Version

2.0

PROWAVE, INC.

Video Layering and Compositing for the Flyer

RENDER FX

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RENDERFX 2.0

for AMIGA

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Introduction

Our ProMix Tools program was a tremendous success due to input from users-please let us know what you think, and what you need from future ProWave software products. RenderFX also launches a new partnership between ProWave and OzWare. We believe that this team effort will bring exciting new additions to the Flyer NLE and simplify your 3rd party purchase decisions.

Aussie, developer of Co-Pilot Audio and Video, wrote most of AREXX front end of RenderFX and will be writing more add-on packages as well. His concept of "Clip Painting" is really going to bring entirely new life to toaster effects. Bill Evans, one of the resident ProWave programming talents, has been working together with Aussie as well as Dimension Technologiesand Visual Inspirations to create avenues to exploit RenderFX in some of their respective applications.

So, what's new in version 2.0? It has been made about 50% faster for starts. Please let us know if this doesn't work on your machine. We believe that there are at least 2 more places we can speed up the code, but these may be machine dependent. We have also introduced Spline effects, reverse effects, audio support undo, KeyFX, OverlayFX, and our Envelope Editor to really expand the flexibility and creativity of your project.

Getting Started

We need to start by installing RFX. Our program doesn't modify anything on your flyer system-so don't worry about normal flyer operation. Once installed, you will find a number of new tools in your tools menu and a new drawer called ProWave in your AREXX directory. These AREXX scripts are our way of 'communicating' with the Flyer interface without modifying it directly. They simply call out the programs which are located on one of your system drives and execute them.

Before we actually install, let's take a few minutes to explore why we want to use RFX on our Flyer. First and foremost, don't use RFX to break your Flyer. NewTek

has gone to great lengths to make transitions happen real-time. So why would you render? Only to accomplish things you can't do with the Flyer in real-time. For example: two simultaneous switcher events like a transition and a key at the same time. Maybe you don't have enough time to actually load a transition between two sources-especially when using animated wipes. You may want to actually layer your transitions (e.g. a trajectory and a fade will create a trajectory fade off). Perhaps you want to control the effect using an envelope. These are all things you can't do real-time and this is where RFX will pave the way to greater creativity.

On with the show...

To Install

1) Place the Install disk into a floppy drive and double-click Install RenderFX

Your install disk window view

2) Select the user level and proceed with install

3) Select the Drive where you want RFX installed (DO NOT SELECT A FLYER A/V or AUDIO DRIVE). We recommend the same drive that the NewTek drawer is on, but this is not necessary; any system drive will do fine. The program code is less than 1 MB.

4) Next you will be asked if you want to install FKEY. This program consists of 'hot keys' that will be put in place to abort RFX functions and control Aussie's clippaint routines. It includes all of OzWare's Hotkeys if you have any of their products installed. We recommend you install this.

5) Last, you will be asked if you want an assign statement added automatically to your start-up sequence. This simply tells our program where it can find support material. It will not run without this statement, but you could type it in manually

every time you reboot your machine. Save yourself a little work, select proceed; it won't hurt a thing....

That's it, you're ready to use RFX. If your Flyer software is up and running, shut it down and restart. We will walk you through your first effect.

To Un-install

If for some reason you would like to uninstall ProWave products, it is easilly accomplished. First, remove the assign statement from your s:user-startup file. Next, reboot the machine and delete the ProWave directory and the ProWave directory found in NewTek/arexx/editor/ and all of our scripts in the StartupSequence drawer. That's it.

Tutorial Quick-Start

By far the most common use of RenderFX is to avoid that dreaded error:

> *'not enough time to load effect, shorten the length of the effect or lengthen the video between them.'*

Has this happened to you? Well this was the initial reason we developed this software. Using RenderFX, it will never happen again!

Begin with an empty project and place two video clips in the project. Place a dissolve or your favorite effect, in between them. Save this dummy project as RFXTest. Play the project so that you can see what it will look like Figure 1. This method is used to quickly render a single effect into a clip

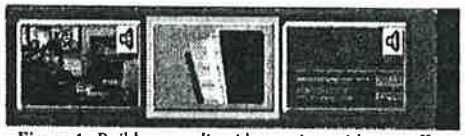
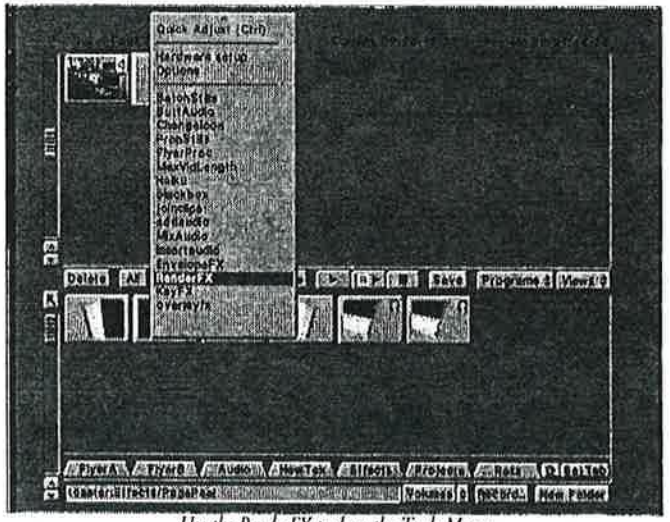


Figure 1: Build a two-clip video project with one effect

1) Highlight the effect (best to double click the effect)

2) Run RenderFX (use the pull-down tool bar menu just left of the 'controls' button). Please be aware that the Flyer's view limits the menu's display to only 20 croutons. If you have installed several other Flyer macros in the Arexx Startup folder and RenderFX doesn't appear on the list, move some of them back to the Editor folder. You may also double click the "Run RenderFX" crouton in the Arexx/Editor/ProWave directory (the REXX tab).



Use the RenderFX tool on the Tools Menu

3) Choose "One clip only"

4) Select "Continue" on all following requesters (We will look at these options shortly)

VERY IMPORTANT

Do not touch the keyboard or the mouse while rendering is in progress. This can lead to disastrous results

A video clip has replaced your effect. The surrounding clips have been trimmed to fit it properly. Play it back. Then re-load your basic "dummy" project. It looks the same.

Note: *Sometimes the project interface has an effect or clip highlighted, but it's not really selected. It's best to select the clip next to the effect and then to select the effect.*

You are probably saying one of two things right now: "Unbelievable, I wish I had this for my last project", or "Hmm, I see a slight shift in color here". If it's the first-enjoy; if the second, let's adjust your toaster.

ColorTest Utility

In your AREXX tab drawer there is a drawer called ProWave. In it you will see a script called ColorTest (looks like SMPTE Bars). This will play the first color frame of the project on channel 3, 4 and DV1, DV2 at the same time. This makes adjusting your Toaster much easier.

ColorTest is tool Bill Evans whipped up to help with the calibration of the Toaster and Flyer. It allows the Flyer to simultaneously play a color frame on channels 3 & 4, while displaying the same color frame on both DV1 & DV2 of the Toaster.

To use, place a video clip in an empty project or be sure that the first icon in a project is a video clip. It is best to use a head and shoulder shot as flesh tones are a real giveaway to uncalibrated Toasters-we don't want any green faces...

When you run color test, the first frame is displayed on all channels and you can switch to the project/switcher view to rapidly change the program out. We use the hot keys F3, F4, F5 and F6 to rapidly switch from channels 3 &4 and DV1 & DV2. If you have the switcher up, you can see what you are switching or just use the mouse. If you see any difference between the video output, then you must recalibrate your toaster and/or Flyer. If the Toaster is properly autohued and the Flyer is properly calibrated, all of the video should look identical in phase and level.

A few Tips: *DV1 and DV2 are calibrated to the same std on the Toaster 4000-you shouldn't see any difference here. You may see difference between Channels 3 and 4 on the Flyer. If so, use manphase to adjust the flyer first then adjust the Toaster calibration.*

The Toaster/Flyer system has two automatic calibration routines located in the NewTek/Programs directory: FlyerCalibrate and Autohue. Veteran Toaster users probably have used Autohue, but FlyerCalibrate may be a little foreign to most users. The flyer has two video channels, A and B, which are connected to inputs 3 & 4 of your Toaster. The Flyer simply feeds video to these two inputs on the Toaster and the switcher does the transitions, CG's, and overlays on the video.

FlyerCalibrate calibrates the video levels of A & B so that they match-much like you would have done with timebase correctors in the day of video decks. FlyerCalibrate is accurate enough in most cases, but if you find your video still doesn't match (i.e. channel 3 as compared to channel 4) after running FlyerCalibrate a few times, you will want to use Manphase to manually calibrate the Flyer. This is available free from the NewTek website and BBS and your NewTek Dealer will probably have it as well.

After the Flyer is calibrated, make sure that DV1 or DV2 matches Flyer 3 or 4. The key is to compare one digital buffer with one video channel. Typically you will see a slight luminance shift on an improperly calibrated Toaster. Try Autohue first, if that doesn't work, try right-alt + right-shift + F10 to set the toaster manually. You must have DV2 selected on both program and preview to access the Hardware setup panel (before the keystroke will work). You may also want to use the left-alt + left-shift + F8 to unload the switcher first. This toggles the switcher on and off and makes the Hardware set-up screen more stable.

You want to be sure that the Red, Green and Blue are off in the same direction-you cannot match the colors exactly. In other words, if the top half of the screen is lighter on say red, make sure that the top is lighter on Blue and Green as well. Once this is done you can use the Gain controls to make the video lighter or darker. Usually it will only take a few tries to get a perfect match... A vectorscope is best, but if not available a good clip of a fleshtone works well. If you totally screw things up, simply run AutoHue and you will be back to a good starting point. Once completed, use escape to exit and save the changes.

More Tutorials...

Aussie's RenderFX Quick Start Tutorial

OK Mates, Let's dig in here!

For these tutorials, I suggest that you first build and "save" a small "dummy" project that you can re-load easily. After running each tutorial, re-load the "dummy" project and set up the next experiment.

Tutorial 1 - *Render one effect*

This method is used to quickly render a single effect into a clip

1) Highlight the effect

2) Run RenderFX (I use the pull-down tool bar)

3) Choose "One clip only"

4) Select "Continue" on all following requesters (We will look at these options shortly).

A video clip has replaced your effect. The surrounding clips have been trimmed to fit it properly. Play it back. Then re-load your basic "dummy" project.

Note: sometimes the project interface has an effect or clip highlighted, but it's not really selected. It's best to double-click them to select.

Tutorial 2 - *Render multiple clips by using "Roadsigns"*

This method may be used to render any number of effects in one pass.

1) Place an "RFX-HQ5" control crouton just before any effect crouton. These are found in the NewTek/effects/controls drawer. (Figure 2)

Figure 2: Using a Roadsign to "batch render" the project

2) Place another "RFX HQ-5" control crouton just before a different effect crouton

3) Run RenderFX

4) Select "Search Project"

5) Select "Continue" on following requesters

Note

The RFX control crouton does not actually have to be immediately before the effect. There could be audio clips and other control croutons, and then the effect. Just make sure that there is not any type of visual clip (i.e. video clip, flyer still, framestore, or color background) between the RFX control crouton and the effect crouton. Otherwise you accidentally trigger the next tutorial.

Tutorial 3 - *Render complete clip and effect together*

This method records both the entire "previous" video clip AND the effect tagged onto the end. This totally replaces the previous video clip (i.e. the clip before the effect)

1) Place an "RFX-HQ5" control crouton just before a video clip (that then goes into an effect.) I suggest using a very short video clip for this tutorial, about 1 second or so. It will take about 30 seconds/second of clip.

2) Highlight the RFX Roadsign crouton

3) Run RenderFX with "One Clip Only".

This time it renders from the start of the clip, through to the effect on the end.

Also, see how you select "One Clip Only" with either the Effect highlighted, or the "RFX-HQ5" Roadsign highlighted. This way, in a very large project, you can still use One Clip Only on a series of Roadsigns (of which we'll be adding more.).

Tutorial 4 - *Multi-Layer Effects*

1) Highlight an effect crouton (Let's use the "Running Man" effect, it's a short one – note its length!) for 2000 owners Toddler is fun as well. For a more serious transition, try a page peel, and a dissolve combo.

2) Start RenderFX and use "One clip only"

3) Select "Continue" on all but the last requestor.

4) Set "Padding at End" to at least 1/2 the length of the effect, then Run RenderFX

5) After the effect is replaced in your project, put a second copy of the first effect immediately after the new rendered clip.

6) Place a different video clip after the new effect.

7) Render the second effect now. (By having the padding time in the rendered clip, it gave it the extra frames needed for a second overlapping effect.)

You should see two video effects and three video clips at the same time. This is what I call Clip Painting. try this with 4 or 5 running men all with different speeds

and all dragging on a different piece of video. This is cool stuff-a way to waste hours of time!

Tutorial 5 – *Reverse Effects*

This is another way of painting a clip – creating something you can not do easily on the Flyer. This Roadsign lets you reverse *most* effects!

1) Place an RFX-HQ5 Roadsign just before any non-anim effect.

2) Place the OZ Reverse Effect Roadsign in between it and the effect.

3) Highlight the main RFX-HQ5 Roadsign

4) Run RenderFX with "One Clip Only"

Bingo. You now have many more effects available (though backwards falling sheep does not make much of a change.)

Some types of effects, like the Kiki bell, will not reverse once started. For these effects we have implemented a second, but slower, rendering process. Your results should be the same, but a bit slower as we must reset the effect on every pass.

This OZ control icon will soon work in Aussie's 'Fast Frames', along with other Clip Paint controls.

Note: These do not affect how a project is played by the Flyer, they instead control how our programs record a clip.

Tutorial 6 - *Split Screens/Layering Video*

Split screen and layering works by placing a special crouton, or road sign, between the RFX sign and the Effect. This tells RenderFX that you would like to layer the clip following the effect over the previous clip. You have the option to bring the second video on and off with the effect, or to just cut to the effect. Using

Dimension Technology's Wipe studio, you can also create some stunning real-time split screens as well.

By changing the effect you can get various compositing of the two clips. A dissolve layers the video, while a vertical wipe does a split screen. Be sure to experiment, because there are many neat effects to create....

But let's continue...

Build a segment like Figure 3

Figure 3: Using the OzWare Split Screen road sign

1) Place the RFX HQ5 crouton into the project after the principal video begins

2) Place the OZ Paint Split screen effect (from effects/ control drawer).

3) Next would come the effect you wish to control, such as a vertical wipe (Wipe R-L)

4) Lastly comes the video clip that will be overlaid.

There can be any other audio clips etc. in the sequence. They do not affect the above placement.

Note: *The OZ Paint crouton is yellow. This is significant, as it indicates that the following video clip is overlaid on top of the previous clip. Therefore the following clip is actually cued by delaying it from the start of the previous video clip.*

Now we can make some settings...

Let's examine our basic goal...

1) We want the first clip to play for a bit,
2) Then the second video clip and the effect should start
3) The effect stops at an exact T-Bar position,
4) The effect will reverse out by the end of the second clip
5) Auto cut project back together

I have...
1) Adjustable delay (set a timecode or a simple "Foley-view")
2) Effect at start is optional; it can cut to a set T-bar position
3) Effect at end is optional; it can just cut out

The length of the "hold" is based on the duration of the second "overlay" video clip. The actual effect move is also "within" that duration.

Discovering the T-Bar setting..

1) Highlight the effect

2) Hold the right mouse button and move to T-Bar to the desired position (where you want the effect to hold)

3) Press LeftAmiga + SHIFT + ? (question mark key)

It will bring back your screen and display the T-Bar setting you had at the top of the Flyer Screen. Remember it, or write it down.

If you don't see the number at the top of the screen, then you need to re-install the hotkeys (FKEYS) on the RFX install disk.

Now we must set the Oz-Paint tool. This will store information about T-Bar setting, start of clip, transition on/off etc.

Setting the OZ-Paint tool...

1) Highlight the Split Screen (OZ Paint) effect

2) Press LeftAmiga + SHIFT + ? (question mark key)
This method is used to set ANY OZ Paint effect.

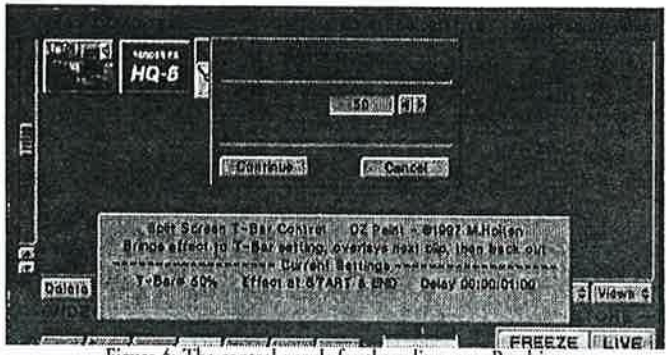


Figure 4: The control panels for the split-screen Roadsign

Split screen automates several settings:

- Set the T-Bar %
- Select Effect at start and/or end
- Set pause time before overlay starts
- You can "Foley" with the previous clip
- or just set a delay for the effect

If you select to Foley, it will show you the previous clip with a jog slider. Move it to where you want the overlay to start and press continue. The number you set MUST be between the IN & OUT numbers displayed.

Remember the length of the split screen AND the effect transitions is based on the LENGTH of the second video clip. If its length and the starting delay are too long, the new RFX can auto-trim this to fit.

Run RFX on the whole project, or highlight the RFX-HQ5 crouton and run "one clip only".

Other OZ-Paint bits will be coming soon.

Also in the near future, the yellow overlay OZ Paint tool will require a second crouton to end the overlay. This will allow me to have multiple "cuts" on both the A & B Busses as well as the split screen. Imagine *that* for a moment!

RenderFX Options

RANGE CHOICES

As demonstrated in the tutorials, when you first run RenderFX, you are given the choice of using the one selected effect, or searching the entire project for "Roadsigns" (croutons that mark and trigger events)

AUTO-REPLACE IN PROJECT

RenderFX asks whether you want the new clip to "auto-cut" itself into the project (replacing the effect and Roadsigns). Otherwise the project is left alone.

SAVE TO SAME LOCATION

This option lets you pick whether you want all your rendered clips in one spot together, or whether you want them stored in the same drive/folder location as the "previous" video clip (the one before the effect).

If you turn this check mark off, you will be prompted to pick a drive/folder where you want them saved.

> *Note:* All file naming is automatic. It uses a shortened version of the previous clip's name with "z.rfx00#" added to the end. You might want to put them in an effects folder on your video drive, so they can be easily found and deleted.

An additional tip here: It is often wise to save the project with and without rendered effects. This way if you delete an effect, you can still regenerate the project easily.

ADD PADDING TO START/END

Next, two time-related requesters appear, one after the other. These let you add "padding" time to the start or end of the rendered clip. (You can safely ask for any length, as it will not let you go past the start or end of the clip anyway.)

At present the start time padding takes care of a few effects that don't seem to render the first frame. An example is the "Push On effect, located in the push/pull directory. Adding "padding" to the end is most useful if you plan to tag a new effect immediately on to the end of this one. By adding the padding, you give the clip the extra frames it will need to handle the transition time of another immediate effect. For example...

ABORT HOTKEY

RenderFX uses the OZ-hotkey (LeftAmiga + Del key) to stop rendering. RenderFX will exit shortly after the key is pressed. This hotkey comes with Co-Pilot. If Co-pilot or FKEY was detected in your WBstartup, we did not install our custom AbortKey version. You can modify your existing FKEY file by highlighting it, selecting information from the icon menu, and adding:

<<LAmiga DELETE>> AREXX ProWave: OZK-PanicStop.rexx

to the tool types window.

AUTO AUDIO MIX

By selecting this option, RenderFX will automatically mix down the audio from the two clips in the transition and add that mix to the rendered audio clip. This eliminates the need for doing a split audio edit for each rendered transition.

Note that the audio will add some time to each rendered effect as the audio must be first mixed then it will be added to the rendered clip.

Mixdown rules are as follows. IF the fade OUT/IN times are greater than the length of the transition a cut is used in the mix. If "Auto-fade" OUT/IN, the mix will be as when played in the project. If manual fade times are less than the transition length, then those fades are mixed. If no fades are used, a cut is mixed, and if either audio extends beyond the Effect length, a cut wiill be used.

OverlayFX

OverlayFX allows you to stamp the effect into a clip so that it is a permanent part of the video clip when played. This allows, for example, to dissolve up to a clip that has a vignette already stamped into it.

It can be used in one of two ways. The first is to build a project with the video clip and an overlay. Use the controls to set how you want the overlay to appear and run

OverlayFX. You may also want to use OverlayFX from within a project. In this case, simply highlight the overlay and run OverlayFX. Let's look at a sample

Tutorial- 7-*OverlayFX*

1)Clear the project window.

2) Place an Overlay immediately following a video clip.

3) Adjust the overlay control panel as you normally would, including start time, lock to, length etc....

4) Play the project to be sure it's what you want and then choose OverlayFX from the tools menu

5) Select a name for the file and the location; be sure it's a Flyer Drive.

6) Select whether you want to the new clip to retain audio

7) Refresh the drive

> A few tips: *You may only want to render the first part of the clip (the part involved in a transition) then cut to the clip with an actual overlay. This way, there is no need to render the entire clip out. We don't want to break the Flyer, just make it more flexible-bend the rules a bit. Keep in mind that in a sequence, you can place the overlay behind the rendered clip, but delay the start until just after the rendered clip stops. This way the overlay is 'pre-loaded' and ready to cut in when the real clip starts to play. This is particularly useful on effects like the wedding bells and others that may run from clip to clip.*

KeyFX

KeyFX is used to stamp in a key to an existing FlyerClip. This alleviates the problem of running a key and an effect at the same time. Further, it brings back the old trick of 'flying' on your keys using many effects and luminance keying, much like the old tricks of Toaster-past.

When used with a normal alpha CG key page, you can dissolve the key up, use transparency and all of the normal alpha channel features. With luminance keys, you can fly pages on and off, but loose some of the alpha channel features of the normal Toaster key pages.

Tutorial 8 - *Using KeyFX*

Build a project with a single video clip and a CG key page. You should only have these two icons in the project. It doesn't matter what the settings are for the key page; we will use the *in* and *out* points of the *video clip* to determine where you want the key to come in and out. This is different from our OverlayFX module and allows us to provide more features than available in the standard key.

1) Place a video clip in an empty project, followed by the key

2) Adjust the in and out points of the *video clip* to the points where you wan the key to come in and go out.

3) Run KeyFX from the ProWave directory or the Tools Menu

4) Select a Flyer drive and name for your new clip.

5) Select the appropriate level of padding (see above description for padding)

6 Select the amount of time to fade in/out

7) You may **Preview** the key to be sure it is timed right and we step through the preview.

8) Locate the new clip on your drive-you need to refresh the drive to see new clip. Simply select another drive and come back to do this.

That's simple, but what if you want to 'fly on and off' a key using the luminance keyed? No problem. Using the above example, simply place an effect before and after the key page as shown in **Figure 5**. Note that all effects do not work in this fashion, but most of the trajectory effects work fine. Let's try an example

Tutorial 9 - *Luminance keys*

1) Build a project similar to figure 5:

- Video Clip
- Effect on
- CG
- Effect off

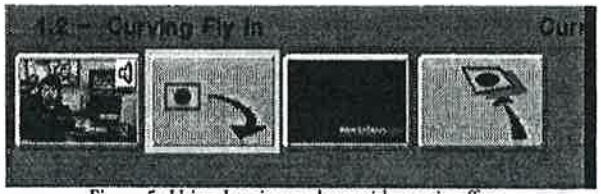


Figure 5: Using Luminance keys with certain effects

2) Set the in and out points on the video clip as in tutorial 8.

3) Run KeyFX

4) You will have an additional choice of black or white key color and luminance value

5) Render the clip.

Note: For best results turn shadows and transparency off in your key pages as this simply does a luminance key overlay. Also note that you can turn any 'fly-on' effect to a 'fly-off' effect by merely dropping the OzWare Reverse Icon (in the NewTek/effects/controls drawer) in front of the effect. This is handy for effects that don't come in on/off pairs.

EnvelopeFX

One of the most exciting new features in RenderFX 1.0 is the Envelope Editor. With this you can make unlimited envelopes and control effects in ways unimaginable with the Flyer. For example, you can fade a clip up to,

say 20%, hold it there for a time, fade it up to 50%, then return back to the A source. There is no limit!

The EnvelopeFX uses a keyframe motif-much like what you would find in animation packages such as LightWave 3D. When the envelope is first opened (**Figure 6**) you see a smooth transition from A to B, represented by 2 keyframes at 0 and 30 frames (we used a medium dissolve here which is 30 frames long). There are several options that allow you to change the length of the effect, add spline curves, load or save curves, and create/delete/drag points in the graph. Additionally there are two preview modes that allow either real-time previews or

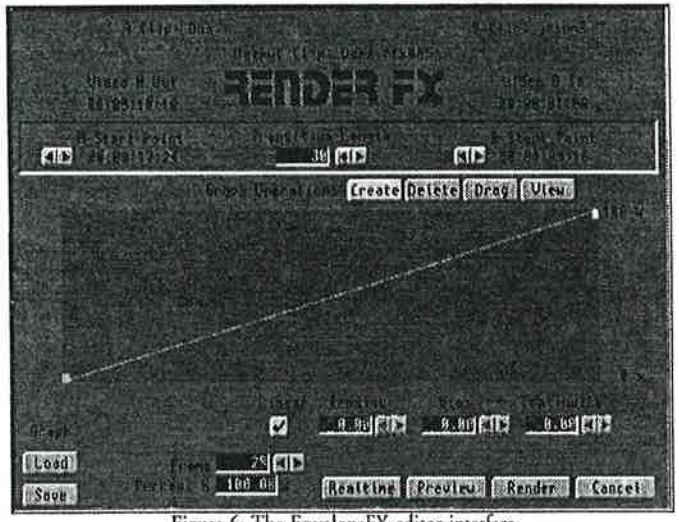


Figure 6: The EnvolopeFX editor interface

simulated previews. This is loaded with powerful features and we encourage you to play with it a bit to get the hang of it.

Tutorial 10 - *EnvelopeFX*

1) Place two video clips in a project and a smooth fade between them

2) Highlight the effect and Select EnvelopeFX from the Tools menu

3) An envelope editor will appear (**Figure 6**)

4) You may create, delete, or drag points from this interface, when finished you can either preview the envelope or render it to be auto-replaced in the project.

5) Select whether or not to include the mixed audio

There are many options on the envelope editor. If you are a frequent animator, these will be easily recognized. If not, let's take a look at a few to get started. It might be a good idea to read your LightWave manual on key frames and splines as a primer. Basically a key frame is simply a way of marking the position of something relative to time. In our case it is the position of the T-bar relative to the time of the effect. For a standard 1 second transition, this means at time = 0 go to 100% A-source and when time = 30 frames go to 100% B-source (remember, 30 frames/second of video). The line connecting these two key frames at 0 and 30 defines the envelope, and is displayed as a graph. Not very exciting, is it?

But what if you wanted to start at 100 % A-source, dissolve to 40% B-source over 1 second and hold there for a second, then go on to 90 % B-source over 1 second, and finally go back to 100% A-source during last second of the transition. Now we have something that pushes the envelope (so to speak) of the Toaster. Maybe something is slowly dissolving in and out of the background for example or maybe you want a wipe to follow some action on a screen. This is where we need an envelope editor. Let's do a quick example of what was just described-an envelope that changes over a 4-second transition.

Place two clips in the project and be sure the A-source has at least 2 seconds of video after the out point and B-source has at least 2 seconds of video before the in point. (Slide out point of A back 2 seconds and the in point of B forward 2 seconds). Place a dissolve in between them and set it's length to 4 seconds, or 120 frames. The project should play with a 4-second dissolve.

Now Highlight the effect and run EnvelopeFX from the tools menu. We see our standard straight keyframe graph from 0 % B-source to 100% B-source over 120 frames (4 sec). We need to create keyframes and can do so in a few different manners. The first is to simply start selecting points on the curve by first selecting the Create Operator and selecting clicking on the curve. By highlighting the delete operator, you can start deleting them as well. Go ahead and create three extra points on the curve. Now by highlighting the Drag operator, you can drag a point anywhere you like. Let's drag them to the following locations.

Create the following set of key frames:

Key frame	% B-source
0	0
30	40
60	40
90	90
119	0

Your graph should look like figure 7 when finished. You can preview it or render it to see how it will look. Note that we step

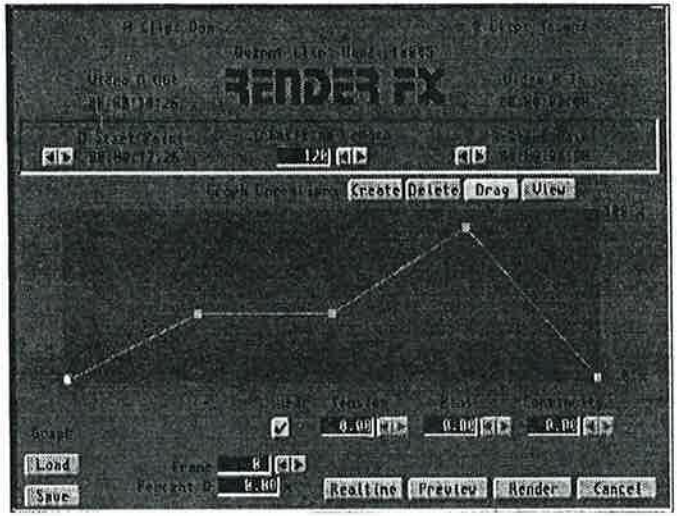


Figure 7: a four-second (120-frame) transition with key frames added

through the envelope in the preview mode, because many effects don't run backwards. The Realtime button will be explained later and is available for use in some cases. If you had difficulty setting the levels with the mouse tool, you can also step through the key frames using the arrows just right of the frame selector and then highlight the value to type in the value (or frame position) that you desire. Often the numeric entry is the fastest way to set the key frame location and value. Click on save graph and save this effect for a later tutorial.

OK, Let's say we like that, but we think 90% is a bit much and want to bring it down just a bit. We could change it, preview, and change it again, but RFX has a much easier approach-the View button. Once pushed, if you continue to hold the mouse down, you will see that you are controlling the T-bar of the switcher and see the current frames on program and preview out. Note: some effects cannot be reversed once started. For the dissolve used in this example you can set it at whatever level you like. When you let go, the keyframe will snap to whatever level the T-bar was when you let go.

Let's summarize some of the functions before we move on to the next area. It might be good to save this graph so you can load it back for our next example.

EnvelopeFX Command Summary

LOAD GRAPH
Loads a pre-saved graph file into the envelope editor

SAVE GRAPH
Saves a graph file for later retrieval. Excellent for creating the same effects again and again.

CREATE
Creates a key frame at the point selected in the graph window

DELETE
Deletes any point selected in the graph window

DRAG
Allows one to drag the location of a particular key. Works for both key number and % B-source values.

VIEW
Allows a realtime view of the currently selected keyframe at the appropriate locations in the video clips. T-Bar settings can be changed in either direction with many effects (not all),

FRAME
Displays the currently highlighted frame, Arrows to the right cycle through each keyframe in the graph.

B-SOURCE %

Percent of B source in the transition relative to A. 0% = no B-source and 100% = no A source.

START POINT A

The point at which the A-video starts playing. Note: this is not the Out Point of A, but rather the Out Point of A minus 1/2 of the transition length.

START POINT B

The point at which the B-video starts playing. Note: this is not the In Point of B, but rather the In Point of B minus 1/2 of the transition length.

OUT POINT A

The out point of A taken from the clip in the project

IN POINT B

The in point of B taken from the clip in the project

TRANSITION LENGTH

Length of the transition between clips A and B source. This was the effect highlighted when EnvelopeFX was launched.

REALTIME

This button plays a real-time preview at the currently highlighted level. When returned to the switcher you can use the T-bar to dynamically change the level.

PREVIEW

This steps through the envelope at 1/10th speed to allow evaluation of timing and see the effect and composition of the A and B source at the various points of the envelope.

RENDER

Renders the current envelope and auto replaces the clip in the current project

CANCEL

Returns to the Flyer interface with no change to the effects or clips.

SPLINES

If you are familiar with LightWave, you'll be familiar with spline curves and can probably skip this section. If not, we'll give you a general idea of what they do and you can experiment with them a bit to get a good feel for their utility. In our first example we created straight lines connecting each keyframe. This causes the effect to move at the same rate during the entire move from A source to B-Source. The transition simply changes levels and directions at the appropriate places in the graph. A spline simply fits a smooth curve through the points allow the user to control what is going on as the effect approaches or leaves a particular key. Let's take a look.

If you load the graph from the last example, you'll again see the envelope as presented in Figure 7. Lets highlight the key at frame 60 by cycling through the key frames using the arrow gadgets. Once there you need to deselect the linear box. Note that the curve connecting frames 60 and 90 is no longer straight. Using the frame arrows move to 90 and deselect linear there as well. You should now see a curve as shown in Figure 8. Notice that where there was a sharp apex before is now replaced by a gentle curve through the key at frame 90.

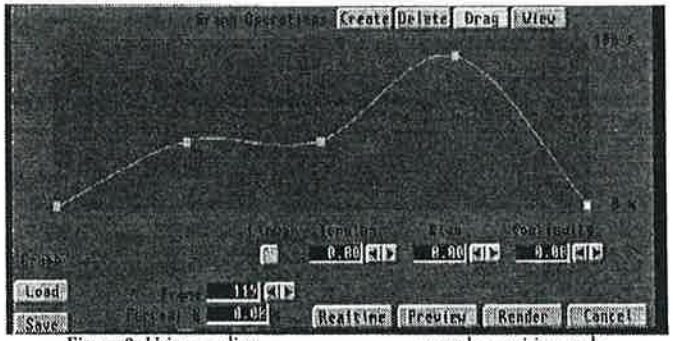


Figure 8: Using a spline curve to generate a smooth transition path

Once the linear button has been deselected you will also see three elements that you can control: Tension, Bias, and Continuity. Each is a way to fine tune what the envelope path is doing and the best way to learn these effects is to simply try for yourself and see what each does.

Spline Options

TENSION

Tension affects the speed or rate of a transition as it approaches a particular key. A tension of 1 will cause the transition to slow down to a stop as it passes through the key. A tension of -1 will cause it to speed up as it passes through the key. A tension of 0 will cause the rate to remain the same through the entire motion path at the key.

-1 = low tension
0 = normal tension
1 = high tension

BIAS

Bias controls the slack in at the keyframe. This allows one to shift the round top of the envelope forward or aft of the key. This serves to accentuate the motion by undershooting or overshooting the position at the key frame.

-1 = more slack incoming
0 = equal slack
1 = more slack outgoing

CONTINUITY

Continuity is used to break the change in the transition's motion. It has no affect on the speed of the transition, but can be used in conjunction with tension to sharply accentuate the change in level of a transition.

-1 = more sharp
0 = normal
1 = smooth

Once again, there are no real magic formulas here, experiment and find something you like. Video is artistic and the best judge is your own eye.

Tutorial 11- *Spline Dissolves*

1) Place two pieces of video in an empty project and place a dissolve between them.

2) Set the length of the dissolve to 5 or 1:15 seconds

3) Highlight the effect and run EnvelopeFX

4) Create a key frame at frame 30-use approximately 40%

5) Deselect the linear on all frames by cycling through the frames

6) Highlight the Drag operator and select the center key.

Now as you drag this around, you will notice that you have changed the Toaster's linear dissolve to a spline dissolve. This type of non-linear dissolve is used in many switchers. If you drag it above 50% and towards the A-source, you accentuate the B-source. If you drag it below 50% and towards the B-source, A-source is accentuated. This is especially useful when fading up or down to black (or other solid color).

Closing Notes

Enclosed you will also find a free copy of AudioBlackBox, our audio import/export utility of the Flyer. If your audio format isn't supported, check out SOX, a shareware program Aminet. It supports about 27 formats and at least 5 different platforms (e.g. Amiga, NT, Win 95, and Mac) this is an awesome utility for audio conversion. We'll gladly add any format if you get us a sample....

We would also like to thank all of the team at NewTek that worked so hard to help us with the Toaster/Flyer issues. NewTek has really supported ProWave as a 3rd party developer and allowed us to fill some gaps on the Flyer NLE. David, Harold, Tim, Dreux, Chuck and Chris provided invaluable support to us as we sift through the sparse documentation on programming the Toaster Flyer System. We are excited about the new products around the corner and the opportunity to be part of this exciting revolution in video production.

We have not tackled positionable effects yet. We will try to gain more control of these from NewTek in a future release.

Aussie will be introducing a number of plug-ins to RFX to accommodate many of his areas of expertise. If you haven't considered Fast Frames, please check out this program. It adds many capabilities such as CG builds, CG fly-ins, instant framestore loads, Flyer Keys, and more. Aussie will continue to develop this program and many new clip-painting effects...

RenderFX works with Flyer Video clips, Flyer Stills, Framestores and with practically any video effect. It does not work with ChromaFX at this time.

When RenderFX cuts the new rendered clip back into your project, it carefully arranges split audio edits to carry through the effect (provided you haven't selected auto add audio). At this stage however, any audio clips or CG clips that are cued by "following" video clip might need to beadjusted manually.

We correct "odd frame length" effects to an accurate color frame, matching the flyers method of D2 color frames (4 fields each). This may change the length of an effect by a field or two, but the video clips themselves will stay absolutely accurate to the original project.

One other note: the delay associated with "digital fx" is non-existent with RenderFX. (Hooray!) We stay frame accurate without that 1/15th second time shift. In fact, with RenderFX you can even use "digital on" effects repeatedly, without needing a "digital off" in between each one. For the any digital on effect, you can use a reverse icon to reverse it and carry it off the way it came on.

RenderFX works by using the "DV1 & DV2" busses to capture and render the effect. If you notice a color shift then you may get better results by re-AutoHueing. Otherwise render the entire clip with the effect on the end, which will take the entire clip through the same process, thus hiding the color shift. You can manually adjust the Toaster Calibration-giving a 100% color match (see color test utility).

We have included NewTek's manphase adjustment for the Flyer and you can access the Toaster set-up by selecting DV2 on both the program and preview bus and pressing Right-alt + shift + F10. After adjustment, escape returns you to the switcher. The interface is a bit quirky, but works. Sorry, as it stands this panel is broken on toaster 2000s. Please contact NewTek for a fix.

As it stands right now, RenderFX creates clips at about 30-40 seconds per rendered second. So, a two-second effect might take 1.5 minutes to render. For replacing effects (and creating the impossible) this speed is quite acceptable. Bill is also working over the core routines and will no doubt speed up certain tasks such as replacing an entire clip.

Aussie looks forward to creating more Clip Painting tools that can be utilized by both RenderFX and Aussie's Fast Frames programs. If you do something cool, send us a copy.

Please mail any comments or bugs to ProWave@aol.com

Thanks for purchasing ProWave products

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About ProWave

Many people think that because they see this shiny color ad in magazines and 800 numbers, that ProWave is some large corporation nestled in the Appalachian foothills of North Alabama. Well, we are not. ProWave started in 1993, when a few guys got together and decided to fill a niche in advanced tutorial videos for LightWave 3D. Mark Thompson, Gary Griner, and Ray Cronise formed the 'ProWave Project' to bring together our cool individual talents and make a little extra money (at least that's what we told our wives). Today, we have 5 LightWave Tutorials and 1 Flyer Tutorial and many others in the 'to do' box. We have made a little money, but most of all get the satisfaction of having helped hundreds of aspiring artists around the country (and world), and have contributed to the explosion of LightWave in the video production industry...we are honored to be part of this.

So what about the software? During our many monthly Amiga Club Meetings (it's begun to feel like a support group lately), there was one guy who always had the latest and greatest scoop on Amiga's, Toasters, and the general computer world-Bill Evans. As I was editing the many videos described above on a, well let's just say 'early,' version of the Flyer that was 'Under Construction,' Bill was often at my house until 2 or 3 in the morning trying to figure out what exactly was going on with the system. One day when editing yet another audio voice over on my AD516, I said there has got to be an easier way to get my audio from the Sunrise drive to the Flyer, without going out to tape and back. The next day Bill shows up

with a little disk and says, "Try this." It crunched away for a while and on my Flyer drive was an audio clip of my voice-over. I immediately proclaimed this to the world and then Audio Black Box was born.

Since that time, Bill has continued to write unbelievable utilities for my Toaster Flyer system. All are a result of things I actually need to edit, not just 'hey here's a cool trick, let's charge some money for an upgrade.' We carefully evaluate what we have and what it can do to see if will fit into the ProWave line of products. If not, we often give the code away to another 3rd Party developers (Aussie, Dave Hebel, and Jeff White) to fit it into their line of products. We firmly believe that you shouldn't have to wrestle with decisions of which product to buy, so our companies simply work together. Keep in mind, there is nothing available from any third party company that NewTek could not do, given enough time and resources. We simply put our efforts on products that fill the gaps between the less frequent NewTek upgrades.

Our products have grown amazingly complex from that first audio converter at NAB in 1996, and we have brought two more programmers on board: Rob Wood and Lee Stanford. Both are gifted programmers by day and night. You won't believe some of the things that are in the works...

ProWave relies on its beta testers for feedback on all of our products. Brian Jansen/Universal Video Productions, Nes Gurley at TOP, Paul Lara, Joe Tracy and Aussie all provide rapid turn around for our many releases before our customers get products. This is frustrating and often disastrous work. These guys can break our software faster than you would ever believe. Thanks for the work.

Finally, Thanks goes out to the two (soon to be three) members of our Shipping and Receiving Department. Kathy (my wife), Alex (my 2 year old daughter), and Erin (to arrive 9/97) are instrumental in making sure your package arrives in a timely matter. It is tough to juggle children and the many packages that come in and out on a weekly basis and Kathy does it without a complaint and as efficiently as possible. Thanks again!

Tech Support

The best and fastest way to get tech support on our products is to send us e-mail with a description of the problem and a brief system configuration (e.g. Toaster 4000, Amiga 2000, etc.). Most of the time, e-mails are answered in a few hours. If you haven't yet subscribed to an e-mail service, now would be an excellent time to do so; the world's going that way. Keep in mind that most of our updates are received immediately after release with our e-mail update service. Simply send an e-mail to us to add and you will be automatically updated. You *MUST* register your product for updates and tech support.

You may also fax a question to us and we will respond as well. The last resort is to call. This is the least efficient way to handle tech support and can be expensive for both sides. If you do call, try between 5:30 p.m. and 12:00 a.m. Central time or before 9:00 a.m. for the best chance of catching us there.

Alternatively, you may want to also try sending e-mail to prowave@amiga.org or leaving a voice message at (205) 882-3345. If you get a busy signal at this line, more than likely we are online and an e-mail message will be much faster.

Thanks again for purchasing ProWave products and happy flying....