch. Large values will produce angular effects, small
    values will produce smoother curves.

Segment Count Min/Max:
    The number of segments that make up any given branch. This
    primarily affects the length of each branch, large values with a
    small branching probability will produce long streamers, low
    values with a large probability will give a more 'bushy'
    appearance.

Angle Min/Max:
    The range of angles between branches and the main bolt as they
    initially diverge.

Seed Parameters:

The Lightning effect relies extensively on random number generation.
In order to realistically simulate the entirely accidental nature of
lightning bolt morphology, separate randomly chosen numbers are used
for segment length, segment count, radius, and angle. Random number
generators use a given seed value as the basis for the numbers they
will generate. The Seed Parameters subpanel allows you to supply
your own seed values, or to spontaneously create new ones.

Coordinate Parameters:

This version of Lightning allows you to have multiple main bolts,
each defined by a line on the preview window. This menu is used
to define the number of lines and their positions.

Lines:
   The number of main bolts that the effect will create. This can
   be entered directly, or changed by Adding or Deleting lines
   using the appropriate buttons.

Line:
   The current active line for editing. Each line has it's own
   values for the Bolt, Branch, Glow and Seed parameters, to change
   a given line's parameters you can either choose the line here or
   use the mouse to select it on the preview window. In addition,
   you can use the Next and Previous buttons to cycle through the
   existing lines.

Starting:
Ending:
   The starting and ending positions expressed as X and Y 2-D
   coordinates, and a Z coordinate expressed as a percentage, from
   1 to 200%, of the main bold radius. You can also set the X and
   Y values directly on the preview window by dragging a line's
   endpoints.

Refresh:
   Refreshes the preview window and redraws any currently defined
   lines.

1.104   AntiAlias

Anti-Aliasing adjusts the colors of the boundary pixels so as to
give the appearance of a color-smoothed edge. This is the most subtle
form of edge softening available in ImageFX.

1.105   Crystallize

The Crystallize effect performs a geometric decomposition, similar to
the Mosaic and Polar Mosaic distortion effects. In this case, however,

the distortion can be manipulated in a planar dimension. Clicking the
Crystallize... button in the Effects menu produces the Crystallize control
panel.

1.106 OilPaint

   The Oil Paint effect performs a number of sampling and averaging
functions on the image in order to produce a naturalistic-looking
rendering in oils. Depending on the processor speed of your Amiga, this
effect can take a while to complete, but the result is extremely
satisfying. Clicking the Oil Paint... button in the Effects menu
produces the Oil Paint control subpanel.

1.107 Perspective

   This control group provides for Complex 3-dimensional perspective
manipulation of images. This most powerful rotation tool gives you
comprehensive control over image attitude and placement within the screen.
When you supply incrementally different arguments to the various parameters
in this panel, you can produce animations that flip, roll, and fly away!

   Perspective Operation Terms

   Rotate   A Perspective Rotate operation turns the image around either
              the X, Y or Z axis.

   Translate A Perspective Translate operation moves the image, as an
              object, along either the X, Y or Z axis.

   Scale   A Perspective Scale operation causes the image to grow or
              shrink in the X or Y dimension.

   When you access the Perspective Rotation control panel, a wire-frame
grid is superimposed on the image in the Preview buffer. This wire-frame
represents the image plane in three-dimensional space. As you make
adjustments to the various controls in the control panel, this wire-frame
grid will change shape and size, reflecting how the image will be projected
when you click the Okay button. The Handle control determines where the
point of rotation is placed within the image. Normally, this is set to
Center, but it can be assigned to any of the image's four corners as well.

   The Background control functions similarly to Matte in the Composite
menu. When you click Okay, the image in the main buffer is mapped onto
the 3-dimensional grid. All portions of the image buffer that are not a
part of this image map are considered background and what happens to them
is determined by the Background control. You can choose to matte the
image against itself (Main), against the Swap image, or against a solid
field of black or the current palette color.

   Perspective Rotation Controls

   Interactive Control

The perspective wire-frame grid can be manipulated directly by your
up/down and right/left mouse movements. Simply moving the mouse pointer
into the Preview buffer and pressing the left button activates Interactive
Control mode. Motion control is determined by the setting of the
Interactive Motion Control cycle gadget.

    Slider Control

    Perspective rotation and transformation can also be controlled precisely
through the sliders in the Perspective Rotation control panel. Each
slider has a corresponding text entry field for numerical values. You
may type in any value or use the slider knob.

1.108 Spherize

    The Spherize distortion operator allows you to map any image onto a
sphere. This tool performs a ray-traced surface mapping effect that
can be applied across moving sequences for highly entertaining animation
effects. Clicking the Spherize... button in the Distort menu produces the
Spherize distortion control panel.

1.109 Help and Support Oncall

    Support for any questions or problems you are having using ImageFX can
be resolved by calling our support line. If all support staff are busy, you
can leave a message and you will receive a call back - usually within hours!

    Support telephone: (804) 282-6528 Eastern Time
    Nova Design fax: (804) 282-3768

    Nova Design, Inc.
    1910 Byrd Avenue, Suite 214
    Richmond, VA 23230
    USA

1.110 Bubble

Bubble

1.111 Color Balancing

Color Balancing

Color balancing forces a particular area of an image (the "sample area")
to be a certain color, and adjusts the rest of the image to match the change.

Select the sample area by clicking on the upper thumbnail preview.

Adjust To:
   The color the sampled area should be adjusted towards. The rest of the
   image is adjusted accordingly.

Custom:
   When the "Adjust To" cycler is set to Custom, enter custom RGB value to
   adjust towards here.

Sample Area:
   Size of the sample area, in pixels.

Sampled RGB:
   Current RGB color of the sampled area, for reference.

Find Brightest:
   Locates the brightest area of the image. Note that this may take a while
   for large images.

Find Darkest:
   Locates the darkest area of the image. Note that this may take a while
   for large images.

1.112 Displace

Displace

Displace moves pixels in the current buffer based on image data from another
buffer. It supercedes the "Distort" feature found in previous versions of
ImageFX.

Strength:
   Relative amount of pixel movement. Higher values indicate more displacement.

Method:
   Method of displacement:

   Delta:
      Displaces pixels up and down based on the change in brightness in
      displacement buffer. Works better with low contrast displacement buffers.

   Absolute:
      Displaces pixels up and down based on the brightness of displacement buffer.
      Works better with high contrast displacement buffers.

   Radial:
      Displaces pixels at an angle based on the brightness of displacement buffer.
      Works better with high contrast displacement buffers.

X Displace From:
   Selects the buffer from which to get horizontal displacement information.

Y Displace From:
   Selects the buffer from which to get vertical displacement information.

Note that when using the Radial method, this gadget is ghosted because
only one displacement source can be used.

Use Colors:
    Selects whether to displace the RGB channels separately or together.

Direction:
    Limits the direction of pixel displacement.

1.113 Film Grain

Film Grain

1.114 Fire

Fire

1.115 Gaussian Blur

Gaussian Blur

1.116 Liquid

Liquid

1.117 Remove Defect

Remove Defect

Remove Defect is used to identify and remove areas of significantly
different color from an image, for example dust or scratches on a
scanned photograph.

Size:
    Determines the maximum diameter of a defect, in pixels.

Difference:
    Determines the boundary of the defect. This is the maximum
    allowed difference between two pixels, in either R, G, or B,
    for including a pixel in the defect, or excluding it as part
    of the image.

Constrain:

    None:

```
        Defects are considered to be of arbitrary shape.

    Horizontal:
        Defects are considered to be purely horizontal, and are
        identified separately for each row of pixels.

    Vertical:
        Defects are considered to be purely vertical, and are
        identified separately for each column of pixels.

Replacement:

    Average:
        Computes the replacement pixel colors as the average of
        the pixels surrounding the defect.

    Median:
        Computes the replacement pixel colors as the median of
        the pixels surrounding the defect.

RGB Sliders:

    Limits the selection of defect pixels to include only those
    whose Red, Green or Blue components fall between the minimum
    and maximum slider values.
```

1.118 Sparkle

```
Sparkle
```

1.119 Wireless

```
Wireless

Wireless is used to remove wires, supports, or other linear features
from a sequence of frames. It's built-in sequence processing handles
loading, processing and saving, or it can work on a single frame
loaded into both the main and swap buffers.

Project:

    The name of the last loaded or saved project file.

Line #:

    The current line being worked on. You can also select a line
    directly on the preview window.

Buffer:

    The buffer, and associated lines, currently being displayed.
    Choices are Main and Swap.
```

Menu:

   Selects the Sequence, Line or Frames menus.

The Sequence Menu

   The Sequence Menu defines the files that make up a sequence
   of frames, any files that may be used for the replacement
   operation, and where the results are to be saved.

   Sequence:

   This checkbox indicates that Wireless is to process a sequence
   of images, as indicated by the Main First, Main Last and
   (possibly) Swap First file names.

   Light Table:

   Toggles the ImageFX Lighttable feature. This makes the current
   buffer translucent and lets you see through to the other image.

   Main First:

   The name of the file containing the first image in the sequence.
   The frame number is considered to be the last sequence of digits
   in the file name, either with or without leading zeros, and
   should be the same number of digits in all other filenames.

   Main Last:

   The name of the file containing the last image in the sequence.

   Swap First:

   The first of the Swap buffer image sequence to load. This buffer
   should be the clean plate (the images without wires, or with
   wires in different positions), and is used to provide the areas
   that will replace the wires in the Main buffer images.

   Save To:

   The base name to which the image sequence will be saved.

The Line Menu

   This menu controls the location of each pair of lines used to
   indicate a wire, in the Main buffer, and it's replacement, in
   the Swap buffer. The wires are removed by replacing the area
   under a line in the Main buffer with a matching area in the
   Swap buffer.

   Mode:

   This cycle gadget controls whether you are adding lines, moving
   lines, altering them, copying them or just selecting them. In

many cases, you can use the mouse to change a line on the
preview window. Altering a line allows you to change the
positions of the line's endpoints, Moving a line maintains it's
length and orientation but allows it to be repositioned, most
useful when repositioning a line on the swap buffer. Adding a
line is done by drawing on the preview window, doing this also
creates a duplicate line, the other half of the pair, in the
other buffer. Copying a line 'clones' the currently selected
line. To Delete a line, first select it, then press the Delete
Current Line button.

Width:

The width, in pixels, of the area defined by the current line.
Allows you to mask wires or rods of varying widths.

Edge Blend:

The amount of blending to do on the edges of the line, in
pixels. Used to soften the transition between the original
image and the area replaced.

Main, Swap:

The starting and ending X, Y coordinates for the lines. These
are usually set by simply altering the lines directly on the
preview image, but for finer control you can enter them here
as well.

First Frame, Last Frame:

The frame numbers between which this line will be processed.

The Frames Menu

The Frames menu allows you to specify keyframes or to limit the
processing to a portion of the defined sequence.

Keyframe:

Selects the current frame to be a keyframe. Keyframes allow you
to specify the starting and ending positions of a line in a
sequence without positioning a line in each frame – the
position of the line in the other frames will be calculated
as a linear progression from one keyframe to the next.
Indicating that a particular frame is a keyframe allows you to
exactly define the position of each line on that frame.

Frames:

Display only, indicates the number of frames in the sequence,
as determined from the Main First and Main Last filenames.

Frame:

The currently selected frame.

```
    Previous/Next Keyframe:

    Displays the previous or next keyframe.

    Start/Finish Frame:

    The first and last frame of a sequence to process. Useful for
    re-doing a subsequence without having to change all the lines
    and filenames.

    Zoom In/Out:

    Magnifies the preview display, or backs out.

    Refresh:

    Redraws the preview display and the lines.
```

1.120 Clouds

```
Clouds

The Clouds Hook uses Fractal Synthesis in order to generate realistic
looking clouds.  Up to 8 layers are specified.  Each layer is created in
turn and combined with the main buffer.  So layer 1 will appear on top of
the background, layer 2 will appear on top of layer 1 and so on.

   Clouds Global Parameters
     Increment -- Sets the current animation frame to draw

     Nbr of Clouds -- Sets the number of cloud layers

     Cloud Number -- Sets the layer we are setting the parameters for.

   Clouds Menu Subpanels

     The Clouds Hook has quite a few parametric adjustment options.
     These are grouped by function into a series of subpanels.  You can
     select among these subpanels using the Parameter Menu cycle/pop-up
     gadget.

   Fractal Parameters

     Seed              Sets the Seed for the Random Number Generator.
     Meshsize          Sets the size of the cloud array.
     Fractal Dimension Sets the amount of detail in the image.
     Power Scale       Sets the power scale factor

   Paint Parameters

     Color             Selects a color palette.
     Paint             Selects how to combine this layer with the main buffer.
     Threshold         Sets the relative amount of "sky" in the image.
     Blend             How much of this layer to mix with the main buffer.
```

```
    Animation Parameters

      X Velocity         How quickly this layer moves from frame to frame.
      Y Velocity         How quickly this layer moves from frame to frame.
      Turbulence Seed    The Seed for the Turbulence cloud
      Turb. Rate         How quickly the "main" cloud changes into the
                         "turbulence" cloud.
      Turb. Amount       The level of detail affected by turbulence.
```

1.121 FXForge

```
FXForge
```

1.122 PageCurler

```
PageCurler
```

1.123 Scatter

```
Scatter
```

```
Scatter breaks an image up into square cels, then randomly moves
the cels in a radial, linear or spiral direction to produce an
effect of 'scattering' the image.
```

```
Cel Size:
```

```
    The size of each cel, in pixels. Note that the cells are square,
    and a cel size that isn't evenly divisible into the image width and
    height will produce partial cels along the right and bottom edges.
```

```
Random Seed:
```

```
    The seed value for determining the random movement of each cel.
```

```
Threshold Min/Max:
```

```
    Selects pixels to be moved based on intensity or luminosity.
    Values on the low end will only scatter dark pixels, those on
    the high end will only scatter bright pixels.
```

```
X, Y:
```

```
    For radial or spiral effects, this determines the center of
    motion - pixels will move toward or away from this spot. For
    linear effects, a line from the center of the image to this
    spot determines the direction of motion.
```

```
Source:
```

Selects what will be shown 'between' cels after they've been
moved. 'Swap Buffer', 'Black', 'White' and 'Draw Color' will
show the appropriate image or color, 'Exchange Pixels' replaces
each cel with what it will overlay after it's been moved.

Type:

Radial In, Out:
Produces a radial motion either into or away from the given
X, Y position.

Linear:
Produces a linear motion parallel to a line drawn from the
center of the image to the given X, Y position.

Swirl In, Out:
Produces a whirlpool effect as cels spiral into, or away
from, the given X, Y position. The 'Angle' parameter
determines how far a spiral path from the edge of the image
to the X, Y position wraps around; increasing the Displacement
of pixels along this path determines how far the cels will
actually move.

Displacement Min/Max:

The minimum and maximum distances, in pixels, that a cel will
be randomly moved.

1.124 Splash

Splash puts a water drop ripple effect onto an image. The image
looks like you are viewing it through the surface of water.
water's surface. This effect works well when animated.

You can have as little or as much control over the splashes as
you want by using different splash types.

```
Rain   - This puts random drops all over the picture.
Surfer - The drops "surf" pseudorandomly over the picture.
Swirl  - The drops move in a circular pattern.
Line   - The drops draw a line between two points.
Arc    - The drops move in an arc between two points.
Drop   - You specify where each drop is located on the picture.
```

1.125 index

Index to the ImageFX online help system. See the printed ←
manual for a
more complete printed reference.

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