



Personal FX Manual



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Patents. Various technology in the GlobeCaster System is patented in the United States, including without limitation patent numbers 5,941,997, 5,978,876, 5,872,565. Other patents, in the United States and other countries, are pending.

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PersonalFX Table of Contents

Chapter 1: Document Overview.....	3
Introduction.....	4
Conventions.....	5
Chapter 2: Quick Start.....	9
Touring The PersonalFX Interface.....	10
Moving And Rotating The Video Object	12
Creating A Transition Effect	17
Mapping Video Onto A 3D Object	22
Chapter 3: Reference	35
Learning The PersonalFX Interface	36
Viewing The Workspace.....	39
Creating And Manipulating Objects.....	50
Importing 3D Objects	131
Editing Effects.....	133
Creating Color Effects	152
Grouping And Parenting.....	162
Using Director Mode	165
Using The Timeline.....	169
Using The Applications Buttons	190
Chapter 4: Tutorials	193
Keeping The Right Frame Of Mind.....	194
Creating A Basic Sliding Transition Effect	196
Creating A Basic Flying Transition Effect.....	221
Creating A Sepia Color Effect.....	246
Creating A Sliding Transition With A 3D Object	255
Constructing A Spinning Cube Effect (Part One).....	297
Constructing A Spinning Cube Effect (Part Two)	321
Constructing A Spinning Cube Effect (Part Three)	337
Constructing A Spinning Cube Effect (Part Four)	348
Appendix 1: Keyboard Commands	365
Appendix 2: Frequently Asked Questions	369
Index.....	373
FCC Notice	385
GlobeCaster System License Agreement.....	387



Personal FX Overview



Chapter 1

Chapter 1

Document Overview

This chapter provides information on how the PersonalFX manual is organized. It also covers conventions used within the manual.

NOTE: This manual makes references to the following applications: **Air Command** and **Preditor**. If you are a *GlobeCaster Live* user, you will not have **Preditor**. If you are a *GlobeCaster Post* user, you will not have **Air Command**.

Inside, you'll find the following sections:

- Introduction..... 4
- Conventions..... 5

Introduction

This manual gives you an overview of PersonalFX. It details buttons, panels, and pop-up menu functions. It also includes tutorials. You will find the following topics in this manual:

- **Quick Start**

A guided tour of PersonalFX that shows you how to create objects, carry out edits, and compile and save an effect.

- **Reference**

A description of all the buttons, panels, and pop-ups in PersonalFX. There are also hints and tips on how to use these functions to create digital video effects.

- **Tutorials**

Step-by-step instructions on how to create a variety of effects using PersonalFX. They are rated for beginner, intermediate, and experienced users.

- **Appendices**

A collection of important information including keyboard shortcuts, tech support, and an FAQ list.

Conventions

This manual uses a few conventions that you should be familiar with before you get too far into it. These conventions are provided in order to make learning and talking about PersonalFX easier.

General Conventions

The following formats are used to identify special instructions or important points in this manual:

1. (numbered) Indicates step-by-step instructions to follow. This appears most often in the Quick Start and Tutorial chapters.

Bold Type Indicates words you should type, buttons you should click, names of menus or windows, and file path names.

Italic Type Indicates emphasis of important points.



The mouse pointer is used in the tutorial and quick start to indicate buttons or options that you click and select.

Mouse Conventions

GlobeCaster is designed for use with a two-button mouse. The following table explains mouse commands used in this manual:

Click	Place the mouse pointer over an object. Press the <i>left</i> mouse button and immediately release.
Click-and-drag	Place the mouse pointer over an object. Press the <i>left</i> mouse button. While holding the button down, move the mouse around. This is used mainly to draw boxes over objects to select them, or to edit selected objects in the workspace.
Double-click	Place the mouse pointer over an object. Press the <i>left</i> mouse button twice quickly and immediately release.
Drag-and-drop	Place the mouse pointer over an object. Press the <i>left</i> mouse button and hold it down. Drag (move) the object anywhere on your screen. When you release the mouse button, the object is dropped where the mouse pointer is aimed.
Right-click	Place the mouse pointer over an object. Press the <i>right</i> mouse button and immediately release.

Personal FX Quick Start



Chapter 2

Chapter 2

Quick Start

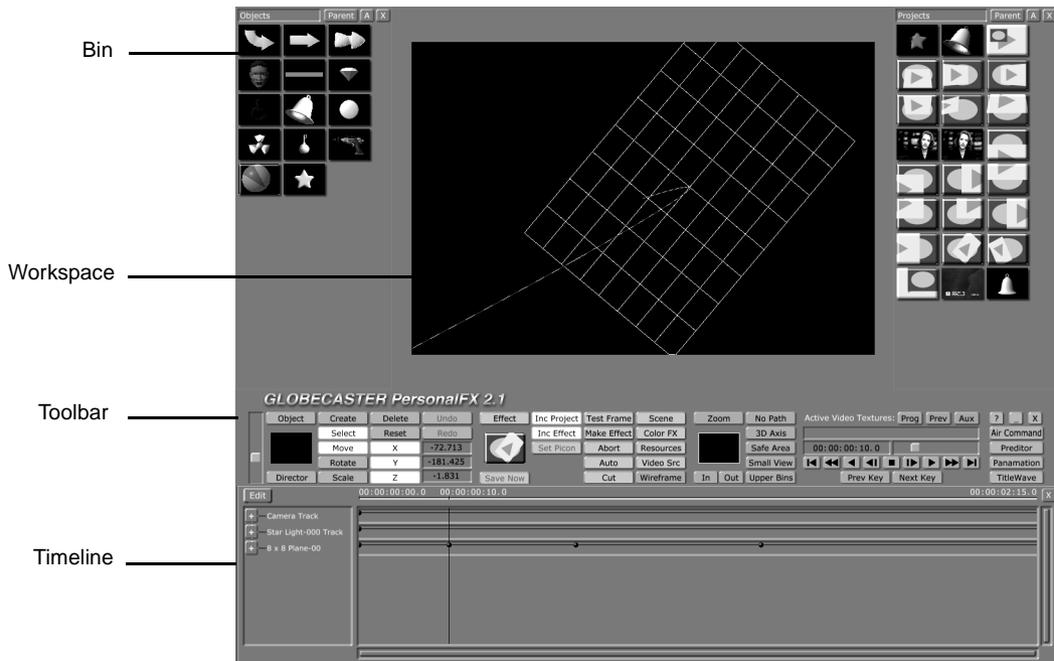
Welcome to the PersonalFX quick start. This quick start is designed to give you an overview of PersonalFX. As you follow along, you will learn how to manipulate video objects to create transitions and wipes. When you finish this quick start, remember that there are many more features that you can explore on your own. The Tutorials chapter contains instructions on making specific effects, and hints on using what you learn to create more.

This chapter covers the following topics:

- Touring the PersonalFX Interface 10
- Moving and rotating a video object 12
- Creating a transition 17
- Mapping video onto a 3D object..... 22

Touring The PersonalFX Interface

Before you get started with using PersonalFX, you should take a moment to get familiar with the interface (following figure).



The PersonalFX Interface with Effect

The information provided here is intended to introduce the interface. For more detailed descriptions on what each of these areas do, see “Learning The PersonalFX Interface” on page 36.

The Workspace

The most important thing to remember is that the workspace represents a three-dimensional work area. You can move objects anywhere within this space by moving them along three different axes: X-axis (left and right); Y-axis (up and down); Z-axis (forward and backward).

The workspace contains a yellow grid. The grid is a wireframe representation of a video plane. The default object is a flat, 4:3 rectangle. PersonalFX allows you to move, scale, and rotate this object in three-dimensional space. Basically, what you do to this object is done to the video image that it represents.

You can import 3D objects into PersonalFX. When you do this, the object appears in the workspace. You can then alter it the same way you can alter the video plane. You can also map video onto the 3D object, or some portion of it.

There are three other major areas to the interface. These are the bins, toolbar, and timeline.

Bins There are two bins open when you start up PersonalFX. The left bin contains 3D objects. The right bin contains a number of premade effects. For more information on how to navigate through bins, see the *GlobeCaster User Guide*.

The Toolbar The toolbar stretches across the interface. This is where you find most of the buttons you'll be working with. You can also access most panels from here. Like other applications, the buttons in the toolbar are grouped by function, and are color coded for easy recognition. You will learn the basics of the different areas of the toolbar as you follow this quick start.

The Timeline The timeline is a representation of every object in the workspace. It graphically shows keyframe positions, and allows you to manipulate those keyframes. When you first start PersonalFX, there are three objects in the workspace: the 8x8 plane object; the scene camera (representing the audience's point of view); the light source. Each of these objects, and all the information relating to their position, and movement, is represented as a track (a block of space) in the timeline. For further information on the timeline, see "Using The Timeline" on page 167.

Now that you are familiar with the interface, you're ready to start using PersonalFX.

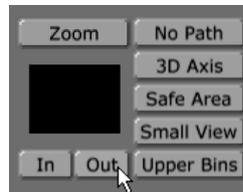
Moving And Rotating The Video Object

This portion of the quick start is designed to give you a feeling for how objects are moved and rotated in the workspace.

Moving A Video Object

Before you start moving objects, you should be aware that you can change the view of the workspace. This is done by either zooming in or out. Here's what you do:

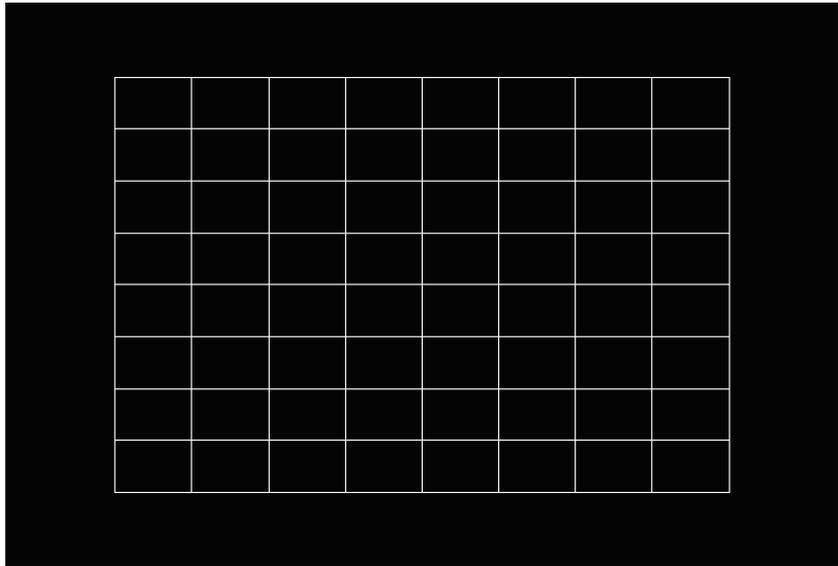
1. Locate the **View Controls** in the toolbar (following figure).



The View Controls

2. Click the **Out** button twice (the mouse pointer is aiming at it in the previous figure).

The workspace view zooms out two times (following figure).

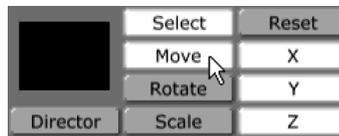


The Workspace View Zoomed Out

You see a white border around the video object. This white border marks the visible video area. Anything outside this area is not visible on a monitor or television screen. (See “View Controls” on page 40 to learn more about the View Controls, and “Viewing The Workspace” on page 39 for details on viewing the workspace.)

Now that you’ve zoomed the workspace view out, you can start experimenting with moving the video object.

1. Click **Move** on the toolbar (following figure).



The Move Button on the Toolbar

The button lights up. You can now move the video object.

2. Notice the X, Y, and Z buttons to the right of the **Move** button.

These buttons allow you to choose which plane you want to move your object in. You can limit movement to one plane by turning off all the buttons except that one. The windows to the right of each of these buttons allow you to view and set exact coordinates in three-dimensional space. (See “Using The Move Button” on page 55 for details on using the X, Y, and Z buttons with the **Move** button.

In the following steps, you experiment with moving objects in a single plane.

3. Click on the X button.

The button is no longer lit up. Now, right-and-left movement is turned off.

4. Click the Z button.

The button is no longer lit up. Now, forward-and-backward movement is turned off.

5. Click-and-drag the video object.

Notice that you can only move the video object up and down. This is because you shut off X and Z movement.

6. Click **Undo** on the toolbar.

The video object returns to its original position. You can use the **Undo** button to remove most changes you make.

7. Click the X button.

The button lights up. Now, right-and-left movement is turned on.

8. Click the Y button.

The button is no longer lit up. Now, up-and-down movement is turned off.

9. Click-and-drag on the video object.

Notice that you can only move the video object left and right. This is because you shut off Y and Z movement.

10. Click **Undo** on the toolbar.

The video object returns to its original position.

11. Click the X button.

The button is no longer lit up. Now, right-and-left movement is turned off.

12. Click the Z button.

The button lights up. Now, forward-and-backward movement is turned on.

13. Right-click and drag on the video object.

Notice that you can only move the video object forward and backward (making it appear bigger or smaller).

The object looks like it's getting bigger and smaller, but you're actually moving the object in three-dimensional space. When the object is smaller, it's farther from the viewer. When it's larger, the object is closer to the viewer.

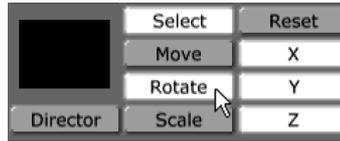
14. Click **Undo** on the toolbar.

PersonalFX undoes your last action.

TIP You can move an object anywhere in the workspace if you leave all three buttons turned on. Click-and-drag the object to move it along the X and Y plane. Right-click and drag the object to move it along the Z plane. See "Using The Move Button" on page 55 for more details on moving objects.

Rotating A Video Object

You can rotate an object in the workspace by clicking on the **Rotate** button (following figure).



The Rotate Button in the Toolbar

You can rotate the object any way you want. You can constrain rotation along the different axes the same way you constrain movement.

When rotation is constrained to the X-axis (only the X button is turned on), clicking-and-dragging rotates the video object along the x-axis. That is, it spins the video object up and down.

When rotation is constrained to the Y-axis (only the Y button is turned on), clicking-and-dragging rotates the video object along the y-axis. That is, it spins the video object left and right.

When rotation is constrained to the Z-axis (only the Z button is turned on), right-clicking and dragging rotates the video object along the z-axis. That is, it spins the video object clockwise, or counter-clockwise.

Take a moment to experiment with rotation, using what you learned about how to move objects. For more details on rotation, see “Using The Rotate Button” on page 56.

Now that you have an idea on how to move and rotate an object in the workspace, you can move on to creating an effect.

Creating A Transition Effect

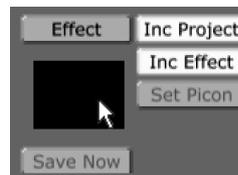
In order to make a transition effect, you must make the video object move over time.

Here's how you make a simple transition effect:

Setting Up A New Effect

Before you create a new transition effect, you'll clear the workspace again. Clearing the workspace is an easy way to make sure you are starting with a fresh effect, and that you don't accidentally use settings from previous work.

1. Right-click on the Effect picon. It's the picon just below the green Effect button (following figure).



The Effect Picon

The Effect Picon pop-up menu appears (following figure).



The Effect Picon Pop-Up Menu

Use this pop-up to access other panels in PersonalFX. For more details about this pop-up menu, see "Effect Picon Pop-Up Menu" on page 140.

2. Select **New** from the pop-up menu.

GlobeCaster asks if you want to save your current project.

3. Click **No**.

A new workspace appears with a video object in the workspace.

If you've been following along since the beginning of the quick start, the workspace view is still zoomed out. If you have not, or have reset your zoom, then click the **Out** button on the zoom controls twice. Otherwise, do nothing. Remember that the white border delineates the visible area. The audience will not see anything outside of this area.

Creating The Effect

With a new workspace, and the view zoomed out, let's begin making your transition.

1. Click-and-drag the Timecode Slider (following figure) so the display shows **00:00:00:20.0**.



The Timecode Slider

You are now at frame 20 of your transition.

You can use the Timecode Slider to scrub through any effect. You can also click on the Timecode Display, and manually type in a position. See “Transport And Keyframe Controls” on page 185 for more details.

2. Select the **Rotate** button.
3. Click the **Y** button.

The button is no longer lit. You can no longer rotate the object along the Y-axis.

4. Click-and-drag on the video object down, flipping it twice.

The video object rotates around the X-axis 360 degrees, facing forward again.

You can also click on the window just to the right of the X button. Type in 360. Then press **Enter** on your keyboard to set the change.

5. Click the **Move** button.

The button lights up. The move function is now activated.

6. Right-click and drag the video object back along the Z-axis (towards the top of the screen) until it covers roughly one-fourth of the workspace.

You've just moved the video object away from the viewing audience.

7. Click the **Y** button again.

The button lights up, and you can move the video object along the y-axis again.

8. Click-and-drag the video object anywhere outside the white border.

You just moved the video object outside of the visible area. It is not visible to your viewing audience.

You just created a keyframe at frame 20. PersonalFX automatically creates a keyframe at frame 0 when you first start up, or when you start a new project. Any changes made to the video object at another frame (like the changes you just made) adds another keyframe. PersonalFX calculates a smooth motion between keyframes, from its original position at frame 0, automatically animating the effect up to frame 20.

With an effect made, you can now preview it.

1. Press the **Play** button on the Transport Controls (following figure). It's located on the right side of the toolbar.



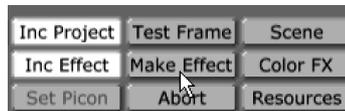
The Play Button

The effect plays. The video object spins and slides out of the visible area.

Compiling And Saving The Effect

Now that you've made an effect, you will want to compile and save it.

1. Click the green **Make Effect** button on the toolbar (following figure).



Make Effect Button

A panel appears (following figure).



The Progress Meter and Percent Done Display

This panel lets you know PersonalFX's progress as it compiles the effect. Once the **Percent Done** display reads **100%**, the effect is compiled. The panel then disappears, and the effect is finished compiling.

2. Drag-and-drop the **Effect picon** (the picon just below the green **Effect** button) into a convenient bin.

Your effect saves to that bin.

That's all there is to creating and saving an effect. You can now go into Air Command and use this effect like any other, in real time. You don't have to compile this effect again unless you change what it does.

You can create more complicated effects. Poke around a bit with the different panels. Experiment with what you've learned, and create other effects. The next section tells you how to map live video onto a 3D object.

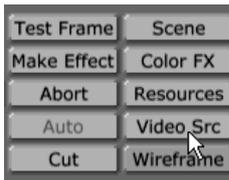
Mapping Video Onto A 3D Object

This part of the quick start shows you how to map live video onto a 3D object. PersonalFX comes complete with an assortment of ready-made 3D models. You use one of these models in this quick start.

Video Sources Panel

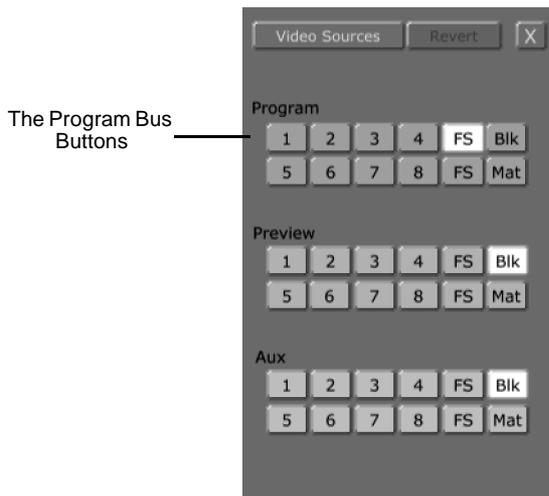
Before you begin this part of the quick start, make sure you have either a video or live source in the **Program** bus. If you don't, here's how you load a source while in PersonalFX.

1. Click the **Video Src** button in the toolbar (following figure). It's one of the green buttons.



The Video Src (Source) Button

The **Video Sources** panel appears in the upper left corner of the interface (following figure).



The Video Sources Panel

This panel mimics the functionality of Air Command's busses (see the *GlobeCaster Air Command* manual for more details). You can assign a video source to a channel by clicking on its button in the bus you want to use. For more details, see "Video Sources Panel" on page 148.

For this quick start, you want to use video on the Program bus.

2. In the Program bus, select a channel you have a video input for.

The button lights up. The video channel you selected is now assigned to Program.

Mapping A Texture

With a video source assigned, you can move on to mapping it onto a 3D object. Whenever you start a new project, however, keep in mind it's always a good idea to clear the workspace first. This way, you avoid accidentally loading settings from someone else's work.

1. Right-click on the **Effect** picon. It's the picon just below the green **Effect** button.

A pop-up menu appears.

2. Select **New**.

GlobeCaster asks if you want to save your current project.

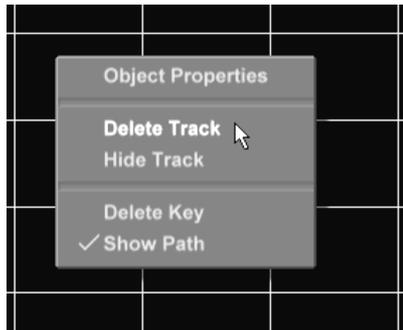
3. Click **No**.

A new workspace appears with a video object in the workspace. The video object is the 8x8 video plane, the default object.

For this project, you don't want to use the default video object. You want something a little cooler. So, you want to get rid of it, and place another object on the workspace.

1. Right-click on the video object.

The **Object** pop-up menu appears (following figure).



Object Pop-Up Menu

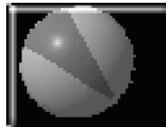
Use this pop-up menu to perform minor edits to an object. See “Object Pop-Up Menu” on page 120 for more details.

2. Select **Delete Track**.

The video plane is removed.

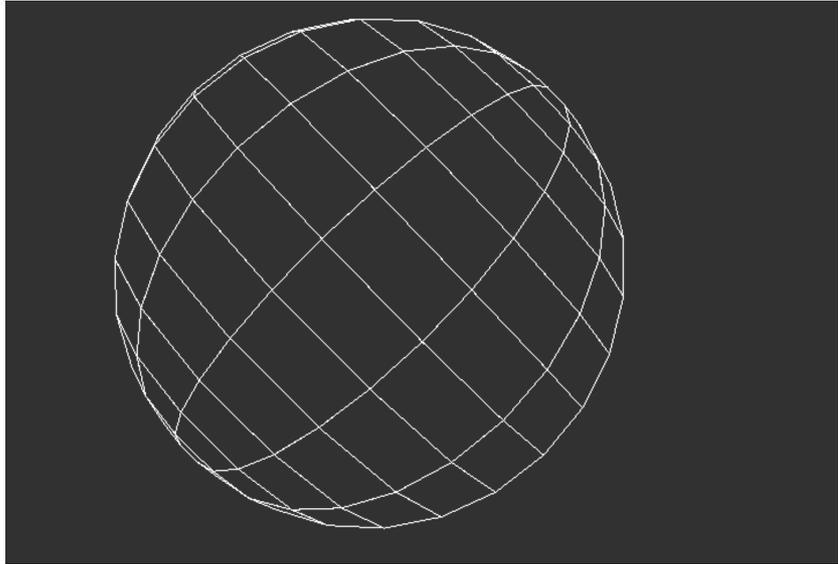
There is another object you want to put in its place.

3. Double-click on the sphere picon, located in the **Bins\Pfx\Objects** bin (following figure). The **Bins\Pfx\Objects** bin is one of the default bins that open when you first start up PersonalFX.



The Sphere Video Object

A sphere loads into the workspace (following figure).



The Loaded Sphere

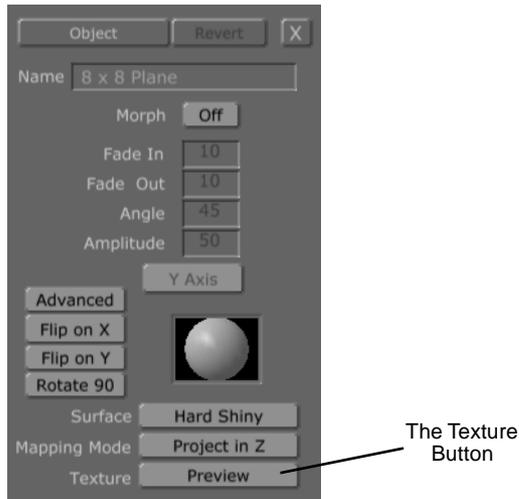
At present, it appears as a wireframe, just like the video plane.

4. Right-click on the sphere.

The **Object Properties** pop-up menu appears.

5. Select **Object Properties**.

The **Object Properties** panel appears in the upper left corner of the screen (following figure).



The Object Properties Panel

This panel is used to assign a video sources, loaded stills, and solid color as the texture of an object. See “Object Properties Panel” on page 60 for more details. Since you assigned a video source to a channel in the program bus, you want to tell PersonalFX to use that source.

6. Click on the **Texture** button at the bottom of the panel.

A pop-up menu appears (following figure).



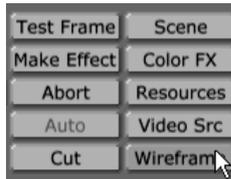
Texture Button Pop-Up Menu

7. Select **Video:Program**.

PersonalFX assigns the Program bus to the surface of the sphere.

You can't see the video texture in the workspace at the moment. All you see is the wireframe sphere. You can change that. You do this by changing viewing modes.

1. Click the **Wireframe/Flat/Gouraud** button (following figure). It's the only blue button among the green buttons in the middle of the toolbar.



The Wireframe/Flat/Gouraud Button

The **Wireframe/Flat/Gouraud** pop-up menu appears (following figure).

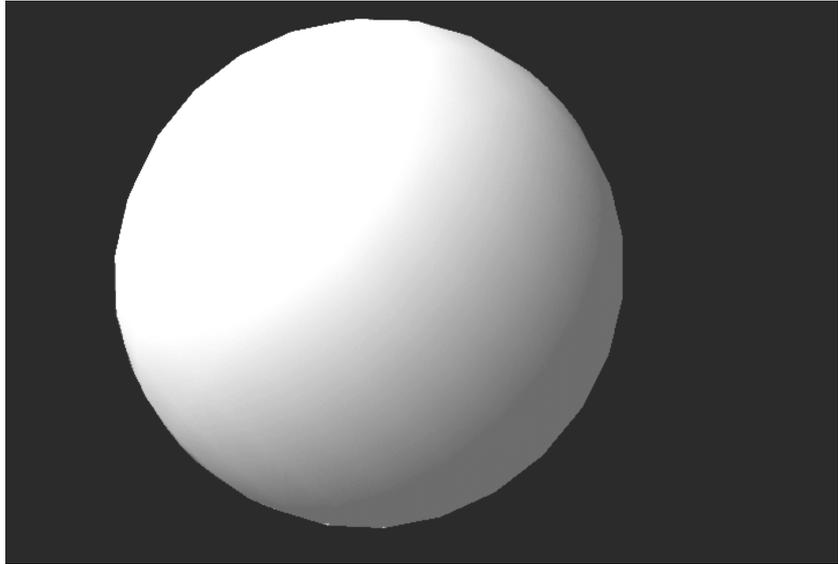


The Wireframe/Flat/Gouraud Pop-Up Menu

This button and its pop-up allow you to control how the video object appears in PersonalFX's workspace. See "Wireframe/Flat/Gouraud" on page 43 for more details.

2. Select **Gouraud** from the pop-up menu.

A smooth surface appears on the wireframe sphere (following figure).

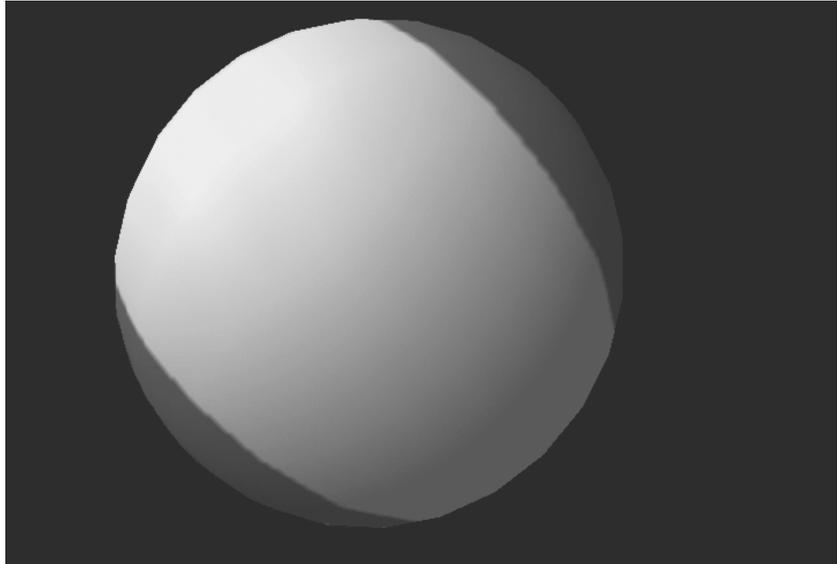


The Surfaced Sphere

Gouraud is a type of shading used in 3D modeling that produces a smooth gradient across the surface of an object.

3. Click on the same button again.
4. Select **Texture Mapping**.

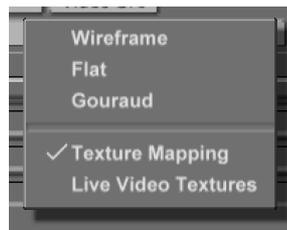
A light and dark gray image appears on the surface of the sphere (following figure).



Texture Mapping Turned On

5. Click the same button again.

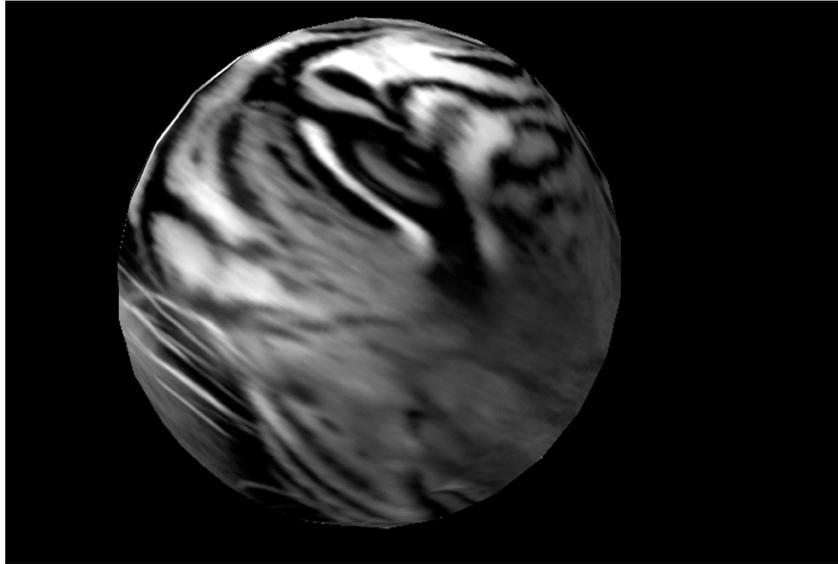
Notice that a new option is available under the **Texture Mapping** option (following figure).



Pop-Up with Live Video Textures Option

6. Select **Live Video Textures** from the pop-up menu.

Program video appears across the surface of the sphere (following figure).



Sphere with Live Video Textures Turned On

The video from your Program bus appears on the surface of the sphere in real time. You can move, rotate, and scale the sphere all in real time.

NOTE By turning on the **Gouraud** and **Texture Mapping** functions, you are not actually editing the object. You are simply changing the viewing mode of the workspace.

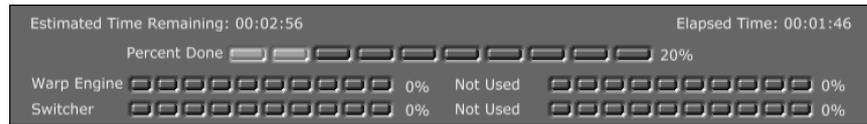
If you don't have video playing in your Program bus, the sphere seems to disappear. But that's not the case. PersonalFX is simply mapping the black screen (due to lack of video source) onto the sphere.

Saving The Project

Once you've created the object, it's time to compile the effect and save it.

1. Click the green **Make Effect** button.

A panel appears (following figure).



The Progress Meter and Percent Done Display

This panel lets you view PersonalFX's progress as it compiles the effect. You can click the **Abort** button (in the middle of the toolbar) at any time to stop the compiling process. Once the **Percent Done** display reads **100%**, the effect is compiled. When PersonalFX finishes compiling, the panel disappears, and the effect is ready to save.

This process takes a little while for this effect. In the mean time, take a closer look at the panel. Notice a few things about it. First, the **Estimated Time Remaining** display lets you know approximately how long the effect takes to compile. This time may fluctuate depending on a number of factors, including the power of your host PC and hardware, and the complexity of the effect. Directly across from that is the **Elapsed Time** display. This tells you how long PersonalFX has been busy compiling your effect. The four progress meters below the main meter tell you which GlobeCaster system resources are being used, and how much of those resources are being used.

2. Drag-and-drop the **Effect** picon (the picon just below the green **Effect** button) into a convenient bin.

Your effect saves to the bin. You can come back to it at any time and use it.

That's all there is to mapping a live video source onto a 3D object.

Wrap Up

Hopefully you feel a little more familiar with PersonalFX and the kind of effects you can create with it, but you've only just scratched the surface. Experiment with some of the other tutorials at the end of the book to get a better feeling for what PersonalFX can do.

This book contains a reference section, which details each button, panel, and pop-up function. It also contains a set of tutorials designed to introduce you to, and familiarize you with, some beginner, intermediate, and experienced level skills needed to use PersonalFX.



Personal FX Reference



Chapter 3

Chapter 3

Reference

With PersonalFX, you can create digital video effects, wipes, transitions with graphics, and transitions using 3D models. PersonalFX can also make color correction effects.

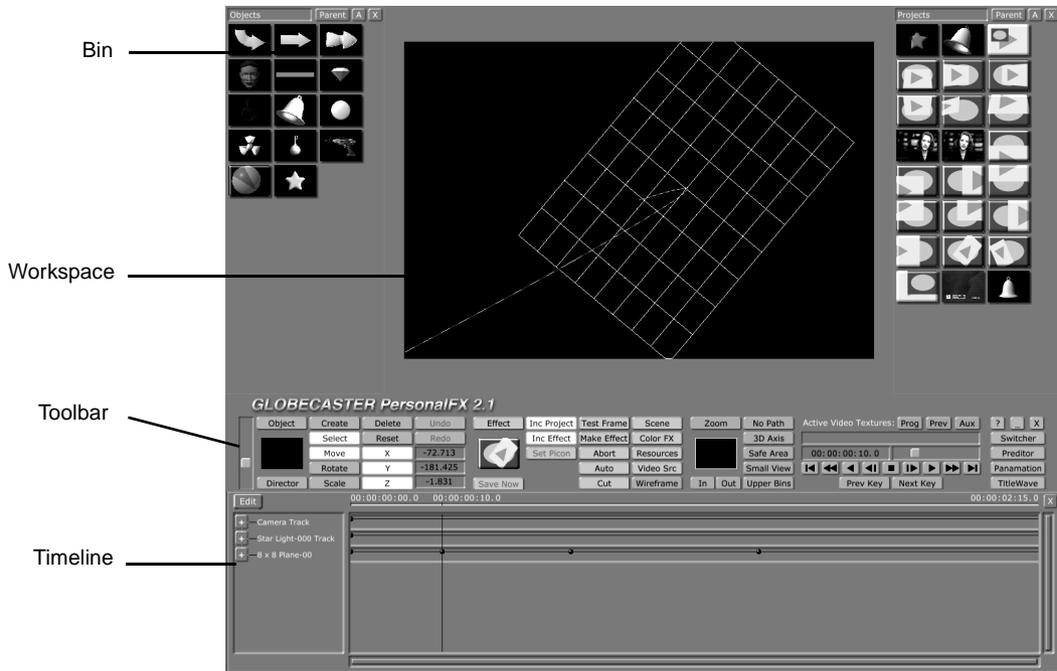
This chapter provides reference information for PersonalFX. It describes buttons, panels, and pop-up menus grouped by task. It is arranged this way so that you can access all the information related to a given topic without flipping through the entire book. Tutorials are located in Chapter 4.

The following topics are covered:

- Learning the PersonalFX interface..... 36
- Viewing the workspace 40
- Creating and manipulating objects 51
- Importing 3D objects 134
- Editing effects 136
- Creating Color effects 155
- Grouping and parenting objects 164
- Using Director mode..... 167
- Using the timeline..... 171
- Using the application buttons..... 192

Learning The PersonalFX Interface

When you sit down to create a DVE with PersonalFX, you'll want to first be familiar with the interface and how it is organized. The following figure shows the PersonalFX interface with an effect in progress.



The PersonalFX Interface with Effect

The interface consists of four basic elements. These are the bins, the workspace, the toolbar, and the timeline. You use all four of these to create, edit, compile, and save your effects.

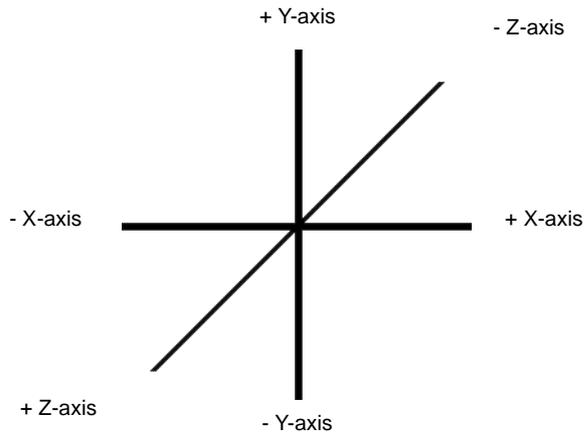
Bins There are two bins open when you start up PersonalFX. The left bin contains 3D objects. The right bin contains a number of pre-made effects, graphics and alpha textures (If an alpha texture has sprocket holes on the right and left side it is a movie component). For more information on how to navigate through bins, see the *GlobeCaster User Guide*.

The Workspace The workspace is the black viewing screen in the middle of the upper half of the interface. Don't think of the workspace as a flat desktop. Instead, think of it as a set into which you place and manipulate the objects you want your

viewers to see. This is all done in 3D coordinate space. This gives you the ability to move an object in six discrete directions. These are:

- right and left (the X-axis)
- up and down (the Y-axis)
- forward and backward (the Z-axis)

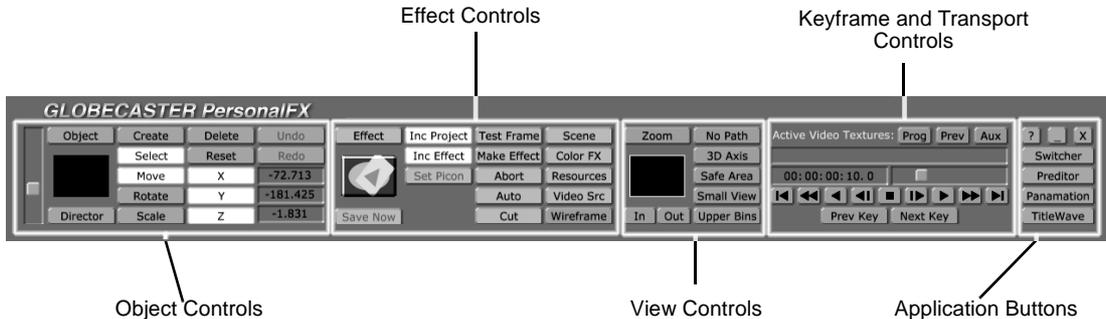
The following figure shows how 3D coordinate space is arrange. Each axis is labeled. The + next to an axis name indicates that side of the axis holds positive values. The - next to an axis name indicates negative values.



Three Dimensional Space

The Toolbar

The toolbar stretches across the interface. This is where you find most of the buttons you'll be working with. You can also access most panels from here.



Like other applications, the buttons in the toolbar are grouped by function and are color coded for easy recognition.

- The **Object Controls** are used for creating and manipulating objects in an effect. They are a set of red buttons. (See “Object Controls” on page 52.)
- The **Effect Controls** are used to create, edit, and compile an effect. They are a set of green buttons. (See “The Effect Controls” on page 136.)
- The **View Controls** are a tool that allow you to change your view of the workspace to make editing 3D effects easier. They are a set of blue buttons. (See “View Controls” on page 41.)
- The **Transport Controls** are used to scrub through your effect. They are also blue. (See “Transport And Keyframe Controls” on page 189.)
- The **Application Buttons** are used to leave PersonalFX and start up another program. They are a set of tan buttons. (See “Using The Applications Buttons” on page 192.)

Each of these sections is covered in detail in this chapter.

NOTE There may be buttons that are present in the toolbar or in panels that currently have no function. They are there for future software expansions. One such button is the **Revert** button in the panels of PersonalFX.

The Timeline

The timeline is a representation of every object in the workspace. It graphically shows keyframe positions, and allows you to manipulate those keyframes. When you first start PersonalFX, there are three objects in the workspace: the 8x8 video plane object, the scene camera object (representing the audience’s point of view), and the Star Light object. Each object is

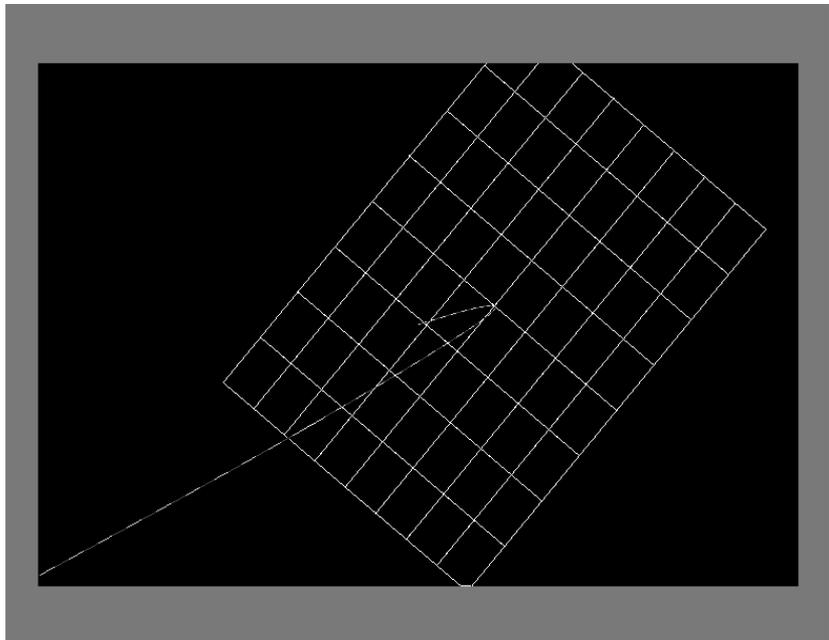
represented as a track (a block of space) in the timeline. Almost every effect you create involves using the timeline. (For more details, see “Using The Timeline” on page 171.)

Viewing The Workspace

The following section covers how you view the workspace.

The workspace is where you view and manipulate the objects you create. PersonalFX deals with a three-dimensional environment, and so you will have to get used to how things work, and how the views change in three-dimensional space.

The following figure shows the workspace with an effect in progress.



The Workspace with Effect in Progress

Objects In The Workspace

This section covers different objects in the workspace.

When you first start PersonalFX, the workspace is filled with a yellow grid. The yellow grid is an 8x8 video plane object. (In the previous figure, the plane is tilted.) This video plane is just one type of object. If you use more than one object in the workspace you can select them by right clicking on each object.

There are several other objects that you can view in the workspace. There are 10 different primitives available. Primitives are basic geometric shapes. They

include cubes, cones, spheres, and more. There are also two kinds of lights available. Finally, there is a scene camera that you can manipulate in a special mode called **Director** mode (see “Using Director Mode” on page 167 for details). You can create all of these, except the scene camera, in the **Object Creation** panel (see “Basic Objects” on page 51). You can only have one scene camera, and PersonalFX automatically loads one with every scene you create.

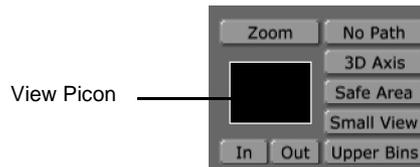
There are a number of pre-made 3D models included with PersonalFX. These appear in the left bin when PersonalFX first starts up. You can import 3D objects into PersonalFX from other programs (see “Importing 3D Objects” on page 134 for details).

The Movement Path

Take a moment to study the previous figure. Note the dashed line in the workspace. This is the object’s movement path. It shows where an object moves as the effect plays from beginning to end. It serves as a guide to help you visualize what the objects are doing when you are creating an effect.

View Controls

Use the **View Controls** (following figure) to adjust your view of the workspace. They are a collection of blue buttons in the toolbar.



The View Controls

Here’s what the buttons do:

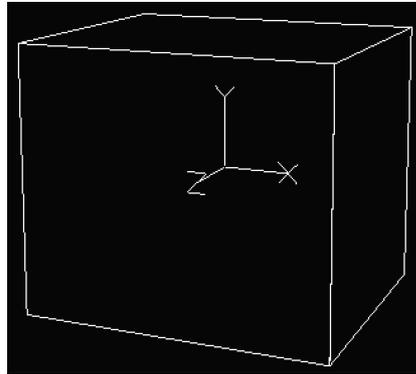
Zoom

Turns the zoom feature on and off by clicking the button. It’s a quick way to get back to a normal view (turning the button off) if you have been tinkering with the zoom settings.

View picon	Drag on the view picon to move the workspace around. Right-click in the view picon to bring up a pop-up menu (see “View Picon Pop-Up Menu” on page 44 for more details). This pop-up menu has several viewing options.
In	Allows you to zoom in on your workspace. You can click it several times to zoom in very close to the workspace.
Out	Allows you to zoom out from your workspace. You can click it several times to zoom out very far from the workspace.
No Path	Hides the movement paths of <i>all</i> objects in the workspace when it is turned on (the button lights up).

3D Axis

Toggles the 3D axis of a selected object on and off. When turned on (the button lights up), a small, white 3D axis appears in the middle of the object (following figure).

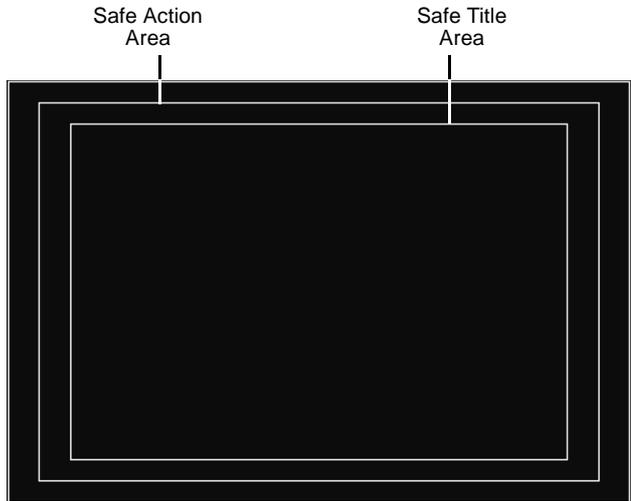


A 3D Axis in a Cube

The axis lets you know which way the object is facing, and how it is rotated. This helps you in aligning and moving objects in the workspace. The Z-axis is the front and back of the object. The Y-axis is the top and bottom of the object. The X-axis is the right and left sides of the object.

Safe Area

Displays the maximum safe viewing area in the workspace. The workspace is actually bigger than what can be displayed by some televisions. Turning this button on displays a set of white borders so you can see where the safe areas are (following figure).



The Safe Title Areas Displayed

The outer border is called the Safe Action Area, and shows where it is safe to place graphics. If you place graphics outside this area, they may not show up on some TVs. The inner border is called the Safe Title Area, and shows where it is safe to place text. The standards for text are tighter than those for graphics.

Small View

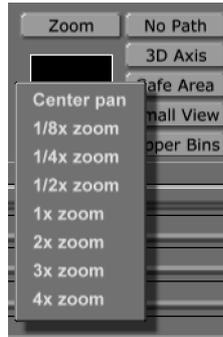
When turned on, the workspace and bins shrink while the timeline expands. Turn this button off to bring the workspace back to normal.

Upper Bins

Currently has no function.

**View Picon
Pop-Up Menu**

This pop-up menu lists several zooming options so that you can change the display size. You get to this pop-up menu by right-clicking on the View picon.



View Picon Pop-Up Menu

You then select from a range of zooming options (see the previous figure). **Center Pan** automatically centers the workspace view on a selected object. The other options either zoom in (the whole numbers), or zoom out (the fractions).

**Wireframe/
Flat/Gouraud**

There is another button that controls the workspace view. This is a blue button that is labeled either **Wireframe**, **Flat**, or **Gouraud**. It is located just to the left of the **In** button, and is the only blue button among the green buttons on the toolbar (following figure).



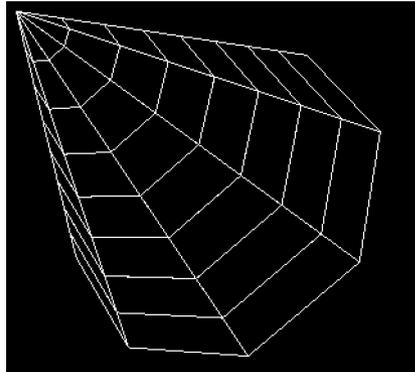
The Wireframe/Flat/Gouraud Button

This button controls how the surface of an object looks in the workspace. When you click on the button, a pop-up menu appears. These options do not affect the appearance of the camera and light objects.

Here's an explanation of the options:

Wireframe

Displays objects in the workspace as a wireframe model (following figure). This is the default setting. Wireframe is a low overhead display method. It's the best view to use if your PC is not a powerful one.



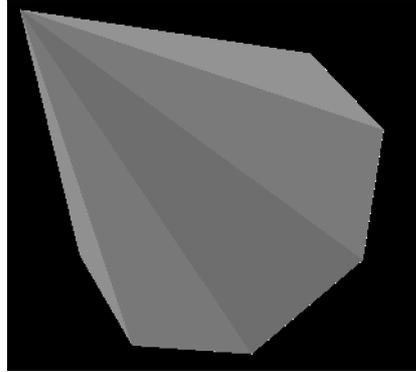
An Object Viewed in Wireframe Mode

While in wireframe, objects appear in different colors. A selected object appears as either yellow or green. An object is yellow when you have positioned the timeline on one of the object's keyframes (see "Track Basics" on page 172 for details on keyframes). When the timeline is not on one of the object's keyframes, the object is green.

A non-selected object appears a different color depending on the type of object. Primitives are a dull red. Lights are orange. The scene camera is blue.

Flat

Displays a surface on the wireframe. The image has faceted edges and looks a bit blocky (following figure).

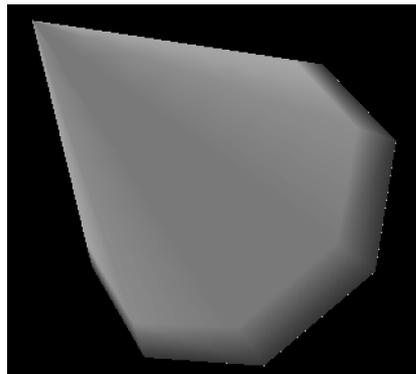


An Object Viewed in Flat Mode

This gives you a rough idea of what the object looks like with a surface, while limiting the amount of work your host PC has to do to display the actual surface.

Gouraud

Displays a surface on the wireframe and adds lighting (following figure).



An Object Viewed in Gouraud Mode

This has the effect of smoothing the features of the object, giving greater detail to shading (compared to the **Flat** viewing option). This viewing mode may slow down your computer. Gouraud is the best view if you have a more powerful PC and graphics card.

You can edit surface settings by using the **Surface Settings** panel (see “Surface Settings Panel” on page 70 for details).

Texture Mapping

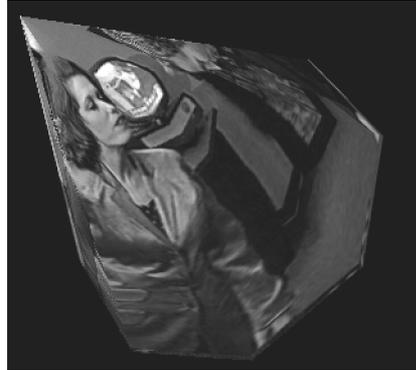
Allows you to view the texture mapping for objects in the workspace (a check appears next to the option the next time you click on the button). A texture is like a skin. Texture mapping is the process of putting that skin on an object. This button does *not* assign a texture to any object. It only allows you to view already applied textures.

The **Live Video Texture** option becomes available the next time you click on the button.

You can edit textures by using the **Texture Settings** panel. (See “Texture Settings Panel” on page 80 for details.)

Live Video Textures

Allows you to view the assigned video texture on objects in the workspace (following figure).



*An Object With Video Texture
(Using Gouraud Shading)*

Showing active video textures is a high overhead operation that works best with more powerful PCs and graphics cards. The video source may jump frames on some PCs, especially when you are editing. This does *not* happen in your final effect.

This shows the video source in real time. You can use the **Active Video Textures** (see below) to select which video source you want to view in the workspace to cut down on the overhead.

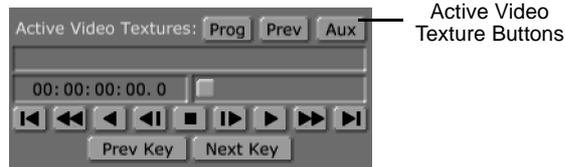
When you display the video textures of objects, you can still select the type of shading you want to view that object with. That is, while video texturing is turned on, you can select **Wireframe**, **Flat**, or **Gouraud**. You can also edit objects while video texture viewing is turned on.

Real Time Rendering

Real Time Rendering is very similar to Quick Effects (See “Try Quick” on page 142.) only you are displaying your effect as you create them. You may also use the **r** hotkey for this feature.

Active Video Textures

This set of buttons allows you to choose which active video textures you want to view in the workspace. The textures are updated in real time. They are located just above the timeline (following figure).



Active Video Texture Buttons

These buttons only appear on systems with a clipgrab card. Viewing live video textures is a high overhead operation (that is, it requires a lot of your host PC's resources). These buttons have been provided to lower that overhead by allowing you to select only the sources you want to see.

The buttons are **Prog** (Program source), **Prev** (Preview source), **Aux** (Auxiliary source). These buttons do not *assign* which video source is actually applied to an object (that's done in the **Object Creation** panel). They simply tell PersonalFX which source you want to see in the workspace.

Click on the button of the source you want to view. PersonalFX turns on texture mapping if the function isn't already on, and the video source appears on assigned primitives. You can select one or more of these buttons at the same time.

There is another way to view video textures on objects. You can select **Live Video Textures** from the Wireframe/Flat/Gouraud pop-up menu (see previous section). This turns on all three buttons.

Creating And Manipulating Objects

When you are working with PersonalFX, it's important to keep in mind that you are not just building an effect, but rather creating a scene in which the effect takes place. There are several elements to consider when using PersonalFX. The biggest difference is the existence of cameras, and the fact that you can manipulate objects and lighting as though you were creating a real set.

This section covers the buttons and panels that are typically used in creating objects.

Basic Objects

An object is anything in the workspace that you create and/or edit. PersonalFX uses three basic objects. These are: scene camera, light, and primitive.

Scene Camera

PersonalFX uses *one* scene camera. You cannot create new scene camera objects. You can manipulate it like other objects, however. The scene camera is what “shoots” the effect. It sees what the viewing audience will see. When you start PersonalFX, the view you have of the workspace is seen *through* the scene camera. The only time you actually see the scene camera in the workspace is while you are in **Director** mode (see “Using Director Mode” on page 167 for details). This mode lets you see the workspace from different angles.

You do not have to enter **Director** mode to edit the scene camera. Select the scene camera by dragging on the **Object Slider** in the **Object Controls** (see the following section). Once selected, you can edit the scene camera's position, rotation, and other properties.

Lighting

Light objects are orange in the workspace when they are not selected. They turn yellow (when the timeline is positioned on one of its keyframes) or green (when the timeline is positioned on an in-between frame) when you select one. Light objects always appear as wireframes, no matter what view method you are using. You can edit light properties (see “Light Properties Panel” on page 61 for details).

PersonalFX has two types of light objects. These are the **Star Light** and the **Spot Light**.

The **Star Light** (following figure) is automatically included in an effect when you start PersonalFX or create a new scene.



The Star Light

This light *fills* the scene with a light that shines in a single direction. It has no real origin. You can adjust the direction of the light. Think of Star Light as the sun, filling the entire workspace with a single light. You can change the Z-position of the Star Light in the **Scene Properties** panel (see “Scene Properties Panel” on page 145 for details).

The second type of light is the **Spot Light** (following figure).



The Spot Light

The Spot Light emits light in a cone shape, starting from the light itself. PersonalFX does not automatically include one of these lights when you begin a new effect, or start PersonalFX. However, you can add these lights as needed.

Primitives

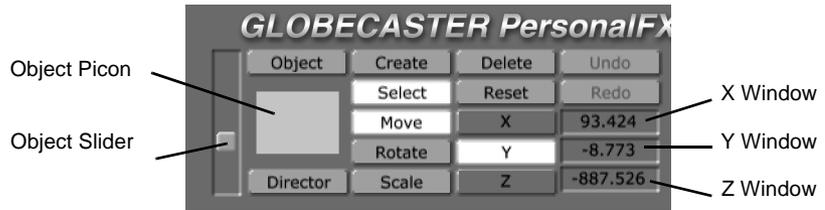
Another type of object is primitives. A primitive is a basic geometric shape, such as a sphere or cube. It is neither a light nor a camera. PersonalFX comes with several pre-made primitives to use. You can also create others (see “Object Creation Panel” on page 124 for details).

Imported Objects

The final type of object is imported objects. Imported objects are any 3D models or graphics that you bring into PersonalFX from other programs. For details on importing objects, see “Importing 3D Objects” on page 134.

Object Controls

This group of controls helps you create and alter objects in the workspace. You can create a number of 3D objects and light sources. These controls are a collection of red buttons on the far left of the toolbar (following figure).



The Object Controls in the Toolbar

Here's a list of the functions.

Object Slider Dragging the slider up and down selects different objects in the workspace. The selected object appears in the **Object** picon. If you are viewing the workspace in wireframe, selected objects turn yellow or green. Using the slider is a way to select a specific object when there are several in the workspace.

You can also press **p** on your keyboard to toggle through all the primitives in the scene.

Object Click this button. If a Light is selected in the workspace, the **Light Properties** panel (see “Light Properties Panel” on page 61 for details) appears. If an object is selected in the workspace, the **Object Properties** panel (see “Object Properties Panel” on page 62 for details) appears. The button ghosts out if the scene camera is selected.

- Object picon** Displays a miniature representation of the currently selected object. If **Live Video Textures** (see “Wireframe/Flat/Gouraud” on page 45 for details) is not activated, an object with Program video mapped onto it shows an ellipse on it. An object with Preview video has a triangle on it. When **Live Video Textures** is activated, the object appears with the video source.
- Other surfaces represent themselves. As the object changes in the workspace, so does the picon. Right-clicking on the picon brings up the **Object** pop-up menu (see “Object Pop-Up Menu” on page 123 for details).
- You can drag-and-drop the **Object** picon into the workspace to create an identical copy of that object. The copy appears next to the original object. If you hold down **Shift** on your keyboard while doing this, a copy of the object drops into the workspace in the exact same location as the original. In both cases, the new object is selected.
- Director** Activates **Director** mode. This mode is used to change your view of objects in the workspace. You can also edit objects by using an editing mode in **Director**. See “Using Director Mode” on page 167 for complete details on this mode.
- Create** Opens up the **Object Creation** panel (see “Object Creation Panel” on page 124 for details). From there, you can create and replace objects in the timeline and workspace.

Select Click the button to toggle **Select** mode on and off. With this mode activated, you can click on any object in the workspace to select it. You can then alter that object. This button is turned on as default.

If you turn **Select** off, you can still select items in the workspace using the **Object Slider** to the left of the **Object** picon. You can also toggle through primitives by pressing **p** on your keyboard.

Move Click the button to turn the **Move** function on. While in this mode, clicking on an object allows you to move it. You can drag left-and-right (along the X-axis), and up-and-down (along the Y-axis). Right-clicking and dragging an object moves it forward or backward (on the Z-axis). See “Using The Move Button” on page 57 for more details.

Rotate Click the button to turn the **Rotate** function on. While in this mode, clicking and dragging on an object performs X-axis and Y-axis rotation. Right-clicking and dragging on the object rotates it on the Z-axis. See “Using The Rotate Button” on page 58 for more details.

Scale Click this button to turn the **Scale** function on. While in this mode, you can shrink and enlarge the selected object (you cannot scale camera and light objects). Left-clicking and dragging scales the length and height (X-axis and Y-axis) of the object. Right-clicking and dragging scales the depth of the object (the Z-axis).

To maintain an object’s aspect ratio when you scale it, hold down the **Ctrl** key on your keyboard while you click-and-drag. This scales the length, width, and height all at once.

See “Using The Scale Button” on page 59 for more details.

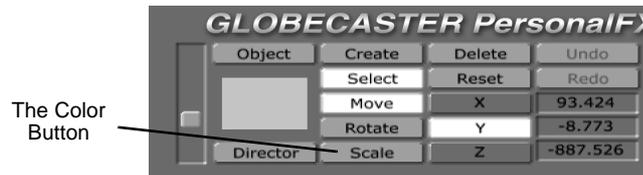
Delete Removes the selected object from the timeline and workspace.

Reset	<p>Resets only the values of the mode you are currently in. If you are in Move mode, clicking Reset resets only move values. Any scale or rotation values are not changed.</p> <p>You can constrain what values are reset by toggling the X, Y, and Z buttons on and off (see below).</p>
X, Y, Z	<p>Click these buttons to constrain edits of an object to a certain plane (or combination of planes) in three-dimensional space. Turning a button on allows you to edit values related to that plane. Turning a button off tells PersonalFX not to let you edit values along that plane.</p> <p>Constraining edits along certain planes can be used with Move, Scale, Rotate, and the Reset button.</p>
Undo	<p>Removes the last change you made. Not all operations can be undone. You can also press Ctrl + Z.</p>
Redo	<p>Redoes a step you just undid. You can also press Ctrl + Y.</p>
X, Y, and Z Windows	<p>Displays the current values of the selected object along the three planes. If Move is activated, the windows show the object's position in three-dimensional space. If Rotate is turned on, the windows display rotation values for the object along the three planes. If Scale is turned on, the windows show the length, height and width of the selected object.</p> <p>You can click in each of the windows and type in new values for precision edits. Press Enter on your keyboard to set the change.</p>

Object Control Variations

When you select either a light object or the scene camera, the object controls change slightly.

The following figure shows the Object Controls with a *light* selected.

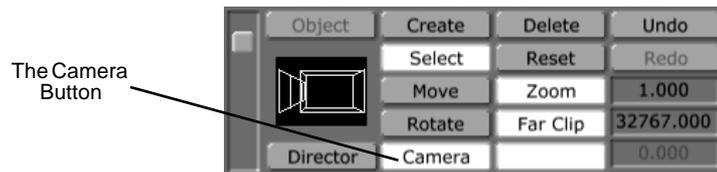


The Object Controls with Light Selected

Notice the **Scale** button that is normally a part of the controls is replaced by a **Color** button. When you click on this button, the X, Y, and Z buttons turn into R, G, B buttons. These buttons allow you to adjust the RGB color value of the light. The windows to the right of the buttons display the RGB values. You can click in the windows and type in new values to change them.

Also notice the **Rotate** button is ghosted out. This is because you cannot rotate the Star Light. If the Spot Light had been selected in the previous figure, the **Rotate** button would not be ghosted out.

The following figure shows the object controls with a camera selected.

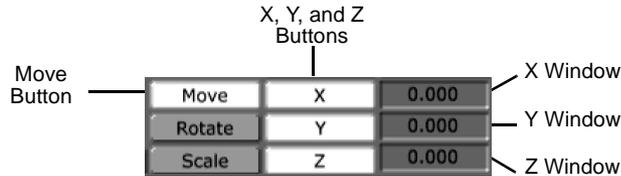


The Object Controls with Camera Selected

Notice that the **Scale** button is replaced with a **Camera** button. The X, Y, and Z buttons are replaced with two different buttons (the “former” Z button has no function). The **Zoom** button allows you to adjust the zoom of the camera. The zoom you set is compiled into the final effect. The **Far Clip** button sets how far the camera “sees.” The camera does not see anything that lies outside of the far clip range.

Using The Move Button

In order to move an object in the workspace, the **Move** button must be turned on (following figure).



The Move, X, Y, and Z Buttons/Windows

The X, Y, and Z buttons allow you to constrain movement to the X-plane (left and right movement), Y-plane (up and down movement), and the Z-plane (in and out movement) in the workspace. Turning off one of these buttons tells PersonalFX to ignore movement along that plane. Movement is done in relation to the center point of the selected object.

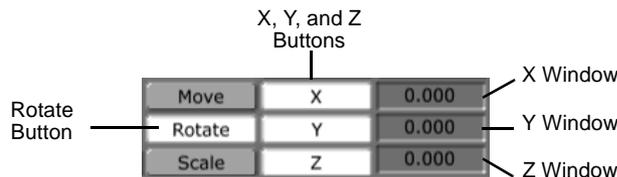
The windows to the right of the X, Y, and Z buttons display the current position of an object at the respective plane. When you first create an object, its center point is at the origin (0,0,0) of three-dimensional coordinate space. The values that appear here can be either negative or positive. As you move the selected object, the values change to reflect the new position of the object's center point.

You can click in each of these windows, and type in specific values for precision movement of objects. When you change a value in this way, press **Enter** on your keyboard to set the change.

You can click on an object in the workspace, and drag it around the X-plane and Y-plane. Right-click and dragging moves an object along the Z-plane.

Using The Rotate Button

In order to rotate an object in the workspace, the **Rotate** button must be turned on (following figure).



The Rotate, X, Y, and Z Buttons/Windows

The X, Y, and Z buttons allow you to constrain rotation along the X-plane (left and right), Y-plane (up and down), and the Z-plane (in and out) in the workspace. Turning off one of these buttons tells PersonalFX to ignore rotation along that plane. You can turn these buttons off and on in any combination.

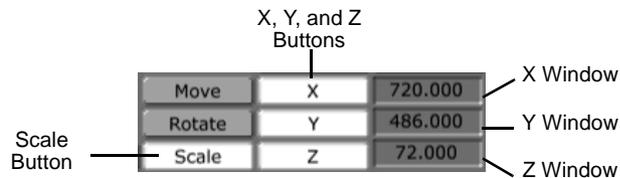
The windows to the right of the X, Y, and Z buttons display the current rotation of an object along the respective plane. Rotation is carried out in relation to a fixed “front” and spins around the object’s center point. The values that appear here are degrees. They can be both negative and positive.

You can click in each of these windows, and type in specific values for precision rotation of objects. When you change a value in this way, press **Enter** on your keyboard to set the change.

You can click on an object in the workspace, and rotate it around the X-plane and Y-plane. Right-click and dragging rotates an object along the Z-plane. This will rotate both the object and the path.

Using The Scale Button

In order to resize an object in the workspace, the **Scale** button must be turned on (following figure).



The Scale, X, Y, and Z Buttons/Windows

The X, Y, and Z buttons allow you to constrain scaling along the X-plane (width), Y-plane (height), and the Z-plane (depth) of a selected object. Turning off one of these buttons tells PersonalFX to ignore scaling along that plane. You can turn these buttons off and on in any combination. Scaling is done around the object’s center point.

The windows to the right of the X, Y, and Z buttons display the current size of an object along the respective plane. The default size of the video plane is 720 x 486 x 72. Those values appear in the windows now. Most other primitives

are around 300 x 300 x 300. You can click in each of the windows, and type in specific values to scale an object to a specific size. When you change a value in this way, press **Enter** on your keyboard to set the change.

You can click-and-drag on an object in the workspace, and scale it along the X-plane and Y-plane. Right-click and dragging scales an object along the Z-plane.

Keyboard Commands

There are keyboard commands that you can use while editing objects. They are:

- | | |
|----------------------------|---|
| Ctrl | Holding down the Ctrl key on your keyboard serves key functions. What it does depends on where you click-and-drag in the workspace: <ul style="list-style-type: none">• Click-and-drag on the movement path of an object. You can reposition the movement path without altering any other values.• In Scale mode, click-and-drag in the workspace. This resizes the selected object while maintaining its aspect ratio. That is, it allows you to change the object's size while keeping its proportions the same. |
| c | Copy the position, rotation, and scale of the last chosen item and paste those values into the currently chosen item. If the current item has no key value for a corresponding copied value, nothing occurs. For example, if the current object has no X-rotation and the copied key list does, that value is not pasted. |
| C (<shift>+c) | Defines the values that are to be copied based on what edit mode is used. If you are in Move mode, move values are copied. If you are in Rotate mode, rotate values are copied. If you are in Scale mode, scaling values are copied. |
| f | Copy the movement path of the last selected item and use it for the currently selected item. |

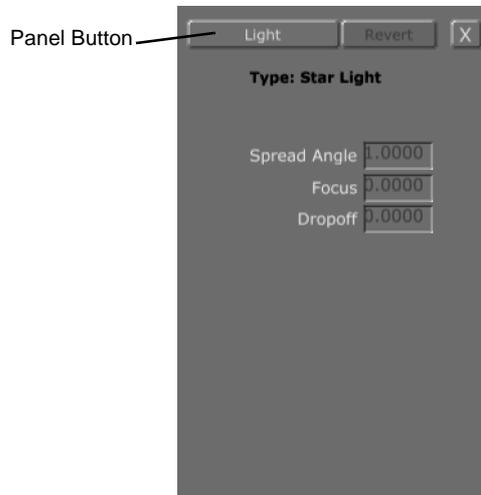
- up arrow,**
down arrow

Functions the same as moving the mouse up and down with the left button clicked. If the **shift** key is down, it is like holding down the right mouse button. Each time a key is pressed, the current value moves up or down by one.
- left arrow,**
right arrow

Functions the same as clicking-and-dragging left and right with the mouse. Each time a key is pressed, the current value moves up or down by one.

**Light
Properties
Panel**

You adjust the properties of the light objects (Spot Light and Star Light) in this panel. There are several ways to access it. First, you can right-click directly on the light in the workspace, and select **Light Properties** from the pop-up menu. Second, if the light is already selected, you can right-click in the **Object** picon in the toolbar, and select **Light Properties** from the same pop-up menu. Finally, if the light is selected you can click on the **Object** button in the toolbar.



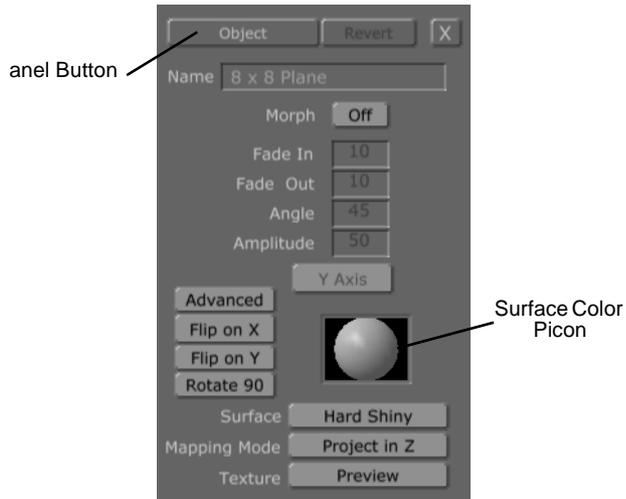
The Light Properties Panel

The following describes what the options are.

Panel button	Allows you to access other PersonalFX panels. Click this button and choose from Scene , Effect , Object Creation , Video Source , and Environment .
Revert	Currently has no function.
X	Closes the panel.
Type	Displays the type of light selected, either Star Light or Spot Light .
Spread Angle	Available only for Spot Light . The light from a Spot Light spreads out in a cone-like shape. This setting changes how wide the spread is. Making the spread angle bigger makes the cone wider. Making the spread angle smaller makes the cone narrower. The maximum spread angle you can enter is 90 degrees. The minimum is 1 degree.
Focus	Controls how defined the edge of the light is. A higher number makes it more diffuse. A lower number makes it sharper. The maximum value you can enter is 64 . The minimum is 0 .
Dropoff	Controls how dim the light gets as it travels further from the source. The maximum value you can enter is 32,767 . The minimum value is 0 .

Object Properties Panel

You can alter the properties of non-light objects (such as adding procedural morphs, and changing texture mapping settings) using this panel. There are several ways to access this panel. First, you can right-click directly on the object in the workspace. Select **Object Properties** from the pop-up menu that appears. Second, if the object is already selected, you can also right-click on the **Object** picon in the toolbar. Select **Object Properties** from the same pop-up menu. Finally, if the object is selected you can click on the **Object** button in the toolbar.



Object Properties Panel

The following list describes what each of these options does.

- | | |
|---------------------|---|
| Panel button | Allows you to access other PersonalFX panels. Click this button and choose from Scene , Effect , Object Creation , Video Source , and Environment . |
| Revert | Currently has no function. |
| X | Closes the panel. |
| Name | Lists the name of the object in a window. You can click in the window and change the name to whatever you want. Changing the name of objects can help you manage your scene better when you are using multiple objects. |

Morph	<p>Applies a procedural morph to the selected object. A procedural morph is a process that transforms an object over time. More importantly, it transforms the object to a specific preset shape. Once it reaches that shape, the object morphs back to its original form.</p> <p>You can only apply <i>one</i> procedural morph to any <i>one</i> primitive. However, you can apply procedural morphs to any number of primitives.</p> <p>By default, this button is set to Off. Click on it. The Morph pop-up menu appears (see “Morph Pop-Up Menu” on page 66 for more details).</p>
Fade In	<p>Sets the number of frames it takes to start the morph. A value of 0 means the morph effect just “pops” onto the screen. The maximum value you can enter is 100.</p>
Fade Out	<p>Sets the time it takes to end the morph. A value of 0 means the morph stops abruptly. The maximum value you can enter is 100.</p>
Angle	<p>Sets the angle of the morph. It adjusts where a page peel starts, or at what angle a flag ripples. This is a measure of degrees. The highest value you can set is 180. The lowest value is 0.</p>
Amplitude	<p>Adjusts how much morphing is applied to the selected object. A low value generates a very subtle morph. A maximum value of 100 generates extreme morphing. The minimum value you can set is 1.</p>
X-, Y-, or Z-axis	<p>Used to select the axis for a Twist morph. Click the button. A pop-up menu appears with X-, Y-, or Z-axis options. Select the one you want to use.</p>

Advanced	Click this button. A pop-up appears with options to open two different panels. The Surface Settings panel allows you to adjust reflective properties of the surface of the selected object (see “Surface Settings Panel” on page 70 for more details). Texture Settings panel allows you to adjust the properties of textures on a selected object (see “Texture Settings Panel” on page 80 for more details). Texture Settings is available only if the selected object has a texture on it. If the object’s texture is set to solid color, Texture Settings is not available.
Flip on X	Flips the orientation of the texture on the selected surface along the X-axis.
Flip on Y	Flips the orientation of the texture on the selected surface on the Y-axis.
Rotate 90	Rotates the texture 90 degrees (1/4 turn) clockwise. You can repeatedly click this button to completely rotate the texture 360 degrees.
Surface Color Picon	Displays the surface color of the selected object. If the surface is a solid color or gradient, the color or gradient appears as the picon. If the surface is a video source, the video appears. Click the picon to bring up a Color Palette and Gradient editor (see “Color Palette And Gradient Editor” on page 99 for details). Once there, you can create colors and gradients that you can apply to the selected surface.
Surface	Lists the surfaces the object has. Click on the button. The list appears as a pop-up menu (following figure). What appears on this list depends on the type of surface(s) on the selected object. With the exception of the 6 Surface Video Block, all of the objects that you can create using the Object Creation panel (see “Object Creation Panel” on page 124) use only one surface type. That type is assigned in the Object Creation panel.

- Mapping Mode** Defines how a texture is mapped onto a selected object. There are seven mapping modes. Each is discussed in “Mapping Mode Pop-Up Menu” on page 114.
- Texture** Assigns which texture is mapped onto a selected object. A texture is an image that is placed on an object like a skin. Clicking on the button brings up the **Texture** pop-up menu. From there, you can assign different textures to a selected object (see “Texture Pop-Up Menu” on page 122 for more details).

Morph Pop-Up Menu

Use this pop-up menu to apply a procedural morph to an object. A procedural morph is a process that transforms an object over time. More importantly, it transforms the object to a specific preset shape. Once it reaches that shape, the object morphs back to its original form. You access this pop-up menu by clicking on the **Morph** button in the **Object Properties** panel.



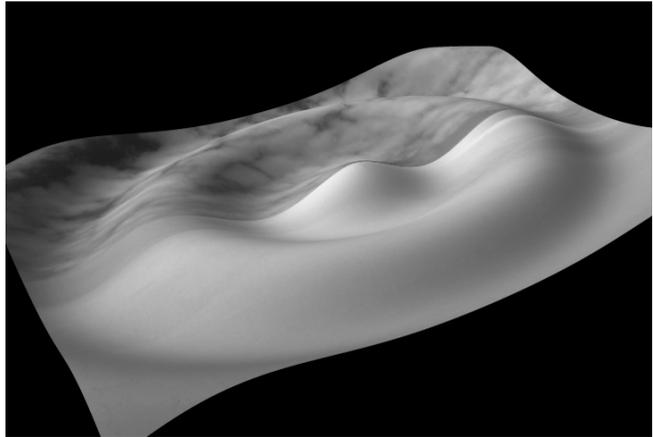
Morph Button Pop-Up Menu

When you select an option from this pop-up menu, a check mark appears next to it. Here’s what the different options are:

- Off** Turns off the procedural morph for the selected object. You can select this option to remove a procedural morph from the selected object.

Wave

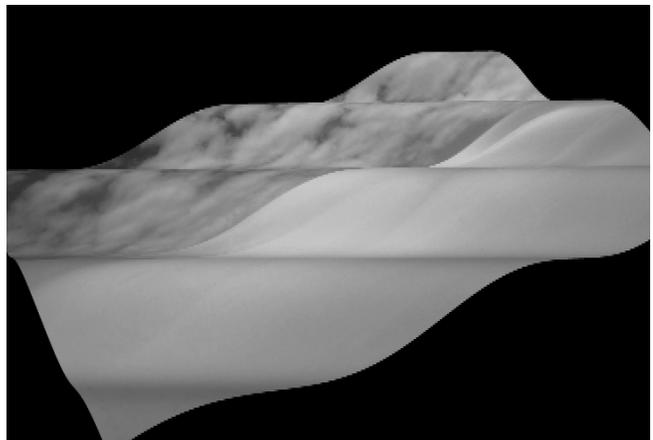
Puts rippling waves into the object, starting from its center, moving outward (following figure).



A Wave Morph

Flag

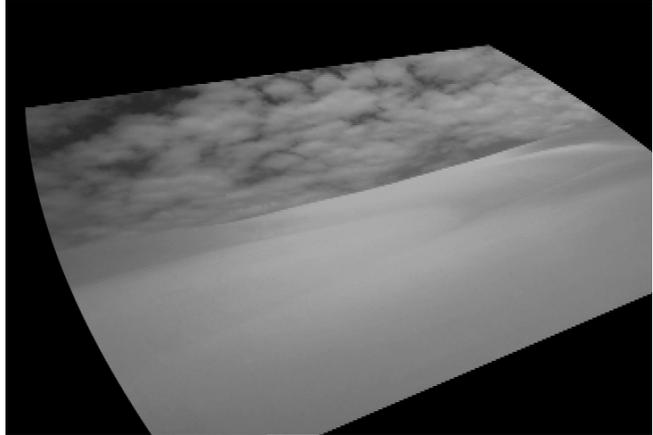
Makes the object flap like a flag waving (following figure).



A Flag Morph

Twist

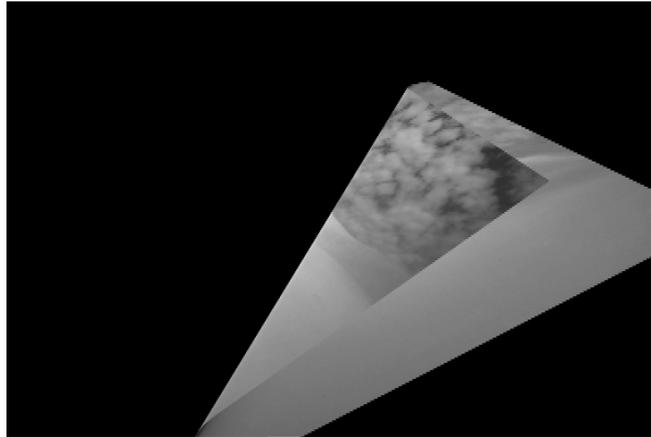
Takes the corners of the object and twists them (following figure).



A Twist Morph

Page Turn

Curles the object as though it was being turned like a page (following figure).



A Page Turn Morph

This procedural morph is only available for the Video Plane and 6 Surface Video Block primitives. It does not appear as an option when you select other primitives.

Applying A Procedural Morph

To apply a procedural morph to a selected object, choose the morph you want from the pop-up menu. Once a morph is selected, the **Fade In**, **Fade Out**, **Angle**, and **Amplitude** windows become available depending on which morph you chose.

When you apply a procedural morph to an object, a **Morph Event** appears in a new value track in the timeline for that object. For more information on value tracks, see “Track Basics” on page 172. For more information on Morph Events, see “Procedural Morph Track And Event” on page 180.

Removing A Procedural Morph

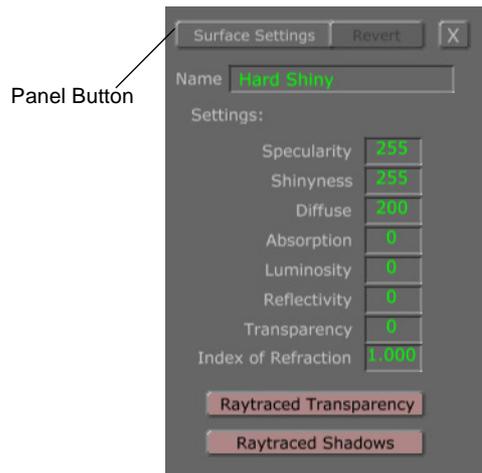
To remove a procedural morph:

1. Select the object to which you wish to apply the morph.
2. Open the **Object Properties** panel.

3. Click the **Morph** button.
4. Select **Off** from the pop-up menu.

Surface Settings Panel

Access this panel by clicking on the **Advanced** button in the **Object Properties** panel, and selecting **Surface Settings** from the pop-up menu that appears. From here, you can adjust various values related to the surface of the current object. Both Animation and stills can use these various surface settings. These values give the selected object a surface based on how light reflects off it. By adjusting these values, you can make the object appear to be composed of different materials.



The Surface Settings Panel

Surface Settings Vs. Textures

There is a difference between a primitive's surface settings and a primitive's texture. Most objects have surface settings, but not all objects have or need textures. Surface settings adjust only the way light reflects off an object, independent of any texture the object may have. The texture itself is a skin that is mapped (placed) onto the object to make it look like something.

For example, a sphere with no texture but a shiny surface setting, appears shiny gray. When you add a texture, one of the wood textures for example, the sphere looks like a polished wooden ball. Adjust the surface settings, and you can make the wooden ball appear dull and rough.

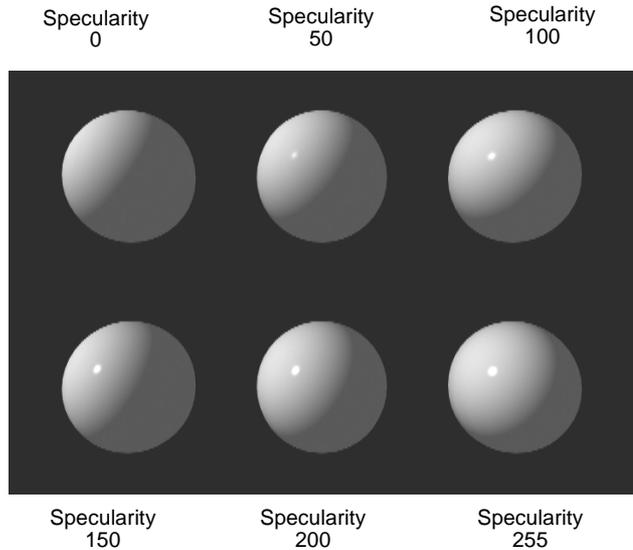
Here's what the panel options are:

Panel button	Allows you to access other PersonalFX panels. Click this button and choose from Scene , Effect , Object Creation , Video Source , and Environment .
Revert	Currently has no function.
X	Closes the panel.
Name	Displays the name of the surface you are configuring. You can click in the window and change the name.

Specularity

Adjusts how focused the light source is when it reflects back to the viewer. Higher values create a reflection that is sharp and well defined. Low values create a more diffuse reflection.

Specularity values range from 0 to 255. A value of 0 represents no specularity. The following figure shows a set of spheres created with the preset **Hard Shiny** surface setting. Specularity was then changed as indicated.



Graded Specularity Settings

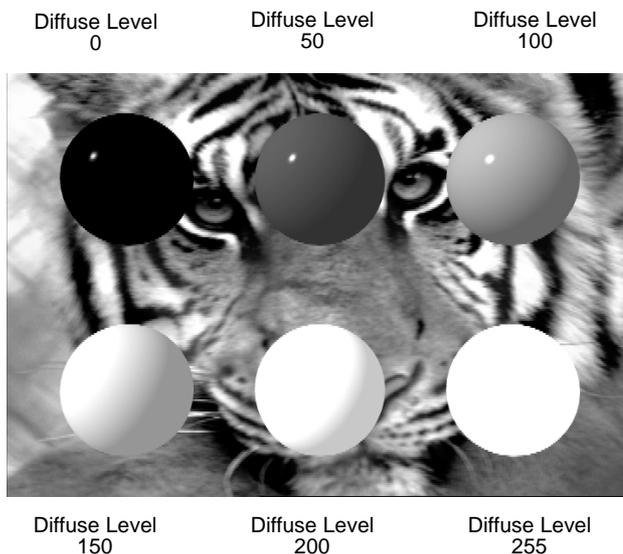
Notice how the specularity (the white dot on each sphere) becomes larger and more defined as the value increases.

Diffuse Level

Adjusts the apparent amount of color reflected across an object's surface.

The lowest diffuse level value is 0. At this level, an object appears black because the object's surface reflects no color (and black is the absence of color). The highest value is 255. As you move through each value, more of the object's color appears.

The following figure shows a set of spheres created with the preset **Hard Shiny** surface setting. The **Diffuse Level** was then changed as indicated.

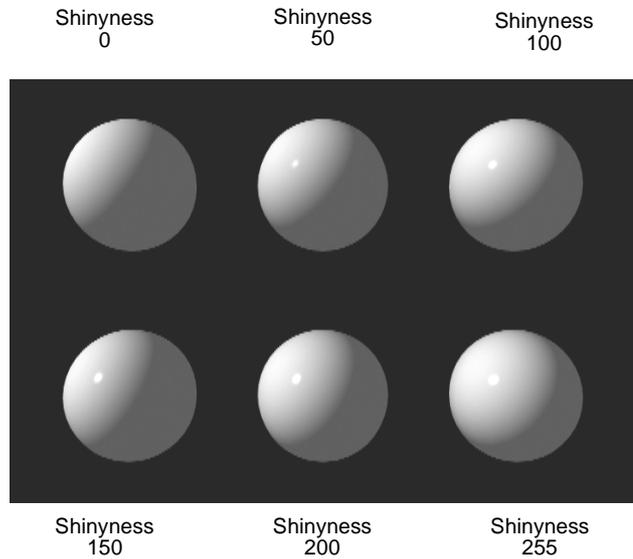


Graded Diffuse Level Settings

Shininess

Used in conjunction with **Specularity**. The higher the value, the “tighter” (shinier) the reflection appears. Low values produce a dull reflection.

Shininess values range from 0 to 255. The following figure shows a set of spheres created with the preset **Hard Shiny** surface setting. The **Shininess** settings were then changed for each one.

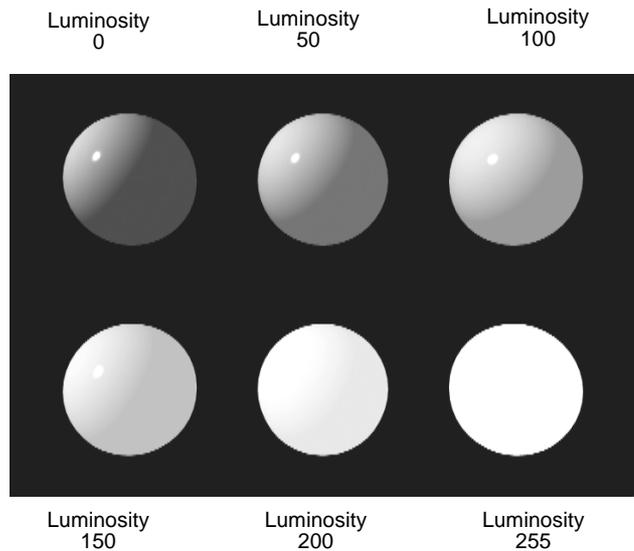


Graded Shininess Settings

Luminosity

Adjusts the actual amount of light the object emits. This is different from the way the object reflects light.

Luminosity values range from 0 to 255. The following figure shows a set of spheres created with the preset **Hard Shiny** surface setting. The **Luminosity** settings were then changed for each one.



Graded Luminosity Settings

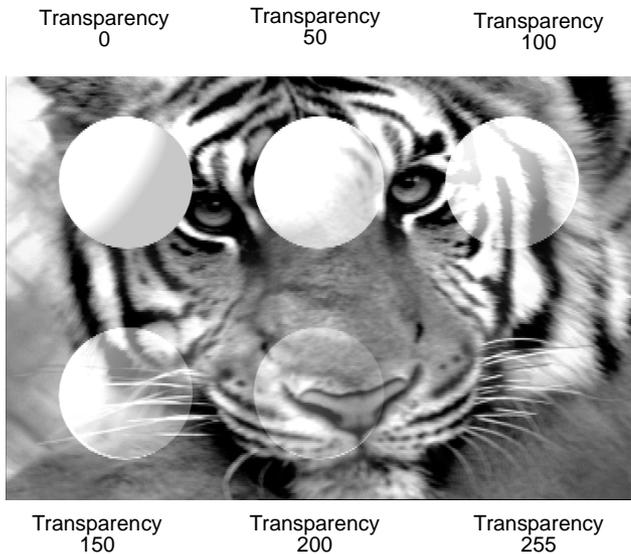
Notice how the amount of shadow on the spheres decreases as **Luminosity** increases. This is because the light the sphere emits is overtaking any shading from other light sources. At its highest setting, **Luminosity** takes away all shadow (and thus the sphere's 3D appearance), making the sphere look like a bright circle.

Transparency

Adjusts the alpha value (transparency) of the object. When you set this value to 0 (the minimum setting), the selected object is treated as a solid. No light passes through it. When you set this value to 255 (the maximum setting), the selected object becomes completely transparent.

Light passes through a transparent object with no refraction. When you turn on **Raytraced Transparency** (one of the buttons at the bottom of this panel), light passing through the selected object refracts. The angle of that refraction is set by the **Index of Refraction** (also located in this panel). These topics are discussed below.

The following figure shows a set of spheres created with the preset **Hard Shiny** surface setting. The **Transparency** settings were then changed for each one.



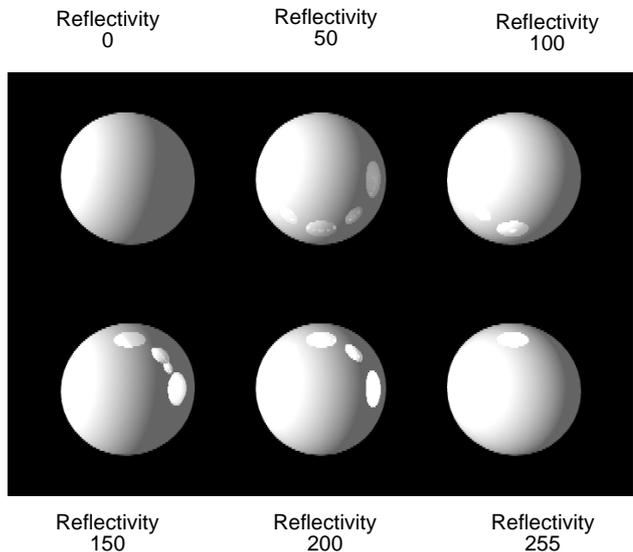
Graded Transparency Settings

As transparency increases, a second white mark appears on the spheres. These are reflections of the light source. The mark in the upper left of each sphere is a reflection of the light on the front surface. The mark on the lower right side of each sphere is a reflection of the light on the back side of its surface.

Reflectivity

Adjusts how much of the surrounding light is reflected off the object. Reflectivity values range from 0 to 255.

The following figure shows a set of spheres created with the preset **Hard Shiny** surface setting. The **Reflectivity** settings were then changed for each one.



Graded Reflectivity Values

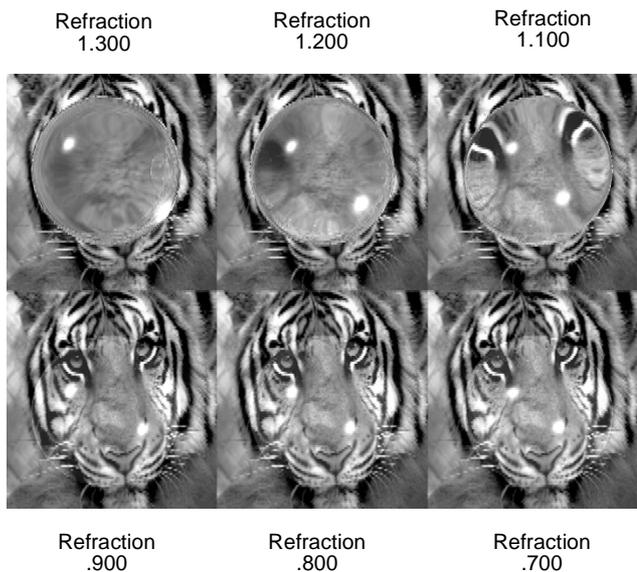
Notice that the spheres reflect in each other.

Index of Refraction

Adjusts the way light bends as it passes through an object. This is known as refraction. You must turn on **Raytraced Transparency** (one of the buttons at the bottom of this panel) to activate this function. Moreover, for the best results, decrease **Diffuse Level** to 0. This makes the object transparent, and the index of refraction becomes more apparent.

Very small changes in this value produce drastic differences. Light passes straight through an object with no refraction when this value is set to 1. Any object that is completely transparent and has an Index of Refraction of 1 is basically invisible. Even if the object is invisible, settings such as Specularity and Diffuse Level are still visible.

The following figure shows a set of spheres that have been rendered completely transparent and have different refraction settings.

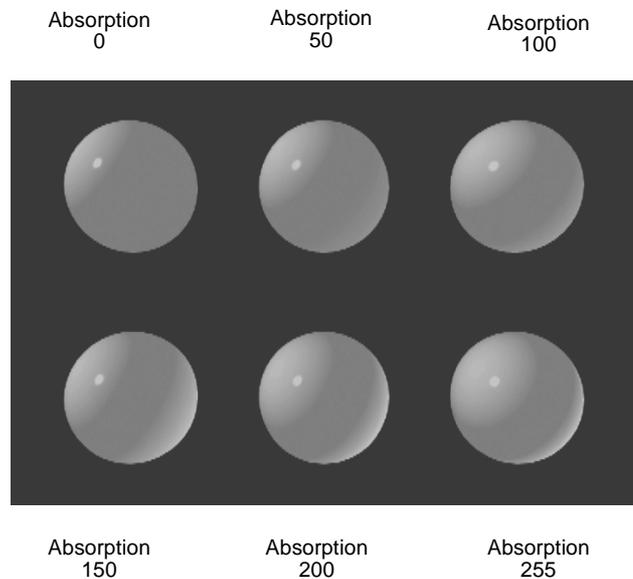


Various Refraction Values

Notice how the image behind each sphere bends and contorts. This is because light from the video plane is passing through each sphere and bending at the specified angle.

Absorption

Adjusts the amount of color the object absorbs from the surrounding light. This then changes the object's color slightly. Absorption values range from 0 to 255 (following figure).



Graded Absorption Values

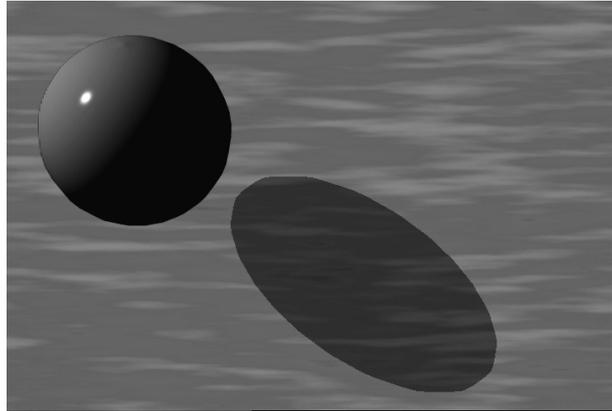
If you look closely, you can see what looks like back lighting on the sphere. This is ambient light the sphere is “absorbing.”

**Raytraced
Transparency**

When you turn this button on, light refracts through transparent objects as opposed to simply passing right through them. Use this button in conjunction with the **Index of Refraction** discussed above.

Raytraced Shadows

Creates a shadow for the object when the effect is created. The shadow is cast on other objects in the workspace (following figure).



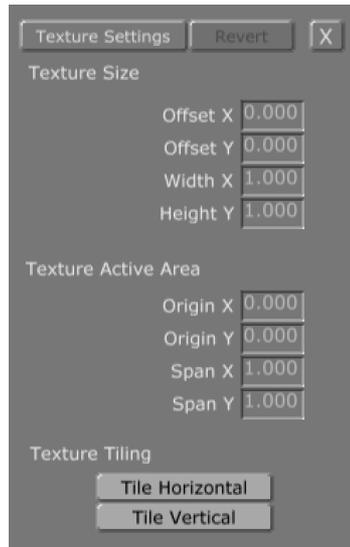
A Sphere with Raytraced Shadow

The user interface does not show the shadows in the workspace. However, it does show up in the Program out when you create a test frame. Multiple light sources cast multiple shadows.

TIP When you want to view changes, click the **Test Frame** button in the toolbar. View the changes on your Program out monitor as the appearance of 3D effects on your computer monitor is limited by the graphics card in your host PC.

Texture Settings Panel

Use this panel to adjust the texture properties of a selected object when that object has a texture applied to it. You can access this panel by clicking on the **Advanced** button in the **Object Properties** panel. Select **Texture Settings** from the pop-up menu. The panel appears in the upper left corner of the interface (following figure).



The Texture Settings Panel

What Is A Texture?

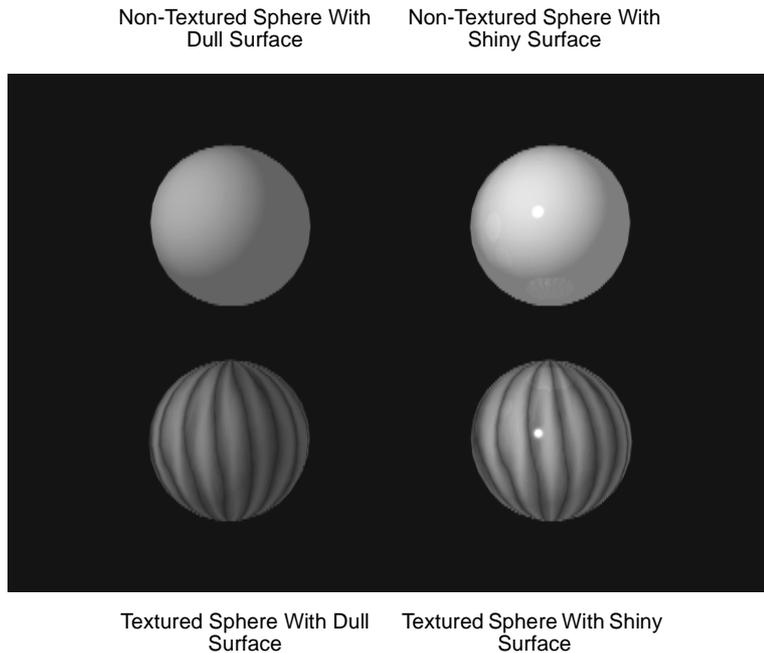
A texture is a skin that is mapped (placed) onto an object to make it look like something. An example of this is one of the wood textures included in the **textures** bin. A sphere with no texture, but a shiny surface setting, appears shiny gray. When you add one of the wood textures, the object looks like a polished wooden ball. Different textures can make the same object look like something completely different. The right texture can make a big difference in how convincing an effect is. Both Animation and stills can use these various textures.

In general, PersonalFX maps a texture across an entire primitive, not just a single face of the primitive. You apply textures by dragging-and-dropping an image, framestore, or still directly onto the primitive in the workspace. You can also assign a texture (including video sources) in the **Object Properties** panel (see “Object Properties Panel” on page 62 for details).

Texture Vs. Surface Settings

There is a difference between an object’s texture settings and an object’s surface settings. All objects have surface settings, but not all objects have or need textures. Surface settings adjust only the way light reflects off an object, independent of any texture the object may have. However, because surface

settings adjust the amount of light that is absorbed and reflected back to a viewer (and the human eye perceives color as reflected light), the colors and brightness of an applied texture are affected by the surface settings. For instance, in the above example of a wooden ball, if you were to adjust the surface settings to produce a dull reflection, the sphere would appear as any normal piece of wood (following figure).



Textured And Non-Textured Objects

Using The Panel

You can change any of the settings in the **Texture** panel by clicking in the window and typing in a new value. Press **Enter** on your keyboard to set the change.

When you adjust a texture to the point that it does not cover a portion of the face of an object, PersonalFX repeats the last color of the texture to fill in the rest of the space. This is called clamping. If you do not wish to have a texture clamped, you can turn on the tiling buttons (see “Tile Horizontal/Vertical” on page 95) to tile a texture instead.

The group of buttons labeled **Texture Size** adjust the size of the texture you are applying. The group of buttons labeled **Texture Active Area** selects the portion of the texture you want to use. These values are decimal values.

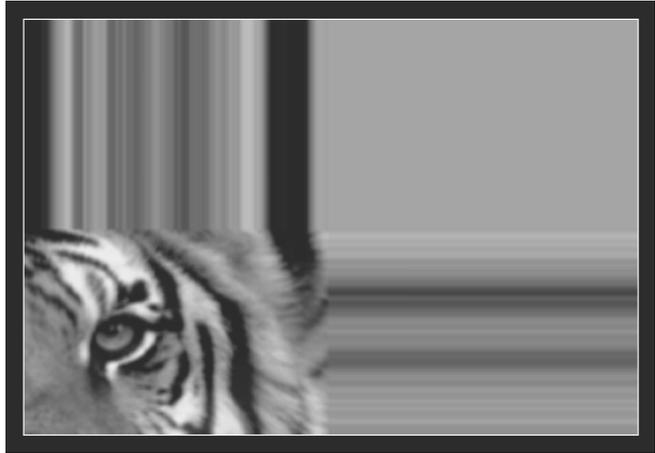
Here's what each value does:

Offset X/Y Moves the texture along an X-axis and Y-axis on each face of the selected object. The **0** value (the lowest setting you can have) places the top right corner of the texture in the top right corner of the object (following figure).



Texture with Offset X/Y Values Set to 0.000

As the values increase, the texture moves to the left (adjusting the X-axis), and down (adjusting the Y-axis), as shown in the following figure.



Texture with Offset X/Y Values Set to 0.500

Notice the streaks leading off the top and right edges of the tiger. This is an example of clamping. If the edges of the texture had been a solid color, you would see that color repeated across the entire surface instead.

All movement using **Offset** is relative to the texture's size. That is, a value of 0.500 moves that texture a distance equal to half its width. This is especially important when you are tiling a texture and trying to apply it in such a way that the texture is not cut along the edges of the primitive.

The highest value you can set **Offset X** or **Offset Y** to is **1**. At that point the texture is completely moved off the face of the object (following figure).



Texture with Offset X/Y Values Set to 1.000

You can also use negative values for the offset.

**Width X/
Height Y**

Width X adjusts the width of the texture. The default value is 1. When you want to resize a texture, enter the number you want to multiply the size of the texture by. If you want the texture to be twice its size, enter a value of 2. If you want the texture to be half its size, enter 0.500. If you want the texture to be 3/4 its size, enter 0.750.

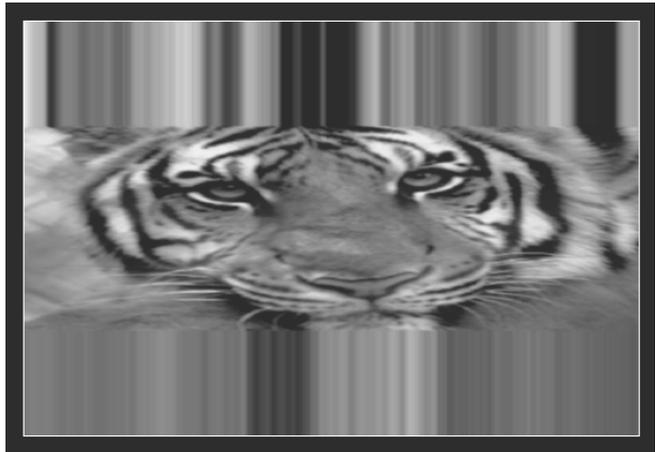
The following figure shows a texture with a **Width X** setting of 0.500. The **Height Y** setting has not been changed.



Texture with Width X Value of 0.500

Height Y adjusts the height of the texture. The default value is 1. When you want to resize a texture, enter the number you want to multiply the size of the texture by. If you want the texture to be twice its size, enter a value of 2. If you want the texture to be half its size, enter 0.500. If you want the texture to be 3/4 its size, enter 0.750.

The following figure shows a texture with a **Height Y** setting of 0.500. The **Width X** setting has not been changed.



Texture with Height Y Value of 0.500

Notice two things about both the above figures. First, clamping is taking place in each one, but on different axes. Second, the image is distorted because in each figure, only one of the values (width in the first figure and height in the second) has been resized while the other remains unchanged.

When you change these values, the texture is resized about its center.

The following figure shows a texture with **Width X** and **Height Y** values both set to 0.500.



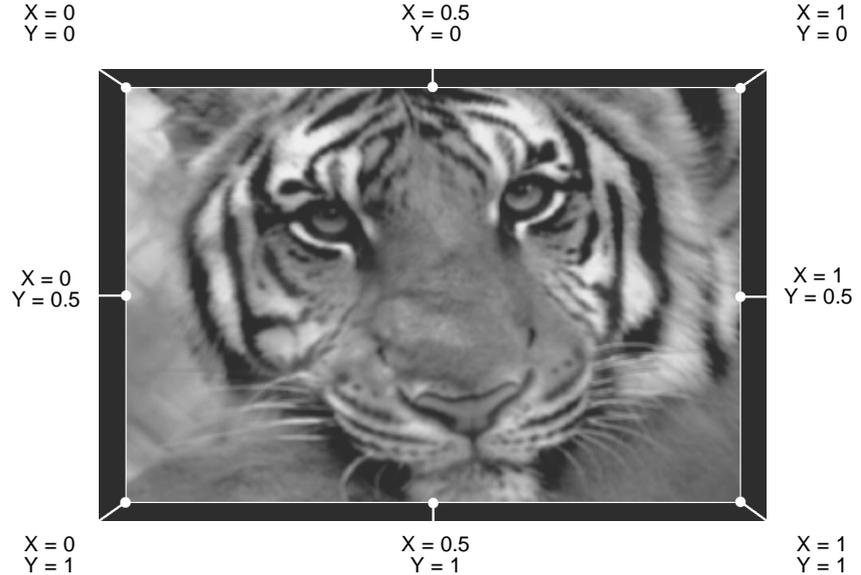
Texture with Width X and Height Y Value of 0.500

Notice that the image is half its original size, and remains in the middle of the video plane. Clamping produces an interesting effect as well.

Origin X/Y

Sets the starting position (origin) for the span function (see below). Imagine that a texture is placed on a plane.

The top edge of the texture is the X-axis, and ranges in value from 0 (the far left side) to 1 (the far right side). The left edge of the texture is the Y-axis. It also ranges in value from 0 (the top) to 1 (the bottom). The following figure shows these numbers, and midpoints.



The Layout of the Origin

The **0,0** position (top left corner) is the default origin. You can move that position around by changing these values. Before you can change the position, however, you have to change the **Span** value. This is because the sum of the **Origin X + Span X**, or **Origin Y + Span Y**, cannot be greater than 1. If you ever enter values that add up to be greater than 1, PersonalFX does not accept the new setting.

An **Origin** setting of 0.500 for each value places the origin in the center of the texture.

Span X/Y

Selects the region of the texture that you want to use starting from the origin (see above). When you set **Span X** and **Span Y** values, PersonalFX cuts from left to right, and top to bottom from the origin. It then fills the object with the new texture.

As you are adjusting **Span** values, remember that the sum of the **Origin X + Span X**, or **Origin Y + Span Y**, cannot be greater than 1. This is because the origin values position the origin somewhere on the texture. **Span** values cut a section of the texture out from that origin. A combined value of greater than one would mean you are trying to cut a portion bigger than the texture itself, which you cannot do. If you ever enter values that add up to be greater than 1, PersonalFX does not accept the new setting.

The following figures show a series of textures with different **Span** values. The first figure is a texture with default (1) **Span** values.



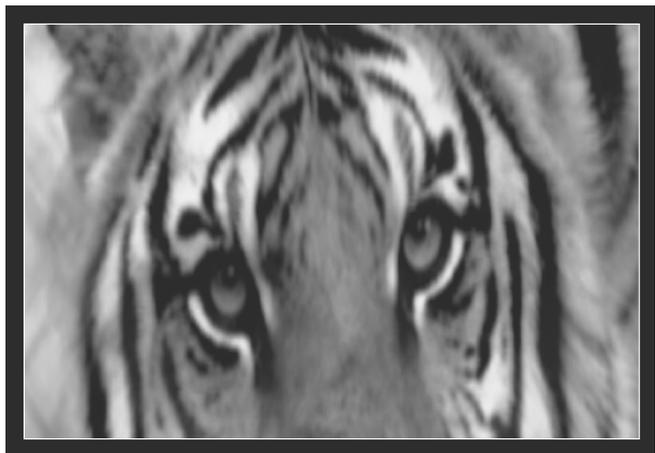
A Texture with Default Span Values

The following figure shows the same texture with only its **Span X** value set to 0.500. The new texture is only the left half of the original.



A Texture with Span X Value of 0.500

The following figure shows the same texture with only its **Span Y** value changed to 0.500. The new texture is the top half of the original one.



A Texture with Span Y Value of 0.500

The following figure shows the same texture with both its **Span X** and **Span Y** values set to 0.500. The new texture is the upper left quarter of the original texture.



Texture with Both Span Values Set to 0.500

You can change the starting position of where the span values begin cutting by changing the **Origin X** and **Origin Y** values. This cuts the texture from a new origin point set at those values. Because **Span X + Origin X** and **Span Y + Origin Y** cannot be greater than 1, you must change the default **Span** values before changing **Origin** values.

The following figure shows the same texture with **Span X** and **Origin X** values of 0.500.



Texture with Span X and Origin X Values of 0.500

Because the **Origin** is set to 0.500, the origin is placed half way across the top of the texture. **Span** then cuts the texture from that new position, leaving the right half of the texture.

The following figure shows the same texture with **Span Y** and **Origin Y** values of 0.500.



Texture with Span Y and Origin Y Values of 0.500

Because the **Origin** is set to 0.500, the origin is placed half way down the side of the texture. **Span** then cuts the texture from that new position, leaving the bottom half of the texture to be mapped across the object.

The following figure shows a texture that has both its **Span** and **Origin** values all set to 0.500. It shows the bottom right corner of the texture.



Texture with Span and Origin Values of 0.500

By adjusting the Span and Origin values, you can pick specific portions of a texture to map onto objects. You should take a moment to experiment with these settings to get a feeling for them.

**Tile Horizontal/
Vertical**

Turns horizontal and vertical tiling on and off. When an area of an object's face is not covered by a texture after changing its settings in this panel, PersonalFX fills in the blank area with the last color it encountered along the edge of the texture. This is called clamping. In some cases, this produces streaking effects (see the previous figures). If you do not want this effect, turn on either or both of these buttons. PersonalFX then creates a pattern that fills in the rest of the space.

The following figure shows a texture that has been resized. Notice the clamping.



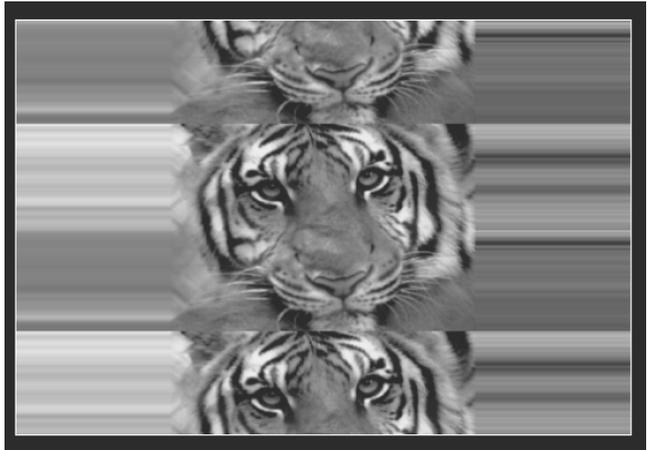
A Resized Texture

With only **Horizontal Tiling** turned on, horizontal space is filled in by repeating the texture (following figure).



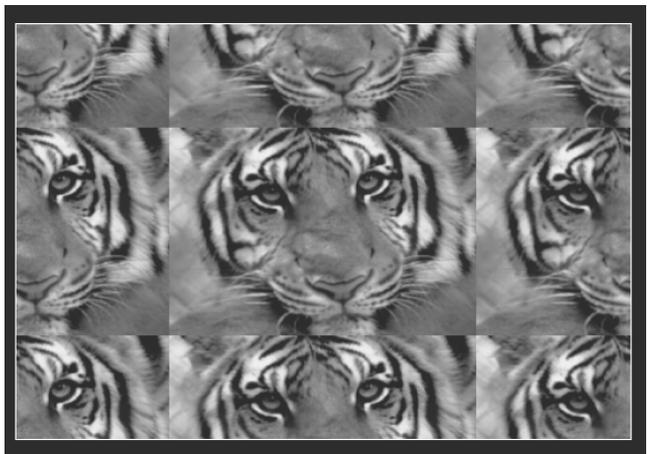
Texture with Horizontal Tiling Only

With only **Vertical Tiling** turned on, vertical space is filled in by repeating the texture (following figure).



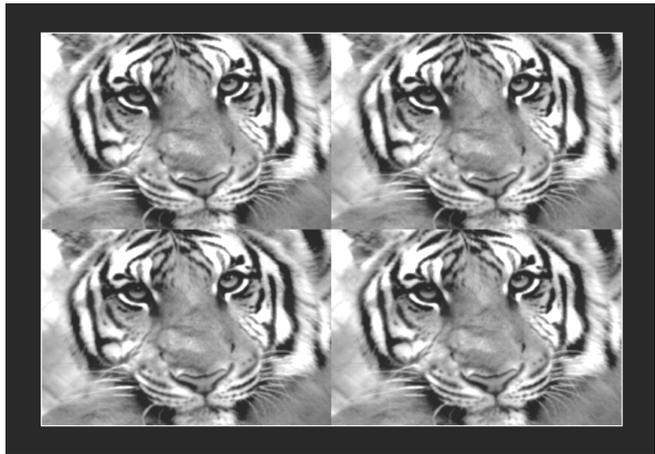
Texture with Vertical Tiling Only

With both **Horizontal and Vertical Tiling** turned on, a patterned texture emerges (following figure).



Texture with Both Horizontal and Vertical Tiling On

Because the texture was resized around the center of the video plane, tiling produces images that are cut off along the edges of the plane. You can fix this by adjusting the **Offset X** and **Offset Y**. In this case, the values are set to **0.500**. The texture fills the screen with a repeating lion face (following figure).

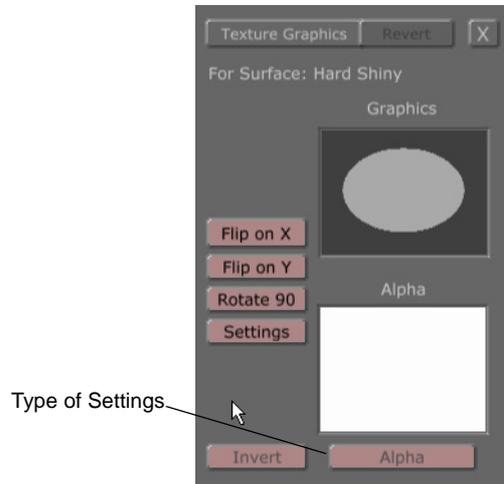


The Fully Textured Plane

**Texture
Graphics**

Use this panel to create Alpha Textures and to quickly rotate your graphic in various forms. You can access this panel by clicking on the Panel Button on the top right hand corner.

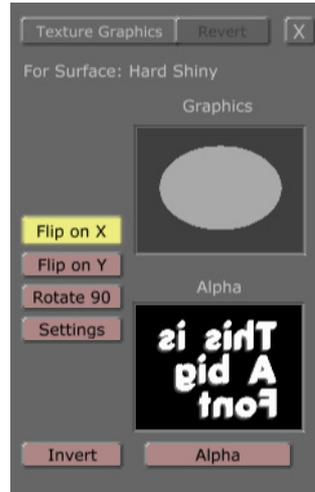
Click the X button to close the panel when you are finished. The name of the panel may change depending on how you accessed it, but it functions the same way.



Texture Graphics Panel

Flip on X

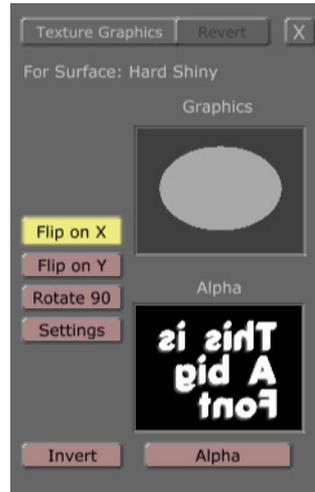
This button gives you the option of flipping your graphic in both the Alpha and graphics boxes on the X axis.



X Axis flip

Flip on Y

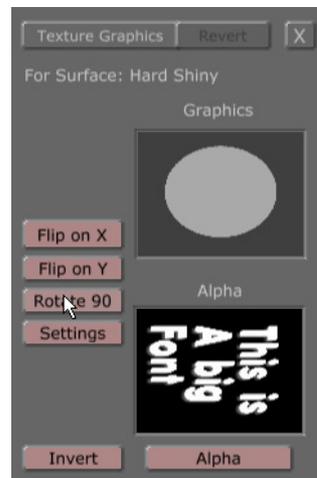
This button gives you the option of flipping your graphic in both the Alpha and graphics boxes on the Y axis



Y Axis flip

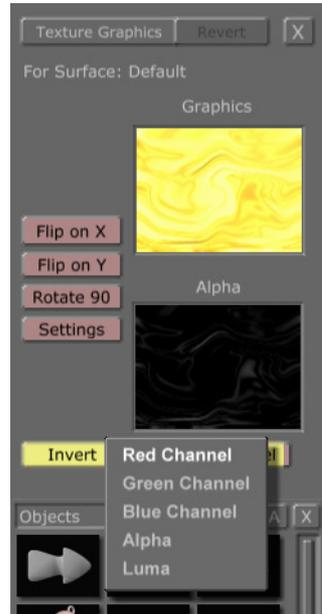
Rotate 90

This button gives you the option of flipping your graphic in both the Alpha and graphics boxes on a 90 degree angle.



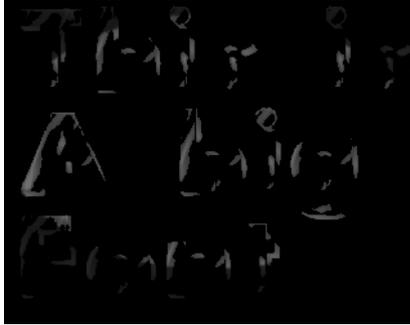
90 Degree angle

- Settings** This takes you to the Texture Settings (See “Texture Settings Panel” on page 80.).
- Invert** This option lets you invert your graphic by switching alpha components.
- Type of Settings** There are various types of settings that you can choose to single out in your graphic:



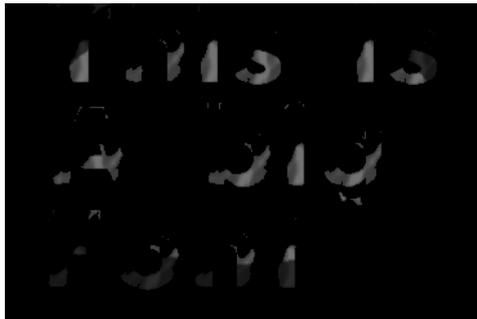
Type of Settings menu

- Red Channel: This shows only Red components in your graphic.



Red Channel Components

- Green Channel: This shows only Green components in your graphic.



Green Channel Settings

- Blue Channel: This shows only the Blue components in your graphic.



Blue Channel Components

- Alpha: This shows all alpha components in your graphic



Alpha Setting

- Luma Settings: This shows all Luma components in your graphic.

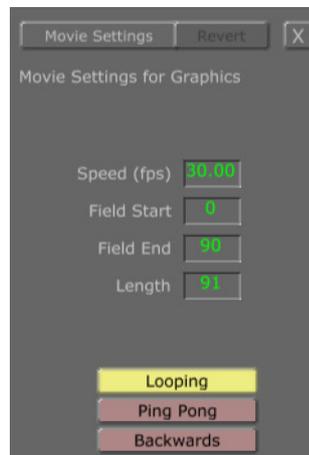


Luma Setting

Movie Settings

Use this panel to make various changes to your .avi, .mov or Timemachine effect. This gives you the option to make your effect reverse the direction, Ping Pong back and forth and start and stop your movie from looping at any desired point. You can access this panel in the **Texture Graphics** menu if you have an .avi, .mov or Timemachine clip in either the graphics or alpha box. By clicking on the settings button, the **Movie Settings** panel will open.

Click the X button to close the panel when you are finished. The name of the panel may change depending on how you accessed it, but it functions the same way.



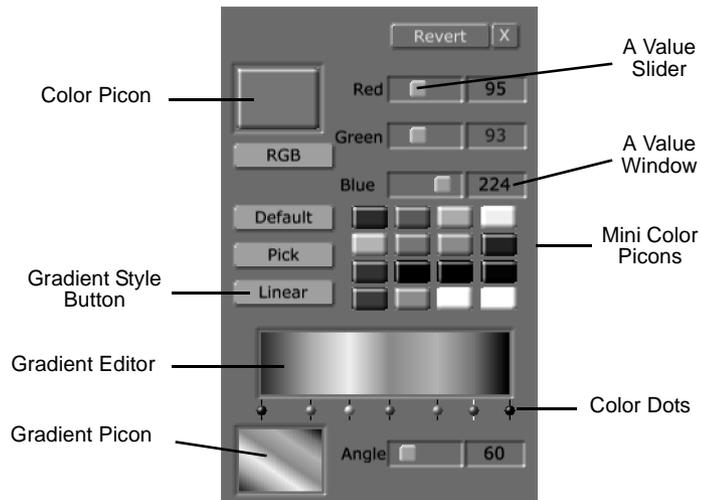
Movie Settings Panel

Speed (fps)	This the number of fields per second in your effect.
Field Start	You can change your start time for your effect by typing it here
Field End	You can change your stop time for your effect by typing it here
Length	Set the length of your effect by adding it here
Looping	This will let your effect play continuously
Ping Pong	By choosing this setting you can have your effect stop at any point and move back to the beginning.
Backwards	This will play your effect in reverse

Color Palette And Gradient Editor

Use this panel to create and edit gradients and colors for many different purposes. Some of these purposes include creating a color texture for an object, and editing the color of lighting in the scene. You can access this panel by clicking on the **Surface Color** picon in the **Object Properties** panel. You can also access this panel by double-clicking any of the picons in the **Scene Properties** panel.

Click the X button to close the panel when you are finished. The name of the panel may change depending on how you accessed it, but it functions the same way.



The Color Palette and Gradient Editor

The following details the functions of this panel.

- | | |
|--------------------|---|
| Revert | Currently has no function. |
| X | Closes the panel. |
| Color picon | Represents the current color. When you click one of the mini color picons, that color loads as this picon. You can then drag the value sliders to change the color. You can also drag this picon onto one of the mini color picons to place it there for later use. You can drag-and-drop the picon into the Gradient Editor to use the color in a gradient. |
| RGB/HSV | Allows you to choose in which format you want to change a color. Click on the button and select RGB or HSV from the pop-up menu that appears. RGB is the three additive primary colors used to construct video images (R ed, G reen, B lue). HSV is the three properties of color (H ue, S aturation, V alue). You can get almost any color by changing these values. |

Value sliders	Allow you to change the values of the color loaded into the Color picon. If you select RGB from the RGB/HSV button, the sliders adjust the red, green, and blue values to pick the color you want. If you select HSV , then the sliders adjust the hue, saturation, and value.
Value windows	Allow you to change the values of the color loaded into the Color picon, just like the value sliders. Click in the window. Type in the value that you want. Press Enter on your keyboard to set the change.
Default	Resets the mini color picons to default colors. If you click this, you lose any custom colors you have loaded into the mini color picons.
Pick	Lets you select any color on your computer screen. Click on the button. Holding the mouse button down, drag the mouse pointer around the monitor. As you do so, the color that is directly under the mouse pointer appears in the Color picon, the Gradient Editor, and the Gradient picon. Release the mouse button to select a color. You can then edit the color.
Gradient Style	Selects the shape or style for the gradient. The current style is displayed on the button face. The default style is Solid . (As soon as you begin to make a gradient, PersonalFX sets this to Linear as default.) Click on the button. The Gradient Styles pop-up menu appears (see “Gradient Styles Pop-Up Menu” on page 103 for details).
Mini Color picons	A set of small picons in the panel that serves as a palette of pre-made or custom colors. You can drag-and-drop them into the Color picon to load them for editing. You can also drag-and-drop the Color picon into one of these mini-picons to save colors you create for later use. Finally, you can drag-and-drop any of the mini color picons into the Gradient Editor. If at any time you want to clear out saved mini-picons, click the Default button. The mini-picons restore to default colors (<i>all</i> custom colors are deleted).

Gradient Editor A small workspace where you create gradients to use as textures for objects. You can drag-and-drop **Mini Color** picons or **Color** picons into any spot on the editor to add the color to the gradient you are making. The color appears in the editor, and a dot (the Color dot) appears below the color. PersonalFX then creates a gradient transition from one color to another.

The gradient always has the left most dot. It can neither be deleted nor moved. However, you can change its color.

The first color you drop into the editor appears on the far right side. A transition is then created between the color on the far left and this new color. This right most color dot cannot be moved.

Any other colors you drop into the editor appear where your mouse pointer is aimed.

Color dots Represent the position of a color in the Gradient Editor. You can click-and-drag the dots to position them within the editor. (The only dots you cannot move are the one on the far left and the one on the far right. These have fixed positions.)

You can change the color of any dot. Click on a dot (the bar behind it turns white) to select it. Next, click on a **Mini Color** picon or **Color** picon of the color you want. The selected dot changes to that color.

You can delete a dot by right-clicking on it. Select **Delete** from the pop-up menu that appears. The left-most color dot cannot be deleted. You can change it to another color.

Gradient picon A picon of your finished gradient. As you work on your gradient, the picon updates and changes to reflect your work. You can save your work by dragging-and-dropping this picon into a bin.

Angle/Size

This slider and window adjust the angle or size (depending on which Gradient Style you are using) of the gradient. It appears only when you begin using a gradient that allows you to adjust either the angle or size. Changes using this slider/window appear in the Gradient picon automatically.

You can drag on the slider to adjust this value. You can also click on the window, and type in the value you want. Press **Enter** on your keyboard to set the change. (For more information see the following section).

Gradient Styles Pop-Up Menu

Choosing one of the eight gradient styles from the **Gradient Styles** pop-up menu (following figure) determines the direction of the gradient and how the colors of a gradient blend together. The **Gradient Styles** pop-up menu is brought up by clicking the **Gradient Styles** button in the Color Palette. After you create a gradient, drag-and-drop the Gradient picon onto an object in the workspace. (The gradient also appears in the **GlobeCaster\Bins\Pfx\Projects** directory.) You can drag-and-drop the Gradient picon into a convenient bin.



Gradient Styles Pop-Up Menu

In the following section, each gradient style has two figures. The first shows what that gradient looks like in the gradient editor itself. The second shows what the gradient looks like applied to an object. The gradient may appear a little “odd” in some of the figures because of the shading and surface properties of the objects the gradient is mapped onto.

Recreating The Gradients

The gradient used is a basic ROY G BIV transition (Red, Orange, Yellow, Green, Blue, Indigo, Violet). You can recreate the gradient:

1. Click the first color dot in the Gradient Editor.
2. Click a red mini picon.

The color dot changes to red.

3. Drag-and-drop the violet mini picon into the Gradient Editor.

A violet color dot appears on the far right of the Gradient Editor.

4. Drag-and-drop the color picons corresponding to the rest of the colors in a rainbow in order.

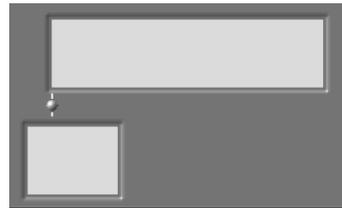
Each appears in the gradient editor.

You can click on each color dot and drag the colors to arrange the gradient to your liking.

Here's the gradient styles:

Solid

Applies a solid color to the selected stroke (following figure). If you've created a gradient, selecting **Solid** removes all the colors from the editor, leaving only the left most color.



A Solid Gradient in the Editor

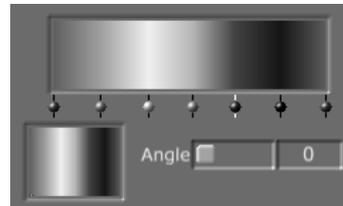
The following figure shows this solid gradient mapped onto a sphere. Because the sphere is a three-dimensional object, and a light source is present, the sphere has shading. The shading is not from the gradient.



Solid Gradient on a Sphere

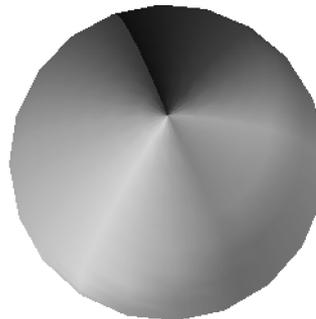
Linear

Applies a linear blend to the selected stroke. A linear blend is a gradient that progresses from one color to another in a linear fashion. The following figure shows the Gradient Editor with a linear gradient loaded.



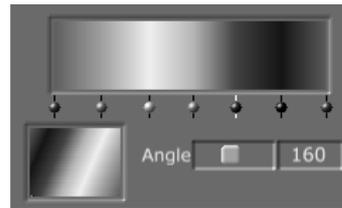
A Linear Gradient in the Editor

The following figure shows this linear gradient (with angle set to zero) mapped onto a sphere.



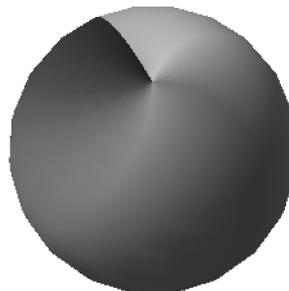
Linear Gradient on a Sphere

Change the angle of the blend by clicking-and-dragging the Angle slider (following figure). You can also change the angle by clicking in the window to the right, and typing a new value. The angle value represents the angle's measurement in degrees. The highest setting available is 359.



A Linear Gradient with Altered Angle in the Editor

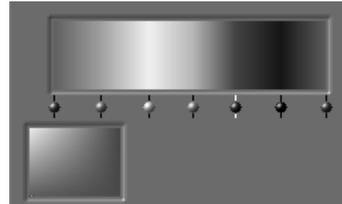
The following figure shows this gradient mapped onto a sphere.



Linear Gradient with Altered Angle on a Sphere

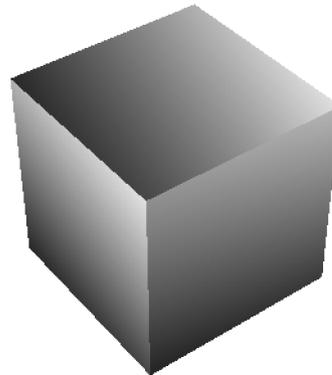
4 Corner

Creates a gradient that blends in from each corner of an object (following figure).



4 Corner Gradient in the Editor

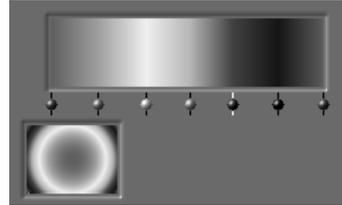
The following figure shows this gradient mapped onto a cube.



4 Corner Gradient on a Cube

Circular

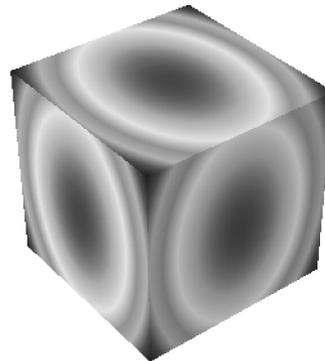
Creates a circular blend (following figure).



A Circular Gradient in the Editor

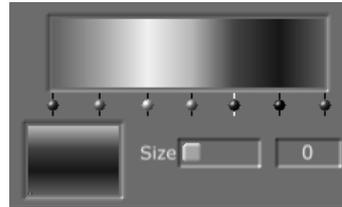
You can right-click in the **Gradient** picon and drag the circle to position it.

The following figure shows this circular gradient mapped onto a cube.



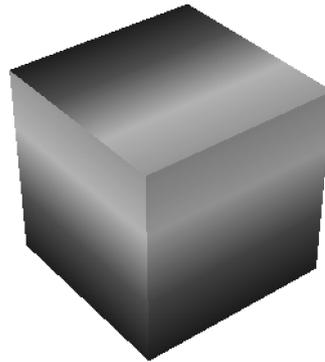
Circular Gradient on a Cube

Bevel Box Adds a beveled edge to the gradient (following figure).



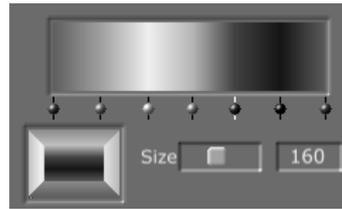
The Bevel Box Gradient in the Editor

The following shows this bevel box gradient (with size set to 0) mapped onto a cube.



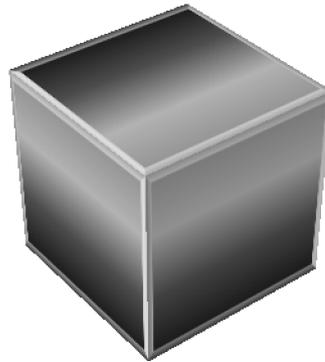
Bevel Box Gradient on a Cube

Change the size of the bevel by clicking-and-dragging the Size slider. The bevel's size can also be changed by clicking in the window and typing a new value. Press **Enter** on your keyboard to set the change. The higher the value, the larger the bevel. The highest setting available is 359.



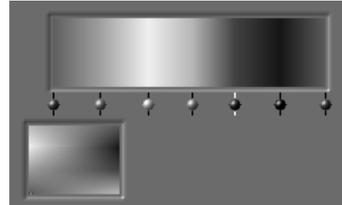
Bevel Box Gradient with Altered Size in the Editor

The following shows this bevel box gradient (with size set to 160) mapped onto a cube.



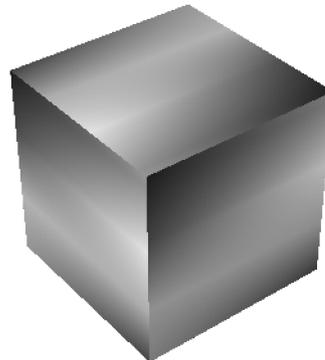
Bevel Box Gradient with Altered Size on a Cube

Horizontal Creates a blend that looks similar to a disco lighting effect (following figure). Moving a color dot right or left in the gradient editor moves the color up or down in the object.



The Horizontal Gradient in the Editor

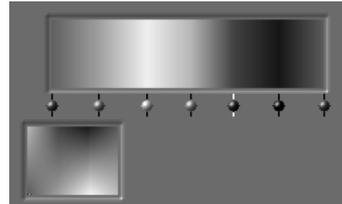
The following figure shows this horizontal gradient mapped onto a cube.



A Horizontal Gradient on a Cube

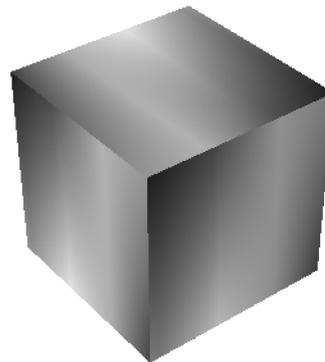
Vertical

Creates a blend that looks similar to a disco lighting effect (following figure).



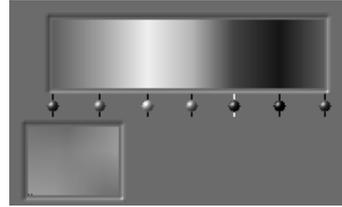
The Vertical Gradient in the Editor

Moving a color dot right or left in the gradient editor moves the color right or left in the object. The following figure shows this vertical gradient mapped onto a cube.



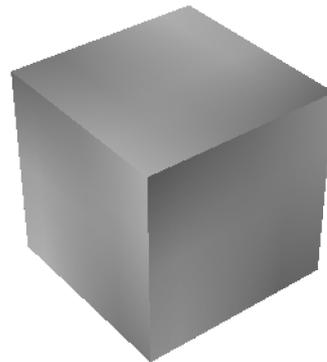
A Vertical Gradient on a Cube

4 Side Creates a subtle blended gradient (following figure).



The 4 Side Gradient in the Editor

The following figure shows this 4 Side gradient mapped onto a cube.



4 Side Gradient on a Cube

**Mapping Mode
Pop-Up Menu**

Use this pop-up to select the type of texture you would like to apply to the selected object. You access this pop-up menu by clicking on the **Map Mode** button in the **Object Properties** panel.

You can apply any of the mapping modes to any selected object. PersonalFX applies the mapping mode as soon as you select it from this pop-up menu. The following figure shows the pop-up menu.



The Map Mode Pop-Up Menu

Here's what the options are:

Camera

Creates a mapping effect that treats the object like a window through which you can see the texture (following figure). This creates a “keyhole” effect.

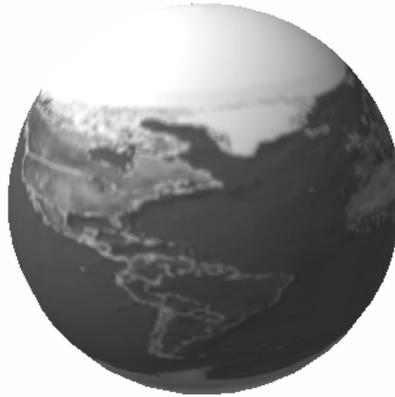


Camera Mapping a Sphere

Imagine the texture as an invisible background. When you move the object around, the portion of the background that lies immediately “behind” the object gets mapped to the object. So, as you move the object, the mapping changes. Test it out to get a better feeling for it.

Shrink Wrap

Maps a texture onto an object as though the texture was pulled around it and shrunk down (following figure).



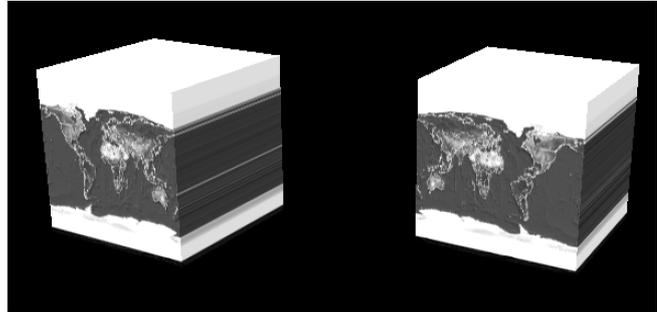
Shrink Wrapping a Sphere

Project in X

Maps a texture into the X-plane of the object (following figure).

Front

Back



Project In X on a Cube

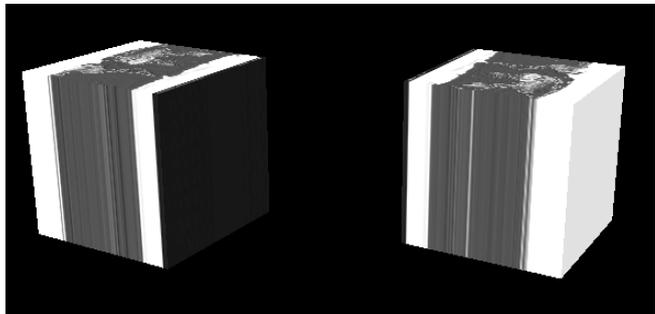
The texture is actually extruded through the object. If you have a cube, for instance, the texture is applied to every X-plane of that cube. If you look at the back of the cube, you see the back side (reversed side) of the texture. (In the previous figure, notice the earth on the back side of the cube is backwards.) This mapping is best for cubes.

Project in Y

Maps a texture into the Y-plane of the object (following figure).

Front

Back



Project In Y on a Cube

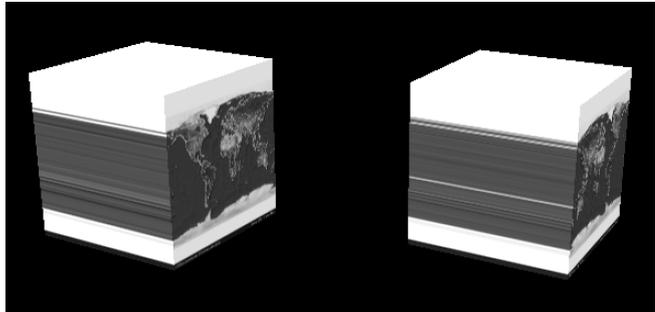
The texture is actually extruded through the object. If you have a cube, for instance, the texture is applied to every Y-plane of that cube. This mapping is best for cubes.

Project in Z

Maps the texture into the Z-plane of the object (following figure).

Front

Back

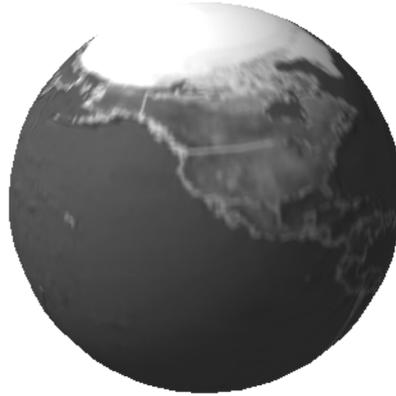


Project In Z on a Cube

The texture is extruded through the object. If you have a cube, for instance, the texture is applied to every Z-plane of that cube. This mapping is best for cubes.

Spherical

Maps the texture onto the object to reflect a spherical shape (following figure).



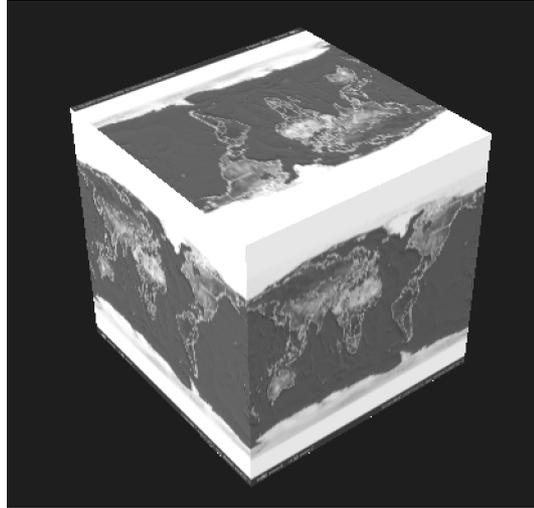
Spherical Mapping on a Sphere

This works best with spheres. If you have a Mercator projection of the earth, you can map it onto a sphere using this mapping mode. The result is how the earth really looks.

You can create strange effects by using this mapping on other shapes.

Cube Wrap

Maps a single texture to all sides of an object the same way (following figure). This is best used on cubes.



Cube Wrapping a Cube

Using this method on a sphere produces an interesting effect (following figure).

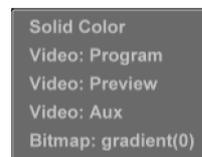


Cube Wrapping a Sphere

No matter which object you apply this type of mapping mode to, it's a quick way to create a fully textured object.

Texture Pop-Up Menu

Use this pop-up menu to assign a texture to an object. You can choose from a number of different textures (see following figure). You access this menu in two ways. First, you can access it in the **Object Creation** panel. Click the **Texture** button located just beneath the **Surface** button. Second, you can access this menu by clicking on the **Texture** button in the **Object Properties** panel.



The Texture Pop-Up Menu

The only difference between the two methods of accessing this panel is at what point you apply the texture you select. When you access this pop-up in the

Object Creation panel, you are assigning a texture at the time you create an object. If you access this pop-up in the **Object Properties** panel, you are replacing the existing texture with a new one. Either way the end result is the same. You are simply applying a texture to an object.

Here's what the options are:

Solid Color	Maps a solid color onto the object.
Video: Program	Maps the video assigned to the Program Bus onto the object.
Video: Preview	Maps the video assigned to the Preview bus onto the object.
Video: Aux	Maps the video assigned to the Auxiliary bus onto the object.
Bitmap: ___	Maps any of the images (still, framestore, etc.) currently applied to any of the objects as a texture (including the selected object). The ___ represents the name of the image. This option is not available unless another object has an image mapped onto it as a texture, or you drag-and-drop an image onto an object.

Object Pop-Up Menu

Use this menu to add or remove an object, access the **Object Properties** panel, delete a keyframe, or display/turn off the movement path of the selected object. You can access this menu in two ways. First, right-click on a selected object (in the workspace). Second, right-click on the **Object** picon in the toolbar.



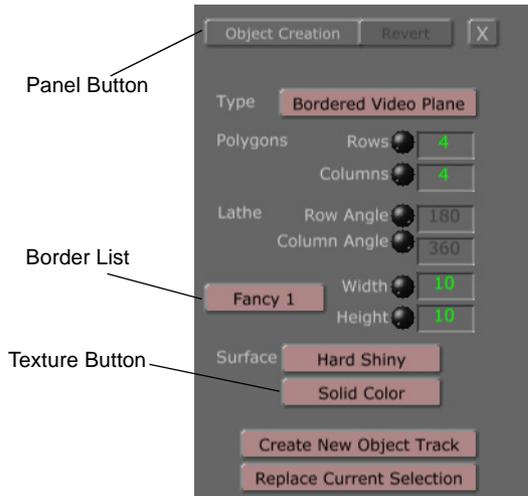
Object Pop-Up Menu

The following describes each option:

Object Properties	Brings up the Object Properties panel (see “Object Properties Panel” on page 62 for details). You use the Object Properties panel to assign and edit properties for the selected object.
Delete Track	Deletes the selected object from the workspace, and removes its track from the timeline.
Hide Track	This either hides (hide track turned on) or reveals (hide track turned off) an object track in the timeline. It also hides the object in the workspace. When an object is hidden, a check mark appears next to this option. Hidden objects are not included in the final effect.
Delete Key	This removes the selected keyframe from the movement path of the selected object.
Show Path	This shows the movement path of the selected object. When this function is on, a check mark appears next to this option in the pop-up menu (previous figure). The path alternates between light and dark gray. Each segment represents one field of time. Keyframes along the path are yellow. The type of path shown can be altered in the Scene Properties panel (see “Scene Properties Panel” on page 145 for details).

**Object
Creation Panel**

This panel is used to create a new object or replace an existing one. You can get to this panel by clicking on the red **Create** button in the **Object Controls** (see “Object Controls” on page 52 for details). You can also access this panel through other panels by clicking on the **Panel** button (in the top left corner) and selecting it from the pop-up menu.

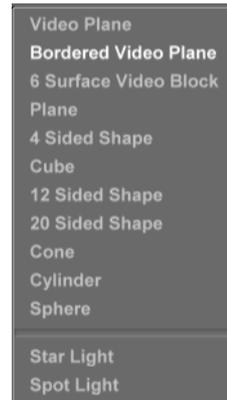


Object Creation Panel

Here's what the functions for this panel are:

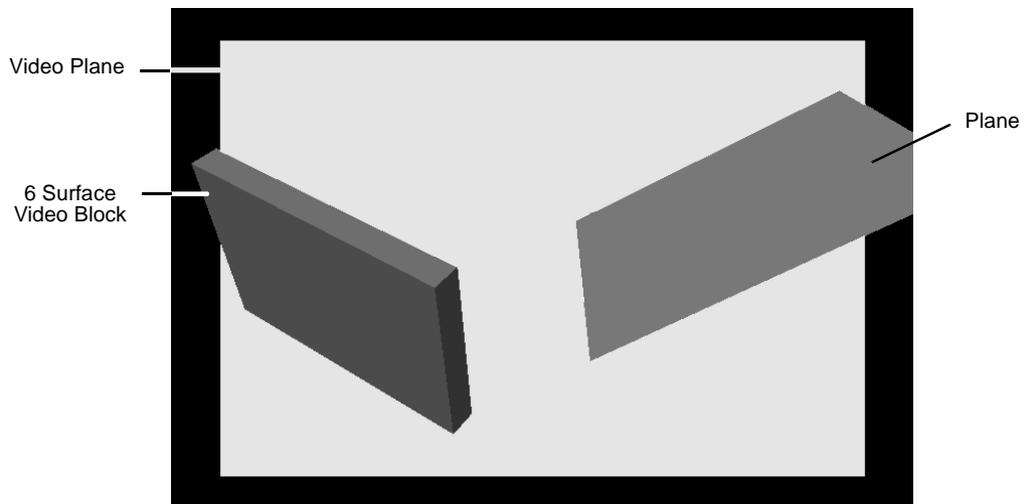
- | | |
|---------------------|--|
| Panel button | Allows you to access other PersonalFX panels. Click this button and choose from Scene, Effect, Object Creation, Video Source, and Environment. |
| Revert | Currently has no function. |
| X | Closes the panel. |

Type Clicking this button brings up a pop-up menu (following figure).



The Type Pop-Up Menu

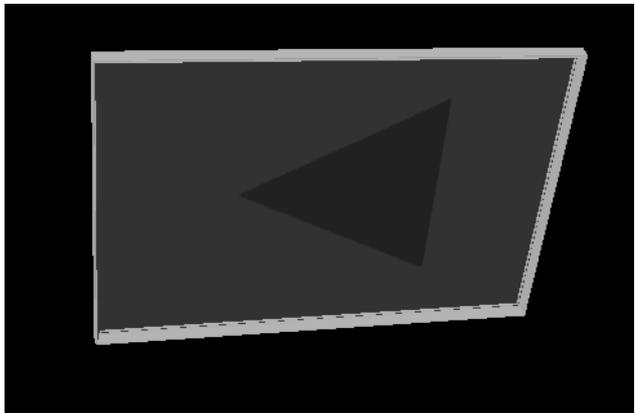
From here, you select from a variety of pre-generated primitives and two light sources. The following figures show each primitive.



The Video Plane, 6 Surface Video Block, and Plane Primitives

The **video plane** is the default primitive. You use this primitive when you want to map video onto a plane. In the above image, the video plane is the white rectangle behind the other primitives.

The **Bordered Video Plane** is similar to the Video Plane only you have the option of adding a border around your object.

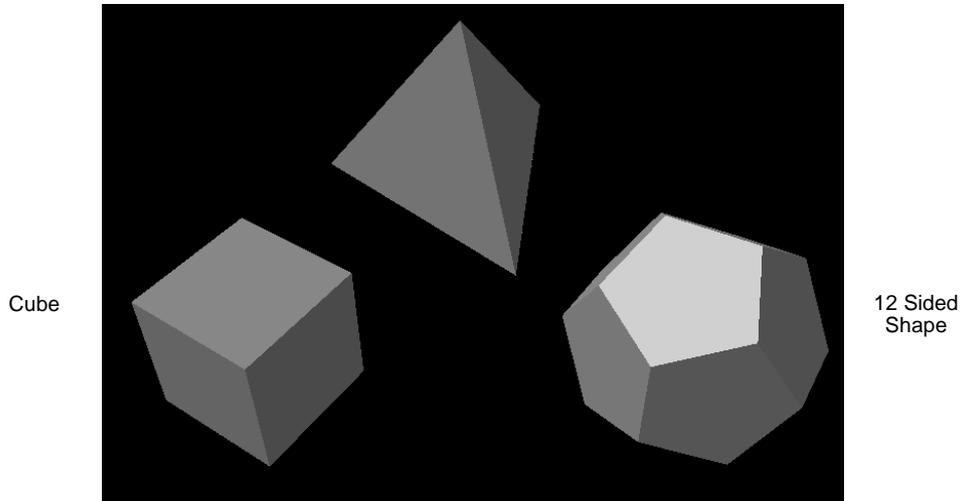


Bordered Video Plane

The **6 Surface Video Block** is a block composed of separate faces onto which you can map separate textures. The **plane** primitive is a simple flat surface.

Both the Video Plane and 6 Surface Video Block are auto-clipped. Sometimes, your video may have “dirt” along the edges. Clipping crops the viewable area so that you can hide this dirt. PersonalFX automatically clips objects with video mapped on them to the values set in the **Environment Properties** panel. (See “Environment Properties Panel” on page 149 for details on clipping.)

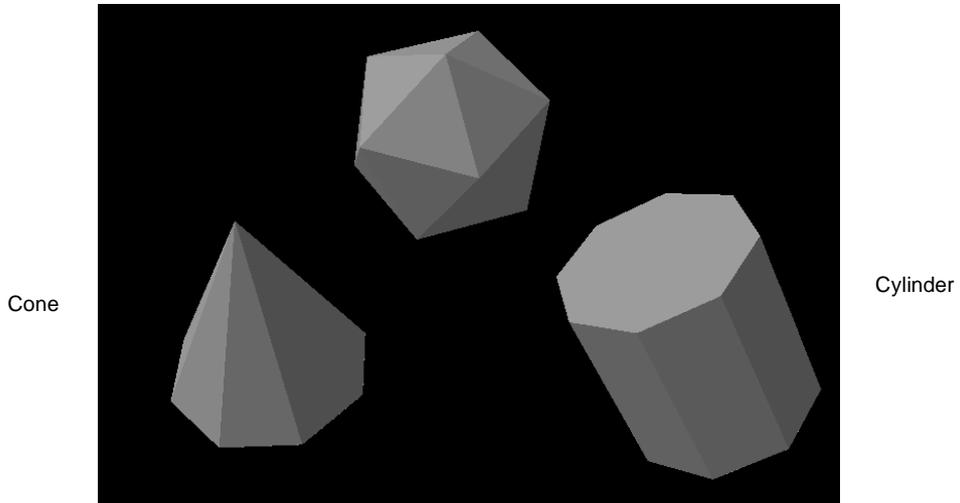
4 Sided Shape



The 4 Sided Shape, Cube, and 12 Sided Shape Primitives

The **4 sided shape** is a basic pyramid. The **12 sided shape** is composed of 12 pentagons that fit together to make a roundish primitive.

20 Sided Shape



The 20 Sided Shape, Cone, and Cylinder Primitives

The **20 sided shape** is composed of 20 triangles (each a separate face) that fit together to create another “roundish” primitive.



The Sphere Primitive

There are also two light objects that you select from the **Type** pop-up menu.

- **Star Light** creates a light that fills the scene with a light that shines in a single direction.
- **Spot Light** creates a light that has an origin at the light and spreads out like a cone (see “Lighting” on page 51 for more details).

Polygons

Shows the number of polygons in the primitive as rows and columns. Primitives are made of polygons, appearing as flat surfaces. The more polygons in a primitive, the smoother the primitive is. This is especially important when dealing with a primitive like a sphere. Fewer polygons means the sphere looks blocky. More polygons make the sphere look smoother. The trade-off to making a primitive out of lots of polygons (and thus making a smoother looking primitive) is that it takes longer for the effect to compile. It also consumes more memory on your hard drive to save it. Finally, editing a primitive with a high polygon count in the workspace uses more system resources, possibly slowing your work.

Some primitives do not allow you to adjust the number of rows and columns. In these cases, the knobs are ghosted out, and you cannot change the values.

There are two values you can set by using the knobs or windows. Click-and-drag up or down on the knob to increase or decrease the value. You can also click in the window and type in the value you want. Press **Enter** on the keyboard to set the change.

- **Rows** adjusts the number of horizontal polygons (or layers) that compose a primitive.
- **Columns** adjusts the number of vertical polygons that compose a primitive.

Lathe

Lets you trim portions of a primitive, by cutting out either a number of rows or columns (or a fraction thereof). Some primitives do not allow you to use the lathe controls. In these cases, the knobs are ghosted out.

- **Row Angle** determines the horizontal cut. For instance, if you have a sphere, and you set this value to **90**, the circle is split into top and bottom halves, and the bottom half is cut away.
- **Column Angle** determines the vertical cut. For instance, if you have a sphere, and you set this value to **180**, the circle is split into left and right halves, and one of the halves is cut away.

Border List

You have a variety of borders that are built into Personal FX.



Border type list

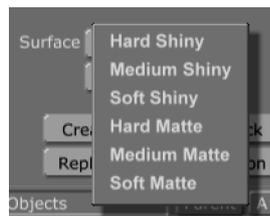
You can also drag and drop different textures into your border, just as you would on your main object.

- **Width:** Lets you choose the width of your border
- **Height:** Lets you choose the height of your border

Surface	Defines the reflectivity of the primitive's surface. Click on the button. The Surface pop-up menu appears (see “Surface Pop-Up Menu” on page 132 for details) and gives you several surface types to choose from.
Texture	Selects which texture is applied to the surface. Clicking the button brings up the Texture pop-up menu (see “Texture Pop-Up Menu” on page 122 for details).
Create New Object Track	Creates an object (primitive or light) using the settings you selected in this panel. PersonalFX creates a track in the timeline for the new object. The new object also appears in the workspace.
Replace Current Selection	Replaces the selected object with an object using the settings you selected in this panel.

Surface Pop-Up Menu

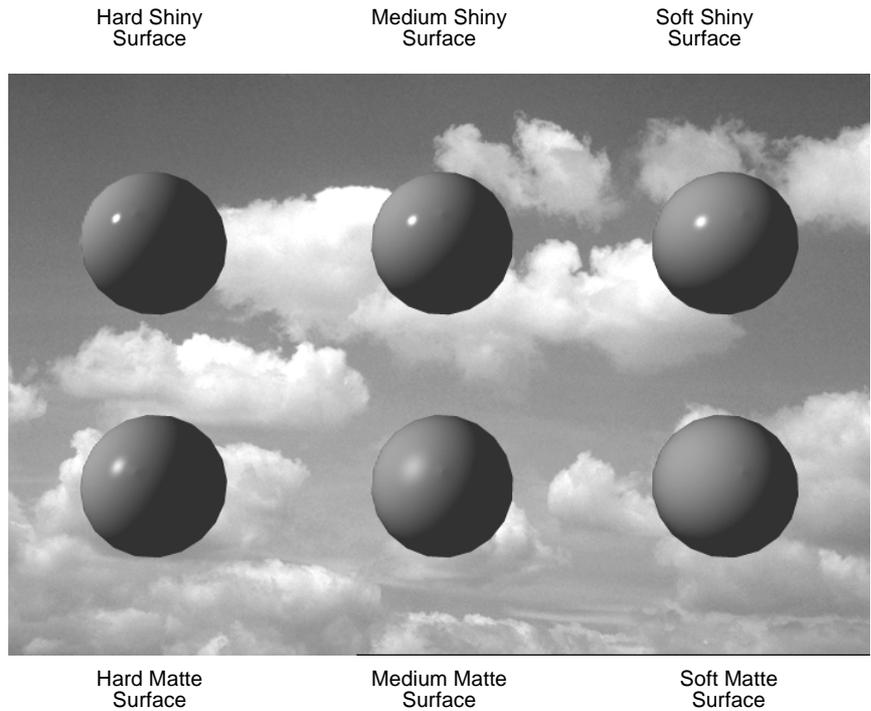
Use this pop-up menu to select the reflectivity of an object's surface when you first create it. You access this pop-up menu by clicking on the **Surface** button in the **Object Creation** panel. These are preset values that you can use for quick settings. You can later edit these values in the **Surface Settings** panel (see “Surface Settings Panel” on page 70 for details).



The Surface Pop-Up Menu

Each option determines the amount of reflectivity for the object you're creating. A **Shiny** surface reflects much light, while a **Matte** surface absorbs light. The **Hard**, **Medium**, and **Soft** options describe *how* the light reflects. **Hard** creates a well defined reflection (like the light reflecting off glass), while **Soft** creates a more diffuse reflection (like the light reflecting off a table top). Select the type of surface you want from the pop-up menu. Your selection appears on the button face.

The following figure shows six spheres, each with one of the preset surface type applied to it.



Six Preset Surfaces

Importing 3D Objects

This section covers importing objects into PersonalFX from other programs. This way you can create an object into a 3D animating program, and use that animation as an effect.

If you are creating 3D objects for the purpose of wrapping video around them, there are a few rules you need to keep in mind.

- You should not use single or double point polygons.
- You should merge any points that can be merged. Consult the documentation of the program you are using.
- All objects created outside of PersonalFX should be created in a 1:1 aspect ratio. When imported, they are then stretched to their appropriate 4:3 aspect ratio. All models should be designed with this in mind.
- For convenience, it's a good idea to build your objects facing the Z-axis so that when they are brought into PersonalFX they are facing the audience. Remember that the scene camera looks down the Z-axis (the audience's view).

Importing Formats

PersonalFX can import a number of object formats from other 3D programs. This way, you can create objects in another program and then bring them into PersonalFX to use for transitions, wipes, etc.

Here is a list of supported file formats:

3DS	Autodesk/Kinetix 3D Studio
LWO	NewTek Light Wave Object
FAC	Electric Image Fact Files
HRC	SoftImage Objects

Importing Objects

To import an object:

1. In the program you are exporting the object from, save your work in one of the formats listed above.
2. In PersonalFX, navigate the bins to the folder where the object you want to import is saved.

3. Drag-and-drop the object into the workspace.

The object appears in the workspace.

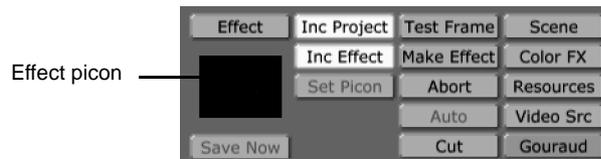
Amorphium If you are using Amorphium to create a 3D object, you must export that object into one of the formats listed above. (See your Amorphium manual on how to export objects.) You can then import it into PersonalFX.

Editing Effects

You can set up and edit effects with a variety of tools. The most readily apparent tools are on the **Effect Controls**. There are also a number of panels and pop-ups available as well. This section describes the functions of these tools.

The Effect Controls

The Effect Controls are a set of green buttons in the middle of the toolbar. Use these controls to create an effect and edit its properties. You can also access a number of the panels available in PersonalFX by clicking on buttons located here. You also use these buttons to compile and save your finished effect.



The Effect Controls

Here's what the functions are.

- | | |
|---------------------|---|
| Effect | Click on this button to access the Effect Properties panel (see “Effect Properties Panel” on page 139 for details). From there, you can adjust several effect properties. |
| Effect picon | Shows a frame from the finished effect, or the current picon. Once an effect has been made, drag-and-drop this picon into a convenient bin to save the effect. Right-clicking on this picon brings up the Effect Picon pop-up menu (see “Effect Picon Pop-Up Menu” on page 144 for details). |
| Save Now | Click on this button, and PersonalFX saves the workspace. PersonalFX saves effects in the default PFX\projects bin. This button ghosts out if the Inc Effect button is on and the effect has not been compiled yet. |

**Inc Project/
Inc Effect**
(Include
Project)/
(Include Effect)

Decides what portion of your work to save when you click the **Save Now** button, or when you drag-and-drop the **Effect** picon into a bin.

NOTE: At least one of these buttons must be turned on. If you try to turn off both buttons, **PersonalFX** automatically turns on the other.

When you save your work, you can save the instructions that make up the effect and/or the compiled effect. Turn on **Inc Project** (the button lights up) to save the instructions for the effect. Turn on **Inc Effect** to save the compiled effect.

NOTE: You must have a completely compiled effect to save your work whenever the **Inc Effect** button is turned on.

You can use these buttons in different combinations.

- With **Inc Project** on, and **Inc Effect** off, **PersonalFX** saves only the instructions for the effect. This is a convenient way to save work in progress as well as save hard drive space. (Compiled effects are larger than their instructions.)
- With **Inc Project** off, and **Inc Effect** on, **PersonalFX** saves only the compiled effect. If you save only the effect, you can't alter the effect at a later date.
- With both **Inc Project** and **Inc Effect** turned on, **PersonalFX** saves both the compiled effect, and the instructions that make it up. With the instructions saved, you can alter a compiled effect at a later date.

Set Picon

Lets you change the appearance of the **Effect** picon. Clicking this takes a grab of the workspace, and uses that image for the picon. So, set the workspace up to show the effect in some way that demonstrates what the effect does. Then, click this button.

Test Frame	Compiles the frame shown in the workspace to produce a test frame on your Program out monitor. The amount of detail that appears in the PersonalFX workspace, and the Program and Preview monitors on the Air Command interface, is limited by your host PC. To view an effect as it would look on a TV screen, create a test frame. This is useful to get a feel for whether your effect is doing what you'd like, without having to wait for the entire effect to compile.
Make Effect	<p>Actually begins the effect compiling process. The process can take some time depending on the complexity of the effect. The Progress Meter appears (see "Progress Meter" on page 153 for details). This keeps you apprised of PersonalFX's progress as it compiles the effect.</p> <p>While compiling an effect, the workspace displays the frame of the effect being generated. Once the effect is completed, a new picon appears as the Effect picon (if one did not already exist). You can then save the effect by dragging-and-dropping the Effect picon into a convenient bin.</p> <p>Once an effect is compiled, you can use it in Air Command and Predator with any video source in real time. You don't have to re-compile the effect each time you want to use it with a new video source.</p>
Abort	Used only while you are compiling your effect. Click this button to stop the compiling process. You lose the compiling that has already been done, and must restart compiling from the beginning.
Auto	Auto is active after an effect has been compiled. Compiled effects are automatically loaded into GlobeCaster for immediate use. Clicking the auto button allows you to start and stop the effect.
Cut	Duplicates the function of the Cut button in Air Command. Clicking this flip-flops the Program and Preview video.

Scene	Brings up the Scene Properties panel. You use that panel to edit scene properties (see “Scene Properties Panel” on page 145 for details).
Color FX	Brings up the Color Effects panel. You use this panel to create color effects in PersonalFX (see “Creating Color Effects” on page 155 for details).
Resources	Brings up the Environment Properties panel. This panel allows you to control how GlobeCaster resources are allocated during effect creation (see “Environment Properties Panel” on page 149 for details).
Video Src	Brings up the Video Sources panel. This panel operates very much like the video busses in Air Command (see “Video Sources Panel” on page 152 for details).
Wireframe/Flat/ Gouraud	The only blue button among the green buttons. It sets the display method of primitives in the workspace. This does not actually change which texture is applied to an object when that object is compiled. To actually apply a texture to a primitive see “Object Properties Panel” on page 62.

**Effect
Properties
Panel**

Use this panel to set various properties for your effect. You can access this panel by clicking the **Effect** button in the **Effect Controls** (see “The Effect Controls” on page 136 for details on Effect Controls). You can also right-click on the **Effect** picon (also located in the **Effect Controls**) and select **Effect..** from the pop-up menu that appears.



Effect Properties Panel

The following describes each option.

- | | |
|---------------------|---|
| Panel button | Allows you to access other PersonalFX panels. Click this button and choose from Scene , Effect , Object Creation , Video Source , and Environment properties panels. |
| Revert | Currently has no function. |
| X | Closes the panel. |
| Rescale | Determines how extra time is added to an effect when you change the duration (see below). With the function off (the button not lit up), PersonalFX adds/removes time from the end of the effect. With the function turned on (the button lights up), PersonalFX redistributes your work over the entire new duration of the timeline, and rescales the placement of keyframes throughout the timeline. |

Duration

Shows the length of the effect in SMPTE timecode. You can increase or decrease the length by whole seconds using the + and - keys. You can also click in the window and type in a length of time. Press **Enter** on your keyboard to set the change.

**Warp
Smoothness**

Controls how closely the warp fits the shape it's applied to. The lower the number, the more closely the texture fits the shape of the object. The higher the number, the more "loosely" the texture fits the shape.

The default value is 0.0625.

Warp Smoothness also affects the size of the effect (in megabytes): lower numbers make larger effects (the lowest setting is .01); higher numbers make smaller effects (the highest setting is 16).

Effect Type

A collection of buttons that lets you select the type of effect you want to make.

- **Warp** - Used for video textures. Most effects you create have this button turned on. Turning this button on allows you to map video textures onto objects in the effect. When you begin the compiling process, PersonalFX asks if you want to continue if you have this button on and there are no video textures assigned to an object.
- **Graphics** - Used to include any graphics that you have added to a scene. If the button is turned off, the graphics in the scene do not appear, however their effect on lighting remains.
- **Main Alpha** - Used to add an alpha channel into your effects.
- **Transition/Overlay** - Allows you to make the effect as either a transition or an overlay. Click on this button. Select **Transition** or **Overlay** from the pop-up menu.

With **Graphics** and **Warp** turned on, turning on **Wipe** makes the background a video source, rather than a solid color.

Try Quick

Allows you to quickly render your effects. This is only possible with various combinations of the Effects buttons. The button will be greyed out when this cannot be used.

There are certain limitations to this option:

- If you are using an Alpha component, holes will not be cut into the other objects, only the background.
- Warp and graphics will not have a shaded effect.
- Transparency only affects objects without an alpha map.

Chromakey

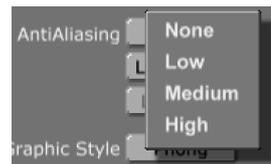
Turns on chromakeying for the effect. When you click this button, a pop-up menu appears with these options:

On - Used if the chroma keyer should be left on during the effect.

Off At End - Used to turn off the chroma key at the end of the effect.

AntiAliasing

Smooths the edges of the selected object. Click the button. A pop-up menu appears (following figure).



AntiAliasing Pop-Up Menu

Higher settings slow compiling considerably. You cannot anti-alias two video objects that are positioned over each other.

Pause

Used to add a pause in the timeline.

Loop Start

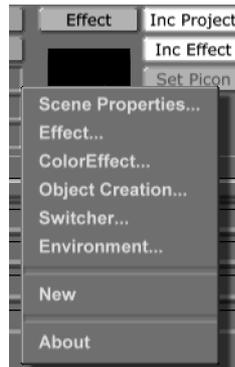
Used to start a loop in the timeline. Loops play an effect continuously until they are shut off by clicking the **Auto** button. (See “The Effect Controls” on page 136 for details. See “Constructing A Spinning Cube Effect (Part Three)” on page 337 to see the loop function in use.) When you create a loop, a **Loop Control** track appears in the timeline. You can use this track to change the length and position of the loop (see “Loop Control Track And Event” on page 178 for details).

Loop End Marks the end point of a loop in the timeline. This is most often used when you want to create an effect which does something and pauses (like flying into the corner of the screen). The effect then continues. When you create a loop for, a **Loop Control** track appears in the timeline (see “Loop Control Track And Event” on page 178 for details).

Graphic Style Controls how all the objects in the compiled effect look. Click the button and options appear in a pop-up menu. **Flat** makes all the objects in the workspace have flat surfaces with faceted edges. **Phong** makes all the objects in the workspace have smooth surfaces. Setting this actually changes how the objects are compiled in the finished effect. This is different from the Wireframe/Flat/Gouraud shading that is used in viewing the workspace.

Effect Picon Pop-Up Menu

Use this pop-up menu to access other panels and start work on a new effect. This pop-up menu appears when you right-click on the **Effect** picon.



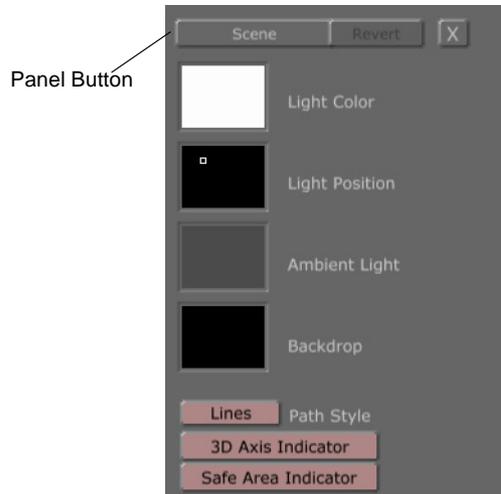
The Effect Pop-Up Menu

The first six options are some of the properties panels available in PersonalFX. Select the name of the panel you want. It appears in the upper left corner of the interface.

New clears the workspace, and sets up a new project. **About** tells you important information about PersonalFX, including the build number.

Scene Properties Panel

This panel sets up the lighting for your workspace. It also sets the background color. The default lighting in the PersonalFX workspace consists of an ambient lighting value. You can add other lights as needed. Access this panel by either clicking on the **Scene** button in the **Effect Controls**, or selecting **Scene** from the panel button of other properties panels.



The Scene Properties Panel

You can click in any of the picons of this panel to bring up the **Color Palette and Gradient Editor** (see “Color Palette And Gradient Editor” on page 99 for details). From there, you can change colors as needed. PersonalFX automatically updates the picon you clicked on in the **Scene Properties** panel with the color you select/create in the Color Palette and Gradient Editor.

Here’s the options on this panel.

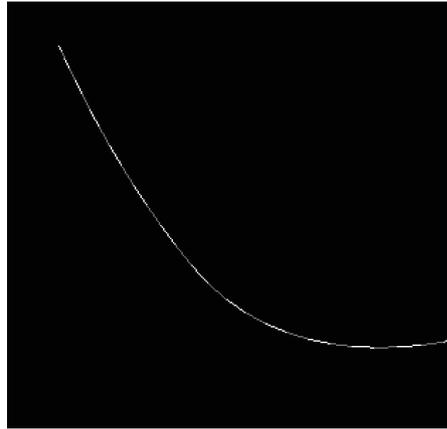
Panel button	Allows you to access other PersonalFX panels. Click this button and choose from Scene , Effect , Object Creation , Video Source , and Environment .
Revert	Currently has no function.
X	Closes the panel.

Light Color	A picon that shows the color of the light. This function is available only if there is a light present in the scene. It edits the first Star Light that exists in the scene.
Light Position	A picon that shows the position of the light in the Z-plane. The small square in this picon indicates the location of your light. By dragging the square around the picon, the location of the light changes. The light is moved in the Z-plane only. This function is available only if there is a light present in the scene. It edits the first Star Light that exists in the scene.
Ambient Light	Sets the color of the ambient light in the workspace. If the ambient light is a dark color (black, dark blue, etc.), all objects in the workspace appear dark. If it is a light color (white, light blue, etc.), the objects appear brighter. Moreover, if you select a color for the ambient light (red, for instance), all objects reflect that light (appear slightly red, for instance). Ambient Light and Backdrop can be used in both Animation as well as still projects
Backdrop	Sets the color of the backdrop in the workspace. The backdrop is basically the background in PersonalFX.

Path Style

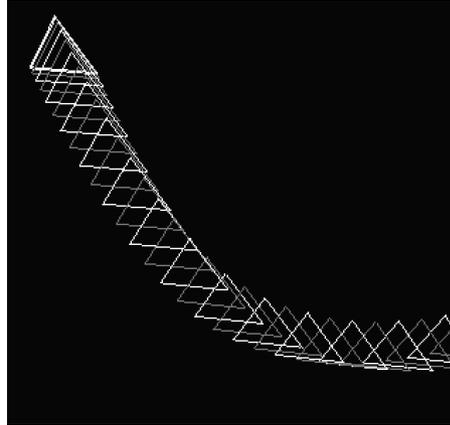
Controls what the movement path of objects in the workspace looks like when **Show Path** in the **Object** pop-up menu is turned on. Click the button. Select an option from the pop-up menu that appears.

Lines shows a dotted line in the workspace (following figure).



Movement Path Shown as Lines

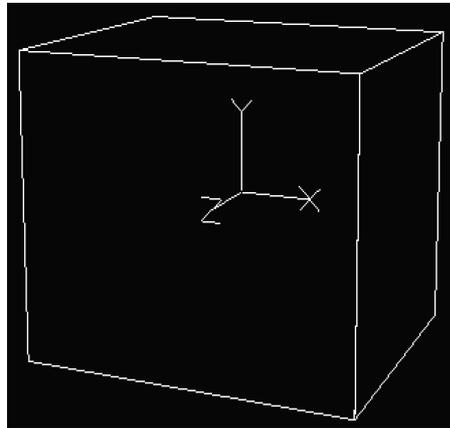
Triangles puts triangles along the movement path, denoting each field along the path (following figure).



Movement Path Shown as Triangles

3D Axis

Brings up an indicator showing the X, Y, and Z-axes of the selected object.



The Axis in a Cube

Safe Area Indicator

Turns safe area markers on and off. These are a set of white outlines (following figure).



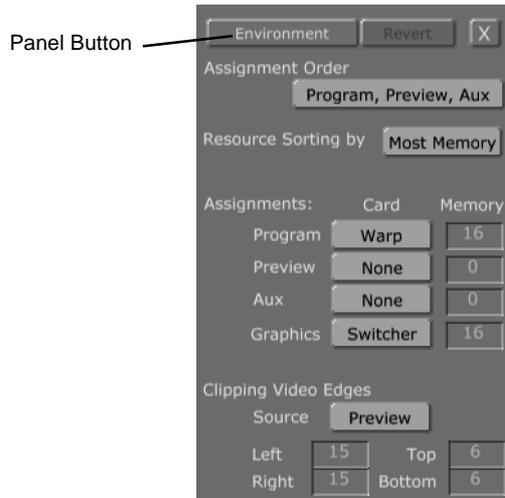
The Safe Area Indicator in the Workspace

Safe area is the term for the part of a viewing area that every television actually shows. Some TVs show more of the video signal than others. The boundaries show what is actually seen on a typical television. The outer border is called the Safe Action Area, and shows where it is safe to place graphics. If you place graphics outside this area, they may not show up on some TVs. The inner border is called the Safe Title Area, and shows where it is safe to place text. The standards for text are tighter than those for graphics.

Environment Properties Panel

This panel allows you to take advantage of the cards you have installed in your GlobeCaster. It allows you to tell GlobeCaster how to use these resources. Moreover, if you have expanded your GlobeCaster and would like to create an effect designed to run on a different GlobeCaster configuration, the settings in this panel can be modified to use a different card configuration than the ones used to create the effect. This panel is useful if you have more than one warp engine.

You can access this panel by clicking on the **Resources** button in the toolbar. You can also access it by using the **Panel** button from most other panels. The panel appears in the top, left corner of the interface.



The Environment Properties Panel

The following details each option for this panel.

- | | |
|---------------------|--|
| Panel button | Allows you to access other PersonalFX panels. Click this button and choose from Scene , Effect , Object Creation , Video Source , and Environment . |
| Revert | Currently has no function. |
| X | Closes the panel. |

**Assignment
Order**

Sets the way GlobeCaster utilizes its warp engine(s) when compiling an effect. If you have more than one warp engine, this allows you to set how you want PersonalFX to use them. It assigns priority by the order set with this button, according to the type or resources chosen (see below).

Click the button. Select the order you want from the pop-up menu that appears. For instance, if you select **Program, Preview, Aux**, (and you have two warp engines) PersonalFX assigns the top priority for warp engine resources to Program. It then assigns second priority to Preview. Finally, since (in this example) there are only two warp engines, Aux does not receive any resources.

**Resource
Sorting By**

Sets how GlobeCaster resources are used. When you select one of the options available, PersonalFX assigns priority of resources according to the assignment order you selected (see above). Click the button. A pop-up menu with the following options appears:

- Most Memory - Assigns the card with the most memory to the highest priority in the assignment order.
- Most Features - Assigns the card with the most features to the highest priority in the assignment order. At present, there is only one type of warp engine card, therefore this option serves no purpose. It is here for future expansions.
- Slot Order - Assigns highest priority to the slot order of the cards.

Assignments Lists which card is used for each video path. It also lists the amount of memory each card has.

When you click the card button for **Program**, **Preview**, and **Aux**, a pop-up menu appears. From here, you can select **Warp Engine**, **Other**, and **None**. **Warp Engine** assigns a warp engine to the selected video path. **Other** is for future expansions, and will be used to assign cards other than the warp engine to a video path. **None** assigns no card to a video path.

When you click on the Card button for **Graphics**, you can either assign **Air Command** or **None**.

Memory lists how many MB of RAM is on the card you've assigned.

Clipping Video Edges

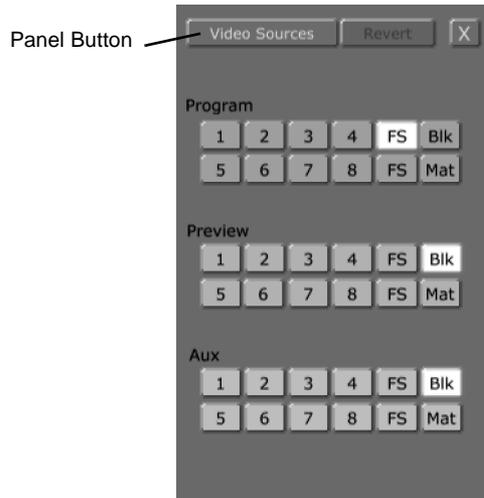
Used to clean up the edges of your video during a warp. Some video sources may have noise around the edges, or may show the horizontal and vertical sync information visibly in the picture. The clipping phases in as an object moves away from 1:1 screen position. You can think of this as a cropping tool.

- **Source** - Sets which source is clipped. The source selected is displayed on the face of the button. Click on the button. Select **Program**, **Preview**, and **Aux** from the pop-up menu.
- **Right/Left/Top/Bottom** - The number of pixels clipped out of the source. The default value for clipping the **Left** and **Right** edges is 15. The default value for **Top** and **Bottom** is 6.

Clipping only applies to the Video Plane and the 6 Surface Video Block.

Video Sources Panel

The **Video Sources** panel mimics the busses in Air Command. See the *Air Command* manual for instructions on how to use busses. You access this panel by clicking the green **Video Src** button in the toolbar.

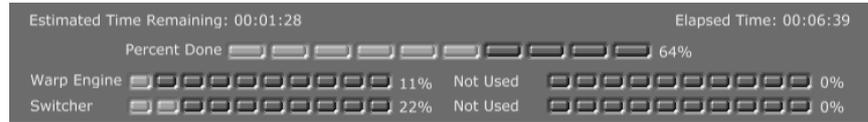


The Video Sources Panel

Here's what the options are.

Panel button	Allows you to access other PersonalFX panels. Click this button and choose from Scene , Effect , Object Creation , Video Source , and Environment .
Revert	Currently has no function.
X	Closes the panel.
Program	This set of buttons mimics the Program bus in Air Command.
Preview	This set of buttons mimics the Preview bus in Air Command.
Aux	This set of buttons mimics the Aux bus in Air Command.

Progress Meter When you click on the **Make Effect** button in the toolbar, PersonalFX begins compiling the effect and the Progress meter appears.



The Progress Meter

This panel tells you important information about the progress of the compiling process. Here's what the different fields tell you.

Estimated Time Remaining	Shows the approximate length of time remaining in the compiling process. This duration fluctuates during compiling, so don't be surprised if the Estimated Time increases as well as decreases.
Elapsed Time	Shows how much time PersonalFX has spent compiling the effect.
Percent Done	Shows how much of the effect has been compiled. The row of ten LEDs lights up in steps of 10%. The actual percentage is displayed to the right of the last LED.
Resource Monitors	There are four rows of LEDs just below the Percent Done LED. These show what GlobeCaster system resources are being used, and at what capacity during compiling. The name of the resource being used appears to the left of the LED row. Depending on the complexity of your effect, all four LEDs may not be used. In these instances, Not Used appears as the LED's title. The percentage of system resources being used appears to the right.

Once an effect is compiled, you can use it in Air Command and Predator with any video source in real time. You don't have to re-compile the effect each time you want to use it with a new video source.

Creating Color Effects

Aside from 3D effects, PersonalFX can create color effects. These effects include posterizing, stripping certain colors out of video, randomizing colors, and more. Once you create an effect, you can save it to a bin. You then drag-and-drop the effect picon onto inputs in Air Command.

Creating a Color Effect

What follows is a brief overview of the color effect creation process. There are color effect tutorials in the Tutorial chapter (see “Creating A Sepia Color Effect” on page 246, “Using the color wheel as a reference, and with a little creativity, you can create a number of different effects that change all the tones in your video to one color. Experiment with the Hue and Saturation values to familiarize yourself with how they function.” on page 254, and “Creating A Posterized Video Color Effect” on page 263 of the Tutorial manual.

To create an effect:

1. Click the **ColorFX** button (following figure). It’s one of the green buttons in the middle of the toolbar.



The ColorFX Button

The **Color Effects** panel appears in the upper left corner of the interface (see “Color Effects Panel” on page 158 for details). The controls in the toolbar ghost out.

Next, you select an effect.

2. Click the **Type** button in the **Color Effects** panel.

The **Type** pop-up menu appears. (See “Type Pop-Up Menu” on page 161 for details on this pop-up menu.)

3. Select an effect from the pop-up menu.
4. Use the knobs in the **Color Effects** panel to change the properties of the effect (see “Color Effects Panel” on page 158 for details).

NOTE Which properties can be changed depends on the type of effect you are creating. The control knob activates (and the numbers in the window to its right turn green) for properties that can be edited. Otherwise, the knob remains ghosted out.

Using Stills To Create Color Effects

It's a good idea to load something into the workspace to look at while you create an effect. Any source works. You can use live video, but a still is the easiest thing to work with. You can see exactly what each effect does to it, and compare the changes with a common frame of reference (the still).

There are two stills that work well as reference stills (following figure).



The Flowers and Vegetables Stills

The first, an image of a field of flowers, is located in `GlobeCaster\Bins\Stills\Natural`. The second, an image of a collection of vegetables, is located in `GlobeCaster\Bins\Stills\Sampler`. Each one has a lot of color in them, and so provide you with a good idea of what your effect does. You can also use a freeze of the video you want to apply your effect to.

To load the still, drag-and-drop it into the workspace.

To view changes as you make them, click the **Test** button in the **Color Effects** panel (see “Color Effects Panel” on page 158). As you tinker with the different effects and their settings, watch how the still in the workspace changes. You can click in the workspace to shut off the test and return the reference still back to its unmodified condition.

The Color Wheel

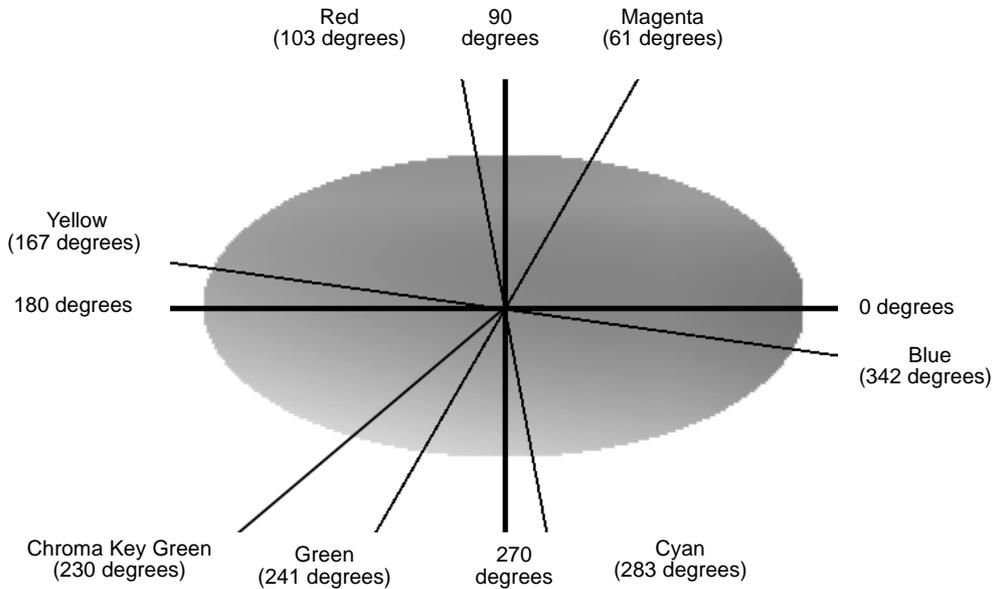
When you are creating a color effect, you often pick a color from the color wheel. The **Color Effect** panel also makes reference to this color wheel.

There is a color wheel still (following figure) located in the `GlobeCaster\Bins\Stills\Test_cktest.pfs` bin. You can load this still the same way you loaded the stills above.



The Color Wheel Picon

The color wheel displays a range of possible colors and luminance (brightness) values. The colors are located on the wheel itself. Because the wheel is essentially an oval, different degree marks represent a specific color. The following figure displays a color wheel with X- and Y-axes. It also shows the degree positions of red, green, blue, cyan, magenta, and yellow.



The Color Wheel with Degree Marks

Starting with 0 degrees, you move through the wheel counter-clockwise, passing through magenta, red, yellow, green, cyan, and finally blue. When you create a color effect, and select a color using the **Color Effects** panel by entering a degree value, PersonalFX picks the color from this wheel.

Luminance values are also represented on the wheel. A position closer to the edge of the wheel indicates greater luminance (brighter colors). A position

closer to the center of the wheel indicates less luminance. All colors fade to a grayish color at the very center of the wheel.

Saving And Using A Color Effect

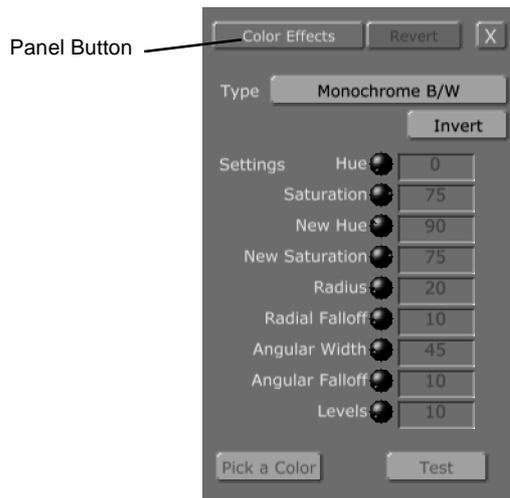
Once you've created a color effect, you can save it by dragging-and-dropping the Effect picon (in the toolbar) into a convenient bin. You can also click the Save Now button in the toolbar. When you click Save Now, PersonalFX saves the effect to the `GlobeCaster\Bins\PFX\Projects` directory.

You can then drag-and-drop the effect's picon (from the bin) onto any of the numbered buttons in the Environment Properties panel (see "Environment Properties Panel" on page 149 for details) for immediate use. Click the Abort button in the toolbar to shut off the effect.

You can also go into Air Command and drag-and-drop the effect's picon from the bin onto any of the numbered inputs in the busses.

Color Effects Panel

Use this panel to create color effects. The panel operates independently of any 3D-effect work. When the panel is open, the workspace clears until you close it.



The Color Effect Panel

The following describes the **Color Effects** panel and its functions. In some cases, the description makes reference to a color wheel. See “The Color Wheel” on page 156 for details.

Panel button	This button serves no function for this panel.
Revert	Currently has no function.
X	Closes the panel.
Type	Lets you create several color effects. The button face is labeled with the current effect setting. When you click it, the Type pop-up menu appears (see “Type Pop-Up Menu” on page 161 for details). Select the type of effect you want.
Invert	Inverts the effect. When you create an All B/W but Color Wedge effect, you select a specific range of color (blue, for instance), and PersonalFX turns the rest of the image to black and white. Clicking Invert would then turn all blue in the image to black and white while maintaining all other colors.
Hue	Adjusts the range of colors you are selecting. It is measured in the 360 degrees of the color wheel. As you change this setting, your color selection moves through the color wheel counter-clockwise. Different degree marks on the color wheel select specific colors, or a range of colors.
Saturation	Adjusts the intensity of the color you are selecting. In the color wheel, brighter colors are located near the edges of the wheel, while less bright colors (verging on gray) are near the center. When you adjust this setting, your color selection moves between the edge and the center of the wheel. The range of values you can set for saturation is 0 (the center of the color wheel) to 100 (the outer edge of the color wheel).
New Hue	Selects the color you want to use as the All 1 Color (see “Type Pop-Up Menu” on page 161) in some of the effect types. This value is set just like the Hue value above.

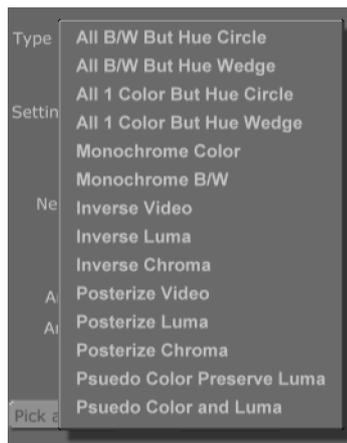
- New Saturation** Selects the saturation level you want to use as the **All 1 Color** (see “Type Pop-Up Menu” on page 161) in some of the effect types. This value is set just like the Saturation value above.
- Radius** Adjusts the size of the color circle you are selecting from the color wheel. You use the color circle to select a range of color from the color wheel. Large values increase the size of the circle, and thus the number of colors you’re selecting. Small values decrease the size of the circle, and thus the number of colors you are selecting. You can set any value from 0 to 224.
- Radial Falloff** Adjusts the hardness of the edge of the color circle you are selecting from the color wheel. You use the color circle to select a range of color from the color wheel. Large radial falloff values make the edge of the circle more diffuse. The highest value you can set is 112. Smaller values make the edge harder. The lowest value you can set is 0.
- Angular Width** Adjusts the size of the color wedge you are selecting from the color wheel. The color wedge is an effect type. You use the wedge to select a range of color from the color wheel (like a slice of pie). Large values increase the size of the wedge, (the largest value you can set is 360) and thus the number of colors. Small values decrease the size of the wedge and the number of colors you are selecting. The smallest value you can set is 0.
- Angular Falloff** Adjusts the hardness of the edge of the color wedge you are selecting from the color wheel. You use the color wedge to select a range of color from the color wheel. Large angular falloff values make the edge of the circle more diffuse. The largest value you can set is 360. Small values make the edge harder. The smallest value you can set is 0.

- Levels** Adjusts the values in some effects. Most commonly, this value represents the number of colors, the gray scale range for luma, or a mix of both, depending on which effect type you selected. You can select a value from 2 to 256.
- Pick a Color** Lets you pick any color from a loaded framestore to apply in these effect types: **All B/W But Hue Circle**; **All B/W But Hue Wedge**; **All 1 Color But Hue Circle**; **All 1 Color But Hue Circle**; **All 1 Color But Hue Wedge**. For a description of these effects, see the following section, (**Type pop-up menu**). Click the button. Then, click on the color you want in the loaded framestore.
- Test** Allows you to preview your effect. To see a test of the effect, load any image into the workspace (still, framestore, etc.). Click the **Test** button at the bottom of the panel. PersonalFX applies the effect to the still.

To end the test, and return the still back to its original form, click in the workspace.

Type Pop-Up Menu

Access this pop-up menu by clicking on the **Type** button in the **Color Effects** panel. Choose what sort of effect you want to create.



Type Pop-Up Menu

What follows is a description of each of the effects available. Some of the effects make reference to a color wheel. See “The Color Wheel” on page 156 for details on the color wheel.

All B/W But Hue Circle	Turns all the colors in a video to black and white except those that you define in the hue circle. The hue circle is a segment on the color wheel. You can adjust Hue, Saturation, Radius, and Radial Falloff when you select this effect type.
All B/W But Hue Wedge	Turns all the colors in a video to black and white except those that you define in the hue wedge. The hue wedge is a sliver segment of the color wheel. You can adjust Hue, Saturation, Angular Width, and Angular Falloff when you select this effect type.
All 1 Color But Hue Circle	Turns all colors to a single color except the range of colors you set using a hue circle. The hue circle is a segment on the color wheel. You can adjust Hue, Saturation, New Hue, New Saturation, Radius, and Radial Falloff when you select this effect type.
All 1 Color But Hue Wedge	Turns all colors to a single color except the range of colors you set using a hue wedge. The hue wedge is a sliver segment of the color wheel. You can adjust Hue, Saturation, New Hue, New Saturation, Angular Width, and Angular Falloff when you select this effect type.
Monochrome Color	Uses a single color to replace all other colors. You can adjust Hue and Saturation when you select this effect type.
Monochrome B/W	Turns the still, clip, etc. to black and white. You cannot adjust anything when this effect type is selected.
Inverse Video	Essentially creates a “negative” of the image by inverting both chroma and luma values by 180 degrees on the color wheel. You cannot adjust anything when this effect type is selected.
Inverse Luma	Inverts only the luma values. You cannot adjust anything when this effect type is selected.

Inverse Chroma	Flips the chroma values by 180 degrees. You cannot adjust anything when this effect type is selected.
Posterize Video	Reduces the number of colors (chroma values) and range of brightness (luma values) to the selected range. Dramatic differences appear when you select levels below 10. You can adjust Levels when you select this effect type.
Posterize Luma	Reduces the range of brightness (luma values) to the selected range. Dramatic differences appear when you select levels below 10. You can adjust Levels when you select this effect type.
Posterize Chroma	Reduces the number of colors (chroma values) to the selected range. Dramatic differences appear when you select levels below 10. You can adjust Levels when you select this effect type.
Pseudo Color Preserve Luma	Maps random colors into an image while preserving the luma values. You can get some interesting effects by increasing the level value. You can only adjust Levels when you select this effect type. Clicking the Test button generates different random pseudo colors based on the values you set.
Pseudo Color and Luma	Maps random colors and brightness (luma) values into an image. You can get some interesting effects by increasing the level value. Increasing the value too much produces a very distorted image. You can only adjust Levels when you select this effect type. Clicking the Test button generates different random pseudo colors based on the values you set.

Grouping And Parenting

Parenting allows you to create a hierarchical organization of objects: the highest level object (the parent object) and the objects beneath it (the child objects). Transformations (movement and rotation) of the parent object affect all of its child objects. However, transformations of child objects do *not* affect the parent object.

A good example of parent and child objects is the human body. If you were creating a human model, you would assign the torso as the parent. The head, arms, and legs would all be its child objects. This way, when you move the torso, the head, arms, and legs follow. However, you can still move each of the child objects independently.

PersonalFX allows you to create multiple parents and multiple children for each parent. However, you cannot have embedded parent/child relationships (such as grandchildren). That is, you can have only one generation.

Continuing with the human body example, remember that the torso is the parent of each limb. You cannot make the upper arm the parent of the lower arm and hand. You cannot make the upper leg the parent of the lower leg and foot. However, you can create another torso, and assign a new set of limbs to that torso.

Group Mode

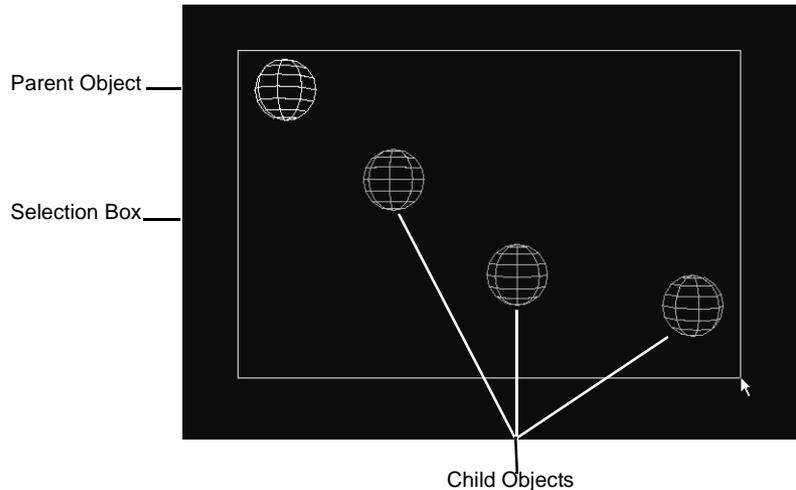
You can parent objects in PersonalFX. You do this using **Group mode**. To use Group mode do the following:

1. Select the object you want to be the parent.
2. Press **g** on your keyboard.

You enter group mode. (This is the only way to enter group mode at this time.) Pressing **g** also automatically assigns the selected object as the parent object.

3. Click-and-drag across the objects you want to make the child objects.

A white selection box appears as you drag the mouse across the workspace.



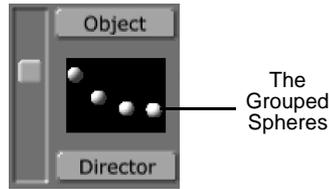
Selecting the Child Objects

4. When you have drawn the selection box around the objects you want, release the mouse button.

The objects are assigned as child objects to the parent object. PersonalFX leaves Group mode once you've drawn the selection box, but the grouping remains.

Once you have established a parent/child relationship, you can use the parent object to move, and rotate all of its child objects. You can still select and edit each child object separately.

When you select the parent object, it and all its child objects turn yellow. The parent object is a brighter shade of yellow than its child objects. Moreover, the parent object and all its child objects appear in the **Object** picon in the **Object Controls** (following figure).



The Grouped Spheres in the Object Picon

If you ever want to break the group up, first select the parent object. Hold down **Shift** and press **g** on your keyboard. Drag the selection box across all the objects in the group. The grouping then breaks.

Parent/Group Keyboard Commands

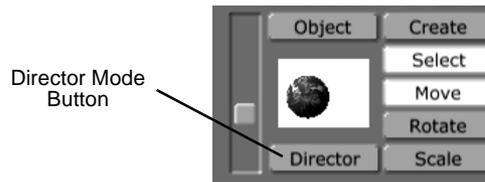
The following lists the keyboard command associated with grouping and parenting:

- g** Start group mode. The next left mouse click in the work area creates an anchor point for a rectangle that is used to select all objects that at least touch a point within that rectangle. The rectangle is sized by holding the left button down and moving the mouse. Releasing the button ends the group mode and causes all objects touched to be children of the currently selected object. The children's position are relative to their parent, so if the parent moves or rotates, so will they. Children cannot be parents of other objects.
- G (<shift>+g)** The converse of group mode. All objects selected are uncoupled from their parents.

Using Director Mode

Director mode is a viewing mode that allows you to “step outside” your effect to look at it from different angles. This section describes what Director mode is and how to use it.

To get to this viewing mode, click the **Director** button in the **Object Controls** of the PersonalFX toolbar. (It's one of the red buttons.)

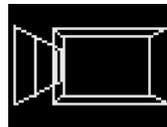


The Director Button

Getting Oriented

When creating an effect in PersonalFX, it's best to think of your work in terms of building a set. Creating an effect then becomes an act of directing a scene, using objects as both actors and props. The virtual scene has a camera, lighting, and objects. These are all objects that appear in the workspace. You can change the properties of these objects, as well as reposition them to fit your needs.

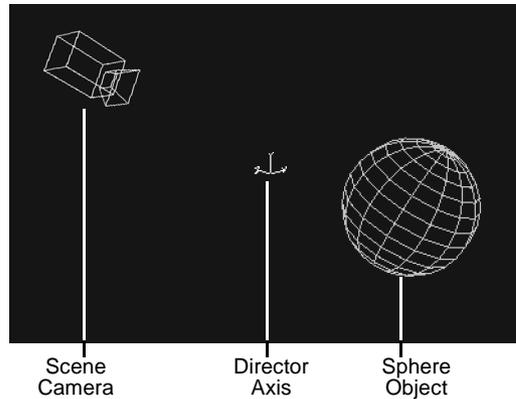
PersonalFX has two virtual cameras. When you start up PersonalFX, the workspace is set up so that you see exactly what the audience sees. You are looking through the *scene* camera, and see what the finished scene looks like. If you drag up and down on the **Object slider** (it's the red slider on the far left of the toolbar), the scene camera appears in the **Object** picon (following figure).



The Scene Camera as the Object Picon

Sometimes, especially when you work with 3D effects, you'll want to be able to change your point of view without having to reposition all the objects of the

scene. That's where the second virtual camera, the *director* camera, comes in. This camera views the entire set (workspace), and is independent of anything within the workspace. It allows you to change your point of view without changing your work. Activating this camera puts you in Director mode. The following figure shows the workspace in Director mode.



Viewing the Workspace in Director Mode

Think of the director camera as an extension of your own eyes. Moving around in Director mode is the same as walking around a real set. In the previous figure, you see the scene camera, a sphere object, and the director's axis (see the next section for details on the director's axis).

Moving Around In Director Mode

You can “move” around the scene with a combination of keyboard commands and clicking-and-dragging. The director camera always faces the *director's axis*. This is a 3D axis with the X-, Y-, and Z-axes labeled. As you click-and-drag in the workspace, the director camera moves in a sphere around the director's axis (but the axis itself stays stationary). Even though it appears that the objects in the workspace are moving, they are actually stationary. It's your view of their position that is changing.

The director camera always faces the director axis. As you change your point of view, the director camera moves around the director axis in a sphere. You can change the location of the director axis to change your point of view.

The following details the options for moving around in Director mode.

Left Mouse Button	Since you are working in 3D space, you can move anywhere you want within the set (workspace). However, the director's camera always points to the center of the scene (the director's axis). Click-and-drag on the workspace to move around.
Right Mouse Button	Moves the center point (the point the director's camera always faces) along the X- and Y-axes. This changes your point of view (and the location of the director's axis) in relation to the objects.
[Shift] + Right Mouse Button	Moves the director's axis (the point the director's camera always faces). Moving up and down moves the director's axis along the Z-axis. Moving left and right shortens and lengthens the distance of your point of view to the director's axis. This shortens the radius of the sphere your point of view moves along, essentially moving you closer to and further from the scene.
n	Changes the view so that you are looking down the X-axis. You can toggle between the positive (looking down from the top towards the director's axis) and negative (looking up from the bottom towards the director's axis) X.
m	Changes the view so that you are looking down the Y-axis. You can toggle between positive (looking from the right side towards the director's axis) and negative (looking from the left side towards the director's axis) Y.
b	Changes the view so that you are looking down the Z-axis. You can toggle between positive (looking from the front towards the director's axis) and negative (looking from the back side towards the director's axis) Z.
v	Toggles between looking through the Scene camera and the Director camera/mode. It's a quick way to check whether your scene is set up right. This also allows you to edit objects in the workspace.

- d Toggles between Director mode and Director's edit mode. The edit mode allows you to edit your scene while you are viewing the workspace in Director mode (see below).

Editing In Director Mode

Director mode not only allows you to change your view of the workspace, but you can also edit objects in the scene. To edit objects while in Director mode press **d** on your keyboard. You enter Director's edit mode. Once you are in this mode, you can edit objects just as if you were not in Director mode.

If you press the **d** key again, you leave the edit mode. All objects are deselected, and cannot be re-selected (unless you enter the edit mode again). You can then reposition your view of the workspace without accidentally editing any of the objects.

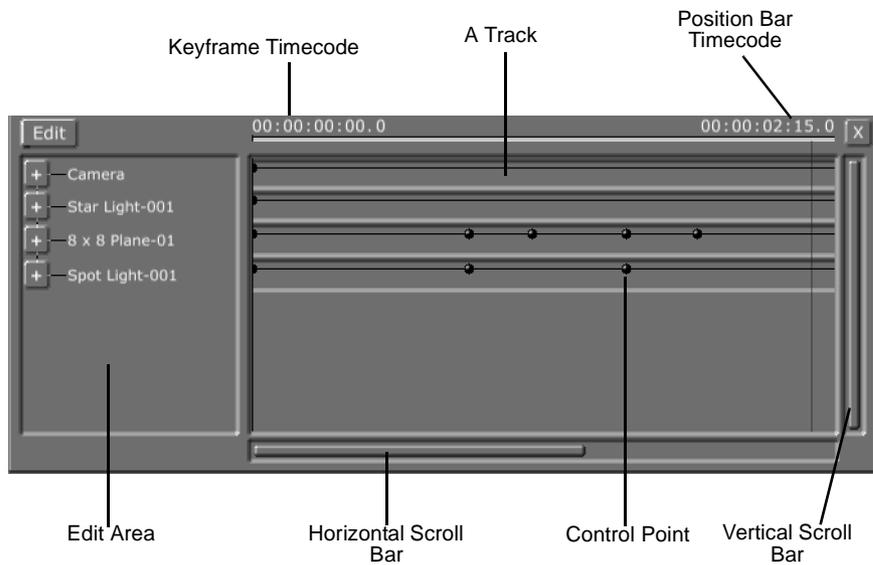
The Making a Bouncing Ball tutorial (beginning on page 297) uses Director mode.

Using The Timeline

The timeline is a representation of every object in your effect. You can use it to alter each object. This section details the buttons, panels, pop-ups, etc. that are on the timeline in PersonalFX.

Timeline Layout

The timeline in PersonalFX is similar the timelines in other GlobeCaster applications, with a few differences. This section covers those differences. The following figure is an image of a timeline with four tracks.



The Timeline

Here's an explanation of some of the timeline features.

Edit	This button currently has no function.
Edit Area	Lists every object present in the effect.
Expand/ Collapse 	Opens up the value tracks for the corresponding object. Click on this to access and change the value tracks for each object in the timeline (see “Track Basics” on page 172 for more details on tracks).

Keyframe Timecode	Shows the timecode position of a selected keyframe.
Position Bar	The vertical black bar on the timeline represents the current position on the timeline. It can be moved anywhere from beginning to end. Above the position bar is its timecode in the timeline.
Position Bar Timecode	Displays the timecode for the position bar. As you drag the position bar through the timeline, this display updates.
Tracks	Representations of each object in the effect (see “Track Basics” on page 172 for details).
Control Point	Represents a keyframe in the track (see “Track Basics” on page 172 for details)
X	Closes the timeline.
Vertical Scroll Bar	Clicking and dragging this bar up or down allows you to view tracks that are hidden when there are too many to view all at once. Dragging this bar does not change the location of the position bar.
Horizontal Scroll Bar	Clicking and dragging this bar left or right moves the timeline display forward or backward. Dragging this bar does not change the location of the position bar.

You can right-click anywhere in the timeline (except on a control point) to access the **Timeline** pop-up menu. From there, you can adjust the timeline view, and other timeline properties (see “Timeline Pop-Up Menu” on page 181 for details).

Track Basics

The main body of the timeline is composed of tracks. A track is a representation of an object in the effect, and every object has one. (There are three basic objects, camera, light, and primitive). A track also displays what its object does over time. It’s composed of a line and a single control point (a single dot) or series of controls points (dots). The line represents a relative change of some object property (position, size, etc.). The dots represent keyframes. When you first open PersonalFX, the line is a straight line, and only one dot exists. This represents the keyframe that brings the object into “existence” in the effect.

Keyframes represent a single step in a sequence of how an object behaves. Keyframes are used to define movement and position at a given point in time. As you scrub through the timeline, PersonalFX animates objects from one keyframe to the next.

You can right-click on any of the tracks in the timeline. This brings up the Track pop-up menu. You use this pop-up menu to adjust viewing and other track properties (see “Track Pop-Up Menu” on page 182 for details).

PersonalFX displays only the *main* track of an object as default. This main track displays the points in time at which keyframes exist. However, the main track does not tell you details about what property the keyframe changes. To find out what the keyframe is actually doing, click on the  to the left of the name of the track. More tracks pop down below the main track. These are *value* tracks. They show specific values.

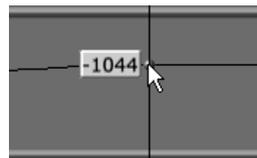
Control Points

Control points are the dots within each of the tracks in the timeline.

You can reposition the point in time at which a keyframe is set by clicking on its control point in the main track. Dragging left moves the keyframe back in time. Dragging right moves the keyframe ahead in time.

You can change the value of a keyframe. Click-and-drag on the control points for each value at each keyframe. (Dragging upward increases the value. Dragging downward decreases the value.) You can do this only in the value tracks. Control points automatically appear for move values whenever you set a new keyframe. Control points for other values do not appear unless those values change.

When you click on the control points for a keyframe, a box appears that indicates the property value for that keyframe (following figure).



A Keyframe Property Value

You can also right-click on a control point. This brings up a pop-up menu. One of the options you can select is the **Edit Key** panel (see “Edit Key Panel” on page 187 for details). From there, you can perform more refined edits (compared to dragging the control points on the track) by typing in exact values.

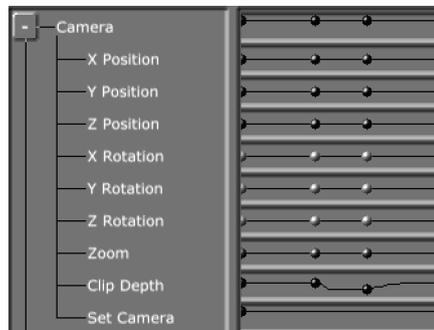
When PersonalFX first opens, there are three main tracks: the Scene Camera Track, the Lighting Track, and the Object Track. When you create new objects using the **Object Creation** panel (see “Object Creation Panel” on page 124 for details), a main track for the new object appears in the timeline.

The following sections discuss the tracks for different objects in the timeline. Tracks all function the same way. However, the values a track represent differ depending on its object.

Camera Tracks

This section is a description of each value track for a scene camera object in the timeline. Only one scene camera can exist at a time. Open its value tracks by clicking on the **+** to the left of the main camera track in the **Edit Area**.

The following figure shows a portion of a camera’s main track with all its value tracks open.



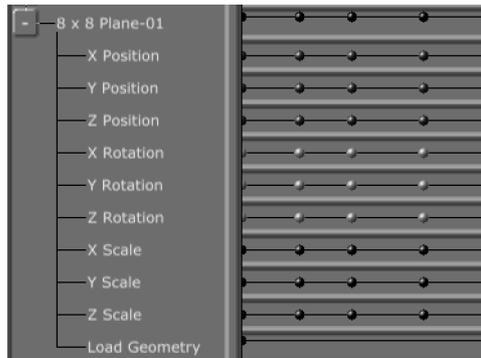
Main and Value Tracks for a Scene Camera Object

Here's what the values are:

X, Y, and Z Position	Controls the position of the camera in three-dimensional space. You can adjust the X-, Y-, and Z-axis positions by dragging the control point up and down. The control points for these values are red.
X, Y, and Z Rotation	Controls the spin of the camera along the X-, Y-, and Z-axis. The result is the same as when you turn a real camera upside down. The control points for these values are green.
Zoom	The amount of camera lens magnification. It's just like a zoom control that every camcorder has. Click-and-drag up and down on the control points to zoom in and out.
Clip Depth	Clip depth is the farthest distance an object can be from the camera and still be visible. Click-and-drag up and down on the control points to increase and decrease the value. Setting the value to small numbers (less than 4000) can make for some interesting effects. Anything or any part of a thing disappears if it is beyond the current clip depth setting.
Set Camera	Determines when the camera becomes active. By default, this is set at the beginning of the effect.

Primitive Tracks

The following is a description of each track for a primitive object in the timeline. A primitive is any object in the timeline that is neither a light nor a camera. You can open up these tracks by clicking on the  to the left of the track. The following figure shows a portion of an object's main track with all its value tracks open.



The Object Track

Here's what each of the values are.

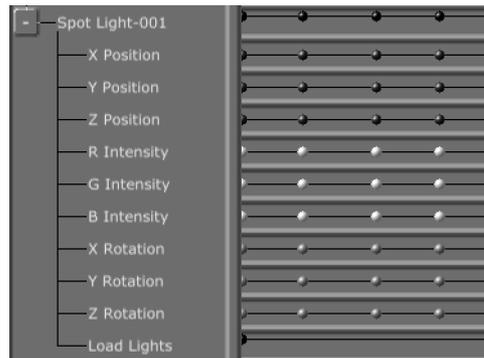
- | | |
|-----------------------------|---|
| X, Y, and Z Position | Controls the position of the object in three-dimensional space. You can adjust the X-, Y-, and Z-axis positions by dragging up and down. The control points for these values are red. |
| X, Y, and Z Rotation | Controls the spin of the object along the X-, Y-, and Z-axis. The control points for these values are green. |
| X, Y, and Z Scale | Resizes the object along the X-, Y-, and Z-axis. The control points for these values are blue. |
| Load Geometry | This track indicates the “load event” for objects. The load event represents the point in time each object becomes active (appears in the scene). If an effect starts at time 0 and goes to time 100, and the “load event” is set to time 50, the object does not exist in the scene until the effect has gone for 50 frames. At that point, the object appears. The control point for this is black. |

Click-and-drag left and right to place the load event sooner or later in the timeline.

Spot Light Tracks

What follows is a description of each track for a Spot Light object in the timeline. You can open up these tracks by clicking on the  to the left of the

track. The following figure shows a portion of a Spot Light's main track with all its value tracks open.



The Spot Light Track

The following describes each of the values.

**X, Y, and Z
Position**

Controls the position of the Spot Light. You can adjust the X-, Y-, and Z-axis positions by dragging up and down. The control points for these values are red.

**R,G, and B
Intensity**

Adjusts the RGB values for the light. Each track allows you to adjust the Red, Green, and Blue values of the light separately. The control points for these values are white.

**X, Y, and Z
Rotation**

Controls the spin of the object along the X-, Y-, and Z-axis. The control points for these values are green.

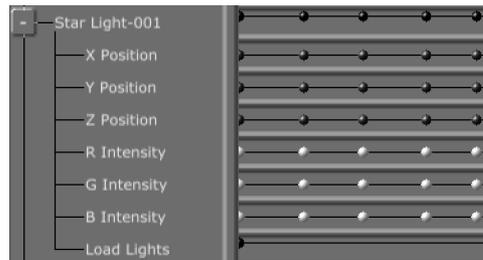
Load Lights

This track indicates the “load event” for the Spot Light. The load event represents the point in time the Spot Light becomes active (appears in the scene). If an effect starts at time 0 and goes to time 100, and the “load event” is set to time 50, the Spot Light does not exist in the scene until the effect has gone for 50 frames. At that point, the Spot Light appears. The control point for this is black.

**Star Light
Tracks**

What follows is a description of each track for a Star Light object in the timeline. You can open up these tracks by clicking on the  to the left of the

track. The following figure shows a portion of a Star Light’s main track with all its value tracks open.



The Star Light Track

Here’s what the values are.

X, Y, and Z Position

Controls the position of the object. You can adjust the X-, Y-, and Z-axis positions by dragging up and down. The control points for these values are red.

R,G, and B Intensity

Adjusts the RGB values for the light. Each track allows you to adjust the Red, Green, and Blue values of the light separately. The control points for these values are white.

Load Lights

This track indicates the “load event” for the Star Light. The load event represents the point in time the Star Light becomes active (appears in the scene). If an effect starts at time 0 and goes to time 100, and the “load event” is set to time 50, the Star Light does not exist in the scene until the effect has gone for 50 frames. At that point, the Star Light appears. The control point for this is black.

Loop Control Track And Event

When you add a loop event to your effect (see “Effect Properties Panel” on page 139, and “Constructing A Spinning Cube Effect (Part Three)” on page 337 for more details) another track appears in the timeline below all the other objects in the track. This track is called the **Loop Control** track. The track contains the **Loop Event** (following figure).



The Loop Event

The event is a white bar within the track. It represents the length of time the loop lasts. You can have multiple loop events in one effect. There is a bump on each end. These are the trimming handles.

Click-and-drag on the loop event (except on the trimming handles) to move it around in its track. When you move an event, a pair of alignment bars appears on either end of the event. These vertical blue bars assist in aligning the event with another event, or with the position bar. They turn yellow when they either coincide with the beginning or end of another event, or when they match the current position of the position bar.

Click-and-drag on the trimming handles to adjust the length of the loop. While you are adjusting, an alignment bar appears on the end of the loop you are adjusting.

Right-click on the loop event. This brings up the Event pop-up menu. From there, you can adjust the view and other properties for the event (see “Event Pop-Up Menu” on page 185 for details).

Creating a Looping Effect

You can create a looping effect using the loop function. These effects play continuously until you turn them off. “Constructing A Spinning Cube Effect (Part One)” on page 297 is a tutorial that uses a loop.

To create a looping effect:

1. Go to the first frame of your effect.
2. Click the **Loop Start** button.

NOTE This button is located in the **Effect Properties** panel (see “Effect Properties Panel” on page 139 for details).

PersonalFX sets the start point for the loop.

3. Go to the last frame of your effect.

4. Click the **Loop End**.

PersonalFX sets the end point. The loop event appears in the timeline.

That's all there is to putting in a loop. You can adjust the length of the loop using the trimming handles.

NOTE To may reverse the above directions, begin making your loop at the end point by pressing **Loop End**. Then move your object to the start point and press **Loop Start**.

Creating a Pause Point

You can create a pause point using the loop function. When you use a pause point, your effect runs until it reaches the pause point, at which time it pauses. The effect does not start up again until you tell it to (in Air Command, you click the **Auto** button). The effect then continues as normal.

To create a pause point:

1. Select the frame you want the pause point to occur on.
2. Press the **Pause** button

The pause point inserts itself at that frame, and a loop event appears in the timeline. This is your pause point.

Procedural Morph Track And Event

A Procedural Morph track appears in the timeline when you select a **Morph** from the **Object Properties** panel (for more on procedural morphs, see “Morph Pop-Up Menu” on page 66). Within this track is the **Morph Event** (following figure). This is an orange bar that functions much the same way as events in other GlobeCaster applications.



The Morph Event

You use the morph event to position and change the duration of the morph.

You can click-and-drag on the morph event (except on the trimming handles) to move it around in the timeline. When you move an event, a pair of alignment bars appear. These vertical blue bars assist in aligning events. They turn yellow when they either coincide with the beginning or end of another event, or when they match the current position of the position bar.

The trimming handles are the little bumps at the beginning and ending of the morph event. You can click-and-drag on the trimming handles to adjust the length of morph. While you are adjusting, an alignment bar appears on the end of the morph you are adjusting.

You can right-click on the event. This brings up the Event pop-up menu (see “Event Pop-Up Menu” on page 185 for details).

Timeline Pop-Up Menu

You can right-click anywhere in the timeline (except on control points) to bring up the Timeline pop-up menu (following figure).



Timeline Pop-Up Menu

These options are used to adjust your view of tracks in the timeline. The following details each one.

Snap	Brings up a pop-up menu to turn the snap feature on and off. Select a number of frames. Selecting a frame number causes the alignment bars to turn yellow when they are within the set number of frames. You can then release the event, and it jumps (or snaps) into position.
Zoom x2	Displays the timeline at twice the current size.
Zoom 1/2	Displays the timeline at half the current size.

Fit Selected	Sizes the timeline so that all selected items fit into the window.
Fit All	Sizes the timeline so that the entire timeline fits into the window.
Zoom At Position Bar	Zooms in at the location of the position bar.

Track Pop-Up Menu

You can right-click on any of the *tracks* in the timeline. This brings up a pop-up menu that is slightly different from the Timeline pop-up menu. Options may vary depending on what you've been doing. The following figure shows all the options available from this pop-up menu.



The Track Pop-Up Menu

The following describes each option.

Halve track height	Displays the selected track at half its current height.
Reset track height	Resets the selected track height to its original height.
Double track height	Displays the selected track at twice its current height. Use this to make the tracks larger and easier to edit.
Expand Tree	Displays value tracks of the selected main track.

Expand All	Displays all value tracks of all main tracks.
Collapse Tree	Hides value tracks of the selected main track.
Snap	Brings up a pop-up menu to turn the snap feature on and off. Select a number of frames. Selecting a frame number causes the alignment bars to turn yellow when they are within the set number of frames. You can then release the event, and it jumps (or snaps) into position.
Zoom x2	Displays the timeline at twice the current size.
Zoom 1/2	Displays the timeline at half the current size.
Fit Selected	Sizes the timeline so that all selected items fit into the window.
Fit All	Sizes the timeline so that the entire timeline fits into the window.
Zoom All	Enlarges the display of the entire timeline.
Zoom at Position Bar	Enlarges the display of the area of the timeline where the position bar is.

Keyframe Pop-Up Menu

You can right-click on a control point (non-black dot) in any of the tracks. This brings up the **Keyframe** pop-up menu (following figure). Use these options to change properties of the selected control point (and the keyframe it represents).



Keyframe Pop-Up Menu

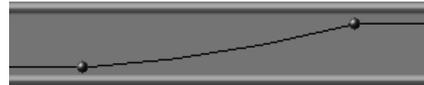
The following describes what each option is.

Linear Makes the transition from one keyframe to the next a constant value change. It also changes the look of the line between keyframes in the timeline (following figure).



Linear Movement Displayed in the Timeline

Cubic Makes the transition from one keyframe to the next a curved line. It also changes the look of the line between keyframes in the timeline (following figure).



Cubic Movement Displayed in the Timeline

Hold Maintains the value of the previous keyframe until the following keyframe. It also changes the look of the line between keyframes in the timeline (following figure).



Hold Movement Displayed in the Timeline

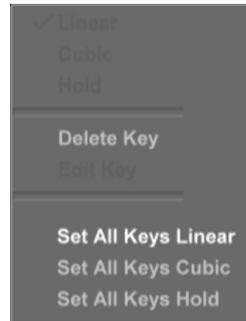
Delete Key Deletes the selected keyframe.

Edit Key Opens the **Edit Key** panel. You can precisely adjust the level of the selected keyframe by typing in specific values (see “Edit Key Panel” on page 187 for details).

**Main Track
Animation
Interpolation**

While the Keyframe pop-up menu (as described above) is a useful method for changing individual values for keyframes, the Main Track pop-up menu is used to globally change the all the values within a single keyframe. In the main

track of the object you want to edit, right-click on a keyframe (black dot). The Main Track Keyframe pop-up menu appears (following figure).



The Main Track Keyframe Pop-up Menu

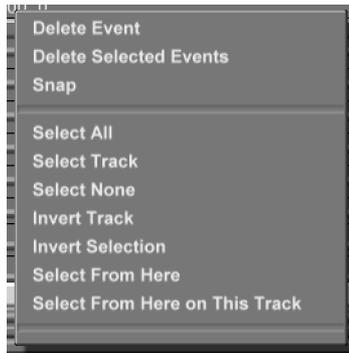
The values for Linear, Cubic, and Hold all remain the same. The difference is that when any of them are selected, it effects each control point within that specific keyframe. The Delete Key, when selected, deletes all of control points within the specified keyframe.

Event Pop-Up Menu

This pop-up menu is used to edit loop events and morph events in the timeline. You can access this pop-up menu by right-clicking on either a morph event (see “Procedural Morph Track And Event” on page 180), or on a loop event (see “Loop Control Track And Event” on page 178).

NOTE

This pop-up menu is best used when you have multiple loop events. This is because the options pertain to selecting and deselecting multiple events in a single track. The only events available in PersonalFX are loop and procedural morph events. You can only have one procedural morph per object, and so only one procedural morph event exists per track. You can have multiple loop events in a single track.

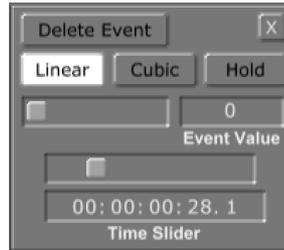


The Event Pop-Up Menu

The following details the options in this pop-up menu:

Delete Event	Removes the selected event from the timeline.
Delete Selected Events	Removes selected events from the timeline.
Snap	Brings up a pop-up menu to turn the snap feature on and off. Select a number of frames. Selecting a frame number causes the alignment bars to turn yellow when they are within the set number of frames. You can then release the event, and it jumps (or snaps) into position.
Select All	Selects all events on the timeline.
Select Track	Selects all events on a track of the timeline.
Select None	Deselects all events on the timeline.
Invert Track	Selects the items on a single track that previously were not selected, and deselects those that were.
Invert Selection	Selects the items on the entire timeline that previously were not selected, and deselects those that were.
Select From Here	Selects the event you right-clicked on and all following events on the timeline.
Select From Here on This Track	Selects the event you right-clicked on and all following events on that track of the timeline.

Edit Key Panel This panel is used to precisely edit a keyframe. Access this panel by right-clicking on a control point in any track. Select **Edit Key** from the pop-up menu that appears.

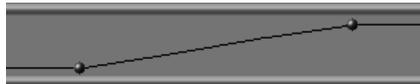


Edit Key Panel

The panel is a free floating window. You can click-and-drag it to move it around the interface.

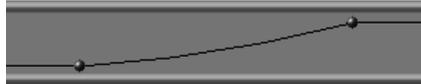
The following describes what the Edit Key functions are:

- Delete Event** Deletes the control point (keyframe) from the timeline.
- Linear** Sets the motion of an object between its keyframes. A linear interpolate means that the animation steps in between key frames follow the straightest path possible, and the object moves at a constant velocity. Choose this option before setting keyframes for an object. The following figure shows what a linear movement path looks like in the timeline.



Linear Movement Displayed in the Timeline

Cubic Sets the motion of an object between its keyframes. A cubic interpolation means that the animation steps in between keyframes follow a curved path, and the acceleration of the object increases. Cubic is the default setting for object motion. The following figure shows what a cubic movement path looks like in the timeline.



Cubic Movement Displayed in the Timeline

Hold Sets the motion of an object between its keyframes. With **Hold** selected, an object stays at its current position until the next key frame, where it jumps to its new position. Choose this option before setting keyframes for an object. The following figure shows what a hold movement path looks like in the timeline.



Hold Movement Displayed in the Timeline

Event Value Slider Clicking and dragging this slider right or left adjusts the value set for the selected key. For example, if the key is set for horizontal placement, then adjusting this slider adjusts the object horizontally in the workspace. This value can also be adjusted by clicking on the numeric value and typing in a new one, or by clicking on the numeric value and dragging up or down with the mouse.

Time Slider Clicking-and-dragging this slider right or left adjusts the key's position in the timeline. This value can also be adjusted by clicking on the numeric value and typing in a new one, or by clicking on the numeric value and dragging up or down with the mouse.

Transport And Keyframe Controls

The Transport and Keyframe Controls allow you to move through the timeline, scrubbing through your effect. They are a set of blue controls on the far right of the toolbar.



Transport and Keyframe Controls

The following lists explain how these controls function:

- | | |
|------------------------------|--|
| Active Video Textures | Click on these buttons to turn on texture displays in the workspace. These buttons do not assign textures to an object, they just display them there (see “Active Video Textures” on page 50 for details). |
| Message Window | PersonalFX displays important messages here. These messages include anything from compiling updates to error messages. |

Transport Controls

These controls provide you with complete control over the timeline. When you create an animation and need to move between keyframes, for example, these tools get the job done. The buttons, in order from left to right, are:



- **First Frame**

Skips to first frame



- **Fast Reverse**

Rewinds



- **Reverse Play**

Plays in reverse



- **Jog Back 1 Frame**

Moves back one frame at a time



- **Stop**

Stops play



- **Jog Forward 1 Frame**

Moves ahead one frame at a time



- **Play**

Plays normally



- **Fast Forward**

Fast forwards



- **Last Frame**

Skips to last frame

NOTE When you preview your effect in the workspace, it plays back at a slower speed than it actually runs after compiling. The playback speed varies depending on your host PC and hardware.

Timecode Display

Timecode of the frame you are on in an effect. You can jump around to different frames of your effect. Click in the window, and change the number to the frame you want. Press **Enter** on your keyboard.

The display appears as **00:00:00:00.0** (**hours : minutes : seconds : frames . fields**). Every frame has two fields. The first field is represented by a **0**. The second field is represented by a **1**.

If you have an effect that is 30 frames long (1 second in NTSC format), the **Timecode** display reads **00:00:00:29.1** when you scrub to the end of the effect. An effect that is 40 frames long (1 second and 10 frames in NTSC format) reads **00:00:01:09.1** when you scrub to the end of the effect.

Timecode Slider

Click-and-drag the **Timecode Slider** to shuttle through the animation you are creating. As you drag, the numbers in the Timecode Display change to let you know what frame you are on.

Prev Key

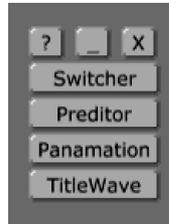
Moves the timeline back to the last place a keyframe was added for the current selected object.

Next Key

Goes to the next keyframe on the timeline for the currently selected object.

Using The Applications Buttons

The Application Buttons are the tan buttons on the right end of the toolbar. Use these buttons to jump from one GlobeCaster application to another. They are present in all applications.



The Applications Buttons

Here's what these buttons do:

?	Opens a GlobeCaster Help panel. The panel appears on the left side of the interface.
_ and X	The X button closes PersonalFX. The _ button minimizes the program.
Air Command	Changes to the Air Command control panel. PersonalFX shuts down. You are prompted to save.
Panamation	Changes to the Panamation interface. PersonalFX shuts down. You are prompted to save.
Titlewave	Changes to the Titlewave interface. PersonalFX shuts down. You are prompted to save.
Preditor	Changes to the Preditor interface. PersonalFX shuts down. You are prompted to save.



Personal FX Tutorials



Chapter 4

Chapter 4

Tutorials

This chapter is a collection of tutorials. Each is designed to introduce you to some PersonalFX basics, and show you how to create your own effects using what you learn. The tutorials range from simple to complex. Each tutorial is rated according to a user's experience level. More advanced tutorials cover certain functions in less detail because they assume the user knows them already.

The following sections are in this chapter:

- Keeping the Right Frame of Mind 194

Novice Level Tutorials

- Creating a Basic Sliding Transition 196
- Creating a Basic Flying Transition 221
- Creating a Sepia Color Effect 246

Intermediate Level Tutorial

- Creating a Sliding Transition with 3D Object 255

Experienced Level Tutorial

- Constructing a Spinning Cube Effect 297

Keeping The Right Frame Of Mind

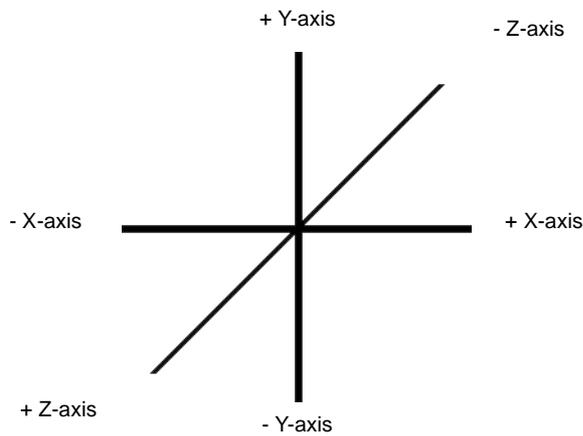
PersonalFX contains a few elements that are not in other GlobeCaster applications, and you must keep them in mind when you are creating an effect. You must consider lighting, object placement in three-dimensional space, and camera position. Because these different elements exist in PersonalFX, it is convenient to think in terms of creating a scene. The scene contains the effect, global lighting, and global settings. The effect contains objects (graphics, lights, camera), and what those objects do when you run the effect. Each one of these objects has its own settings.

Another point to be aware of is the fact that PersonalFX's main function is to create 3D effects. Because of this, the workspace is a three-dimensional workspace. This gives you the ability to move an object in six discrete directions.

These are:

- right and left (the X-axis)
- up and down (the Y-axis)
- forward and backward (the Z-axis)

The following figure shows how the axes are arranged in the workspace. Each axis is labeled. The + next to an axis name represents positive values. The - next to an axis name represents negative values.



Three Dimensional Space

With these points in mind, go forth and have fun with these tutorials!

NOTE These tutorials are based on NTSC format. For non-NTSC users, please make the appropriate adjustments. (NTSC uses 30 frames, or 60 fields, per second.)

Creating A Basic Sliding Transition Effect

The following tutorial is geared towards the novice user. It shows how to create a basic sliding transition. This type of transition is used frequently on news broadcasts, particularly during the weather report. When the meteorologist shows different maps during their report, a slide-in is frequently used to bring a new graphic onto the screen.

When the effect runs, the Preview video (mapped onto a video plane) slides in and replaces the Program video (following figure).



The Transition in Progress

You will learn the following skills:

- Creating a new scene
- Setting effect properties
- Setting up the workspace
- Animating movement
- Previewing your work
- Compiling an effect

- Setting the effect picon
- Saving an effect

NOTE This tutorial is based on NTSC format. For other video formats, please make the appropriate adjustments. (NTSC has 30 frames, or 60 fields, per second.)

Creating A New Scene

This tutorial starts with creating a new scene. When PersonalFX starts, it loads a set of default properties for a scene. You can begin editing a scene right away. However, it's always a good idea to start with a fresh effect just in case there are settings left over from someone else's work that aren't readily apparent. The last thing you want is to devote a lot of time to creating an effect and find out it doesn't work because you were using settings you weren't expecting.

Here's how to create a new scene:

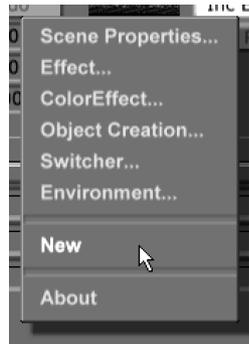
1. Locate the **Effect** picon. It's a window located among the green and red buttons in the toolbar (following figure).



The Effect Picon

2. Right-click on the **Effect** picon.

The **Effect** pop-up menu appears (following figure).



The Effect Pop-Up Menu

Use this pop-up menu to access several of the properties panels available in PersonalFX.

3. Select New from the pop-up menu.
 - a. If there was previous work done in PersonalFX, and it wasn't saved, PersonalFX tells you that there are unsaved changes. It asks if you want to save the changes. Click the No button. PersonalFX then loads a new scene.
 - b. If there was no previous work, PersonalFX simply loads a new scene.

If you quickly look at the **Message Window** (the following figure) on the far right of the toolbar just above the transport controls, PersonalFX displays the following message: **New Scene created**.



The Message Window

You can look at the **Message Window** for important PersonalFX messages. A variety of messages appear here, from notes to let you know that an

operation has been completed (as in this case), to error messages. A message disappears after a few seconds.

That's all there is to loading a new scene. Next, you must set effect properties.

Setting Effect Properties

With a new scene loaded, it's time to begin setting the properties for the effect itself. In this tutorial, you want to change the duration of the effect, and the effect type.

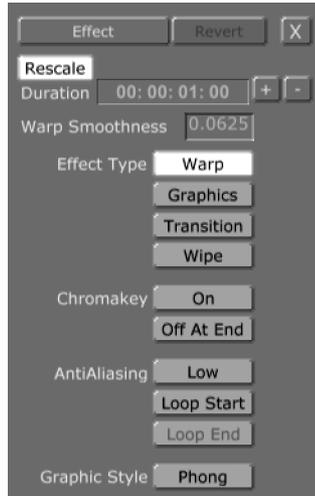
Here's how to change the duration and effect type:

1. Click the **Effect** button. It's one of the green buttons in the middle of the workspace. It's located just above the **Effect** picon.



The Effect Button

The **Effect Properties** panel appears in the upper left corner of the interface (following figure).



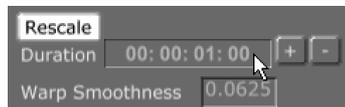
The Effect Properties Panel

Use this panel to edit settings for the effect you're creating. You can learn more about this panel in "Effect Properties Panel" on page 136.

You can also access this panel by right-clicking on the **Effect** picon. Select **Effect...** from the **Effect** pop-up menu that appears.

The default duration for an effect is one second (00:00:01:00). This length is too long for the effect you're creating.

2. Click on the **Duration** window (following figure). It's located at the top of the panel. It displays the length of the effect in standard SMPTE format. The numbers are green.



The Duration Window (Before Changing the Duration)

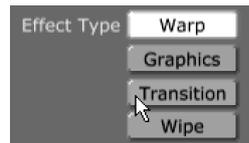
Use this window to change the duration of your effect.

3. Type in 00:00:00:25. Press **Enter** on your keyboard to set the change.

The length of the effect is now 25 frames.

Next, you want to tell PersonalFX what sort of effect you're creating. You can create two types of effects: transition and overlay. Transitions are used when you want the effect to swap one video source with another. Overlays are used when you want a graphic, or new video source, to appear but you don't want it to replace the video source that's already there. For this effect, you want to create a transition.

4. Click on the **Transition/Overlay** button (following figure). It's one of the **Effect Type** buttons in the Effect Properties panel.



The Transition/Overlay Button

The **Transition/Overlay** pop-up menu appears (following figure).



The Transition/Overlay Pop-Up Menu

Use this pop-up menu to select what type of effect you want to create.

5. Select **Transition**.

PersonalFX now treats this effect as a transition.

6. Click the X button in the top right corner of the Effect Properties panel (following figure).



The X Button

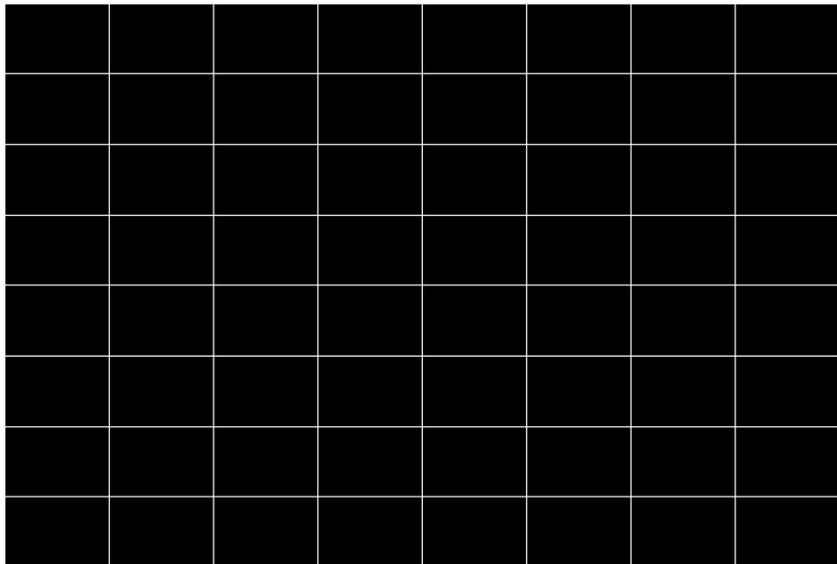
The Effect Properties panel closes. You can click the X button in the top right corner of most panels in PersonalFX to close the panel.

You've just set up your first effect. You changed the duration of the effect. You also set the effect type as a transition. In later tutorials, you will learn to set other properties. For now, it's time to prepare the workspace.

Setting Up The Workspace

With a new scene created, and effect properties set, you want to set up the workspace so you can begin editing objects in it. This involves changing the view of the workspace to make editing the scene easier.

The workspace is the black field in the upper middle portion of the PersonalFX interface (following figure).



The Workspace

The workspace is your window to what your effect looks like as you create it. Its view represents what the scene camera sees, (and thus what your audience sees when the effect runs). The scene camera is a virtual camera that shoots your effect.

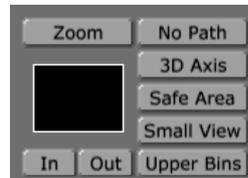
When PersonalFX starts, the workspace is filled with a yellow grid. This is a video plane. It's the default primitive. Primitives are basic geometric shapes that PersonalFX creates. Spheres, cubes, cones, the video plane, and more are all primitives that you create and edit.

All primitives are objects. Objects are elements that appear in the workspace. They include all types of primitives, lights, and the scene camera. You can create and edit lights to shine anywhere in the workspace. You can edit the scene camera as well.

In this effect, you only edit the video plane.

With this in mind, it's time to prepare the workspace.

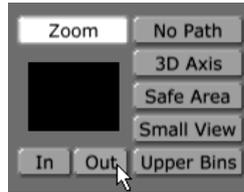
1. Locate the **View Controls** (following figures). These are a set of blue controls just to the right of the Effect Controls you just used.



The View Controls

Use these controls to zoom in and out of your workspace. (You can also use them to better manage the PersonalFX interface. For more details see “View Controls” on page 40.) Any changes you make to the workspace view with these controls do *not* affect your *finished* effect.

2. Click the **Out** button (following figure).

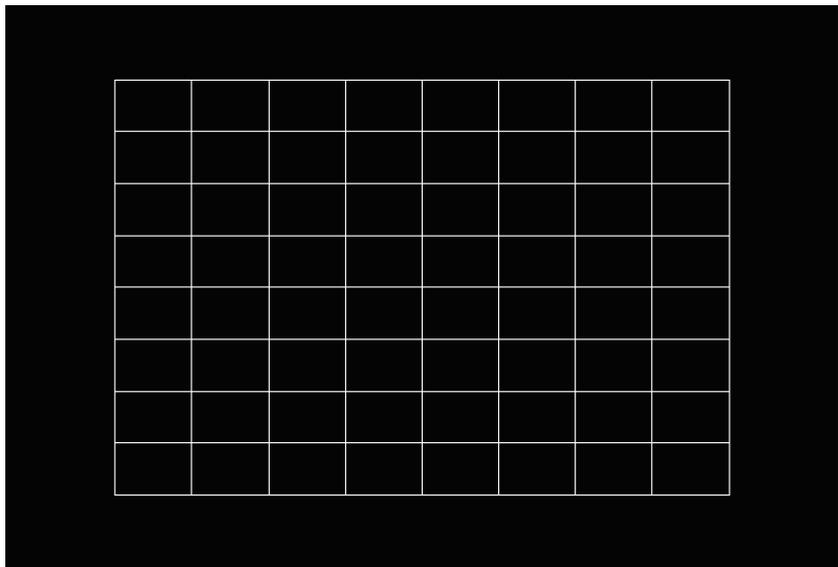


Clicking the Out Button

The video plane “shrinks” as the workspace zooms out.

3. Click the **Out** button again.

The workspace view zooms out once again (following figure).



The Workspace While Zoomed Out

You see a white border around the video plane. This is the safe area. It shows the edge of the workspace. Anything placed outside of the safe area will not show up in the final effect. It will be hidden from view.

Also notice that the **Zoom** button in the View Controls lights up. This indicates that the workspace view zoom is turned on. You can click this button to turn the zoom off and on when you need to. If you turn zooming off, and turn it back on later, the view zooms to the last zoom setting.

Remember that in this tutorial the video plane slides in (from off screen) and replaces the existing video. With the view zoomed out, you can see outside of the viewable area, and thus edit objects there without having your audience see what's going on.

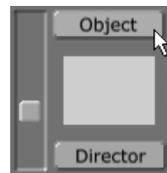
Okay, you are done preparing your workspace. Now that all the preliminaries are finished (creating a new scene, setting effect properties, and preparing your workspace), it's time to set some properties for the video plane.

Setting Object Properties

For this effect you have to map Preview video onto the video plane. That way, the Preview source slides on screen and replaces the Program source.

Here's what you have to do:

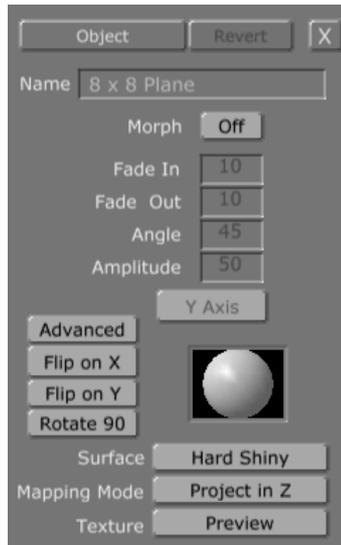
1. Locate the **Object** button (following figure). It's a red button on the left side of the toolbar just above the **Object** picon.



The Object Button

2. Click the **Object** button.

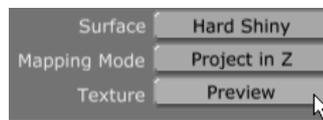
The **Object Properties** panel appears (following figure).



The Object Properties Panel

Use this panel to edit various properties of the selected object (in this case of the video plane). For more details on this panel, see “Object Properties Panel” on page 61.

3. Locate the **Texture** button (following figure). It’s near the bottom of the panel.



The Texture Button

Use this button to set the type of texture you want to apply to the selected object. A texture is like a skin that is mapped (placed on top of) an object.

4. Click the **Texture** button.

The **Texture** pop-up menu appears (following figure).



The Texture Pop-Up Menu

There are several texture options for you to apply to the video plane. Each of the **Video:** options maps the video source onto the object. **Solid Color** maps a solid color onto the object. If you ever have images, framestores, stills, etc. mapped onto an object in the workspace, the names of those images also appear here.

5. Select **Video: Preview**.

The button face changes to read **Preview**. PersonalFX now applies the Preview source to the video object.

6. Click the X button in the top right corner of the panel.

The panel closes.

That's it for changing object properties. Your next step is to start animating.

Animating Movement

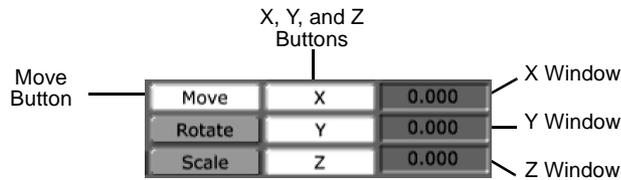
One basic method of creating a video effect is to animate the movement of an object that has video on it. For this tutorial, the video plane (yellow grid) is the object you animate. As in other GlobeCaster applications, animation is done with keyframes. Keyframes represent the beginning and end points of animated movement. PersonalFX automatically animates objects from one keyframe to the next, creating smooth movement. This way, you can make an object fly around the screen by setting only a few keyframes.

Whenever you change the movement, scale, or rotation of an object from one frame to another, PersonalFX automatically adds a keyframe.

For this tutorial, since the video plane slides in from off screen, you must first position the video object off screen (its starting point). Then, you must position the object where you want it to go (its ending point). PersonalFX animates the movement in between.

Here's how to do this:

1. Locate the **Move** button, and the **X**, **Y**, and **Z** buttons/windows in the toolbar (following figure). They are among the red buttons (the Object Controls) in the toolbar.



The Move, X, Y, and Z Buttons/Windows

In order to move an object in the workspace, the **Move** button must be turned on (lit up). The X, Y, and Z buttons allow you to constrain movement to the X-plane (left and right movement), Y-plane (up and down movement), and the Z-plane (in and out movement) in the workspace. Turning off one of these buttons tells PersonalFX to ignore movement along that plane.

The windows to the right of the X, Y, and Z buttons display the current position of an object at the respective plane. Since you have not moved the object yet, each window reads **0.000**.

You can click in each of these windows, and type in specific values for precision movement of objects. When you change a value in this way, press **Enter** on your keyboard to set the change.

You can click on an object in the workspace, and drag it around the X-plane and Y-plane. Right-click and dragging moves an object along the Z-plane.

Since the video plane is sliding from the left, you want to set PersonalFX to restrict movement to only the left and the right.

2. Click the **Move** button.

The button lights up, and the move function activates.

The keyboard shortcut for turning on the move function is **q**.

- Click the Y button.

The button is no longer lit (following figure).

X	0.000
Y	0.000
Z	0.000

Turning Off the Y Button

You can no longer move objects up and down.

Because movement along the X-plane is handled with a click-and-drag, and movement along the Z-plane is handled with a right-click and drag, you do not have to turn off the Z button for this tutorial.

- Click-and-drag the video plane (yellow grid) left. Make sure the plane is completely outside the safe area (following figure).



The Video Plane Moved

You've just set the video plane's starting location.

Now, you must set the video plane's end point. To do this, you must scrub to the end of the effect, and move the video plane. Here's how to do that.

1. Locate the **Transport Controls**. They are a set of blue buttons.



The Transport Controls

Use the Transport Controls to scrub through your effect. The buttons function like deck controls. The Timecode display shows your current time position within the effect. The Timecode Slider allows you to scrub from frame to frame. (For more details, see “Transport And Keyframe Controls” on page 187.)

2. Click the **Last Frame** button (following figure). It's on the far right of the transport controls.

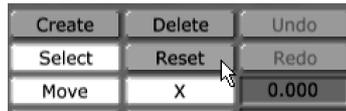


The Last Frame Button

You are now at the end of your effect. The Timecode Slider has moved to the right. Notice the Timecode display reads 00:00:00:24.1.

The Timecode display does not read 00:00:00:25.0 because of the way fields are handled. There are two fields in every frame. The first field of a frame is on XX.0. The second field of a frame is on XX.1, which completes the full number of frames you set in the **Duration** window in the **Effect Properties** panel.

3. Click the **Reset** button (following figure). It's a red button on the left side of the toolbar.



The Reset Button

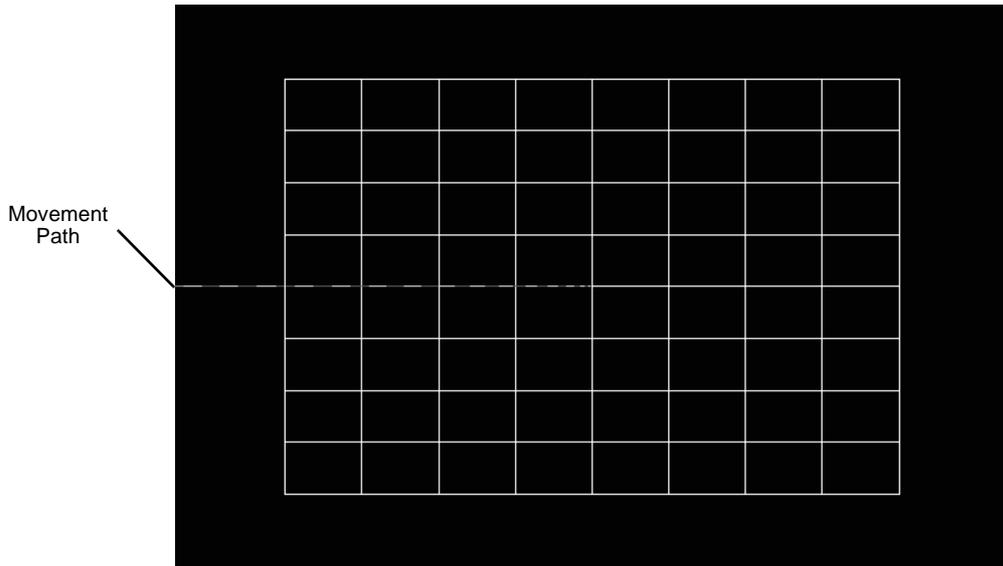
The video object jumps back into the workspace, filling the area within the safe area.

The **Reset** button automatically returns an object to its 1 to 1 position for the function that is activated. If the **Move** button is turned on, clicking **Reset** repositions the selected object to its starting position. If the **Rotate** button is turned on, clicking **Reset** returns rotation values to 0. If the **Scale** button is on, clicking **Reset** returns the object to its default size.

TIP If you ever click the **Reset** button and nothing seems to happen, make sure the right mode button (**Move**, **Rotate**, or **Scale**) is turned on. For instance, if you want to reset an object's move values, but have the **Scale** button turned on, you'll be resetting scale values by accident.

By changing the video plane's position at a different point in time from its ending position, PersonalFX sets a keyframe.

Notice the faint line tracing its way from outside of the safe area to the center of the video plane. This is the movement path (following figure).



The Movement Path

The movement path shows how an object moves between keyframes. In this case, it shows the video plane starting off screen, and moving in a straight line to fill the safe area.

That's all there is to animating movement. Next, it's time to take a look at what you made.

**Previewing
Your Work
(Optional)**

Now that you have created animated movement, it's time to preview it to see if the effect is doing what you want. This is an optional step. The first thing you have to do is return to the beginning of the effect. You can then preview it.

When you preview work in the workspace, the effect plays slower than it actually plays once it is compiled. The speed at which it plays depends on your host PC and hardware.

1. Click the **First Frame** button in the Transport Controls (following figure).



The First Frame Button

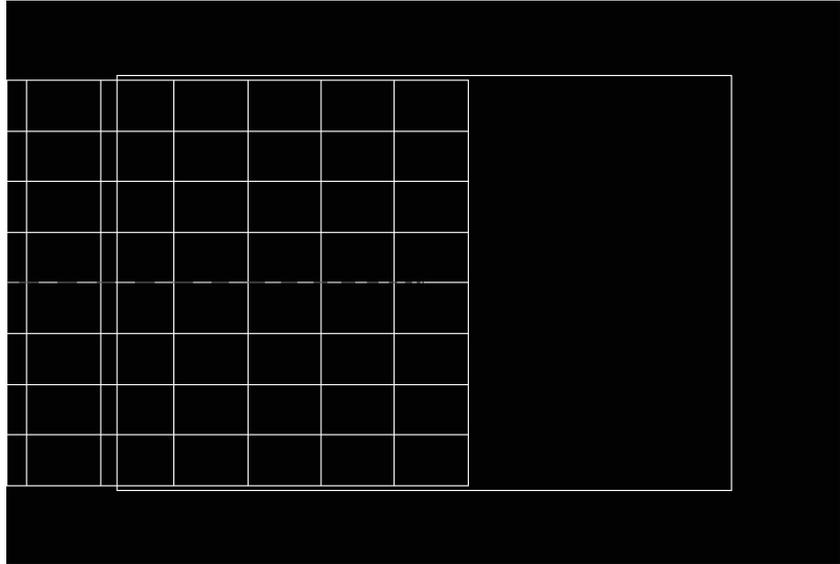
You return to the beginning of the effect. The video plane jumps back to its beginning position.

2. Click the **Play** button in the transport controls (following figure).



The Play Button

In the workspace, the video plane slides in from its starting position to its ending position (following figure).



The Effect in Progress

NOTE When you preview your effect, it plays back at a slower speed than it actually runs after compiling. The playback speed varies depending on your host PC and hardware.

3. Watch the video plane.

Notice that at the beginning of the effect, it is yellow. As it moves into the workspace, it is green. Finally, when it comes to its end point, it turns yellow again.

When you are looking at the workspace in this view, a selected object appears green in the workspace. It turns yellow when the object is at a keyframe. Because you set a keyframe at the beginning and end of the effect, the object turns yellow at those frames. When you set multiple keyframes (as will be done in the other tutorials), the object changes between yellow and green, marking off keyframes and the in-between frames that PersonalFX is animating.

4. Click-and-drag the **Timecode Slider** to the beginning of the effect.

You can also click the **First Frame** button again.

- Click the **Play** button to preview the effect again.

The effect runs again.

- Notice that the **Timecode Slider** moves as the effect runs. The **Timecode Display** ticks off the frames.

That's it for editing the effect. However, you have not fully created one yet. What you have right now is a set of instructions that PersonalFX uses to compile an effect.

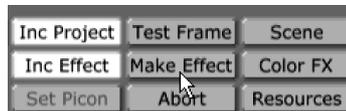
Your next goal, therefore, is compiling.

Compiling An Effect

Once you finish creating a scene and editing an effect, you must tell PersonalFX to compile it so that you can use it. Once PersonalFX compiles an effect, you can use it with any video source in real time. You don't have to re-compile unless you change the way the effect works.

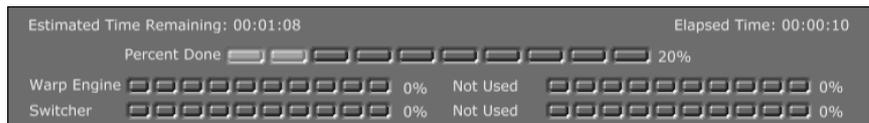
Here's how to do that:

- Click the **Make Effect** button (following figure). It's a green button in the toolbar.



The Make Effect Button

The toolbar ghosts out except for the **Abort** button. A panel appears (following figure).



The Progress Meter

This is the **Progress Meter**.

The purpose of this panel is to let you know PersonalFX's progress as it compiles your effect.

2. While PersonalFX is compiling, take a moment to notice a few things about the panel.

First, the **Estimated Time Remaining** display lets you know how long the effect takes to compile. This time may fluctuate depending on a number of factors. Directly across from that is the **Elapsed Time** display. This tells you how long PersonalFX has been busy compiling your effect. The four progress meters below the main meter tell you which GlobeCaster system resources are being used, and how much of those resources are being used.

While the effect compiles, the **Message Window** reports which field PersonalFX is currently compiling (following figure).



The Message Window with Compiling Message

If at any time you want to stop the compiling process, you can click the **Abort** button (following figure).



The Abort Button

If you end a compiling process in this way, you have to compile the effect from the beginning. (Click the **Make Effect** button again to do this.)

Once the **Percent Done** display reads 100%, the effect is compiled. The panel disappears.

You now have a fully functional effect that you can use in Air Command. You just have to save it.

Setting The Effect Picon

When you set a picon, you are creating a picon of your effect. This picon appears in the Effect picon on the toolbar. GlobeCaster then uses this picon when you save the effect. The idea is to create a picon that represents what the effect does so that it's easier for you to recognize when you are sifting through your bins looking for it.

This is not an essential step in the effect creation process, but it is a helpful one. Here's what you do.

1. Drag the Timecode Slider until the Timecode Display reads 00:00:00:15.0 (following figure).

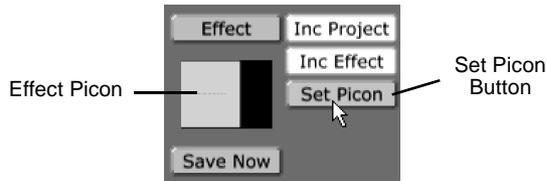


Dragging the Timecode Slider

The effect moves to the fifteenth frame. The video object turns green as it travels along the movement path.

This frame was picked arbitrarily. You can use any frame you want. Keep in mind that the idea is that you are picking a frame that helps you remember what this effect does.

2. Click the Set Picon button in the toolbar (following figure). It's a green button.



The Set Picon Button with Effect Picon

PersonalFX takes a grab of the effect in progress. The Effect picon shows a gray field moving in over a black background (previous figure).

The picon is set for this effect. If you don't like the picon, you can always scrub to a different frame in the effect, and click the Set Picon button again.

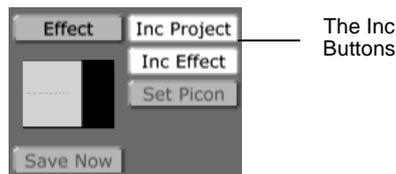
With this task finished, you are now ready to save the effect.

Saving The Effect

Saving is the final step in creating an effect.

Here's what you need to do:

1. Locate the **Inc Effect** (Include Effect) and the **Inc Project** (Include Project) buttons. They are green buttons in the middle of the toolbar.



The Inc Project, and Inc Effect Buttons

These buttons let you tell PersonalFX what part of your effect you want to save. **Inc Project** saves the instructions (information) that make up the effect, (how it works, and what it does), but not the effect itself. This means you can edit the effect at a later date because you have saved the instructions that make up the effect. **Inc Effect** saves the actual compiled effect. This button is ghosted out until you compile an effect. Compiled effects can be pretty large (as compared to the set of instructions that tells

PersonalFX what the thing does), and take up a more room on your hard drive.

Turning either of these buttons off tells PersonalFX to ignore that part of the effect. If you turn off **Inc Project**, the instructions for the effect are not saved, and you will not be able to edit the effect later on. If you turn off **Inc Effect**, PersonalFX only saves the instructions (and *not* the finished effect itself). The advantage to not saving the compiled effect is in saving hard drive space.

For this project, you want to save both the instructions that make up the effect, and the effect itself.

2. Make sure that both **Inc Project** and **Inc Effect** are turned on (lit up).

If either button is not turned on, click on it. By default, both are turned on.

3. Drag-and-drop the **Effect** picon into a convenient bin.

PersonalFX takes a moment to save your effect. A picon of the effect appears in the bin you dropped it into.

You now have a completed effect. You can go into Air Command, load it (double-click on the effect's picon in the bin you saved it to), and play it back. For more on using effects in Air Command, see the *GlobeCaster Air Command Manual*.

Wrap Up

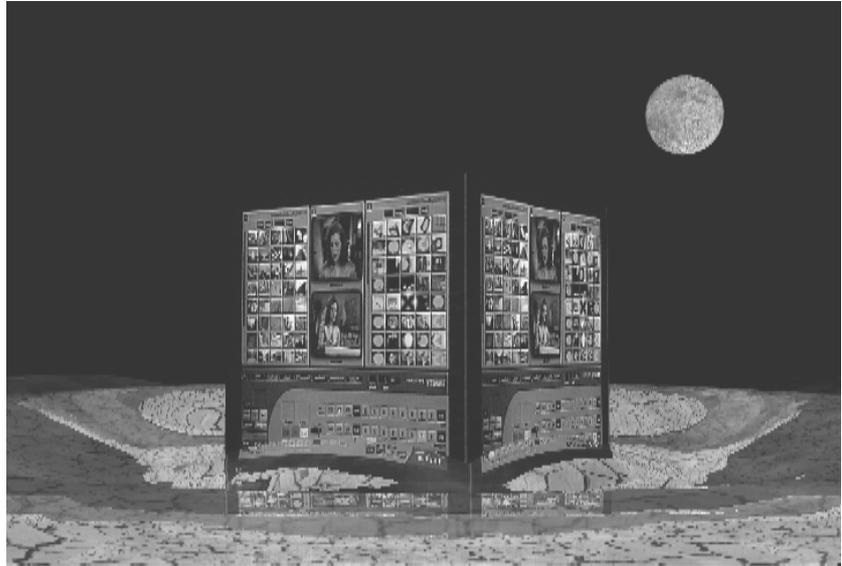
In this tutorial, you learned how to change the duration of an effect. You also learned how you can move objects. You learned how to scrub through an effect. Finally, you learned the basics of compiling and saving an effect. These are skills you will use with every effect you create in the future.

Feel free to experiment with what you've learned. By adjusting duration, and moving the video plane around, you can create a number of simple, but interesting, effects. You can move objects along a single plane, or anywhere in three-dimensional space by turning the X, Y, and Z buttons on and off in different combinations. Turning all three buttons on allows you to move the video plane in any direction. Click-and-drag to move along the X-plane and Y-plane (left-and-right, and up-and-down). Right-click and drag with the right mouse button to move the video plane along the Z-plane (in-and-out).

When you are comfortable with what you've learned, proceed to the next tutorial. In the tutorials that follow, you will learn more of these basic skills as well as more advanced skills that you can use to make exciting effects.

Creating A Basic Flying Transition Effect

The following tutorial is geared towards the novice user. It teaches how to create a basic flying transition. When the effect runs, the Program video (mapped onto a video plane) flies off screen, revealing the Preview video below (following figure).



The Transition in Progress

You will learn the following skills:

- Creating a new scene
- Setting effect properties
- Setting up the workspace
- Setting object properties
- Animating movement
- Animating rotation
- Previewing your work
- Compiling and saving an effect

NOTE This tutorial is based on NTSC format. For other video formats, please make the appropriate adjustments. (NTSC has 30 frames, or 60 fields, per second.)

Creating A New Scene

When PersonalFX starts, it loads a set of default properties for a scene. You can begin editing a new scene right away. However, it's always a good idea to start with a fresh effect just in case there are settings left over from someone else's work that aren't readily apparent. The last thing you want is to devote a lot of time to creating an effect to find out you were using settings you weren't expecting.

Here's what you do:

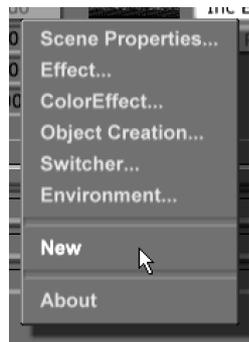
1. Locate the **Effect** picon. It's a window located among the green and red buttons in the toolbar (following figure).



The Effect Picon

2. Right-click on the **Effect** picon.

The **Effect** pop-up menu appears (following figure).

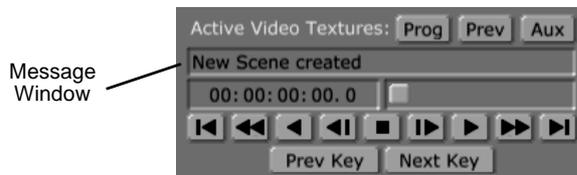


The Effect Pop-Up Menu

Use this menu to access many of the properties panels in PersonalFX.

3. Select **New** from the pop-up menu.
 - a. If there was previous work done in PersonalFX, and it wasn't saved, PersonalFX tells you that there are unsaved changes. It asks if you want to save the changes. Click the **No** button. PersonalFX loads a new scene.
 - b. If there was no previous work, PersonalFX simply loads a new scene.

If you quickly look at the **Message Window** (following figure) on the far right of the toolbar just above the Transport Controls, PersonalFX displays the following message: **New Scene created**.



The Message Window

The **Message Window** displays important PersonalFX messages. A variety of messages appear here, from notes to let you know that an operation has been completed (as in this case), to error messages.

That's all there is to loading a new scene. Because this is a simple tutorial, you will not have to worry about changing scene properties for the moment. That's in other tutorials.

Next, you set effect properties.

Setting Effect Properties

With a new scene loaded, it's time to begin setting the properties for the effect itself. In this tutorial, you want to change the effect type.

Here's what you do:

1. Click the **Effect** button. It's one of the green buttons in the middle of the workspace. It's located just above the **Effect** picon.



The Effect Button

The **Effect Properties** panel appears in the upper left corner of the interface (following figure).

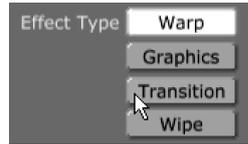


The Effect Properties Panel

Use this panel to edit settings for the effect you're creating. For more details about this panel, see "Effect Properties Panel" on page 136.

You can also access this panel by right-clicking on the **Effect** picon. Select **Effect...** from the **Effect** pop-up menu.

2. Click on the **Transition/Overlay** button (following figure). It's one of the **Effect Type** buttons in the **Effect Properties** panel.



The Transition/Overlay Button

The **Transition/Overlay** pop-up menu appears (following figure).



The Transition/Overlay Pop-Up Menu

There are two options on this pop-up menu: **Transition** and **Overlay**. Transition is used when you want the effect to switch one video source with another. Overlay is used when you want a graphic, or new video source, to appear, but you don't want it to replace the video source that's already there.

For this effect, you want to create a transition. That's because the Program video flies off screen revealing the Preview video.

3. Select **Transition** from the pop-up menu.

PersonalFX now treats this effect as a transition.

4. Click the X button in the top right corner of the Effect Properties panel (following figure).



The X Button

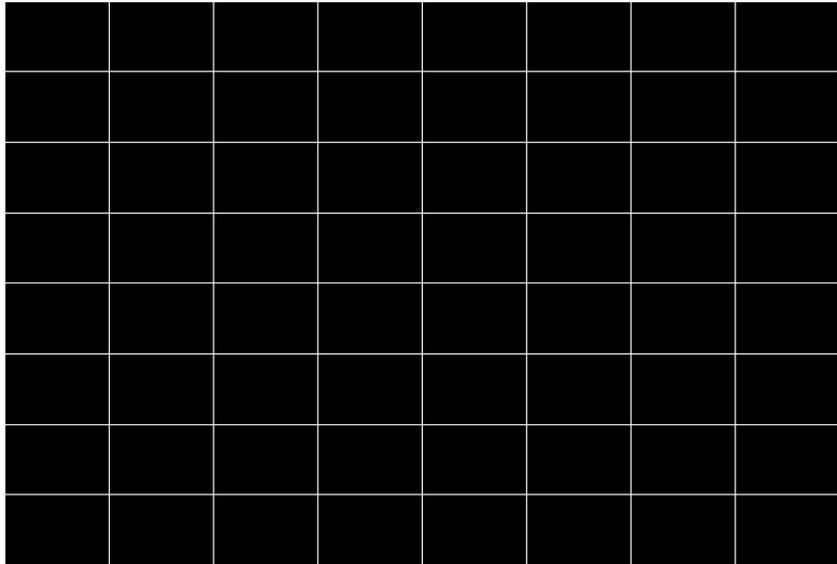
The Effect Properties panel closes.

You've just set up an effect. You next want to set up the workspace.

Setting Up The Workspace

With a new scene created, and effect properties set, it's time to prepare the workspace. This involves changing the view of the workspace to make editing the scene easier. You won't always have to prepare the workspace. As you get more familiar with PersonalFX, you'll find a way to use the workspace that works best for you.

The workspace is the black field in the upper middle portion of the PersonalFX interface (following figure).

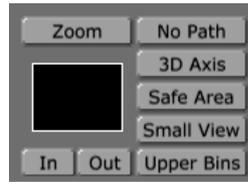


The Workspace

This is your window to what your effect looks like as you create it. Its view represents what the scene camera sees, (and thus what your audience sees when the effect runs). The scene camera is a virtual camera that shoots your effect.

When PersonalFX starts, the workspace is filled with a yellow grid. This is a video plane. It's the default object. You'll be manipulating this object in order to create your effect.

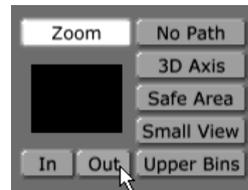
1. Locate the **View Controls** (following figures). These are a set of blue controls just to the right of the Effect Controls you just used.



The View Controls

Use these controls to zoom in and out of your workspace. You can also use them to better manage the PersonalFX interface (see “View Controls” on page 40 for more details). Any changes you make to the workspace view with these buttons do *not* affect your finished effect.

2. Click the **Out** button (following figure).



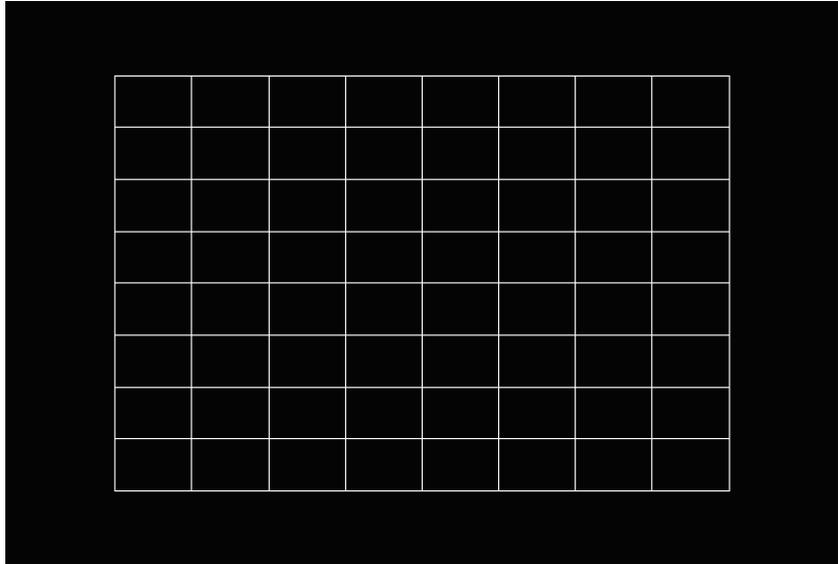
Clicking the Out Button

The video plane “shrinks” as the workspace zooms out. You see a white border around the video plane. This is the safe area. It shows the edge of the workspace. Anything placed outside of this safe area will not show up in the final effect. It will be hidden from view.

Also notice that the **Zoom** button in the View Controls lights up (previous figure). This indicates that the workspace zoom is turned on. You can click this button to turn the zoom off and on when you need to. If you turn zooming off, and later turn it back on, the view zooms to the last zoom setting.

3. Click the **Out** button again.

The workspace view zooms out once again (following figure).



The Workspace While Zoomed Out

With the view zoomed out, you can see outside of any viewable areas, and thus edit the video plane without having your audience see what's going on when you run the effect.

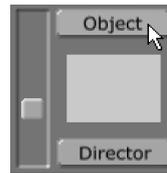
You're done preparing your workspace. Now that all the preliminaries are finished (creating a new scene, setting effect properties, and preparing your workspace), it's time to get started on creating the effect.

Setting Object Properties

For this effect you have to map Program video onto the video plane. That way, the Program source flies off and is replaced by Preview source.

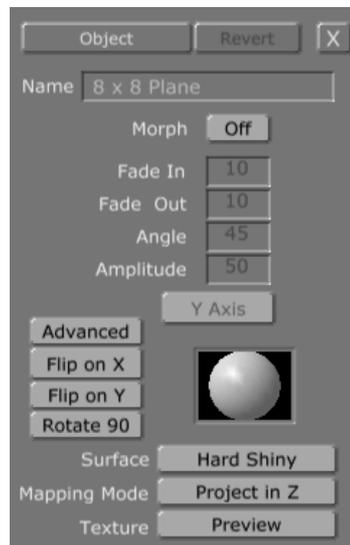
Here's what you have to do:

1. Click the **Object** button (following figure). It's a red button on the left side of the toolbar just above the **Object** picon.



The Object Button

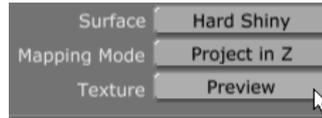
The **Object Properties** panel appears (following figure).



The Object Properties Panel

Use this panel to edit various properties of the selected object (in this case of the video plane). Refer to “Object Properties Panel” on page 61 for more on how to use this panel.

2. Locate the **Texture** button (following figure). It’s near the bottom of the panel below the **Surface** button.



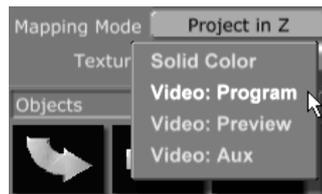
The Texture Button

Use this button to set the type of texture you want to apply to the selected object. A texture is like a skin that is “mapped” (placed over) an object.

You want to map program video onto the video plane.

3. Click the **Texture** button.

The **Texture** pop-up menu appears (following figure).



The Texture Pop-Up Menu

There are several texture options for you to apply to the video plane. Each of the **Video:** options map the video source onto the object. **Solid Color** maps a solid color onto the object. If you ever have images, framestores, etc. mapped onto an object in the workspace, the names of those images also appear here and can be used on other objects.

4. Select **Video: Program**.

The button face changes to read **Program**. PersonalFX now applies Program source video to the video object.

That's it for changing object properties for this tutorial. Your next step is to start animating.

Animating Movement

The quickest way to create an effect is to animate the movement of an object. For this tutorial, the video plane (yellow grid) is the object you animate. As in

other GlobeCaster applications, animation in PersonalFX is done with keyframes. Keyframes represent the beginning and end points of animated movement. PersonalFX automatically animates objects from one keyframe to the next, creating smooth movement. This way, you can make an object fly around the screen by setting only a few keyframes.

For this tutorial, the video plane flies off screen. Therefore, you have to set two keyframes. The first keyframe moves the video object back a little bit and begins its rotation. The second keyframe sets the video object's final position. PersonalFX fills in the movement in between.

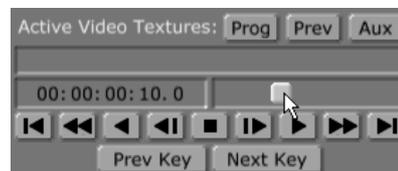
1. Locate the **Transport Controls**. They are a set of blue buttons. They are below the Message Window.



The Transport Controls

Use the transport controls to scrub through your effect. The buttons function like deck controls. The **Timecode Display** displays your current time position within the effect. The **Timecode Slider** allows you to scrub from frame to frame.

2. Click-and-drag the **Timecode Slider** until the **Timecode Display** reads 00:00:00:10.0 (following figure).



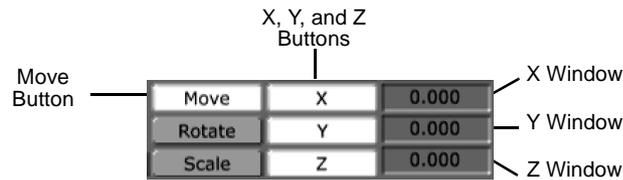
Dragging the Timecode Slider

This places you on the tenth frame in the effect.

Now that you are at the right frame, it's time to edit the video object.

Here's what you do:

1. Locate the **Move** button, and the **X**, **Y**, and **Z** buttons/windows in the toolbar (following figure). They are among the red buttons (the Object Controls) in the toolbar.



The Move, X, Y, and Z Buttons/Windows

In order to move an object in the workspace, the **Move** button must be turned on (lit up). The **X**, **Y**, and **Z** buttons allow you to constrain movement to the X-plane (left and right), Y-plane (up and down), and the Z-plane (in and out) in the workspace. Turning off one of these buttons tells PersonalFX to ignore movement along that plane.

The windows to the right of the X, Y, and Z buttons display the current position of an object at the respective plane. Since you have not moved the object yet, each window reads **0.000**.

You can click in each of these windows, and type in specific values for precision movement of objects. When you change a value in this way, you must press **Enter** on your keyboard to set the change.

You can also click on an object in the workspace, and drag it around the X-plane and Y-plane. Right-click and dragging moves an object along the Z-plane.

2. Click the **Move** button.

The button lights up, and the move function activates.

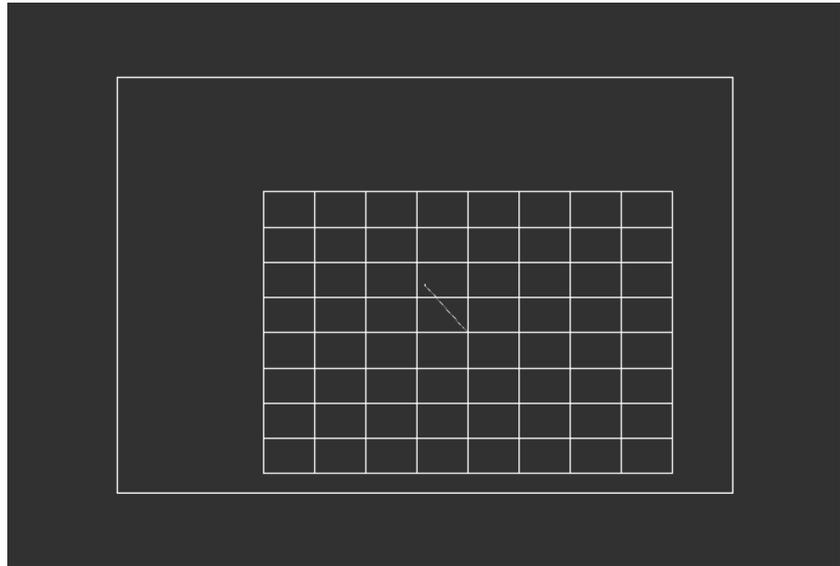
You can also press **q** on your keyboard to activate this function.

3. Enter the following Move values.

X	72
Y	-80
Z	-400

The First Move Values

As you enter each value, the workspace updates, moving the video object into position (following figure) at the coordinates you set.



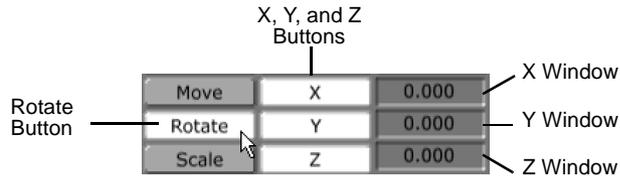
The Moved Video Plane

Because you've changed the object's position at a different frame from where it began, PersonalFX creates a keyframe. When you run the effect later, the video object slides to this position.

You can also click-and-drag the video object into position. As you drag, check the X, Y, and Z windows to move the video object to the right place. Click-and-drag to change the X and Y positions. Right-click and drag to change the Z position.

Your next step is to add a little bit of rotation to the video plane. This helps in giving the video plane the look that it's flying away.

1. Locate the **Rotate** button, and the X, Y, and Z buttons/windows in the toolbar (following figure). They are among the red buttons (the Object Controls) in the toolbar.



The Rotate, X, Y, and Z Buttons/Windows

In order to rotate an object in the workspace, the **Rotate** button must be turned on (lit up). The X, Y, and Z buttons allow you to constrain rotation along the X-plane (left and right), Y-plane (up and down), and the Z-plane (in and out) in the workspace. Turning off one of these buttons tells PersonalFX to ignore rotation along that plane. You can turn these buttons off and on in any combination.

The windows to the right of the X, Y, and Z buttons display the current rotation of an object along the respective plane. The values that appear here are degrees. Since you have not rotated the object yet, each window reads 0.000.

You can click in each of these windows, and type in specific values for precision rotation of objects. When you change a value in this way, press **Enter** on your keyboard to set the change.

You can click on an object in the workspace, and rotate it around the X-plane and Y-plane. Right-click and dragging rotates an object along the Z-plane.

2. Click the **Rotate** button.

The button lights up, and the rotate function activates.

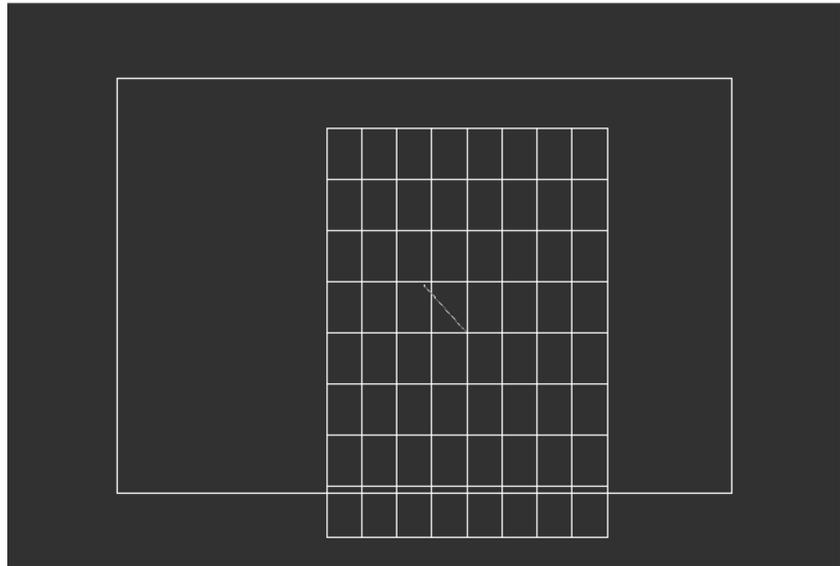
You can also press **w** on your keyboard to activate this function.

3. Enter the following rotation values:

X	0.000
Y	0.000
Z	90

The First Rotate Values

As you change the values, the video plane rotates 90 degrees counter-clockwise (following figure).



The Rotated Video Plane

You can also right-click and drag on the video plane and rotate it into position.

Because you changed the move and rotate values, PersonalFX creates a keyframe. The next step is to move to the end of the effect, and set the last keyframe. Then you can preview the effect, compile it, and save it.

Setting The Last Keyframe

The next step in creating this effect is to set the video plane's final move and rotate values. Here's what you do:

1. Click the **Last Frame** button in the **Transport Controls** (following figure).



The Last Frame Button

The Timecode Slider jumps to the end of the effect. The Timecode display reads **00:00:00:29.1**.

NOTE The Timecode display reads 00:00:00:29.1 because there are 30 frames in a second, and two fields per frame. Fields are counted as XX.0 for the first field, and XX.1 for the second field. Though the timecode display does not read 00:00:00:01, this is still the last field in a 1 second effect.

Use the Transport Controls in PersonalFX the same way you use transport controls on a deck. You can scrub between frames, jump to the first and last frames of the effect, play, and more (see “Transport And Keyframe Controls” on page 187 for more details).

Whenever you want to move to the end (or beginning) of an effect, it's a good idea to use the **Last Frame** (or **First Frame**) buttons. When you click either of these buttons, the timeline jumps to the last or first frame of your effect. If you use the Timecode Slider to do this, you might not place the Slider at the very last frame. Clicking the **Last Frame** button to move to the last frame is a quick way to prevent mistakes.

Now that you are at the last frame, you can move the video plane to its end position.

2. Click the **Move** button.

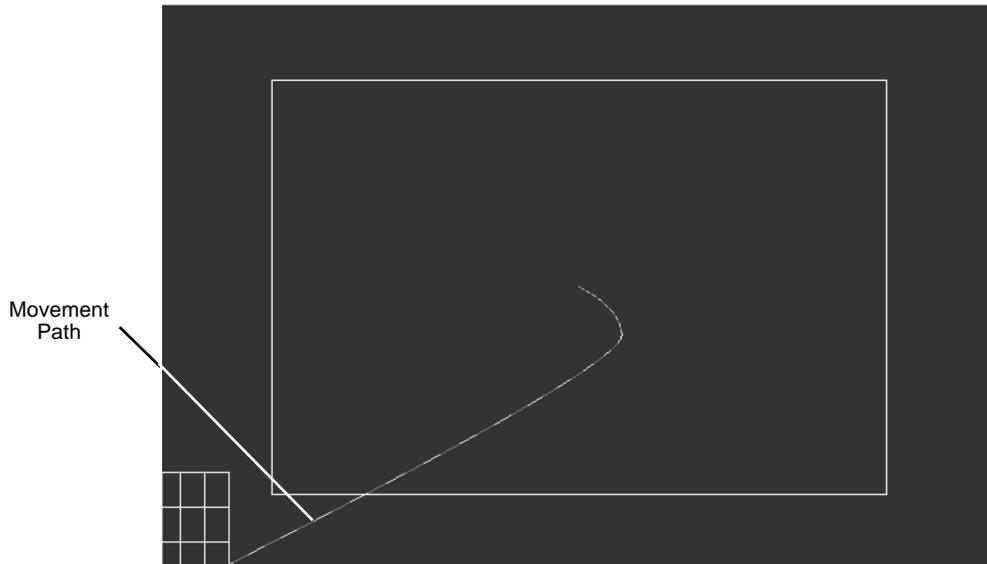
The button lights up, and the move function activates.

3. Change the **Move** values to the following:

X	-1100.000
Y	-800.000
Z	-1000.000

The Last Move Values

As you change the values, remember to press **Enter**. When you finish, the video object is positioned outside of the safe area (following figure).



The Moved Video Plane

Notice the faint line tracing its way through the workspace. This is the **movement path**. It shows how the object moves between keyframes. In this case, it shows that the video plane starts in the middle of the screen and flies off to the left.

That's it. You've just finished creating a flying transition effect. The next step is to compile and save it so you can use it in Air Command. However, there is one optional step you can do.

Previewing Your Work (Optional)

Now that you have finished creating your effect, you can preview it to see if it's doing what you want. The first thing you have to do is return to the beginning of the effect. You can then preview it.

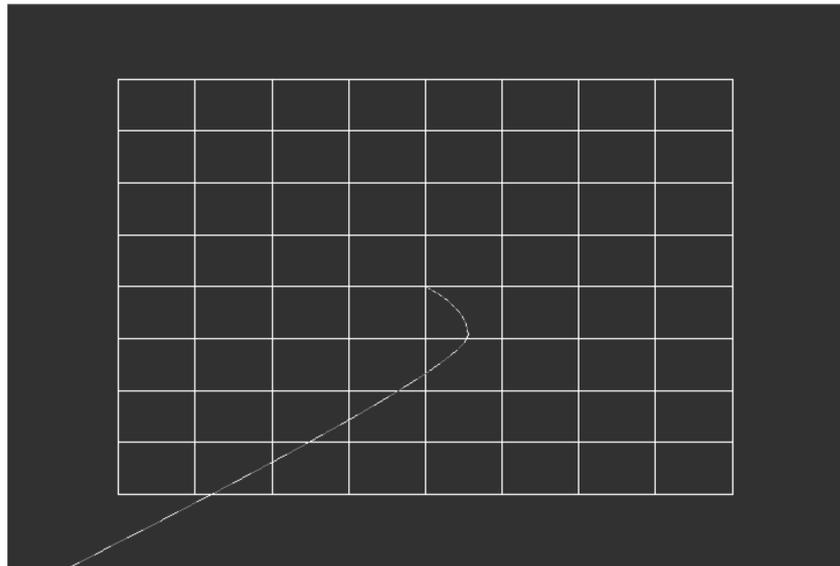
When you preview work in the workspace, the effect plays slower than it actually plays once it is compiled. The speed at which it plays depends on your host PC and hardware.

1. Click the **First Frame** button in the transport controls (following figure).



The First Frame Button

You return to the beginning of the effect. The video plane jumps back to its beginning position (following figure).



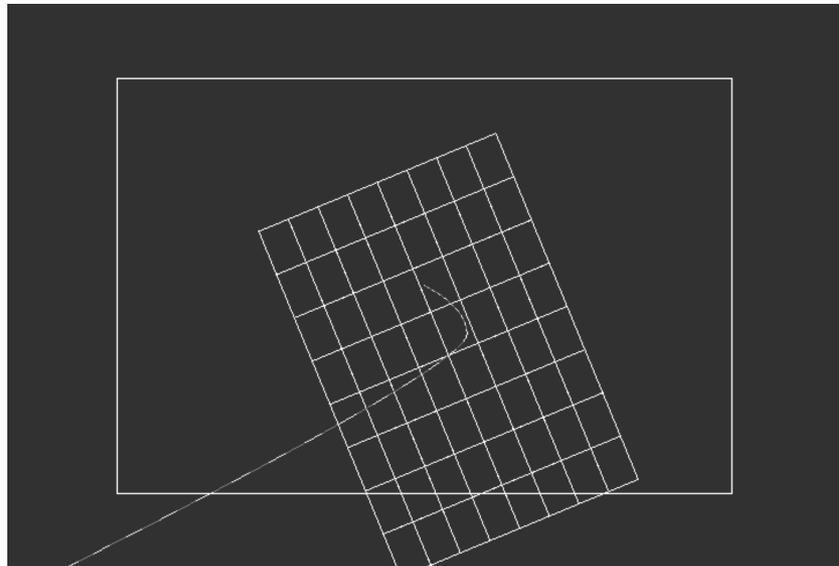
The Video Plane Before Previewing

2. Click the **Play** button in the transport controls (following figure).



The Play Button

In the workspace, the video plane moves from its starting position to its ending position (following figure).



The Effect In Progress

- When you preview your effect, it plays back at a slower speed than it actually runs after compiling. The playback speed varies depending on your host PC and hardware.
3. Watch the effect play. Notice that at the beginning of the effect, the video plane is yellow. As it moves, it turns green. When it reaches the first keyframe (at frame 00:00:00:10.0), the video plane turns yellow, then

back to green. Finally, when it comes to its end point, it turns yellow again.

When viewing the workspace in wireframes, selected objects are green. They turn yellow when they are at a keyframe. Because you set a keyframe at the beginning, at frame 00:00:00:10.0, and at the end of the effect, the object turns yellow at those frames.

4. Click-and-drag the **Timecode Slider** to the beginning of the effect.
5. Click the **Play** button to preview the effect again.

The effect runs again. Notice that the **Timecode Slider** moves as the effect runs. The **Timecode Display** ticks off the frames.

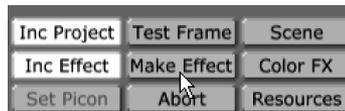
That's it for editing the effect. What you have right now is a set of instructions that PersonalFX uses to compile an effect. Therefore, your next goal is to compile it so you can use it in Air Command.

Compiling An Effect

Once you finish creating a scene and editing an effect, you must tell PersonalFX to compile it so that you can use it. It takes between 5 and 10 minutes.

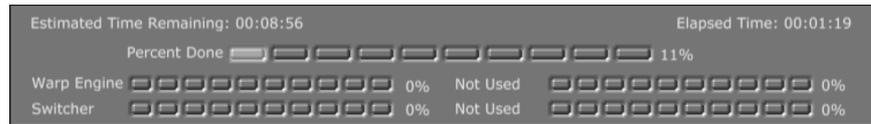
Here's how to do that.

1. Click the **Make Effect** button (following figure). It's a green button in the toolbar.



The Make Effect Button

The toolbar ghosts out except for the **Abort** button. A panel appears (following figure).



The Progress Meter

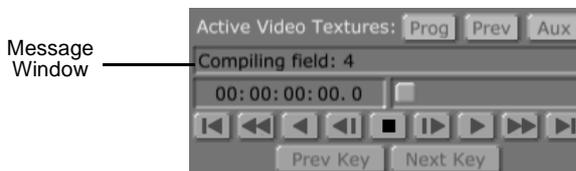
This is the **Progress Meter**.

The purpose of this panel is to let you know PersonalFX's progress as it compiles your effect.

2. While your effect is compiling, take a moment to notice a few things about the panel.

First, the **Estimated Time Remaining** display lets you know how long the effect takes to compile. This time may fluctuate depending on a number of factors. Directly across from that is the **Elapsed Time** display. This tells you how long PersonalFX has been busy compiling your effect. The four progress meters below the main meter tell you which GlobeCaster system resources are being used, and how much of those resources are being used.

While the effect compiles, the **Message Window** reports which field PersonalFX is currently compiling (following figure).



The Message Window with Compiling Message

If at any time you want to stop the compiling process, you can click the **Abort** button (following figure).



The Abort Button

If you end a compiling process in this way, you have to compile the effect from the beginning later on. (Click the **Make Effect** button again to do this.)

Once the **Percent Done** display reads **100%**, the effect is compiled. The panel disappears.

You now have a fully functional effect that you can use in Air Command but you have to set the picon and save it first.

Setting The Effect Picon

When you set a picon, you are creating a picon of your effect. This picon appears in the **Effect picon** on the toolbar. GlobeCaster then uses this picon when you save the effect. The idea is to create a picon that represents what the effect does so that it is easier for you to recognize it when you are sifting through your bins looking for it.

This is not an essential step in the effect creation process, but it is a helpful one.

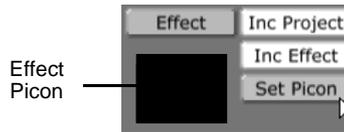
Here's what you do:

1. Drag the **Timecode Slider** until the **Timecode Display** reads **00:00:00:15.0**.

The effect moves to the fifteenth frame. The video object turns green as it travels along the movement path.

This frame was picked arbitrarily. You can use any frame you want.

2. Click the **Set Picon** button in the toolbar (following figure). It's a green button.



The Set Picon Button with Effect Picon

PersonalFX takes a grab of the effect in progress. The **Effect** picon shows a gray field moving out over a black background (following figure).



The New Effect Picon

The picon is set for this effect. If you don't like the picon, you can always scrub to a different frame in the effect, and click the **Set Picon** button again.

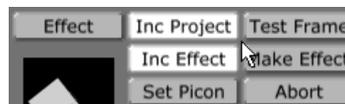
With this task finished, you are now ready to save the effect.

Saving The Effect

Saving is the final step in creating an effect.

Here's what you do:

1. Locate the **Inc Effect** (Include Effect) and the **Inc Project** (Include Project) buttons. They are green buttons in the middle of the toolbar.



The Inc Project and Inc Effect Buttons

These buttons let you tell PersonalFX what part of your effect you want to save. **Inc Project** saves the instructions (information) that makes up the effect (how it works, and what it does) but not the effect itself. This means

you can edit the effect at a later date because you have saved the instructions that make up the effect. **Inc Effect** saves the actual compiled effect. This button is ghosted out until you compile an effect. Compiled effects can be pretty large (as compared to the set of instructions that tells PersonalFX what the thing does), and take up more room on your hard drive.

Turning either of these buttons off tells PersonalFX to ignore that part of the effect. If you turn off **Inc Project**, the instructions for the effect are not saved, and you will not be able to edit the effect later on. If you turn off **Inc Effect**, PersonalFX only saves the instructions (and *not* the finished effect itself). The advantage to not saving the compiled effect is in saving hard drive space.

For this tutorial, you want to save both the instructions that make up the effect and the effect itself.

2. Make sure that both **Inc Project** and **Inc Effect** are turned on (lit up).

If either button is not turned on, click on it. By default, both are turned on.

3. Drag-and-drop the Effect picon into a convenient bin (following figure).



The Saved Effect's Picon in a Bin

PersonalFX takes a moment to save your effect. A picon of the effect appears in the bin you dropped it into.

You can also click the **Save Now** button. PersonalFX saves the effect to the default bin, **GlobeCaster/Bins/Pfx/Projects**.

You now have a completed effect. You can go into Air Command, load it (double-click on the effect's picon in the bin you saved it to, or drag-and-drop it into the FX picon), and run it in real time with any video source. For more on using effects in Air Command, see the *GlobeCaster Air Command Manual*.

Wrap Up

In this tutorial, you learned how you can move objects. You also learned how to rotate objects. Moreover, you learned how to use the transport controls to scrub through an effect. Finally, you learned the basics of compiling and saving an effect. These are skills you will use with every effect you create in the future.

Feel free to experiment with what you've learned. By adjusting the duration of the effect and moving the video plane around, you can create a number of simple but interesting effects. You can move objects along a single plane, or anywhere in three-dimensional space by turning the **X**, **Y**, and **Z** buttons on and off in different combinations. Turning all three buttons on allows you to move the video plane in any direction. Click-and-drag to move along the **X**-, and **Y**-planes (left-and-right, and up-and-down). Right-click and drag to move the video plane along the **Z**-plane (in-and-out). You can also rotate the video plane in same way. You can make it spin, twist, and turn by combining changes in its movement and rotation.

When you are comfortable with what you've learned, proceed to the next tutorial.

Creating A Sepia Color Effect

The following tutorial is intended for novice to intermediate users. It shows how to create a sepia tone color effect that you can use in Air Command. A sepia tone color effect recreates the faded brown tinge old photographs have.

You will learn the following skills:

- How to create a monochrome color effect
- How preview color effects in the PersonalFX workspace
- How to save color effects
- How to load color effects in Air Command

Starting A Color Effect

Unlike creating 3D effects, there are no preparatory steps for creating a color effect. The only thing you want to do is load a still so that you can preview your work as you go. You can do this in Air Command by grabbing a freeze from the video you want to apply the color effect to. See the *GlobeCaster Air Command Manual* for details on how to get a freeze frame. For this tutorial, you use one of the stills that are included in GlobeCaster's content.

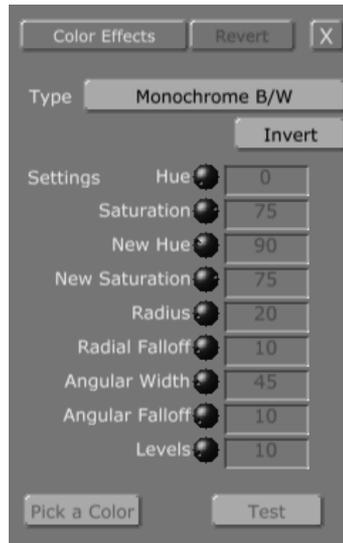
Here's how you load a still:

1. Click the **ColorFX** button in the toolbar (following figure). It's one of the green buttons in the toolbar.



The ColorFX Button

Most of the buttons in the interface ghost out. The **Color Effects** panel appears in the upper left of the interface (following figure).



The Color Effects Panel

Use this panel to create your color effects (see “Creating Color Effects” on page 152 for more details on this panel). Notice that a few of the values are green while the rest are ghosted out. That’s because adjustable settings vary with the kind of effect you are creating.

TIP If you ever want to stop editing your color effects and restore the toolbar controls, click the X button in the top right corner of the panel (following figure).



The X Button

2. Navigate the bins to the **GlobeCaster\Bins\Stills\Sampler** folder.
3. Double-click the following picon (The name of the picon is **_4710-36n_KidFishing.tfs.**):



The Kid Fishing Picon

The workspace fills with the image. Use this framestore as a reference while you are creating the color effect for this tutorial.

Because you opened the color effect panel and dropped a framestore into the workspace, PersonalFX automatically applies whatever color effect is set in the **Color Effect** panel. If you just started up PersonalFX (or no one else has been using the panel before you), the first color effect (**All B/W But Hue Circle**) is already loaded and activated.

4. Click in the workspace.

The picture returns to its normal state.

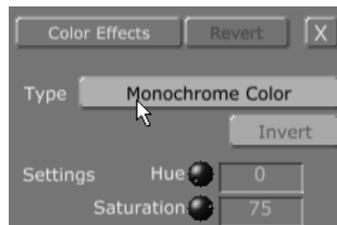
TIP Whenever you want to turn a color effect off, click in the workspace.

That's it for getting ready to make an effect.

Making The Sepia Tone Effect

The next step is to start creating your sepia tone effect.

1. Locate the **Type** button (following figure). It's a long red button near the top of the **Color Effects** panel.

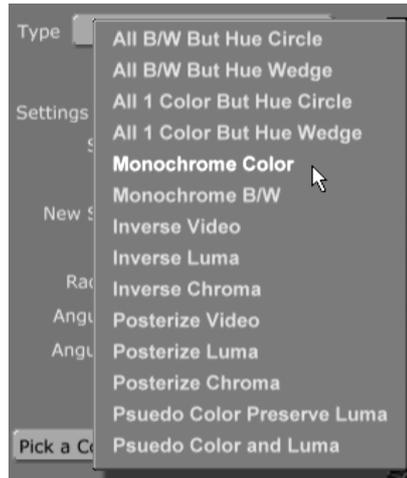


The Type Button

Use this button to select the type of color effect you want to create.

2. Click the **Type** button.

The **Type** pop-up menu appears (following figure).



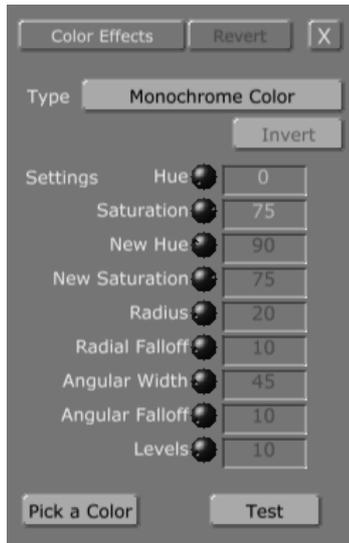
The Type Pop-Up Menu

Use this pop-up menu to select from a variety of color effects.

3. Select **Monochrome Color**.

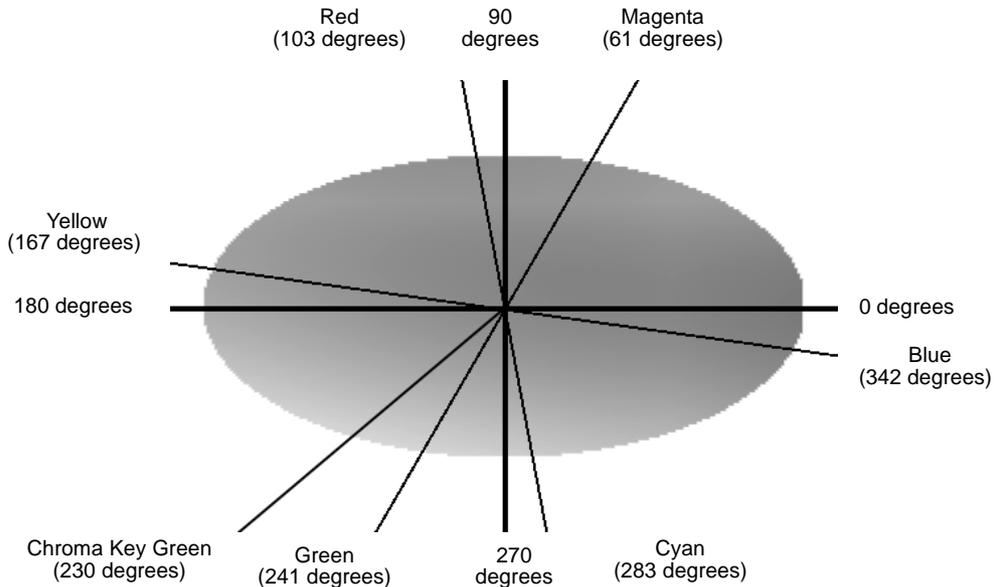
Monochrome Color uses a single color to replace all other colors.

Notice that the values for **Hue** and **Saturation** turned green while all the other values are ghosted out (following figure). You can use just these two settings to create a large number of color effects.



The Color Effect Panel with Monochrome Selected

Hue adjusts the range of colors you are selecting for your effect. It is measured in the 360 degrees of the color wheel (following figure).



The Color Wheel

As you change this setting, your color selection moves through the color wheel counter-clockwise. Different degree marks on the color wheel select specific colors, or a range of colors.

Saturation adjusts the intensity of the color you are selecting. In the color wheel, brighter colors are located near the edges of the wheel, while less bright colors (verging on gray) are near the center. When you adjust this setting, your color selection moves between the edge and the center of the wheel. The range of values you can set for saturation is 0 (the center of the color wheel) to 100 (the outer edge of the color wheel).

For a sepia tone effect, do the following:

1. Click in the value window for **Saturation**.
2. Change the value to 30. Press **Enter** on your keyboard to set the change.
3. Type in 0 for the **Hue** value.

4. Click the **Test** button at the bottom of the **Color Effects** panel (following figure).



The Test Button

The framestore loaded in the workspace changes to a monochrome blue color. This tones down the hue and makes the final color softer.

Whenever you want to see the results of your changes to values in the panel, click the **Test** button. Every time you click in the workspace to return the loaded framestore to its normal condition, you have to click the **Test** button to preview your work again. The workspace updates automatically to reflect the changes you made.

Next, you want to give the effect a sepia tone look.

1. Change the **Hue** value to 140.

The framestore in the workspace updates to reflect the change. It has a sepia tone color to it.

2. Click in the **Hue** value window.
3. Use the **Up** and **Down** arrow keys on your keyboard to adjust the color to your liking.

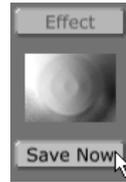
You can type in new values to adjust **Hue**. You can also click-and-drag left and right on the knob to adjust values.

Once you're done, save the effect. You then use it in Air Command.

Saving And Loading The Effect In Air Command

There are two ways to save an effect:

- a. Click the **Save Now** button (following figure). It's a green button just below the **Effect** picon in the toolbar.



The Save Now Button

PersonalFX saves the color effect to **GlobeCaster\Bins\PFx\Projects** folder by default. A picon of the effect appears in the bin (following figure).



Picon of Saved Effect

- b. Drag-and-drop the Effect picon into a convenient bin.

PersonalFX saves the color effect to that bin. A picon of the effect appears.

Once the effect is saved, you can load it in Air Command and use it.

1. Minimize PersonalFX.
2. Start up Air Command.
3. Navigate to the bin where you saved your effect.

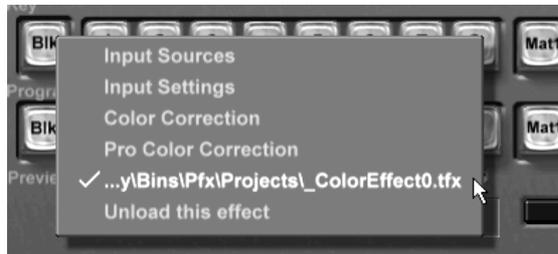
If you clicked **Save Now** to save, navigate to **GlobeCaster\Bins\PFx\Projects**.

4. Drag-and-drop the color effect picon onto the Program bus button of the video source you want to use the effect on.

The effect is loaded into that bus, but it's not activated yet.

5. Right-click the bus button.

A pop-up menu appears (following figure).



Bus Pop-Up Menu

6. Select the effect.

The effect runs, applying the sepia tone to that video source.

To turn the effect off:

1. Right-click on the bus button once again.
2. Select **Unload This Effect**.

The effect shuts off and is removed from the bus.

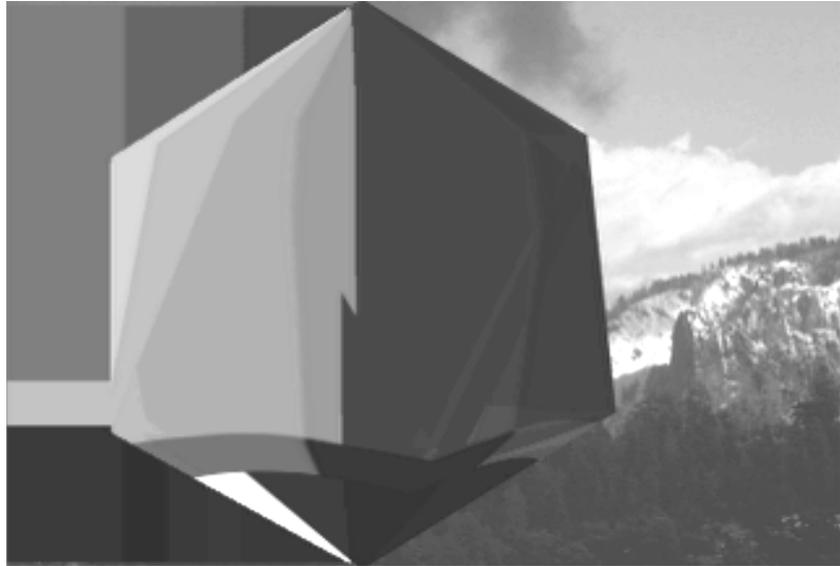
That's it for creating an effect and using it in Air Command.

Wrap Up

Using the color wheel as a reference, and with a little creativity, you can create a number of different effects that change all the tones in your video to one color. Experiment with the **Hue** and **Saturation** values to familiarize yourself with how they function.

Creating A Sliding Transition With A 3D Object

The following tutorial is geared towards the intermediate user. It assumes you already understand movement, rotation, and scaling concepts, as well as effect creation procedures. When the effect is compiled, a 20-sided object slides across the screen, the Preview video plane in tow (following figure).



The Sliding Transition with a 3D Object

You will learn the following skills:

- Creating a 3D object
- Using the **Surface Settings** panel
- Editing keyframes in the timeline

NOTE This tutorial is based on NTSC format. For other video formats, please make the appropriate adjustments. (NTSC has 30 frames, or 60 fields, per second.)

Creating A New Scene

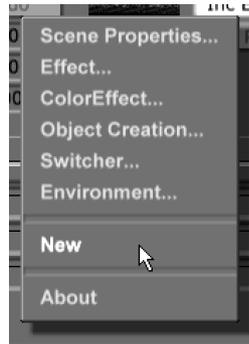
As you've done in the previous tutorials, create a new scene before beginning.

1. Right-click on the Effect picon (following figure).



The Effect Picon

The Effect pop-up menu appears (following figure).



The Effect Pop-Up Menu

2. Select **New**.

If there was previous work done, and that work was not saved, PersonalFX prompts you to save.

With a new scene created, it's time to set effect properties.

Setting Effect Properties

Next, you want to set effect properties. For this effect, you need to change the duration and the effect type. You also need to turn on both wipe and graphics.

Here's how you set the properties for this effect:

1. Click the **Effect** button (following figure).



The Effect Button

The **Effect Properties** panel appears in the upper left corner of the interface (following figure).



The Effect Properties Panel

You can also access this panel by right-clicking on the **Effect** picon. Select **Effect...** from the **Effect** pop-up menu. (If you want to know more about this panel, see “Effect Properties Panel” on page 136.)

With the **Effect Properties** panel open, you want to increase the duration of the effect first.

2. Click in the **Duration** window (following figure). It’s located near the top of the panel.



The Duration Window (Before Changing the Duration)

Use this window to change the duration of your effect. The default setting is one second.

3. Type in **00:00:01:10**. Press **Enter** on your keyboard to set the change.

The length of the effect is now set to 1 second and 10 frames.

Next, set the effect types.

1. You need this effect to be a warp. Check the **Warp** button to make sure it's turned on. If **Warp** is turned on, the button is lit up (following figure).



The Warp Button Turned On

If **Warp** is not turned on, click the button.

Warp is turned on by default, but it's always a good idea to make sure. It saves time in the long run.

Because this effect includes the 20-sided object, you also need to make sure graphics are included in the effect.

2. Make sure the **Graphics** button is turned on. If **Graphics** is turned on, the button is lit up (following figure).

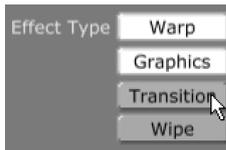


The Graphics Button Turned On

Whenever you create an effect that uses graphics, you must tell PersonalFX to include those graphics when it compiles. You do this by turning the **Graphics** button on.

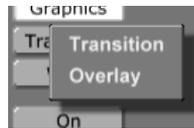
If the button is not lit up (graphics are not turned on), click it.

3. Click on the **Transition/Overlay** button (following figure).



The Transition/Overlay Button

The **Transition/Overlay** pop-up menu appears (following figure).



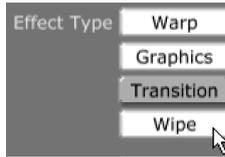
The Transition/Overlay Pop-Up Menu

4. Select **Transition** from the pop-up menu.

PersonalFX now treats this effect as a transition.

You want to be able to see video in the background as the video plane is pulled onto the screen, so you want this effect to be a wipe.

5. Turn on **Wipe** (following figure).



The Wipe Button

With **Graphics** and **Warp** turned on, turning on **Wipe** makes the background a video source, rather than a solid color.

6. Locate the **Graphic Style** button (following figure). It's at the bottom of the panel.



The Graphic Style Button

Use this button to adjust general shading values for the entire effect. **Flat** makes all the objects in the workspace have flat surfaces with faceted edges. **Phong** makes all the objects in the workspace have smooth surfaces.

For this effect, you want to be able to see the edges of the 20-sided object you create.

7. Click the **Graphic Style** button.

The **Graphic Style** pop-up menu appears (following figure).



The Graphic Style Pop-Up Menu

8. Select **Flat**.

PersonalFX now renders all objects with flat edges.

That's it for effect properties.

9. Click the **X** button in the top right corner of the Effect Properties panel (following figure).



The X Button

The Effect Properties panel closes.

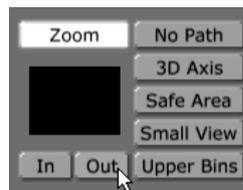
You've just set up the effect. It's time to set up the workspace so you can begin editing objects in it.

Setting Up The Workspace

This tutorial involves a 20-sided object rolling across the screen, pulling the Preview video with it. Because of the size of the object you are going to create, you want to zoom your workspace view out.

Here's what you need to do:

1. Click the **Out** button on the view controls (following figure).

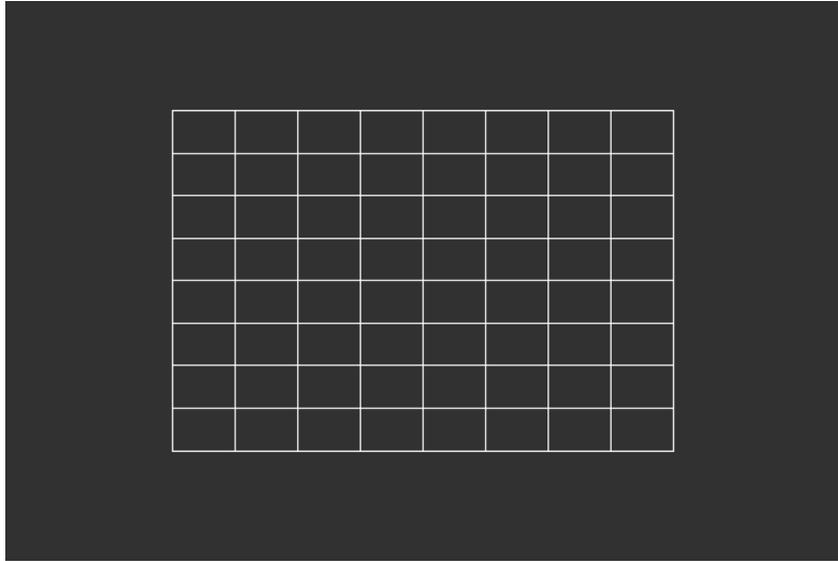


Clicking the Out Button

The video plane “shrinks” as the workspace zooms out. You see the safe area.

2. Click the **Out** button two more times.

The workspace view zooms out more (following figure).



The Workspace While Zoomed Out

Okay, you're done preparing your workspace. Now that all the preliminaries are finished (creating a new scene, setting effect properties, and preparing your workspace), it's time to create the effect.

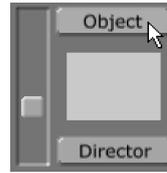
Setting The Plane's Properties

For this effect you have to map Preview video onto the video plane. That way, the Preview source slides on screen and replaces the Program source.

The first thing you want to do is set the plane's properties.

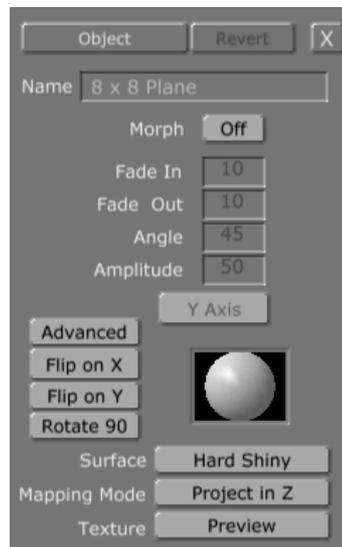
Here's what you have to do:

1. Click the **Object** button (following figure).



The Object Button

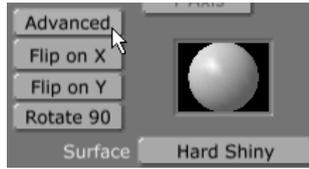
The **Object Properties** panel appears (following figure).



The Object Properties Panel

Use this panel to edit various properties of the selected object (in this case of the video plane). For more details on this panel, see “Object Properties Panel” on page 61.

2. Click the **Advanced** button (following figure).



The Advanced Button

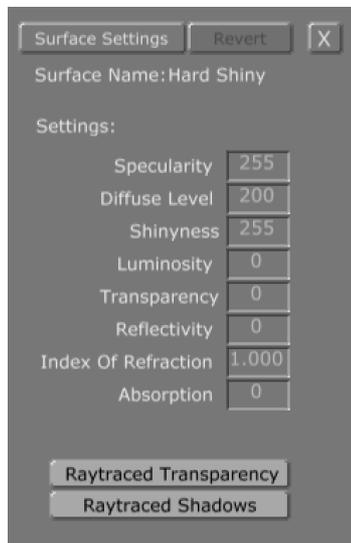
The **Advanced** pop-up menu appears (following figure).



The Advanced Pop-Up Menu

3. Select **Surface Settings**.

The **Surface Settings** panel appears (following figure).



The Surface Settings Panel

Use this panel to adjust light settings for a selected object. For complete details on this panel see “Surface Settings Panel” on page 69.

For this effect, you want to be sure the video plane matches the brightness of normal video. You can do this by adjusting the **Luminosity** value. Luminosity adjusts the amount of light an object emits.

4. Click in the value window for **Luminosity** (following figure).



Changing Luminosity

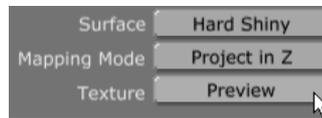
5. Change the value to **255**. Press **Enter** on your keyboard to set the change.

That's the only surface setting you have to adjust.

6. Click the **X** button in the top right corner of the panel.

The panel closes, bringing back the Object Properties panel.

7. Click the **Texture** button (following figure). It's near the bottom of the panel below the **Mapping Mode** button.



The Texture Button

The **Texture** pop-up menu appears (following figure).



The Texture Pop-Up Menu

Use this button to set the type of texture you want to apply to the selected object.

8. Select **Video: Preview**.

The button face changes to read **Preview**. PersonalFX now applies the Preview source to the video object.

9. Click the **X** button in the top right corner of the panel.

The panel closes.

That's it for changing the properties for the plane. Your next step is to create the 20-sided object.

Creating The 20-Sided Object

This section covers creating the 20-sided object. PersonalFX can create a number of primitive objects using the **Object Creation** panel. A primitive is a basic geometric shape that you can create and edit.

In this tutorial, you need to create only one new primitive: the 20-sided object.

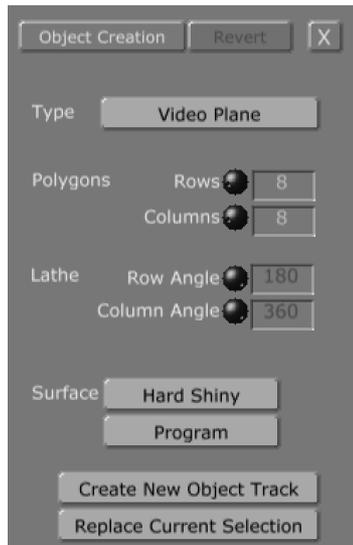
Here's what you do:

1. Click the **Create** button in the **Object Controls** (following figure).



The Create Button

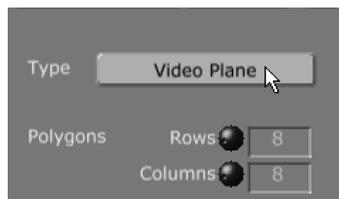
The **Object Creation** panel (following figure) appears in the upper left corner of the interface.



The Object Creation Panel

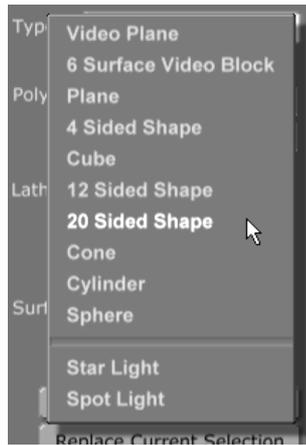
Use this panel to create an object, or replace an existing object with a new one. For more details on how this panel works, see “Object Creation Panel” on page 122.

2. Click the **Type** button (following figure). It’s located at the top of the panel.



The Type Button

The **Type** pop-up menu appears (following figure).



The Type Pop-Up Menu

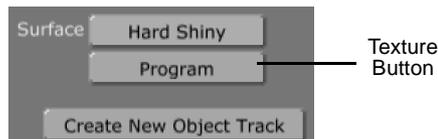
This pop-up menu lists all the objects that can be created. The first ten objects are primitives (basic geometric shapes). The last two are lights.

3. Select **20 Sided Shape**.

This sets the object you are creating to be a 20-sided object. The button face changes to read **20 Sided Shape**.

Next, you want to set the 20-sided object's texture properties.

1. Locate the **Texture** buttons (following figure) near the bottom of the panel.



The Surface and Texture Buttons in the Object Creation Panel

This button is used to assign textures to the primitive you are creating.

2. Click the **Texture** button (following figure).

A pop-up menu appears (following figure).



The Texture Pop-Up Menu

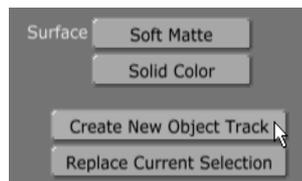
Use this menu to apply a texture to the object. The options allow you to set a video source or a solid color as the texture. If you have multiple objects in the workspace that have images mapped onto them, the file names for those images also appear in this pop-up menu.

For this tutorial, you want to apply Preview video to the 20-sided object.

3. Select **Video: Preview**.

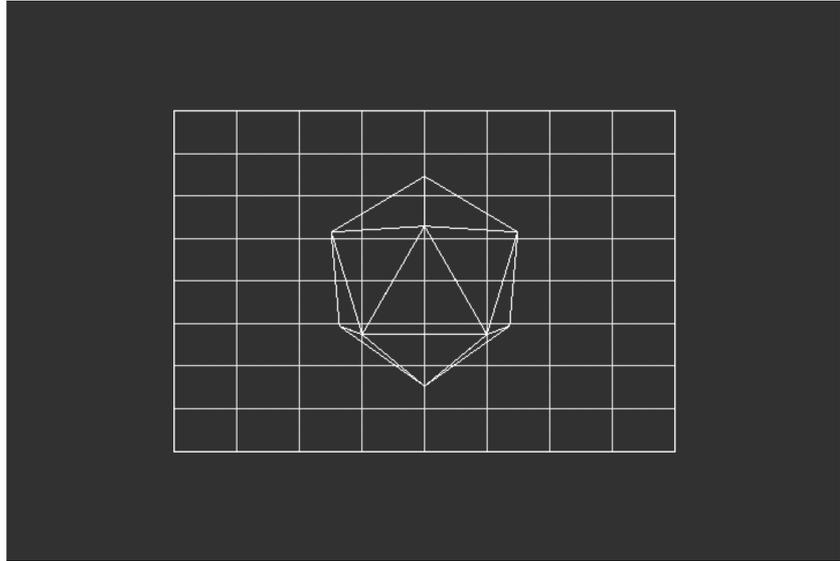
PersonalFX now applies Preview video as a texture to the object you're creating.

4. Click the **Create New Object Track** button (following figure) near the bottom of the panel.



The Create New Object Track Button

The object appears in the workspace (following figure).



The New 20-Sided Object in the Workspace

PersonalFX automatically selects it (the object turns yellow while the video plane turns a dull red).

You are ready to set more properties for this 20-sided object.

Setting The 20-Sided Object's Properties

To create an interesting effect, you can adjust the surface properties of the 20-sided object. For this tutorial, you want to make the object appear slightly transparent and reflective. That way, as the object slides onto screen its shape and movement create interesting effects. You also want to make the object larger. This way, you can create the illusion that it is pulling the video plane.

Here's what you do:

1. Make sure the 20-sided object is selected.

It turns yellow when you are viewing the workspace in wireframes. It also appears in the **Object** picon in the toolbar.

The first thing you want to do is set surface properties for the object.

2. Click the **Advanced** button.

The **Advanced** pop-up menu appears.

3. Select **Surface Settings**.

The **Surface Settings** panel appears.

You want to adjust several properties for the object. They are **Diffuse Level**, **Transparency**, **Reflectivity**, and **Index of Refraction**.

Diffuse Level adjusts the apparent amount of color reflected across an object's surface.

Transparency adjusts the alpha value (transparency) of the object.

Reflectivity adjusts how much of the surrounding light is reflected off the object.

Index of Refraction adjusts the way light bends as it passes through an object. This is known as refraction. You must turn on **Raytraced Transparency** (one of the buttons at the bottom of this panel) to activate this function.

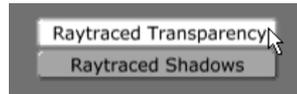
4. Change the values to the following settings:

Settings:	
Specularity	255
Diffuse Level	30
Shininess	255
Luminosity	0
Transparency	200
Reflectivity	150
Index Of Refraction	1.100
Absorption	0

Surface Settings for the Object

You want the light passing through the object to bend a little. You've already set the angle of this bend using **Index of Refraction**, but you have to tell PersonalFX to make it into a raytraced effect.

5. Click the **Raytraced Transparency** button at the bottom of the panel (following figure).



The Raytraced Transparency Button

The button lights up, and light in the effect now bends when it passes through the object at the angle set in the **Index of Refraction**.

That's it for surface settings.

6. Click the **X** button at the top right corner of the panel.

The panel closes, and the Object Properties panel is restored.

At the moment, the 20-sided object is a little too small. You want to resize it so that its points touch the edges of the workspace. This way, you can create the illusion that the object is pulling the video plane by hiding the edges of the video plane under it.

Here's what to do:

Click the **Scale** button (following figure).



The Scale Button

7. Set the **Scale** values to the following:

X	486.000
Y	486.000
Z	486.000

The 20-Sided Object's Scale Values

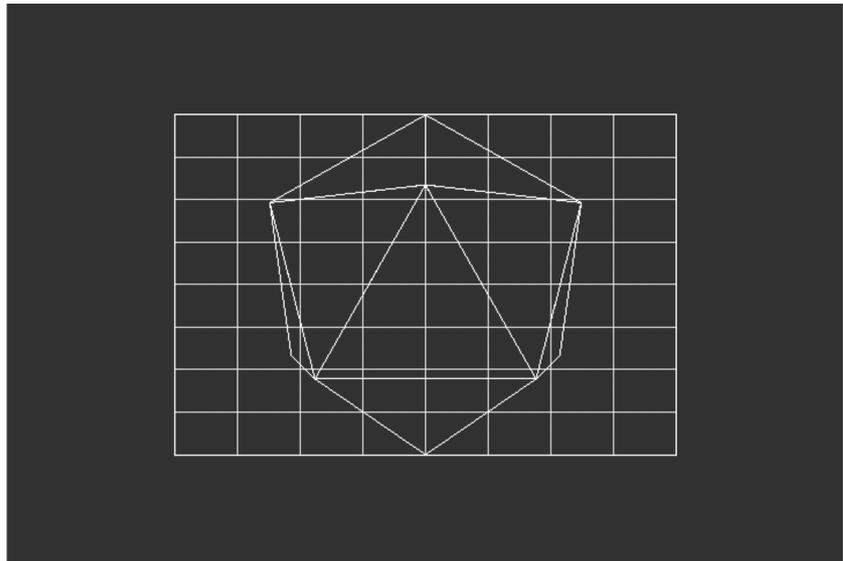
You can set these values in two ways:

- a. While holding the **Ctrl** key on your keyboard, click-and-drag the 20-sided object in the workspace until the values are set.

Holding down the **Ctrl** key maintains an object's aspect ratio while you're scaling.

- b. Click in each window to the right of each of the **X**, **Y**, and **Z** buttons. Type in the new value. Press **Enter** on your keyboard after each one to set the change.

The 20-sided object resizes (following figure).



The Resized 20-Sided Object

These scale values match the height of the video plane.

That's all there is for setting this object's properties and resizing it. The next stage is to begin animating.

Positioning the Objects

For this tutorial, since both the video plane and the 20-sided object slide in from off screen, you must first position these objects off screen (their starting point). Then, you change the objects' positions at different points in time. PersonalFX animates the movement in between.

Here's how to set the starting points:

1. Make sure the 20-sided object is selected.

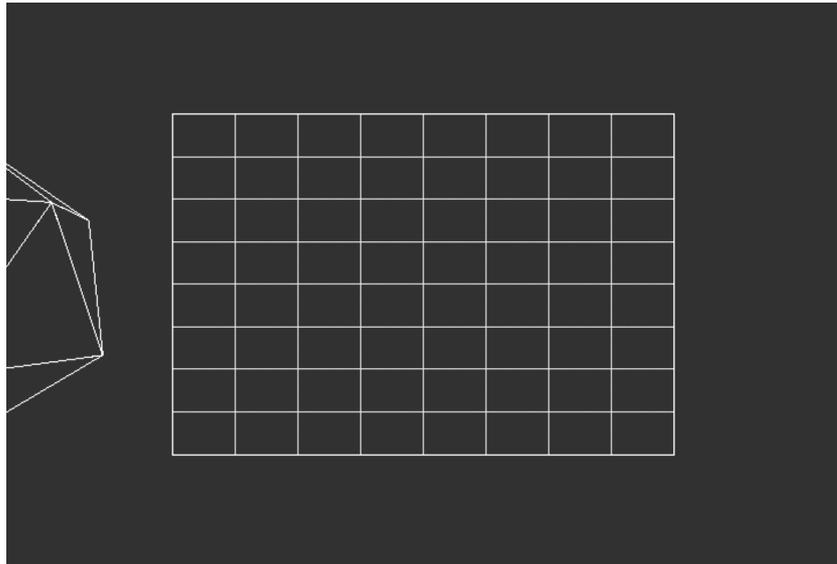
It turns yellow when you view the workspace in wireframes. It also appears in the **Object** picon in the toolbar.

2. Click the **Move** button in the toolbar.
3. Enter the following **Move** values:

X	-700
Y	0.000
Z	0.000

The 20-Sided Object's Starting Move Values

The 20-sided object jumps to the left, well out of the safe area (following figure).



The 20-Sided Object's Starting Position

Next, you want to set the video plane's starting location.

4. Press **p** on your keyboard.

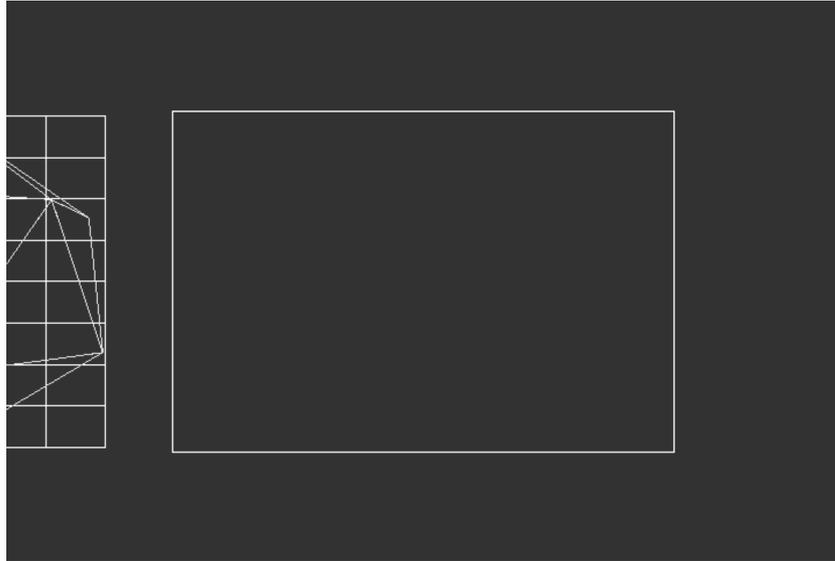
The video plane is selected. Pressing **p** on your keyboard toggles through the objects in an effect. It does not select the scene camera or lights however.

5. Click the **Move** button in the toolbar.
6. Enter the following **Move** values:

X	-800
Y	0.000
Z	0.000

The Video Plane's Starting Move Values

The video plane jumps outside the safe area (following figure).

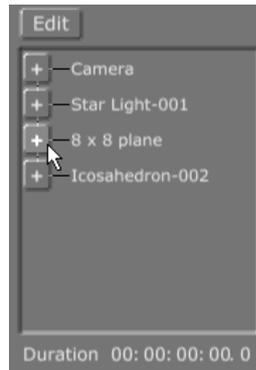


The Plane's Starting Position

Next, you want to change how the object moves when you animate it. This is done in the timeline. The timeline shows you the location of each keyframe and its control points. You can edit keyframe properties from the timeline, as well as reposition a keyframe, by manipulating the control points. For more on the timeline, see “Using The Timeline” on page 169.

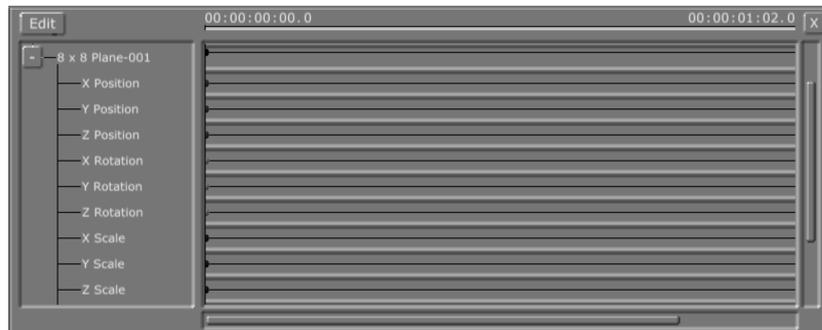
By default, PersonalFX displays every object's main track. The main track shows you where in time a keyframe is located.

1. Click on the + button to the left of the video plane's name in the timeline (following figure).



The + Button

The video plane's value tracks appear below its main track (following figure).



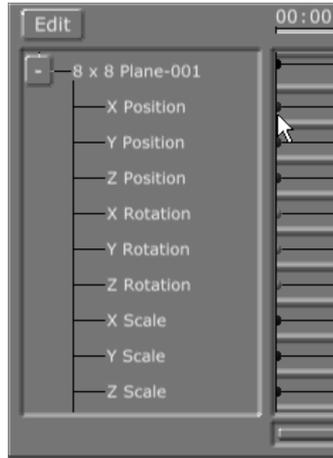
The Video Plane's Value Tracks

The + turns to a -.

Use these tracks to change the values of keyframes. The control points (colored dots) for each value appear as different colors.

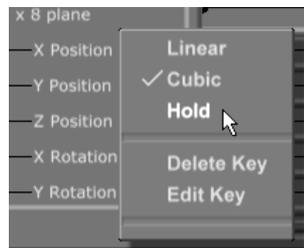
You want to change how PersonalFX handles the transition from one keyframe to the next.

2. Right-click on the **X Position** control point (following figure).



The X Position Control Point

The **Keyframe** pop-up menu appears (following figure)



The Keyframe Pop-up Menu

Use this menu to edit a keyframe. For more details, see “Keyframe Pop-Up Menu” on page 181.

3. Select **Hold**.

Hold maintains the plane’s value for the selected keyframe until the following keyframe. This way, when the effect runs, the plane does not move until you need it to.

4. Click the - button to the left of the plane’s name in the timeline.

The value tracks close.

Next, you want to set the first keyframe for the 20-sided object.

1. Click the + button to the left of the 20-sided object's name in the timeline. The default name is **Icosahedron-001**.

The 20-sided object's value tracks appear.

2. Right-click on the first control point.

The **Keyframe** pop-up menu appears (following figure).



The Keyframe Pop-up Menu for the 20-Sided Object

3. Select **Linear**.

Linear makes the transition from one keyframe to another a straight line. The values change at a constant rate.

4. Click the - button to the left of the 20-sided object's name.

The value tracks close.

That's it. Next, you want to set the keyframes for animating each object.

Animating the Second Keyframe

In this section, you set three more keyframes. You animate both the 20-sided object and the video plane. You also add rotation to the object. Finally, you edit keyframe values the same way you did above.

Here's what you do:

1. Drag the **Timecode Slider** until the **Timecode Display** reads 00:00:00:10.0 (following figure).



Dragging the Timecode Slider

By changing the time position and then editing any object, PersonalFX automatically sets a keyframe.

For this keyframe, you want to set the point from which the plane and 20-sided object begin moving together. Because you set the video plane's first keyframe to **Hold**, it remains stationary until this new keyframe. From there, it slides along with the 20-sided object.

First, set the object's keyframe:

2. Select the 20-sided object.

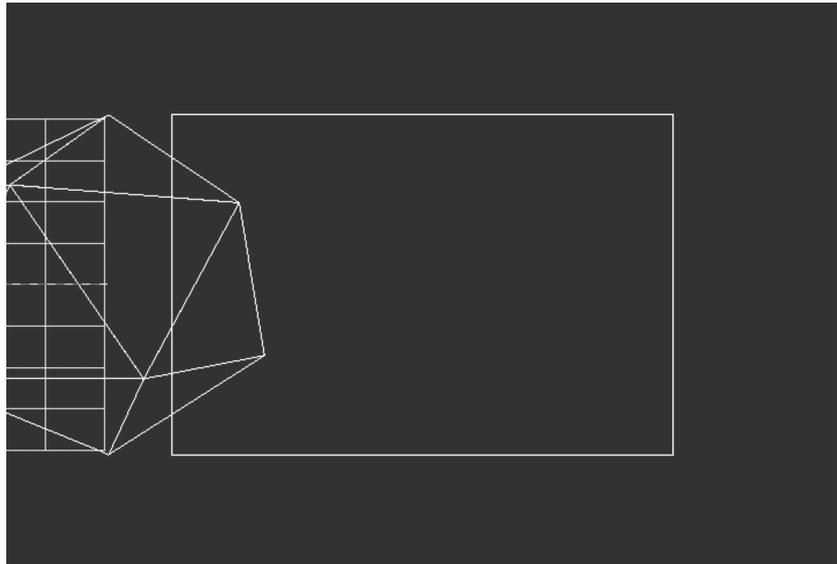
You can use the **Object Slider** to select it. You can also toggle through the objects in the workspace by pressing **p** on your keyboard. Finally, if the **Select** button is still turned on, you can click on the object itself.

3. Click the **Move** button.
4. Enter the following **Move** values:

X	-450.000
Y	0.000
Z	0.000

The 20-Sided Object's Move Values

The object jumps (following figure).



The Moved Object in the Workspace

While the 20-sided object is selected, you should also set its rotation.

1. Click the **Rotate** button (following figure).

Move	X	0.000
Rotate	Y	0.000
Scale	Z	0.000

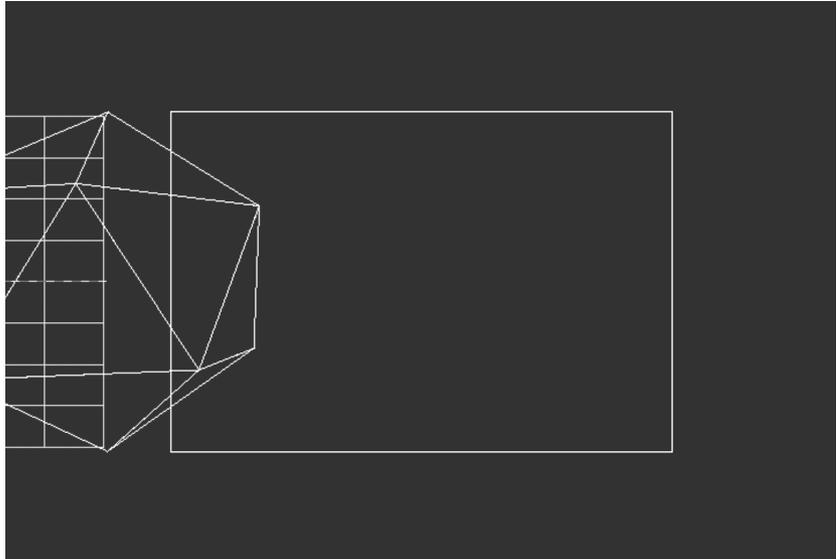
The Rotate Button

2. Set the **Rotate** values to the following:

X	0.000
Y	90.000
Z	0.000

The 20-Sided Object's First Rotate Values

The object rotates 90 degrees along the Y-axis (following figure).



The Rotated Object

With the object's values set for this keyframe, you move on to setting the keyframe for the video plane. For this keyframe, however, you are not going to animate the plane. This keyframe is here to change the keyframe value and let PersonalFX know that you want the plane to start moving.

1. Select the video plane.
2. Click the **Move** button.
3. Enter the following **Move** values:

X	-800.000
Y	0.000
Z	0.000

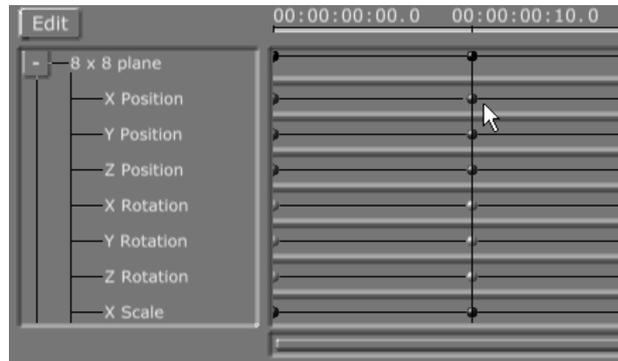
Move Values for the Plane

The video plane does not change, but a keyframe appears in the timeline. This is because as far as PersonalFX is concerned you edited the plane's move value.

With the object moved, and a keyframe set for the plane, it's time to edit both of their keyframes in the timeline.

1. Click the + button to the left of the plane's name in the timeline.

The plane's value tracks appear (following figure).



The Plane's Keyframes at the Tenth Frame

2. Right-click the control point for **X Position** at the tenth frame.

The **Keyframe** pop-up menu appears (following figure).



The Keyframe Pop-Up Menu

3. Select **Linear**.

With this keyframe set to **Linear**, and the previous keyframe set to **Hold**, the plane does not move until the tenth frame. This way, both the plane and object move in unison.

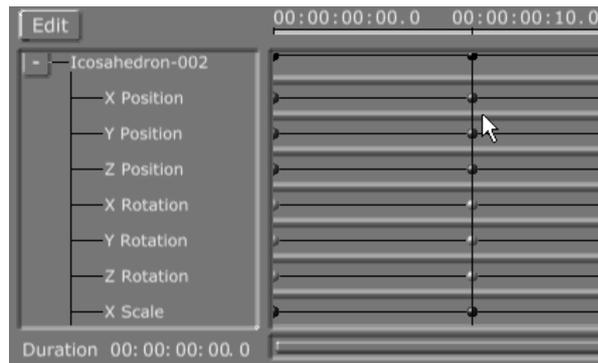
4. Click the - button to close the plane's value tracks.

The value tracks close.

Next, you want to edit the 20-sided object's keyframe values.

1. Click the + button to the left of the 20-sided object's name in the timeline.

The object's value tracks appear (following figure).



The Object's Value Tracks

2. Right-click the control point for **X Position** at the tenth frame.

The **Keyframe** pop-up menu appears (following figure).



The Keyframe Pop-Up Menu

3. Select **Linear**.
4. Click the - button to close the plane's value tracks.

The value tracks close.

That's it for setting the second keyframe for the objects. Next, you set the third keyframe.

Setting The Third Keyframe

Next, you want to move the objects, set a keyframe, and edit each one.

Here's what you do:

1. Drag the **Timecode Slider** until the **Timecode Display** reads 00:00:00:29.1 (following figure).



Dragging the Timecode Slider

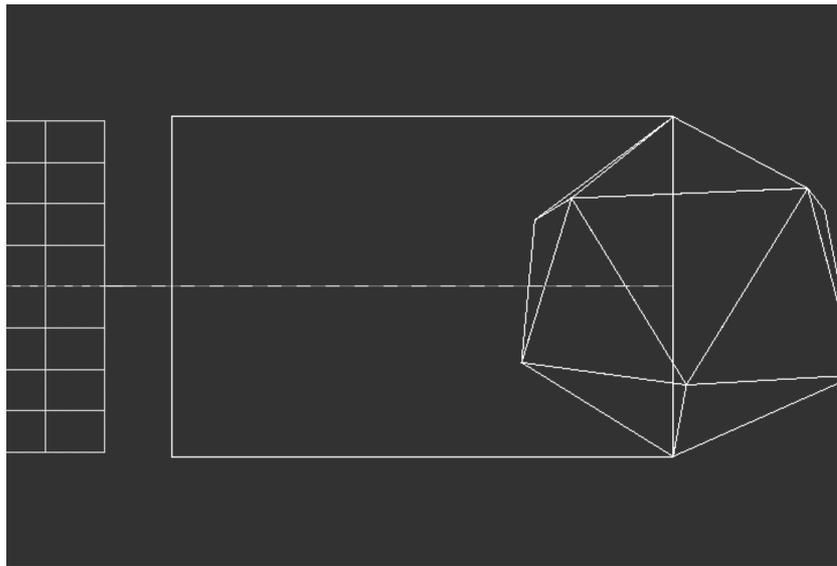
2. Select the 20-sided object.
3. Click the **Move** button.

4. Enter the following **Move** values:

X	359.600
Y	0.000
Z	0.000

The Object's Move Values

The object jumps to its new position (following figure).



The Moved 20-Sided Object

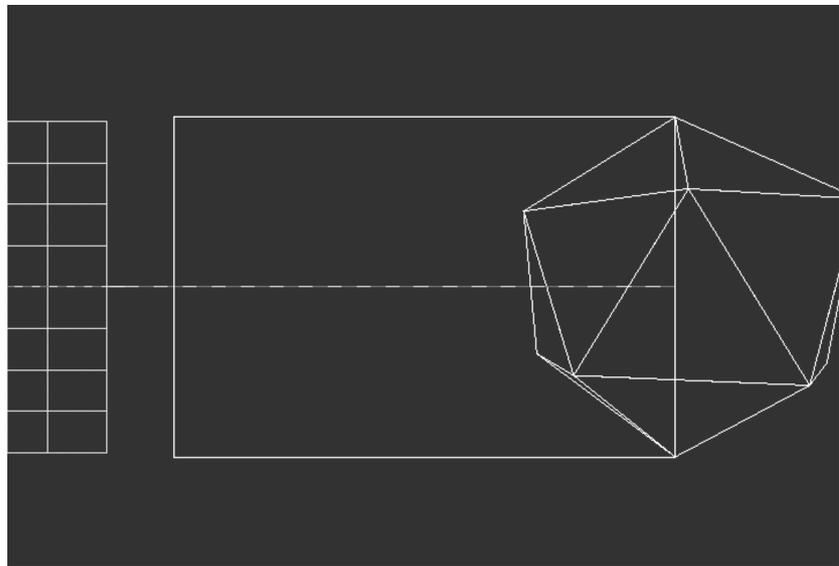
Next, you want to set rotation for the object.

1. Click the **Rotate** button.
2. Enter the following **Rotate** values:

X	0.000
Y	270.000
Z	0.000

The Object's Rotate Values

The object rotates (following figure).



The Rotated Object

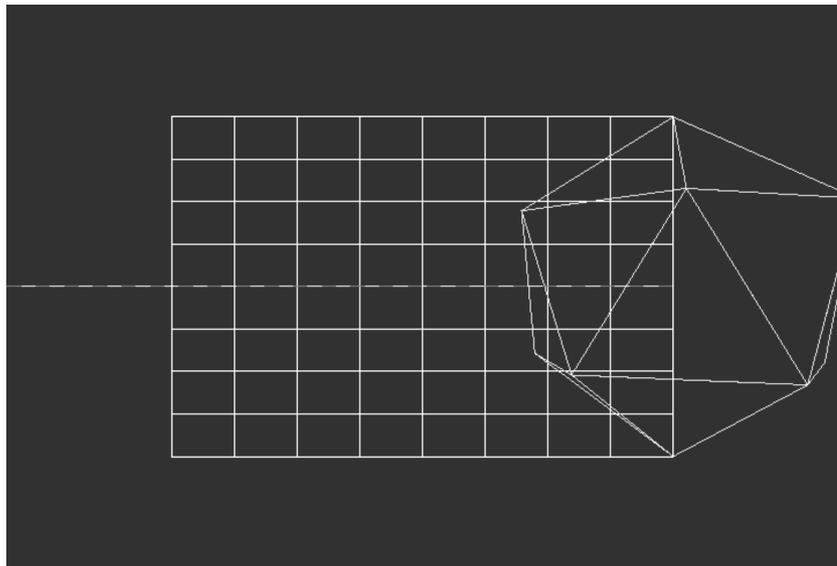
That's it for animating the object. Next, you want to reposition the video plane. This is the final keyframe for the video plane. It's the plane's ending position.

1. Select the video plane.
2. Click the **Move** button.
3. Click the **Reset** button (following figure).



The Reset Button

The video plane jumps back to its starting position (following figure).



The Plane After Reset

Use the **Reset** button to return a selected object back to default settings. You must choose which settings to reset by clicking either the **Move**, **Scale**, or **Rotate** buttons. You can also constrain which property (X, Y, or Z) you reset by turning the buttons off and on in different combinations.

With animation set, you must now edit the keyframes in the timeline. First, edit the object's keyframe.

1. Open the Value tracks for the object.
2. Right-click on the control point for **X Position** on frame 00:00:00:29.1.

The **Keyframe** pop-up menu appears.

3. Select **Linear**.
4. Close the value tracks.

Next, edit the keyframe for the plane.

1. Open the value tracks for the object.
2. Right-click on the control point for **X Position** on frame 00:00:00:29.1.

The **Keyframe** pop-up menu appears.

3. Select **Linear**.
4. Close the value tracks.

That's it. The last step is to set the final keyframe for the object. You can then compile and save your effect to use in Air Command.

Setting The Last Keyframe

With the video plane in place, the last thing you have to do is set the 20-sided object's ending position.

Here's what you do:

1. Click the **Last Frame** button in the Transport Controls (following figure).



The Last Frame Button

The timeline moves to the last frame in the effect.

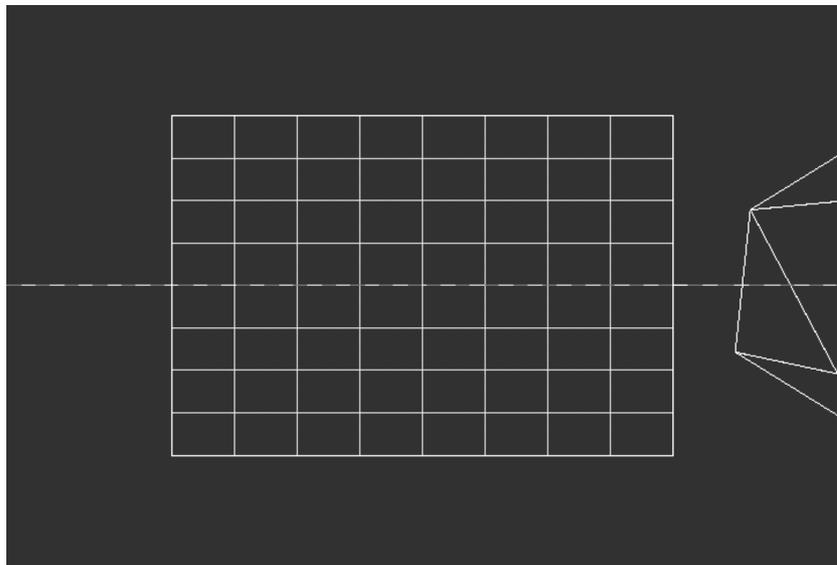
2. Select the 20-sided object.

3. Click the **Move** button.
4. Enter the following **Move** values:

X	687.600
Y	0.000
Z	0.000

The Move Values for the Object

The object jumps to the far right of the workspace (following figure). Notice that it is completely outside of the safe area.



The Moved 20-Sided Object

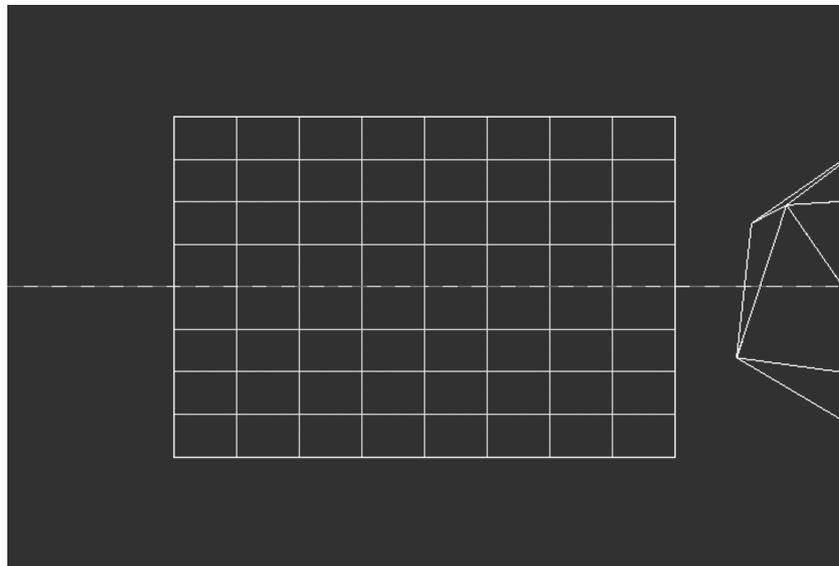
With the object moved, your next step is to rotate it.

1. Click the **Rotate** button.
2. Enter the following **Rotate** values:

X	0.000
Y	360.000
Z	0.000

The Object's Rotate Values

The object rotates to its final position (following figure).



The Rotated Object

Finally, you want to edit this last keyframe in the timeline.

1. Open the object's value tracks.
2. Right-click on the last **X Position** keyframe.

The **Keyframe** pop-up menu appears.

3. Select **Linear**.
4. Close the value tracks.

That's it for creating the animation for this effect. It's ready to be compiled. But first, you can preview the effect.

**Previewing
Your Work
(Optional)**

Before you compile, you can preview your work. This is an optional step. When you preview work in the workspace, the effect plays slower than it actually plays once it is compiled. The speed at which it plays depends on your host PC and hardware.

1. Click the **First Frame** button in the Transport Controls (following figure).



The First Frame Button

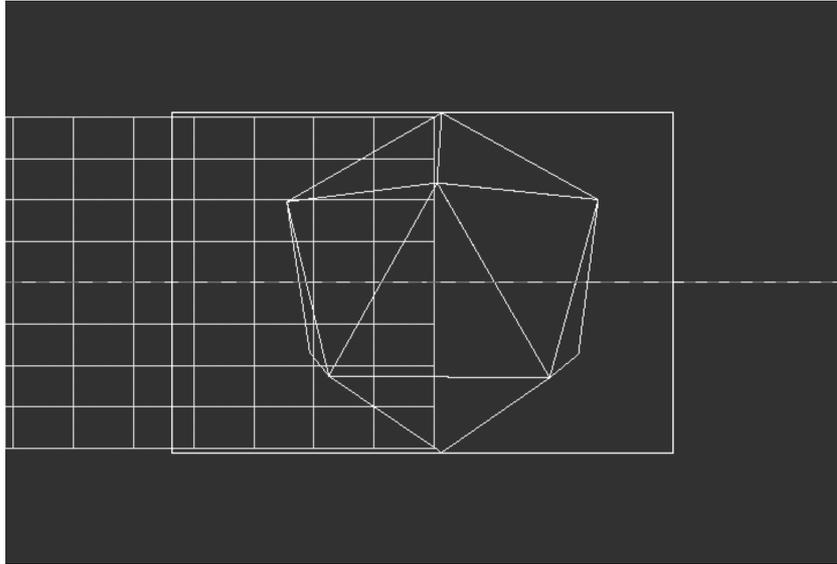
You return to the beginning of the effect. The video plane and object jump back to their beginning positions.

2. Click the **Play** button in the transport controls (following figure).



The Play Button

In the workspace, the 20-sided object rolls across the screen, the video plane in tow (following figure).



The Effect in Progress

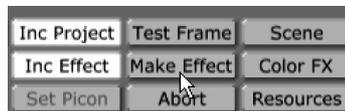
If you like what you see, you can go on to the next step, compiling the effect. Feel free to make adjustments where you like.

Compiling An Effect

Once you finish creating an effect, it's time to compile. Once PersonalFX compiles an effect, you can use it with any video source in real time. You don't have to re-compile unless you change the way the effect works.

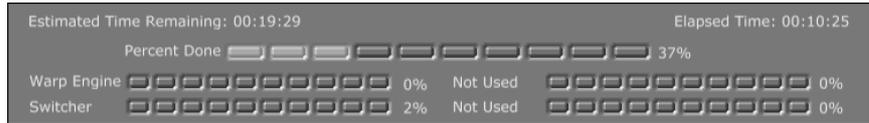
Here's how to do that:

1. Click the **Make Effect** button (following figure).



The Make Effect Button

The toolbar ghosts out except for the **Abort** button. The **Progress Meter** appears (following figure).



The Progress Meter

This effect takes around 10 to 20 minutes to compile, depending on your host PC and hardware.

Setting The Effect Picon (Optional)

Setting the picon lets you create a picon that reminds you of what this effect does. This is not an essential step in the effect creation process, but it is a helpful one.

Here's what you do:

1. Drag the **Timecode Slider** until the **Timecode Display** reads **00:00:00:20.0** (following figure).

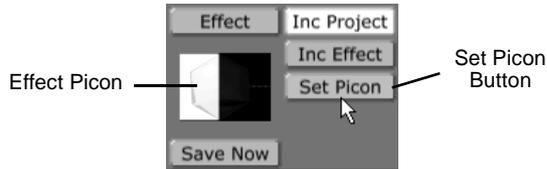


Dragging the Timecode Slider

The effect moves to the fifteenth frame.

This frame was picked arbitrarily. You can use any frame you want. Keep in mind that the idea is to pick a frame that helps you remember what this effect does.

Click the **Set Picon** button in the toolbar (following figure). It's a green button.



The Set Picon Button with Effect Picon

PersonalFX takes a grab of the effect in progress. The Effect picon shows a gray field moving in over a black background (previous figure).

The picon is set for this effect. If you don't like the picon, you can scrub to a different frame in the effect and click the **Set Picon** button again.

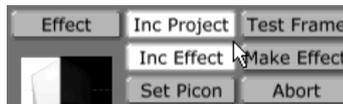
With this task finished, you are now ready to save the effect.

Saving The Effect

Saving is the final step in creating an effect.

Here's what you do:

Locate the **Inc Effect** (Include Effect) and the **Inc Project** (Include Project) buttons. They are green buttons in the middle of the toolbar.



The Inc Project and Inc Effect Buttons

2. Make sure that both **Inc Project** and **Inc Effect** are turned on (lit up).

If either button is not turned on, click it. By default, both are turned on.

3. Drag-and-drop the **Effect** picon into a convenient bin.

PersonalFX takes a moment to save your effect. A picon of the effect appears in the bin you dropped it into.

You now have a completed effect. You can go into Air Command, load it (double-click on the effect's picon in the bin you saved it in), and play it back with any video source in real time. (For more on using effects in Air Command, see the *GlobeCaster Air Command Manual*.)

Wrap Up

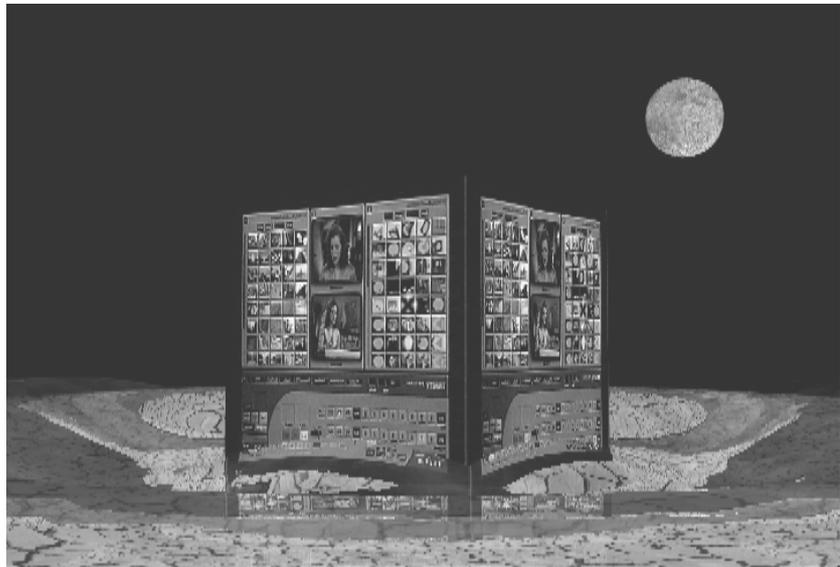
In this tutorial, you learned how to create a semi-transparent object and map a video texture onto it. You also learned a bit more about the Surface Settings panel. You learned how to create a new 3D object and edit it. With this knowledge, and a little bit of imagination, you can create any number of effects that involve a single or multiple 3D objects.

Tinker with the Surface Settings panel to get a feeling for what it does. By adjusting only the way light reflects off objects, you can make the object look like a wide variety of materials. See “Surface Settings Panel” on page 69 for details.

Constructing A Spinning Cube Effect (Part One)

This tutorial is intended for experienced users who know movement, rotation, scaling, control point editing, the primitive creation process, the basics of assigning texture and surface settings to primitives, and effect compiling. It teaches you how to make a variant of the spinning cube effect. You can find the original spinning cube effect at `GlobeCaster\Bins\FX\Sampler_cube.tfx`. This variant is created entirely in PersonalFX, so it will look a little different from the effect included with GlobeCaster's content. When the effect is compiled, a cube with video source mapped onto it spins in a pool of churning water. A moon rests in the background.

The finished effect looks like this:



The Finished Effect

The churning water is a procedural morph that you apply to an object you create. A procedural morph is a process that transforms an object over time. More importantly, it transforms the object to a specific preset shape, a flowing wave in the case of this tutorial.

You will learn these skills:

- Combining multiple objects to compose a complex scene

- Creating a looping effect
- Creating transparent and reflective surfaces using the **Surface Settings** panel
- Naming objects in the **Object Properties** panel
- Applying procedural morphs
- Using the **Scene Properties** panel

Because of its length, this tutorial is broken up into four sections. Each section covers a different stage of effect creation. Part One covers creating a new scene, setting effect properties, setting up the workspace, and creating the ground. Part Two shows you how to create the reflective water. Part Three shows you how to create the cube. Part Four shows you how to add a moon, and compile the effect.

TIP Because of the number of objects involved, and the detail of each one, compiling time for this effect is quite long. When you are finished constructing the effect, you might want to compile it overnight. Once it's finished, however, you can use it with any video source in real time.

NOTE This tutorial is based on NTSC format. For other video formats, please make the appropriate adjustments. (NTSC has 30 frames, or 60 fields, per second.)

Creating A New Scene

As you've done in the previous tutorials, you must first create a new scene.

1. Right-click on the **Effect** picon (following figure).



The Effect Picon

The **Effect** pop-up menu appears (following figure).



The Effect Pop-Up Menu

2. Select **New**.

If there was previous work done, and that work was not save, PersonalFX prompts you to save.

With a new scene created, it's time to set effect properties.

Setting Effect Properties

As always, the next thing you want to do after creating a new scene is to set the effect properties. For this effect, you need to change the duration, and the effect type. You also need to turn on both warp and graphics.

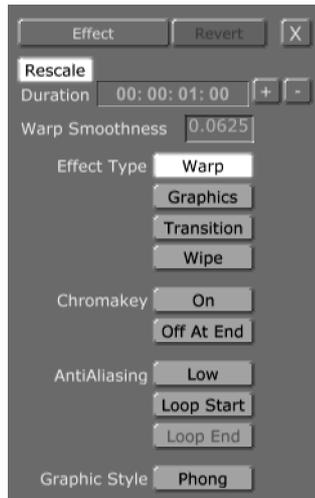
Here's how you set the properties for this effect:

1. Click the **Effect** button (following figure).



The Effect Button

The **Effect Properties** panel appears in the upper left corner of the interface (following figure).

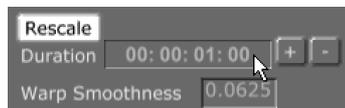


The Effect Properties Panel

You can learn more about this panel in “Effect Properties Panel” on page 136.

With the **Effect Properties** panel open, change the duration of the effect first.

2. Click in the **Duration** window (following figure). It’s located at the top of the panel.



The Duration Window (Before Changing the Duration)

Use this window to change the duration of an effect. The default setting is one second.

3. Type in **00:00:01:12**. Press the **Enter** key on your keyboard to set the change.

The length of the effect is now set to 1 second and 12 frames.

Next, set the effect types.

Because you map video onto an object, you need this effect to be a warp. Check the **Warp** button to make sure it is turned *on* (following figure). If **Warp** is not turned on, click the button.



The Warp Button Turned On

If **Warp** is turned on, the button is lit up.

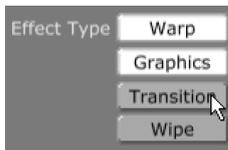
4. Make sure the **Graphics** button is turned on (following figure). If **Graphics** is turned on, the button is lit up. If the button is not lit up (graphics are not turned on), click it.



The Graphics Button Turned On

NOTE Whenever you create an effect that uses graphics (an object that does not have video mapped onto it), you must tell PersonalFX to include those graphics when it compiles the effect. You do this by turning the **Graphics** button on.

5. Click on the **Transition/Overlay** button (following figure).



The Transition/Overlay Button

The **Transition/Overlay** pop-up menu appears.

6. Select **Overlay**.

PersonalFX now treats this effect as an overlay.

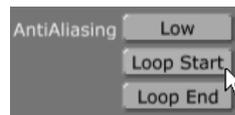
This effect is a looping effect. That is, the effect plays from beginning to end continuously until you turn the effect off. Because of this, you have to tell PersonalFX to make the effect loop. This involves turning on the loop function at the beginning of the effect, and turning it off at the end of the effect.

You want to be sure that you are at the very beginning of your effect.

7. Click the **First Frame** button in the **Transport Controls**.

The timeline moves to the first frame of the effect.

8. Click the **Loop Start** button in the **Effect Properties** panel (following figure).



The Loop Start Button

The loop function activates.

9. Click the **Last Frame** button in the **Transport Controls**.

You are now at the end of your effect and you can turn off the loop.

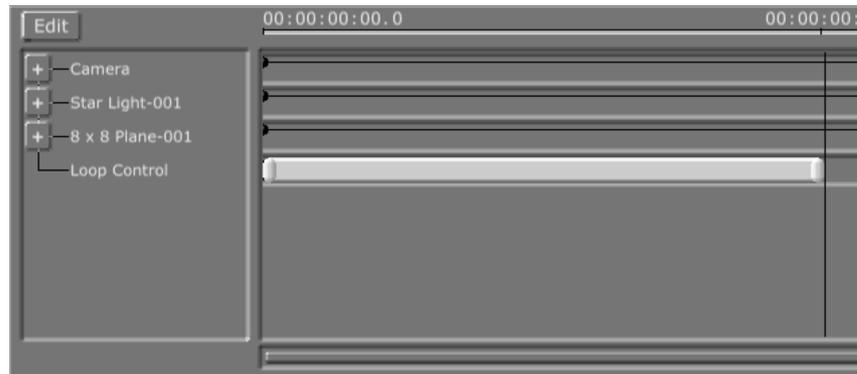
10. Click the **Loop End** button in the **Effect Properties** panel (following figure)



The Loop End Button

The end of the loop is set.

Take a moment to look at the timeline. Notice that a white bar appears in a new track (following figure).



The Loop Event

The track is the **Loop Control** track. This white bar is the **Loop Event**. It represents the loop you just created. It operates just like an event in other GlobeCaster applications. The bumps at either end of the event are trimming handles. You can click-and-drag on the trimming handles to change the length of the event. You can also click-and-drag in the flat portion of the event to move it around within the track.

For this effect, you do not have to edit the loop event, but if you want to learn more about the loop event, see “Loop Control Track And Event” on page 176.

11. Click the **First Frame** button in the **Transport Controls** again.

The timeline returns to the beginning of the effect.

TIP Whenever you are moving through the timeline of your effect, and then begin editing, always be careful. You may end up placing keyframes where you don't want them. Though you're not editing any objects right now, you may forget to return to the beginning of your effect later.

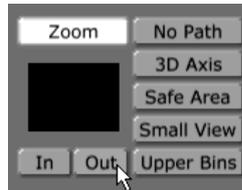
That's it for settings scene properties. Next, you want to prepare the workspace.

Setting Up The Workspace

With a new scene created, and effect properties set, the next stage in creating this effect is to prepare the workspace. Because of the complexity of this effect, and the number of objects involved in it, zooming out the workspace makes your job easier.

Here's what you do:

1. Click the **Out** button *twice* (following figure).

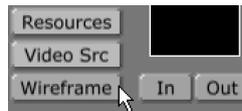


Clicking The Out Button

The video plane “shrinks” as the workspace zooms out. You see the safe area that marks the edge of the workspace.

Because you will add textures and adjust surface settings, it's a good idea to turn on **Texture Mapping**. This way, you can better see how the effect is coming along as you create it.

1. Click the **Wireframe/Flat/Gouraud** button in the toolbar (following figure).



The Wireframe/Flat/Gouraud Button

A pop-up menu appears (following figure).



The Wireframe/Flat/Gouraud Pop-Up Menu

Use this pop-up to change the level of detail you see in the workspace using this button. **Wireframe** is the default viewing option. **Flat** applies flat surfaces to the primitives in the workspace. **Gouraud** produces a smoother look. **Texture Mapping** allows you to view textures that have been mapped onto objects. This button only affects the workspace view during editing. It does not affect how the finished effect appears. For more on this button and pop-up see “Wireframe/Flat/Gouraud” on page 44.

2. Select **Texture Mapping**.

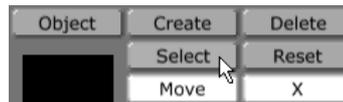
The video plane turns gray (following figure) indicating that PersonalFX has activated texture mapping viewing.



The Workspace with Texture Mapping View On

The image you see on the video plane is a marker that lets you know Preview video is mapped onto the plane. You see this marker any time you are viewing the workspace with Texture Mapping turned on and an object has Preview video mapped onto it. Also notice that the **Wireframe/Flat/Gouraud** button face now displays **Flat**.

3. Click the **Select** button to turn off the select function (following figure).



The Select Button

The button is no longer lit up. It's a good idea to turn off select to avoid accidentally selecting an object while you are working.

You're done preparing your workspace. Now that all the preliminaries are finished (creating a new scene, setting effect properties, and preparing the workspace) you can begin editing and creating the objects this effect needs.

Creating The “Ground”

The next step in creating this effect is to edit the default video plane. When you create the water for this effect, you are creating a semi-transparent object. You are able to see through it, right into the blackness of empty space. To avoid this, and make the effect look realistic, you have to create an object that looks like the ground. You can use the default video plane as the ground. To do this, you must first position and scale the video plane, then drop a texture onto it.

Here’s what you need to do:

1. Click the **Rotate** button (following figure).

Move	X	0.000
Rotate	Y	0.000
Scale	Z	0.000

The Rotate Button

2. Change the plane’s rotation to the following settings:

X	-90
Y	0.000
Z	0.000

The Rotation Values for the Ground

The plane rotates, and seems to disappear (following figure).



The Rotated Ground

The plane has rotated to an angle such that you can no longer see it.

3. Click the **Move** button (following figure).

Move	X	0.000
Rotate	Y	0.000
Scale	Z	0.000

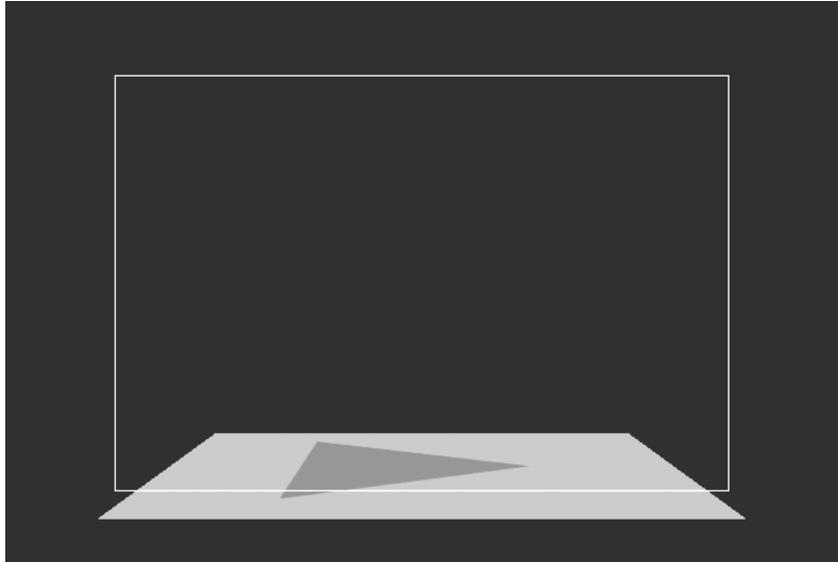
The Move Button

4. Change the plane's **Move** values to the following settings:

X	0.000
Y	-250.000
Z	-150.000

The Move Values for the Ground Object

The plane jumps to the bottom edge of the safe area (following figure).



The Moved Ground Object

You can also click-and-drag the video plane into position.

Applying A Texture

With the plane in position, it's time to apply a texture and adjust surface settings.

1. Navigate to the bin `GlobeCaster\Bins\Stills\Texture`.

Here, you find a number of different textures that you can apply to the video plane.

Drag-and-drop the following picon (or the picon of a texture of your choice) onto the video plane. The name of the texture is `_2642-02n_CrackedMud.tfs`.



The Ground Texture Picon

The texture is applied to the video plane (following figure).



The Plane with Applied Texture

Because you turned **Texture Mapping** on, you see the texture you dropped appear in the workspace.

The texture is smaller than the video plane. The easiest way to fix this is to tile the texture. Tiling repeats the texture across each face of a primitive to completely cover it.

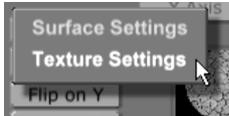
Here's what you do to tile a texture:

1. Click the **Object** button.

The Object Properties panel appears.

2. Click the Advanced button in the Object Properties panel.

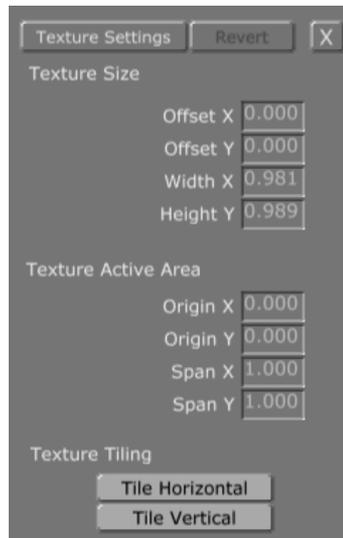
A pop-up menu appears (following figure)



The Advanced Pop-Up Menu

3. Select Texture Settings.

The Texture Settings panel appears (following figure).



The Texture Settings Properties Panel

Use this panel to edit properties of a texture. For details on this panel, see “Texture Settings Panel” on page 79.

For the purpose of this tutorial, you need to shrink down the texture, and then tile it across the surface of the plane.

4. Locate the **Width X**, and **Height Y** windows in the panel (following figure).



The Width X and Height Y Windows

These windows adjust the height and width of the texture. For this effect, you want the ground to have fine detail, and that requires you to shrink the texture, and then tile it to fill the entire plane.

5. Change **Width X** to .25.
6. Change **Height Y** to .25.

With both of the values changed, the texture shrinks in size (following figure).



Shrinking the Ground Texture

The streaking you see is caused by clamping. When a texture is too small to fit the entire face of an object, PersonalFX repeats the pixel at the end of the texture to fill in the rest of the face. Because there are different colors along the edge of the texture, the clamping produces this streaking. Since this does not look right for the ground, you must now tile the texture.

7. Locate the **Tile Horizontal** button at the bottom of the panel (following figure).

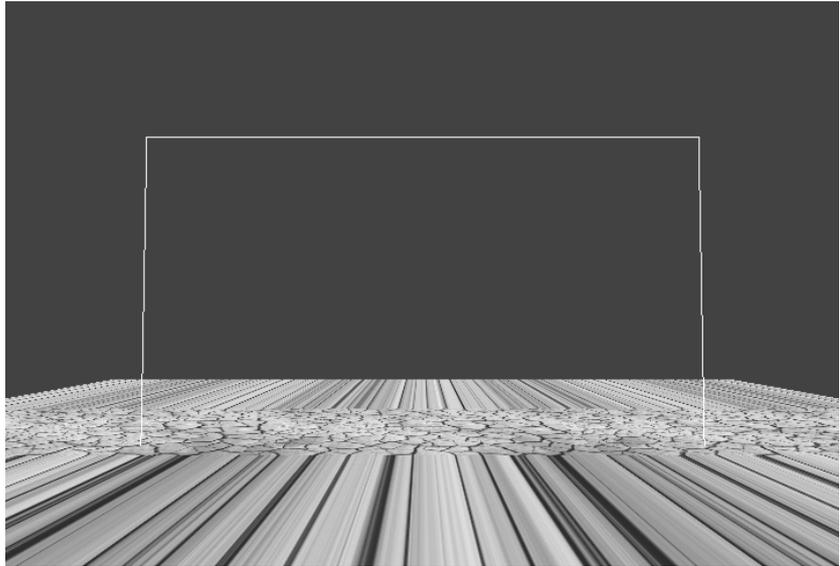


The Tile Horizontal Button

Click this button to toggle between tiling a texture horizontally. When the function is on (the button lit up) PersonalFX repeats the texture to fill the face of a shape horizontally.

8. Click the **Tile Horizontal** button.

The button lights up, and the horizontal tiling function activates. The texture repeats across the video plane (following figure).



Horizontal Tiling Turned On

9. Locate the **Tile Vertical** button at the bottom of the panel (following figure).



The Tile Vertical Button

Click this button to toggle on and off tiling a texture vertically. When the function is on (the button lit up) PersonalFX repeats the texture to fill the face of a shape vertically.

10. Click the **Tile Vertical** button.

The button lights up, and the vertical tiling function activates.

The texture is now tiled across the video plane (following figure).



The Tiled Ground Texture

Renaming The Video Plane

With a texture added, your next step is to rename the video plane.

Here's what you do:

1. Click the **Object** button in the workspace.

The **Object Properties** panel appears.

2. Locate the **Name** window (following figure) at the top of the **Object Properties** panel.



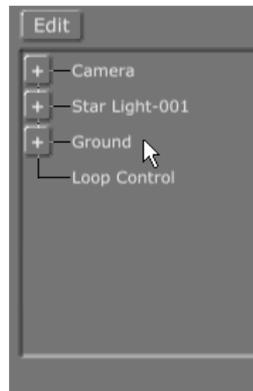
The Name Window

You can click in the name window to change the name of the selected object.

Because there are several objects in this effect, you might want to name them to keep each one straight.

3. Click in the **Name** window.
4. Type **Ground**. Press **Enter** on your keyboard to set the change.

PersonalFX renames the plane **Ground**. The new name appears in the timeline (following figure).



The Renamed Ground Object

Changing Surface Settings

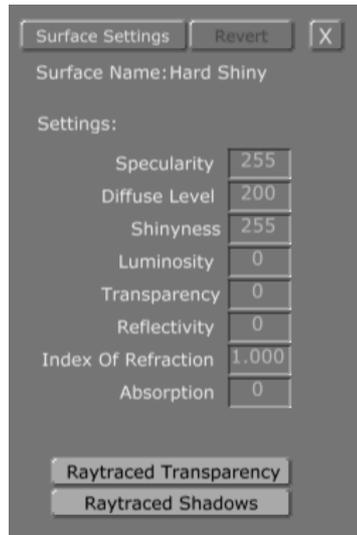
With the name changed to something that you can quickly recognize, it's time to change some surface settings.

1. Click the **Advanced** button in the **Object Properties** panel.

A pop-up menu appears.

2. Select **Surface Settings**.

The **Surface Settings** panel appears (following figure).



The Surface Settings Panel

Use this panel to adjust surface properties of the selected object. Because the video plane is acting as the ground under the water, it should appear dull, with little reflection. To give the object this sort of look, you have to change settings in this panel. There is more about this panel in “Surface Settings Panel” on page 69.

There are two values you want to change: **Specularity** and **Shinyess**.

Specularity represents how focused light reflecting back to the viewer is. Low settings create a dull reflection, while high settings create a sharp, focused reflection.

Shinyess represents how shiny the light reflecting off the selected object appears. Again, because the video plane represents the ground, you do not want it to appear shiny.

3. Change **Specularity** to 0.
4. Change **Shinyess** to 0.

5. Click the X button.

The panel closes.

Resizing The Ground Object

The last thing you want to do is resize the ground object. You want to make sure that the edges of the plane are well outside the safe area, and that they extend far enough back so that they create a fake horizon.

1. Click the **Scale** button.
2. Rescale the plane so that its edges lie outside the safe area. You can do this in two ways:
 - a. While holding down the **Ctrl** key on your keyboard, click-and-drag upwards on the video plane in the workspace.

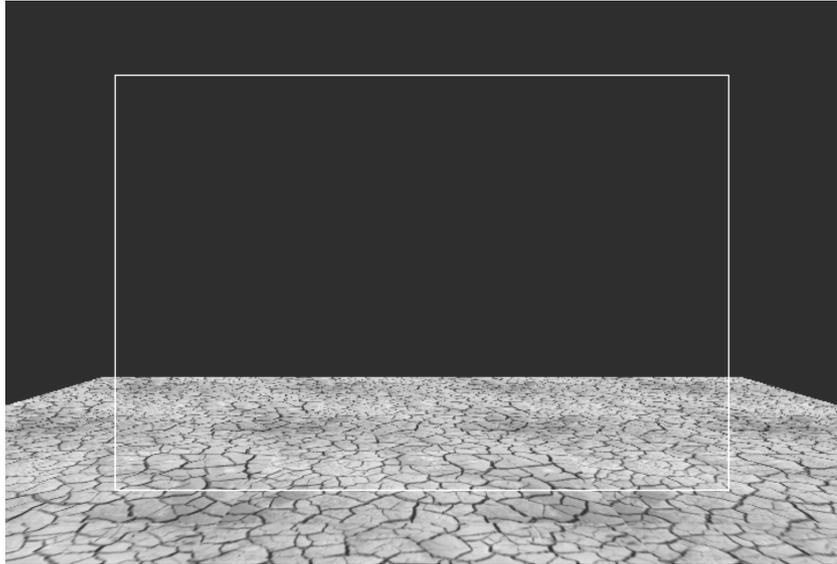
Holding down the **Ctrl** key allows you to scale an object while maintaining its aspect ratio.

- b. You can also enter the values below:

X	1700
Y	2000
Z	123.000

The Scale Values for the Ground

The ground object changes size (following figure).



The Scaled Ground Object

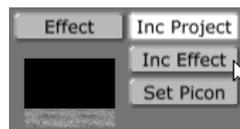
You're done creating the ground for this effect. From this point on, this tutorial refers to the object you just created as the ground object. Your next step is to create the water. That is covered in Part Two. If you want, you can save what you have so far.

Saving What You Have (Optional)

Remember, it's always a good idea to save your work often, especially at different stages, that way if you ever discover something that you don't like, you can revert to your saved work by loading an earlier stage of it.

To save what you have:

1. Turn off the **Inc Effect** button (following figure)

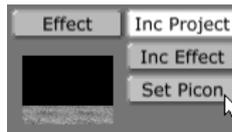


Turning Off the Inc Effect Button

The **Save Now** button becomes active.

Remember, turning this button off tells PersonalFX only to save the instructions that make up the effect you are creating, and not the compiled effect itself.

2. Click the **Set Picon** button (following figure).



The Set Picon Button

PersonalFX takes a grab of the workspace and uses that image as the **Effect picon** (following figure).



The Effect Picon

3. Drag-and-drop the **Effect picon** into a convenient bin.

A picon of your effect appears in the bin. Your work is now saved, and you can move on to the next part of this tutorial.

You can also click **Save Now**. PersonalFX saves your work to the `GlobeCaster\Bins\pfx\projects` default bin, assigning a computer generated name to the file.

Constructing A Spinning Cube Effect (Part Two)

In the previous part of this tutorial, you created a new scene, prepared the workspace, set effect properties, and edited the existing video plane primitive to make it look like the ground. In this part of the tutorial, you create a primitive that acts as the water for the effect.

Creating The "Water" Object

For the water, you must create another video plane.

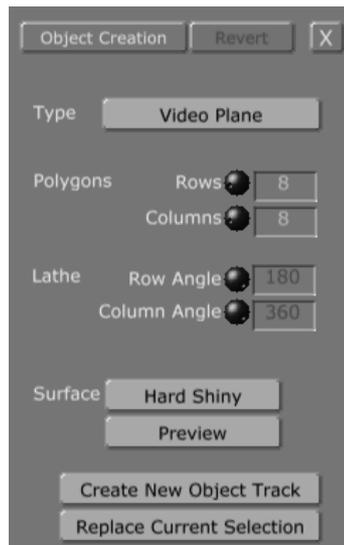
Here's how to do that:

1. Click on the **Create** button in the workspace (following figure).



The Create Button

The **Object Creation** panel appears (following figure).



The Object Creation Panel

2. Click on the **Type** button in the panel.

The **Type** pop-up menu appears.

3. Select **Video Plane**.

The object you create is now set to be a plane.

You are creating an object that will have a procedural morph applied to it. This morph makes it look like water. You can adjust how smooth the morph looks by increasing and decreasing the number of polygons in the video plane you are creating. The higher the number, the smoother the effect appears. The trade off is that primitives with high polygon counts increase the total size (in Mb) of the finished effect. High polygon counts also increases compiling time.

For this tutorial, increase the number of polygons.

4. Change the **Polygon Rows** to **40**.
5. Change the **Polygon Columns** to **40**.

If you find this number of polygons is too great for your host PC and hardware, reduce the number.

6. Click the **Texture** button (following figure).



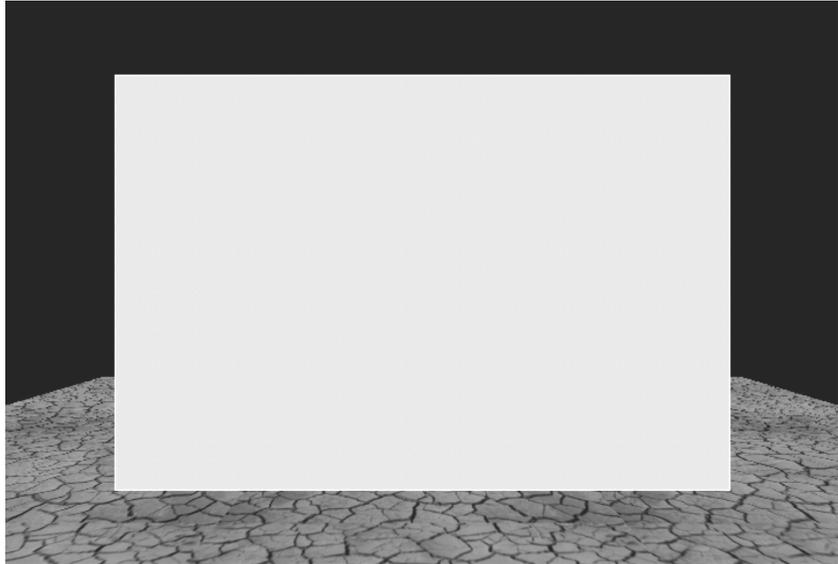
The Texture Button

7. Select **Solid Color**.

Solid color is assigned as the texture of the video plane.

8. Click the **Create New Object Track** button at the bottom of the panel.

PersonalFX creates a video plane with the settings you just specified. It appears in the workspace (following figure).



The New Video Plane

Your next step is to apply a texture, and edit the video plane's settings.

Applying A Texture And Editing Properties

With the video plane created, it's time to add a texture to it and edit its surface to make it look like water.

Here's what you have to do:

1. Navigate to the **GlobeCaster\Bins\Stills\Textures** bin.

In the first part of this tutorial, you used this bin to apply a still to create a ground object. Now, you want to use the textures in the same bin to apply a still to make a water object out of the video plane you just created.

2. Drag-and-drop the following picon (or any other picon you like) onto the video plane. It's called **_greensmoke.tfs**.



The Picon

The water texture appears on the video plane (following figure).



Water Texture on the Video Plane

For sake of ease, from now on, this tutorial refers to this video plane as the water object.

Editing The Water Object

Now, that the water object has the right texture, the next thing you want to do is change the object's name so you can recognize it quickly. Then, you want to give the water object the qualities of water. You do this in the **Surface Settings panel**.

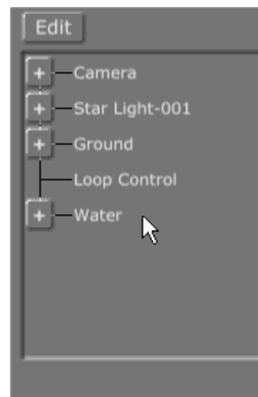
Here's what you do:

1. Click the **Object** button.

The **Object Properties** panel appears.

2. Click in the **Name** window.
3. Change the name of the video plane to **Water** (or something else that you like). Press **Enter** on your keyboard to set the change.

The name of the object changes in the edit area of the timeline (following figure).



New Name for Video Plane

4. Click the **Advanced** button in the **Object Properties** panel.
5. Select **Surface Settings**.

The **Surface Settings** panel appears. (For more details on this panel, see “Surface Settings Panel” on page 69.)

You will want to change several settings for the water. They are **Specularity**, **Diffuse Level**, **Shinyness**, **Transparency**, **Reflectivity**, and **Index of Refraction**.

Specularity adjusts how focused a light source is when it is reflected off an object and back to the viewer. Specularity on water is not always finely focused, so you want to turn this down a bit.

Diffuse Level adjusts the apparent amount of color reflected across an object. You want to turn this down just a bit.

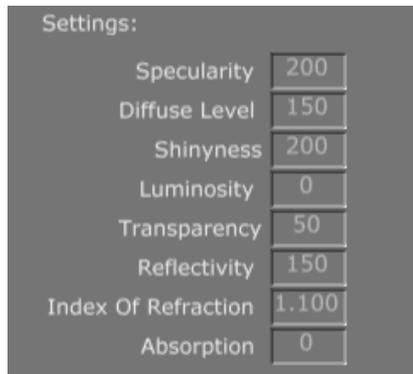
Shinyness is used in conjunction with Specularity. The higher the value, the “tighter” (shinier) the reflection appears. Low values produce a dull reflection. For the same reasons you turned down Specularity, you want to turn down Shinyness too.

Transparency adjusts the alpha value (transparency) of an object. If you set this value to 255, the object becomes completely transparent, making it invisible. Because you went through the trouble to adding a texture to the water object, you don’t want it completely transparent. Making the water very transparent can make the water look shallow because more of the ground object shows through. Making it less transparent gives the illusion of deeper water because less of the ground object shows.

Reflectivity adjusts how much of the surrounding light is reflected off the object and back at the viewer. You want a fairly high reflectivity so that the video on the cube reflects off the water’s surface.

Index of Refraction adjusts the amount light bends as it passes through an object. This is known as refraction. You want just a little bit of bend in the light so that the procedural morph creates interesting effects.

6. Change the settings in this panel to the following:



Settings:	
Specularity	200
Diffuse Level	150
Shinyness	200
Luminosity	0
Transparency	50
Reflectivity	150
Index Of Refraction	1.100
Absorption	0

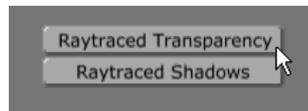
Surface Settings for the Water Object

As you change each of the values, the water object updates in the workspace (following figure).



The Water Object with New Surface Settings

7. Locate the **Raytraced Transparency** button at the bottom of the **Surface Settings** panel (following figure).



Raytraced Transparency Button

Because the water object represents water, you want it to bend light a little bit like water. Use this button to turn on raytraced transparency. When activated, any light that passes through the object is bent at the angle of refraction specified above.

8. Click the **Raytraced Transparency** button.

The button lights up, and ray tracing is activated.

That's it for editing surface settings.

9. Click the X button.

The panel closes.

The properties of the water object are all set. Next, it's time to position it and add the procedural morph.

Repositioning The "Water" Object

You want to reposition the water object. Because the ground object is supposed to look as though it is submerged, you must position the water object over it. You must place the water object high enough above the ground object so that when you apply the procedural morph to the water object, it does not "sink" beneath the ground object.

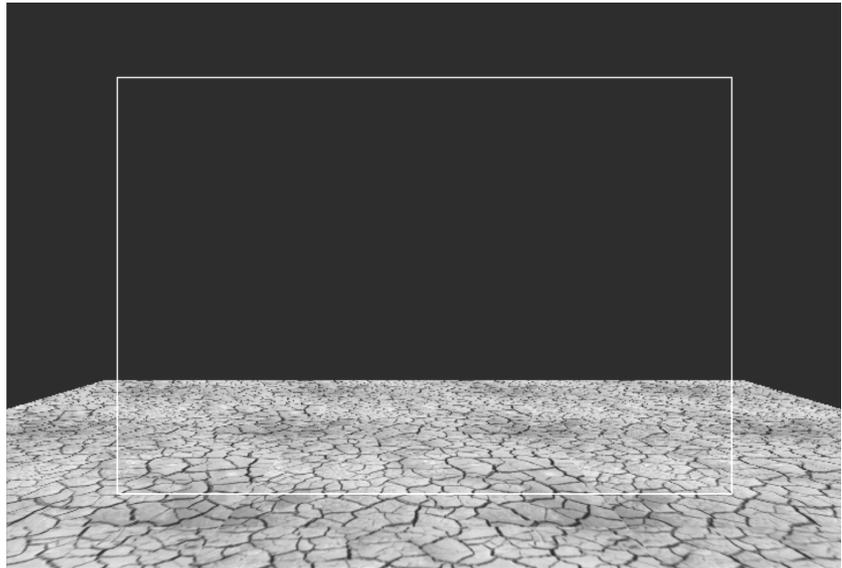
Here's what you do:

1. Click the **Rotate** button.
2. Change the rotation values to the following:

X	-90
Y	0.000
Z	0.000

Rotation Values for the Water Object

The water object rotates 90 degrees (following figure). Because you are looking straight down the water object's edge, it appears to disappear. However, it's still there.



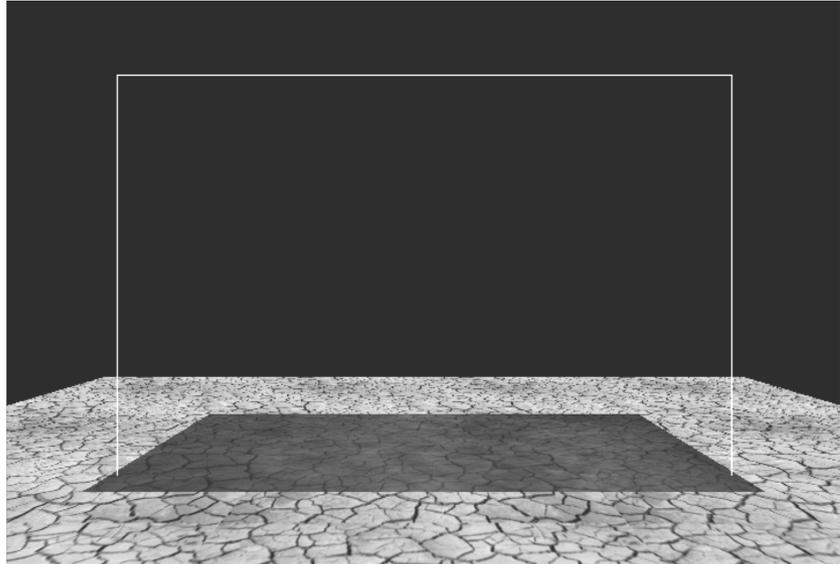
The Rotated Water Object

3. Click the **Move** button.
4. Change the move values to the following:

X	0
Y	-220
Z	-150

The Water Object's Move Values

The water object moves just above the ground object (following figure).



The Repositioned Water Object

Next, you want to rescale the water object so that it covers the same area as the ground object.

5. Click the **Scale** button.
6. Change the values to the following:

X	1700.000
Y	2000.000
Z	123.000

The Water Object's Scale Values

The water object expands to cover the same area as the ground (following figure).



The Scaled Water Object

That's it for positioning and scaling the water object.

Adding The Procedural Morph

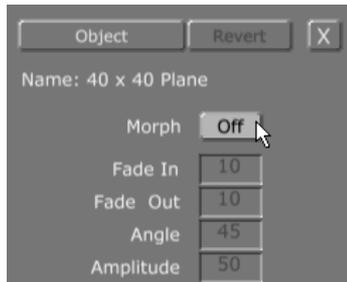
With the water object in position, you can make it act like water. You can give the object flowing motion by adding a procedural morph to it. A procedural morph is a process that transforms an object to a specified shape over time. Once it reaches that shape, the object morphs back to its original form. Next, you must add one of these procedural morphs to give the water object the look it needs.

Here's what you do:

1. Click the **Object** button.

The **Object Properties** panel appears.

2. Locate the **Morph** button in the panel (following figure).



The Morph Button

Use this button to activate and apply a procedural morph to a selected object, in this case the water object.

3. Click the **Morph** button.

The **Morph** pop-up menu appears (following figure).



The Morph Pop-Up Menu

4. Select **Wave**.

This applies the **Wave** procedural morph to the water object. This morph puts rippling waves into the object, starting from its center, moving outward.

Normally, a procedural morph fades in slowly, reaches its peak transformation, then begins to fade out. Because the spinning cube is a looping effect, you do *not* want the morph to do this. You have to change those settings.

5. Locate the **Fade In** and **Fade Out** windows in the panel (following figure).



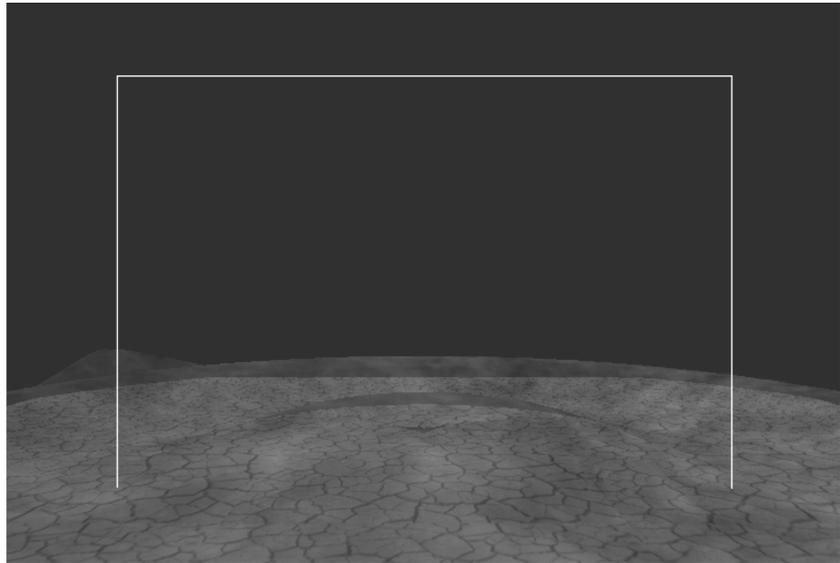
Fade Value Windows

6. Change the **Fade In** to 0.

The fade in for the morph is removed.

7. Change the **Fade Out** to 0.

The fade out for the morph is also removed. The water object updates, and ripples as you change the value (following figure).



The Wave Morph in the Workspace

Because you have eliminated any **Fade In** time, the morph begins right at the start of the effect.

8. Click the X button.

The panel closes.

You've just added a wave morph to the object.

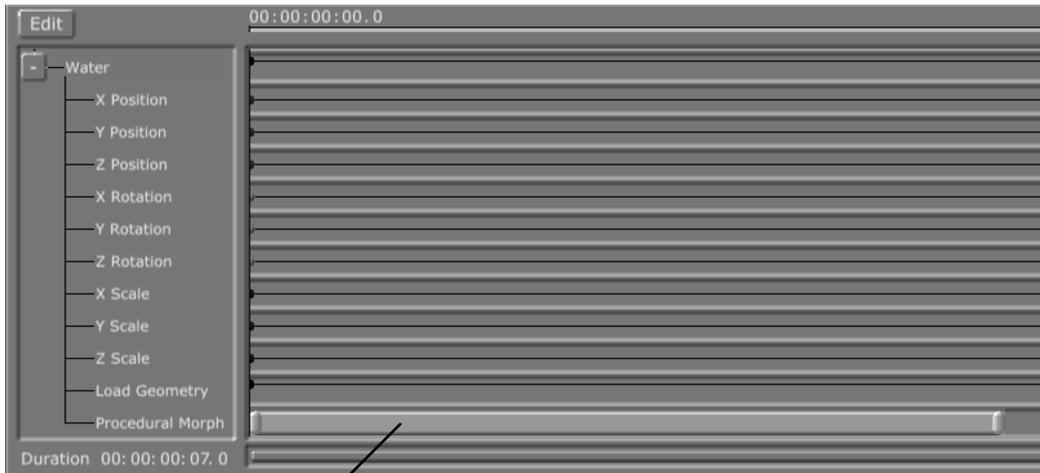
When you add a procedural morph to an object, the morph appears in that object's value tracks as a morph track and morph event.

You can look at the morph event by clicking on the + button (following figure) to the left of the water object's name in the timeline.



The + Button for the Water Object

Value tracks appear beneath the water object's main track. The very last value track is the morph track. The morph event is an orange event (following figure).



Morph Event

The Morph Track and Morph Event

The Morph event functions in the same way as events in other GlobeCaster applications. The bumps on either end of the event are trimming handles. You can click-and-drag on the trimming handles to change the length of the event. You can also click in the flat portion of the event to move it left or right within the track.

You can preview what you have so far by clicking the **Play** button in the **Transport Controls**. When you're done previewing, be sure to click the **First Frame** button to bring you back to the beginning of the effect. If you don't, any changes you make will be handled as keyframes for animation.

Saving What You Have (Optional)

This is another good place to save.

Here's what you do:

1. Turn off the **Inc Effect** button (the button is not lit).
2. The **Save Now** button becomes active.
3. Click the **Set Picon** button.

4. From here, you have two options for saving.
 - a. Click the **Save Now** button in the toolbar.
 - b. Drag-and-drop the **Effect** picon into a convenient bin.

That's it for this part of this tutorial. In Part Three, you add the cube and animate it.

Constructing A Spinning Cube Effect (Part Three)

In the previous parts of this tutorial, you set up a new scene, and created the ground and water objects. In this part, you create the spinning cube, map program video onto it, and learn how to set rotation for a looping effect.

Creating the Cube

The first step is to create the cube. This process is the same as creating the water object.

Here's what you do:

1. Click the **Create** button.

The **Object Creation** panel appears.

2. Click the **Type** button.

The **Type** pop-up menu appears.

3. Select **Cube**.

PersonalFX will now create a cube.

4. Click the **Surface** button.

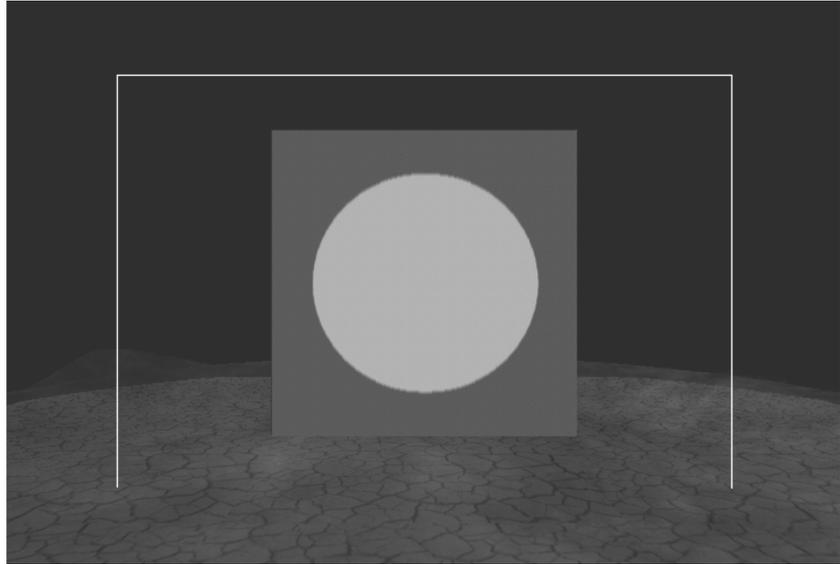
5. Select **Hard Shiny** from the pop-up menu.

6. Click the **Texture** button.

7. Select **Program: Video** from the pop-up menu.

8. Click the **Create New Object Track** button at the bottom of the panel.

A cube appears in the workspace (following figure).



The New Cube Object

A main track for the cube appears in the timeline as well.

That's it for creating the object.

9. Click the X button.

The panel closes.

This part is completed. Next, you want to edit the cube.

Editing Cube Properties

In this part of the tutorial, you edit the cube's surface settings, and move, scale, and rotate it.

Here's what you do:

1. Click the **Object** button.

The **Object Properties** panel appears.

2. Click the **Map Mode** button (following figure).



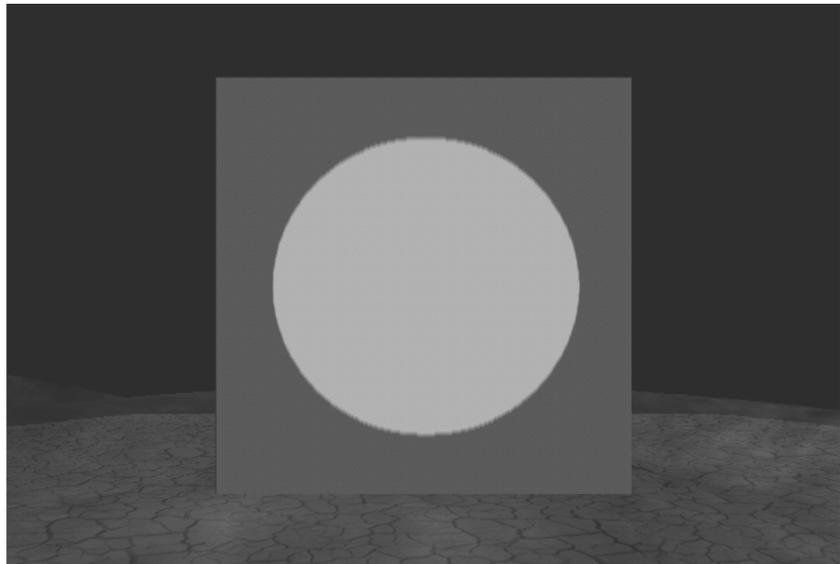
The Map Mode Button

NOTE The **Map Mode** button may have any of a number of labels on the button face depending on what mapping mode was chosen last.

The **Map Mode** pop-up menu appears.

3. Select **Cube Wrap**.

Mapping is set to cube. The Program video source marker now appears on each face. In the workspace, the cube shows the Program graphic on each face (following figure).



The Cube with Cube Map Mode

The image you see on the cube face is a marker that lets you know Program video is mapped onto the cube. You see this marker any time you

are viewing the workspace with Texture Mapping turned on and an object has Program video mapped onto it.

4. Click the **Advanced** button.

A pop-up menu appears.

5. Select **Surface Settings**.

The **Surface Settings** panel appears.

Because the cube has a video source mapped to it, you want to adjust **Luminosity** so that the video appears normal.

6. Set **Luminosity** to **255**.

The cube's luminosity increases, making it brighter.

That's it for changing surface settings.

7. Click the **X** button.

The panel closes.

That's it for setting up cube properties.

Moving The Cube

The next step is to move the cube. You want the cube placed at the center of the water object. You want the cube's bottom to "sit" on top of the ground object.

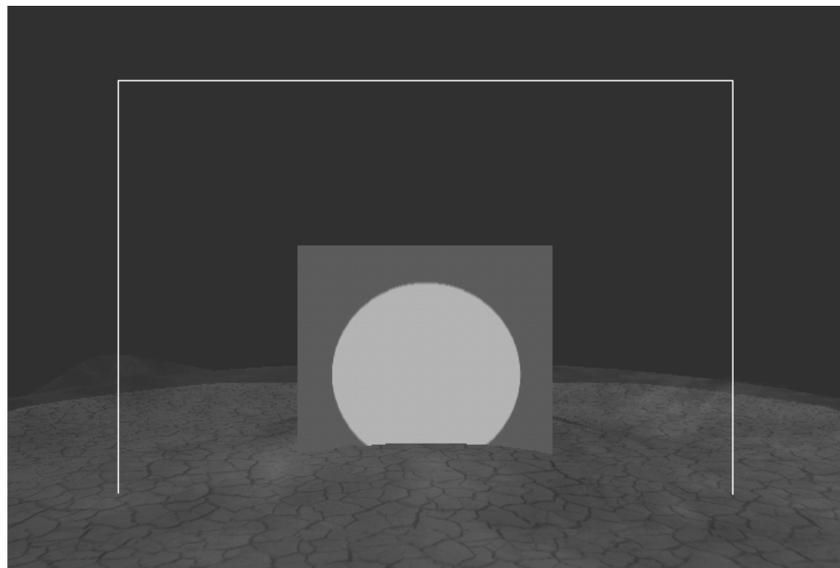
Here's what you do:

1. Click the **Move** button.
2. Set the move values to the following:

X	0.000
Y	-100
Z	-150

Move Values for the Cube

The cube moves back and down (following figure).



The Moved Cube

Whenever you edit move values, the settings you enter refer to the very center of the object (it's origin). To position an object in a specific place in relation to another object, you have to take into account the size of the object you are moving. This requires a little bit of math.

To place the cube “on top” of the ground object you have to use the Y move value from the ground object as a starting place. If you enter just that value, however, half the cube is above the ground object and half the cube is below it. To fix this, you have to move the cube up the Y-axis. To find out how far you have to move the cube, divide the cube's Y scale value (the height) by 2. Add the result to the Y move value for the ground.

The result is the Y move value for the cube. This is shown in the following equation:

$$(\text{object's Y scale value} / 2) + (\text{Y move value of "ground" object})$$

The Z move value are the same settings as the ground's Z move value. You do not edit the X move value.

That's it for editing the move values for the cube. Next, you must set its rotation.

Rotating The Cube

Next, you set rotation values for the cube. Because the cube is spinning on the Y-axis, you only need to edit the Y rotation value. To rotate an object, you have to set the keyframe for rotation at the end of the effect. That way, when the effect runs, the cube rotates.

Here's what you do:

1. Click the **Last Frame** button in the **Transport Controls**.
2. Click the **Rotate** button.
3. Set the **Rotate** values to the following:

X	0.000
Y	90
Z	0.000

The Cube's Rotate Values

The cube rotates 90 degrees.

In order to save compiling time and memory on your hard drive, you're not actually going to make the cube rotate a full 360 degrees. Instead, you are only going to make it rotate one quarter turn (90 degrees), and loop that turn. This creates the illusion of rotation because a cube is perfectly symmetrical and looks the same from all sides. This trick only works with symmetrical primitives, otherwise you have to compile out the full 360 degree rotation.

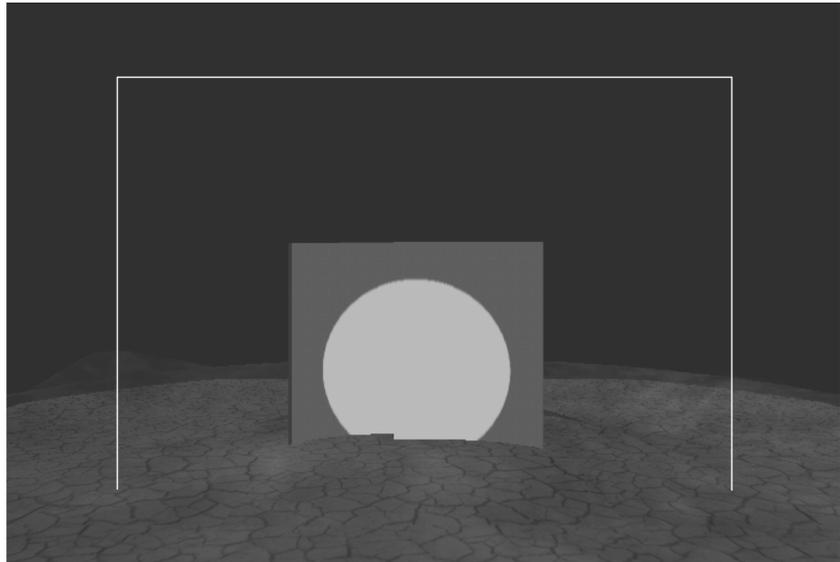
TIP If you are mapping a color (with no gradient) onto certain primitives, and you are rotating the primitive *only* along the Y-axis, you can use this trick. The following shows the primitives you can do this with, and the degree values you can use when rotating along the Y-axis:

4 Sided Shape	120 degrees
Cube	90 degrees
12 Sided Shape	72 degrees
20 Sided Shape	72 degrees

Using these values creates the illusion of a spinning object when you loop the effect. You can set the Y rotation value to any multiple of the degrees given above. By doing so, you can change the speed of the primitive's rotation without actually changing the length of the effect.

4. Press **t** on your keyboard.

The cube skips back a bit (following figure).



The Rotated Cube

The **Rotate** value for Y changes (following figure).

X	0.000
Y	88.525
Z	0.000

The Final Rotate Value

Why is **Rotate** set to 88.525? It's because the effect you are creating is a looping effect. In rotation for a cube, 0 degrees and 90 degrees appear to show the same portion. When you loop an effect, the effect plays to the end, then jumps back to the beginning and starts playing again. If you set rotation to 0 degrees at the beginning of the effect, and 90 degrees at the end of the effect, the Y position repeats itself. (The first frame of the effect begins at 0 degrees. The effect moves to 90 degrees at the last frame. It then jumps back to 0 degrees for the first frame. This repeats the same rotation position.) The result is a stutter in the effect because you're showing the same view twice.

Pressing **t** on your keyboard tells PersonalFX to calculate rotation for looping. It looks at the number of degrees in your rotation, and the length of the effect. It then does a calculation and produces the degree rotation it needs to create a smooth loop. In this case, the result is a **Rotate** value of 88.525.

TIP If you want, you can do the math on your own. First, calculate the number of *fields* in your effect. (In NTSC format, there are 60 fields per second.) For full rotation, divide 360 degrees by the number of *fields* in your effect. The result is the number of degrees the object rotates every field. Subtract that result from 360 degrees. The result is the rotation value you set at the last frame of the effect.

This is shown better in the following equation:

$$(\text{degrees at end of effect}) = 360 - (360 / (\text{fields in effect}))$$

Because this is a looping effect, you want the rotation velocity to remain constant. This means you have to change the movement type for the cube's keyframes in the timeline.

- Click the + button to the left of the cube's title in the timeline (following figure).



The + Button for the Cube

The cube's value tracks appear (following figure).



The Cube's Value Tracks

- Right-click the last control point for the cube's **Y Rotation** in the timeline (following figure).



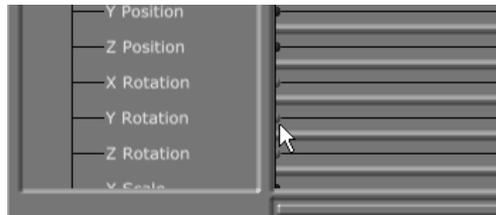
The Cube's Last Y Rotation Control Point

The **Keyframe** pop-up menu appears.

7. Select **Linear**.

Movement for this keyframe is set to **Linear**.

8. Right-click the first control point for the cube's **Y Rotation** in the timeline (following figure).



The Cube's First Y Rotation Control Point

The **Keyframe** pop-up menu appears.

9. Select **Linear**.

The beginning movement value for rotation is set to **Linear**. When the effect runs in a loop, the rotation proceeds smoothly between each Y rotation keyframe.

10. Click the + button to the left of the Cube's label (in the timeline).

The Cube's value tracks close.

11. Click the **First Frame** button in the **Transport Controls**.

You return to the beginning of the effect.

That's it for creating and editing the cube. You can preview your work by clicking **Play** in the **Transport Controls**. Playback in the workspace runs slower than the effect runs when it's fully compiled.

Remember to click the **First Frame** button when you are done previewing your effect.

**Saving What
You Have
(Optional)**

This is another good place to save what you've done so far.

Here's what you do:

1. Turn off the **Inc Effect** button.

The **Save Now** button becomes active.

Remember, turning this button off tells PersonalFX only to save the instructions that make up the effect you are creating, and not the compiled effect itself.

2. Click the **Set Picon** button.

PersonalFX takes a grab of the workspace and uses that image as the **Effect picon**.

3. From here, you have two options for saving.

- a. Click the **Save Now** button in the toolbar.

PersonalFX overwrites your previously saved file with your new work.

- b. Drag-and-drop the **Effect picon** into a convenient bin.

A new picon of your effect appears in the bin. Your work is now saved as a separate file.

That's it for this part of the tutorial. In Part Four, you add the moon, edit the camera, and set scene properties.

Constructing A Spinning Cube Effect (Part Four)

This is the final part of the tutorial. In it, you create the moon object. You also edit the scene camera and scene properties. Finally, you compile the finished effect.

Creating The Moon Object

The last object you create and edit for this effect is a sphere. When you have completed editing it, it resembles a moon.

Here's what you do:

1. Click the **Create** button.

The **Object Creation** panel appears.

2. Click the **Type** button in the panel.

The **Type** pop-up menu appears.

3. Select **Sphere**.

TIP Because the object you are creating is a sphere, you want its surface to look smooth. You can make the surface smoother by adjusting the polygon counts. Because you increased the number of polygons in the water object, however, you may not want to increase the polygon count for the sphere by too much (depending on your host PC and hardware). You may end up creating an effect that you cannot compile or that your hardware can't run.

4. Change the **Rows Polygons** to **12**.
5. Change the **Columns Polygons** to **12**.
6. Click the **Surface** button.

A pop-up menu appears.

Because this is the moon, you do not want it to have shiny surfaces.

7. Select **Soft Matte**.

PersonalFX assigns soft matte surface settings.

8. Click the **Texture** button.

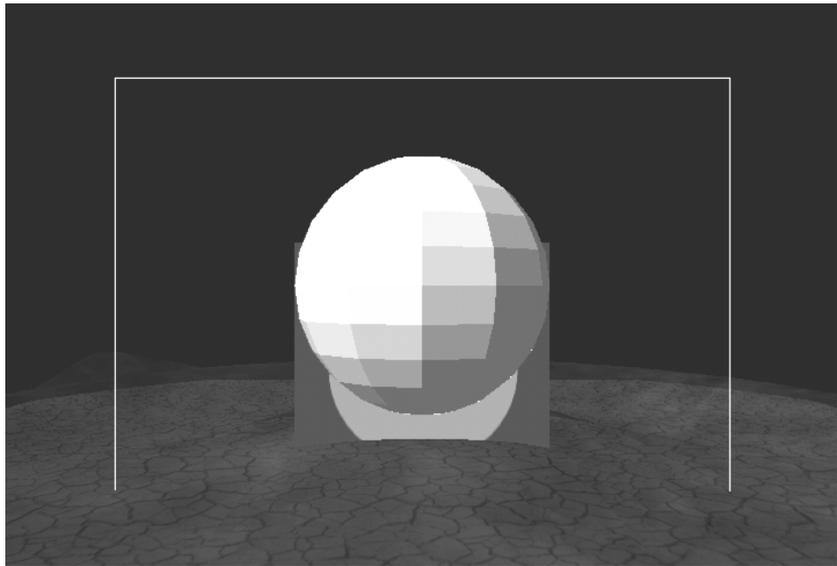
A pop-up menu appears.

9. Select **Solid Color**.

The texture type of this object is set to solid color.

10. Click the **Create New Object Track** button at the bottom of the panel.

A sphere appears in the workspace (following figure).



The Created Sphere

11. Click the **X** button.

The panel closes.

With the sphere created, the next step is to add a texture.

Editing The Moon Object

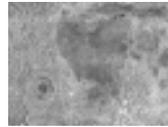
Its time to make the sphere look like a moon. To do this, you must add a texture.

Here's what you do:

1. Navigate the bins to `GlobeCaster\Bins\Stills\Textures`.

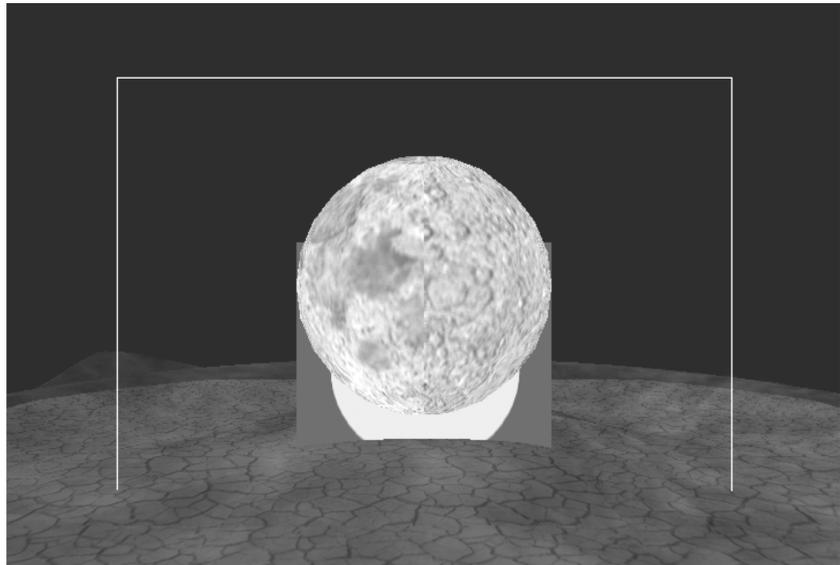
As in previous parts of this tutorial, this bin contains the textures that you need.

2. Drag-and-drop the picon of the following texture onto the sphere. It's named `_moon.tfs`.



The Moon Texture

The texture appears on the sphere (following figure).



The Moon Texture on the Sphere

Next, you want to change the mapping mode for the moon texture.

3. Click the **Object** button.

The **Object Properties** panel appears.

4. Change the name to **Moon** (or something else that you can quickly recognize).
5. Click the **Map Mode** button.

The **Map Mode** pop-up menu appears.

6. Select **Spherical**.

Mapping for the texture changes to spherical. If you look closely at your new moon, you notice that there is a seam that runs down the center of the moon. The graphics on either side of the seam are different. This is because of the texture that is applied to the moon and the way textures are wrapped onto an object. This can be fixed.

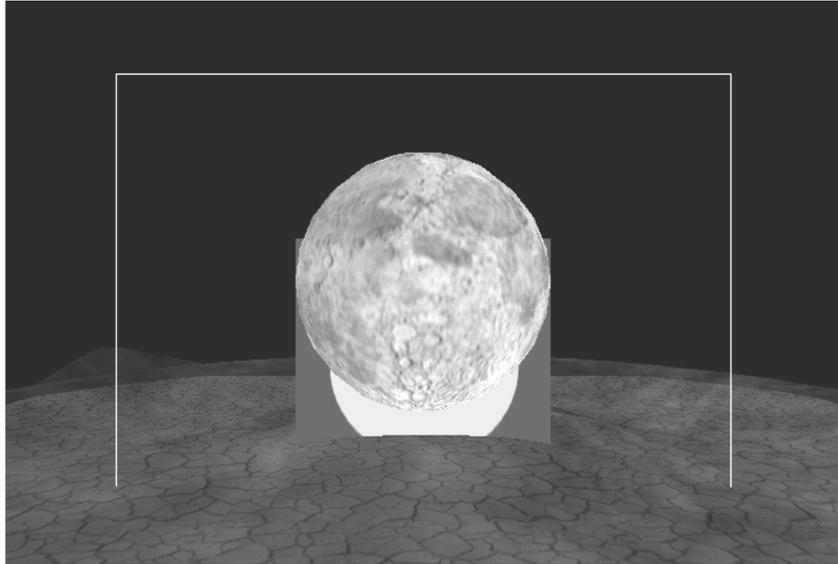
Hiding The Seam

When PersonalFX uses spherical wrapping, one of things it does is connect the right and left ends of the texture together. If these ends are different, the texture looks like it jumps at the place the ends are joined. This creates a seam. Because the moon object is a fixed prop in this scene, you can fix this by rotating the texture so that the seam is on the back side of the moon.

Here's what you do:

1. Click the **Flip on Y** button.

The moon's texture rotates (following figure).



The Moon Rotated

Making The Moon Shine

Finally, since this is the moon, you want it to shine a little bit.

To achieve this, do the following:

1. Click the **Advanced** button in the **Object Properties** panel.
2. Select **Surface Settings**.
3. Change **Luminosity** to 200.
4. Click the X button to close the panel.

That's it. Next, you want to scale and move the moon.

Scaling And Moving The Moon

With the texture applied, the sphere looks like a moon. Next you need to make it smaller, and place it behind the spinning cube.

Here's what you do:

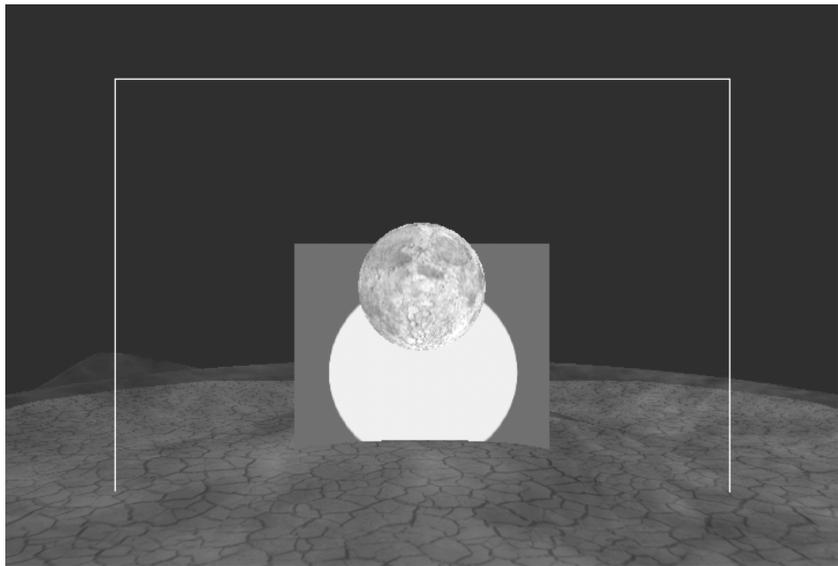
1. Click the **Scale** button

2. Change the **Scale** values to the following:

X	150
Y	150
Z	150

The Moon Scale Values

The moon resizes (following figure) while maintaining its aspect ratio.



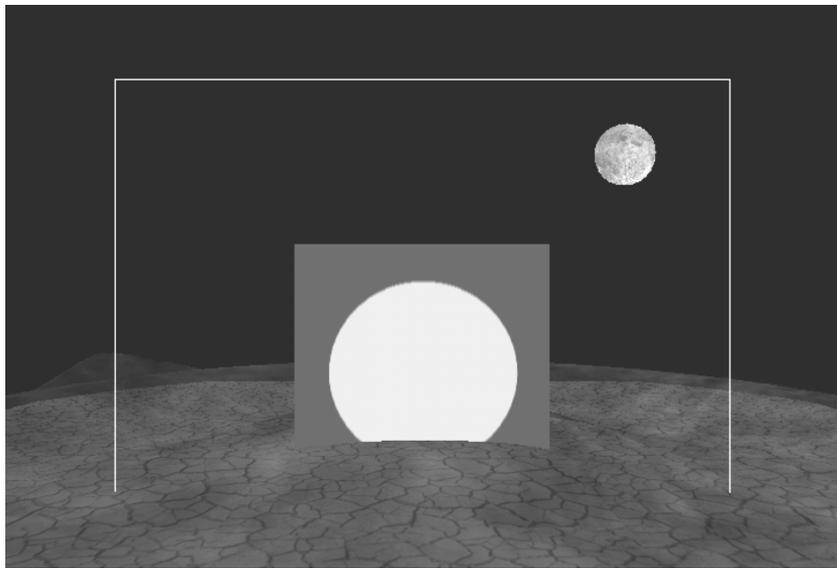
The Scaled Moon

3. Click the **Move** button.
4. Change the **Move** values to the following:

X	475.000
Y	275.000
Z	-750.000

The Moon Move Values

The moon jumps back in the workspace (following figure).



The Moved Moon

You're done editing the moon. Your next step is to work with the scene camera.

Editing The Scene Camera

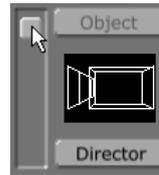
For this effect, all you need to edit is the angle of the scene camera. The view you see in your workspace is the scene camera. Because of this, you never see the scene camera, but you can still edit it *without* going into Director mode.

Here's what you do:

1. Click the **First Frame** button in the **Transport Controls**.

NOTE Before you edit an object's starting values, always click the first frame button to be sure you are at the beginning of the effect. This way you won't accidentally create a keyframe and animate the object instead.

2. Click-and-drag on the **Object Slider** until the scene camera appears in the **Object** picon (following figure).



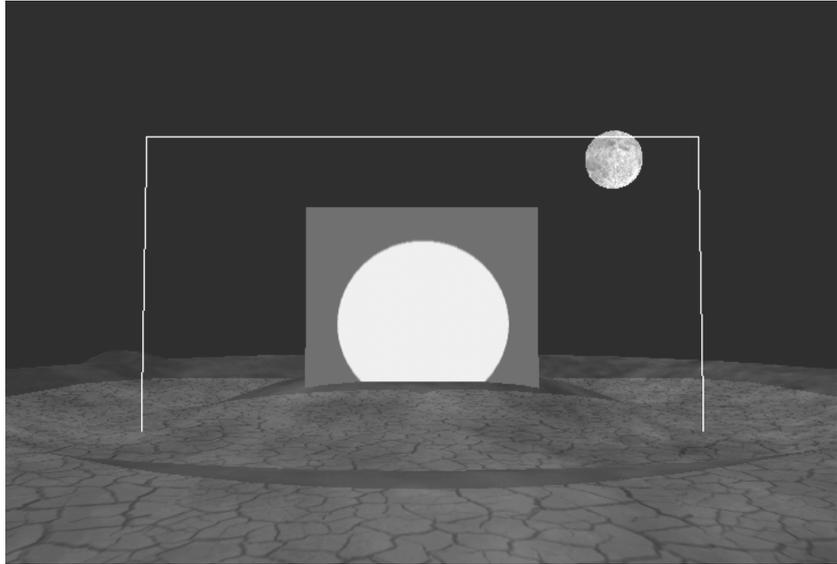
Selecting the Camera with the Object Slider

3. Click the **Rotate** button.
4. Change **Rotate** values to the following:

X	-3
Y	0.000
Z	0.000

The Camera's Rotate Values

The view in the workspace changes, slanting slightly upwards (following figure).



The Camera with New Angle

Notice that the moon lies outside of the safe area. That's okay. The next step you must do is move the camera. Once you do that, everything will be in frame.

1. Click the **Move** button.
2. Change the move values for the camera to the following:

X	0
Y	-100
Z	1000

The Camera Move Values

The camera moves, and changes your view of the workspace slightly. Now, the cube and moon fit within the scene camera's view.

That's it for editing the scene camera. The final step is to set scene properties. Then, you can compile the effect.

Editing Scene Properties

This is the final edit you make for this effect before compiling. It involves changing the lighting of the effect.

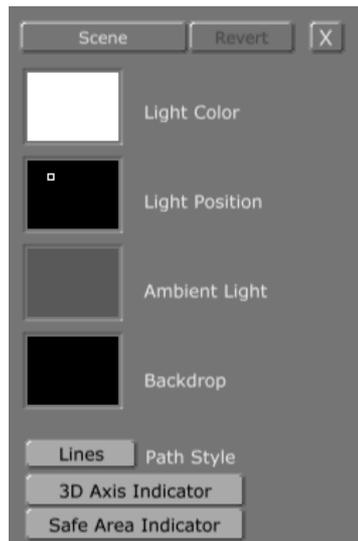
Here's what you do:

1. Click the **Scene** button in the **Effect Controls** (following figure). It's to the right of the **Test Frame** button.



The Scene Button

The **Scene Properties** panel appears (following figure).



The Scene Properties Panel

Use this panel to edit scene properties. You can edit light properties (the picons in the upper portion of the panel), and workspace viewing methods (the buttons at the bottom of the panel). For more details, refer to “Scene Properties Panel” on page 141.

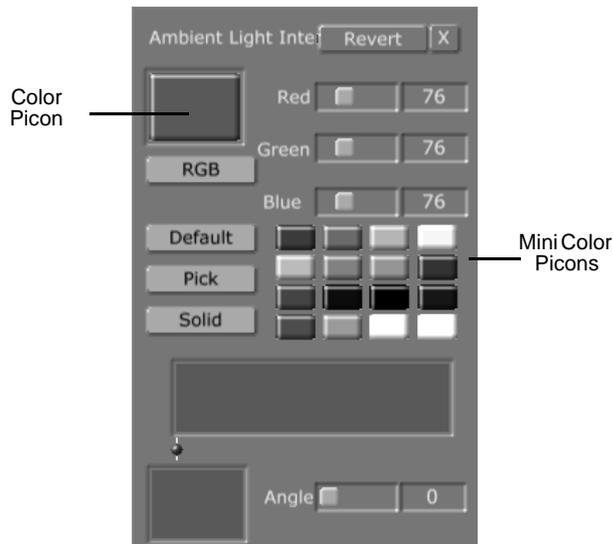
For this tutorial, you want to change the lighting a little bit.

2. Double-click the **Ambient Light** picon (following figure).



The Ambient Light Picon

A **Color Palette and Gradient Editor** appears (following figure).



The Color Palette and Gradient Editor

Use this panel to edit the color of lights in the **Scene Properties** panel. It functions in the same way as the **Color Palette and Gradient Editor** in other GlobeCaster applications. You can create colors and gradients, and save them for later use. The **Color** picon displays the current color. Use the **Mini Color** picons to select a default color. For complete details about this panel see “Color Palette And Gradient Editor” on page 97.

The default color for **Ambient Light** is gray. You can see this in the color picon. You want to change this to a brighter light.

3. Click on the white mini color picon (following figure).



The White Mini Color Picon

Notice that the color picon turns white. The workspace also brightens a little.

That's it for editing this light.

4. Click the X button.

The panel closes, and the **Scene Properties** panel returns. Notice that the **Ambient Light** picon is now white (following figure).



The Ambient Light Picon Changed

That's it for editing the light in the scene.

5. Click the X button.

The **Scene Properties** panel closes.

You are now finished creating the effect! As always, you should save before you begin compiling.

Saving What You Have (Optional)

Because you've already saved once, you have two options for saving. First, you can drag-and-drop the **Effect** picon into a convenient bin. This creates a

second file for the same effect with everything you've done up to this point saved in it. A second picon appears in the bin.

Second, you can click the **Save Now** button in the workspace. This saves the effect to the default bin for PersonalFX and overwrites the file you saved earlier.

Which method to use is up to you, depending on your editing style. Once saved, you can begin compiling.

Compiling The Effect

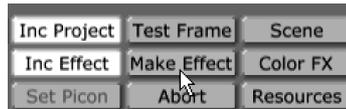
The final step in any effect creation in PersonalFX is compiling.

Do the following:

1. Turn *on* the **Inc Effect** button.

The button lights up, and PersonalFX now includes the actual effect when you save.

2. Click the **Make Effect** button (following figure).



The Make Effect Button

The toolbar ghosts out except for the **Abort** button. The **Progress Meter** appears, and PersonalFX begins compiling the effect.

This effect takes 1.5 to 2 hours to compile depending on how powerful your host PC and hardware are.

3. Once the effect is finished, drag-and-drop the **Effect** picon into a convenient bin to save.

PersonalFX saves the compiled effect in the bin you selected. You can now use this effect when you want with any video source in real time.

Wrap Up In this tutorial, you re-created the spinning cube effect. You learned to create loops, add procedural morphs, edit surface and texture settings, and create and edit a variety of primitives.

From here, there are several things you can experiment with. Dragging-and-dropping various textures onto the different primitives can create scenes that appear drastically different. Try applying a sandy texture for the water object, change the color of the ambient light, and use a different texture on the moon to create an alien landscape!

For more tutorials on Personal FX, please see the *GlobeCaster Tutorial Manual*.



Personal FX Appendices



Appendix 1: Keyboard Commands

Keyboard commands are a cool way to navigate through applications, and perform functions with near light-speed swiftness. In this appendix, you find keyboard commands for PersonalFX:

- g** Start group mode. The next left mouse click in the work area creates an anchor point for a rectangle that is used to select all objects that at least touch a point within that rectangle. The rectangle is sized by holding the left button down and moving the mouse. Releasing the button ends the group mode and causes all objects touched to be children of the currently selected object. The children's position are relative to their parent, so if the parent moves or rotates, so will they. Children cannot be parents of other objects.
- G (<shift>+g)** The converse of group mode. All objects selected are uncoupled from their parents.
- f** Copy the movement path of the last selected item and use it for the currently selected item.
- t** Alter the movement or rotation of a path so it can create continuous motion while looping.
- v** Use the directors camera. Normal editing and previewing occur, but from the directors point of view. The default position for the director is behind the scene camera in its default position. Typing v again exits this mode and the edit mode, if d was typed. The director button on the main panel functions the same as typing v and then d.

- d** Edit the director camera position (only if **v** was typed first). In this mode, while moving the mouse with the left button clicked, the director's camera moves left-right and up-down along the surface of a sphere anchored at scene center with a fixed radius. With the right button clicked, moving the mouse moves the center point of the sphere in the x-y plane. While holding the **shift** key down, the z position of the center changes when moving in the y direction. Moving in the x direction increases or decreases the radius. Using the constrain buttons makes control easier. Typing **d** again exits this mode.
- b, n, m** Moves the camera and sets positions in space when using the director's view. **b** is for front and back. **n** is for left and right. **m** is for top and bottom. All three buttons use the current sphere center and radius.
- c** Copy the position, rotation, and scale of the last chosen item and paste those values into the currently chosen item. If the current item has no key value for a corresponding copied value, nothing occurs. For example, if the current object has no X rotation and the copied key list does, that value is not pasted.
- C (<shift>+c)** Defines the values that are to be copied based on what edit mode is used. If you are in **Move** mode, move values are copied. If you are in **Rotate** mode, rotate values are copied. If you are in **Scale** mode, scaling values are copied.
- q, w, e** Changes the edit mode. **q** changes to move mode. **w** changes to rotate mode, and **e** changes to scale mode. If editing a star light, **w** does nothing, as it has no rotation possible. When editing a camera, pressing **e** chooses **camera**.
- r** Opens Real Time Rendering options
- p** Choose the next item in a list of items.
- k** Choose the next keyframe in a list of keyframes.
- Ctrl + Z** Undoes a function.

Ctrl + Y	Redoes a function.
up arrow, down arrow	Functions the same as moving the mouse up and down with the left button clicked. If the shift key is down, it is like holding down the right mouse button. Each time a key is pressed, the current value moves up or down by one.
left arrow, right arrow	Functions the same as clicking-and-dragging left and right with the mouse. Each time a key is pressed, the current value moves up or down by one.
space bar	Functions the same as hitting Auto in Air Command.
1, 2, 3	Toggle live video capture (if a clipgrab is present). 1 toggles to Program source. 2 toggles to Preview source. 3 toggles to Aux source.
Ctrl	Hold down the Ctrl key on your keyboard. Click-and-drag on the movement path of an object. You can reposition the movement path without altering any other values.

Appendix 2: Frequently Asked Questions

This sections covers some frequently asked questions about PersonalFX.

What can you do with PersonalFX?

PersonalFX creates 3D objects and real-time digital video effects (DVEs) that you can save and load into GlobeCaster's Air Command or Predator. It works with any video source from Air Command (framestores, color matte, video inputs from cameras and VCRs). It can import 3D objects created in other 3D software packages such as Softimage, LightWave and 3D Studio Max. Objects and live video can be wrapped, morphed and mapped onto three-dimensional shapes while being scaled, rotated, and positioned. Once compiled, effects are always played back in real-time.

Does PersonalFX render effects?

When creating a new effect in PersonalFX, the motion path of the video transition or effect is calculated once. After that one compile-and-save step, you can use your new effect with any live video sources instantly. In a sense, you create a template in PFX that tells the Warp Engine how you want the video source to move. But the Warp Engine does the effect or transition via its own dedicated hardware in real-time, every time.

Can you import 3D objects from other software?

Yes. See "Importing 3D Objects" on page 131 for information on importing and a list of supported formats.

Can you import 3D animation?

Yes. You can drag-and-drop animation saved out as an AVI file onto objects in PersonalFX.

Can users make their own digital video effects similar to the teapot, rotating cube, or the football helmet in PersonalFX?

PersonalFX can, among other things, create effects that use reflections and transparencies, create "primitive" geometric shapes, and import models. These are all elements that appear in the above mentioned

effects. Both the teapot and helmet were models imported from outside of PersonalFX. For information on importing objects, see “Importing 3D Objects” on page 131. This manual includes a tutorial on creating a spinning cube effect. See “Constructing A Spinning Cube Effect (Part One)” on page 297.

When building a new effect in Personal FX, can the sides of a video plane be clipped?

Yes. Use the **Environment Properties** panel. There, you find controls for clipping the top, bottom and sides of a DVE. See “Environment Properties Panel” on page 146 for more details on this panel.

Personal FX Index



Index

Symbols

- +/- Button, 169
- ? Button, 190
- _ Button, 190

Numerics

- 3D Axis Button, 42
- 3D space, 36, 194

A

- Abort Button, 135
- Absorption, 78
- Active Video Textures Button, 48
- Advanced Button, 64
- Air Command Button, 190
- Ambient Light
 - basics*, 143
 - editing*, 358
- Ambient Light Picon, 143
- Amplitude Window, 63
- Angle Window, 63
- Angular Falloff Window, 158
- Angular Width Window, 158
- Animating Movement, 207, 230
- Anti-aliasing Button, 140
- Application Buttons, 190
- Assignment Order Button, 148
- Assignments Button, 149
- Auto Button, 135

B

- B Button, 56
- Backdrop, 143
- Backdrop Picon, 143
- Bins, 11
- Bottom Window, 149

- Buttons, 38
 - , 169
 - +
 - basics*, 169
 - using*, 276, 283
- ?, 190
- _, 190
- 3D Axis, 42, 145
- Abort, 135
- Active Video Textures, 48, 187
- Advanced
 - basics*, 64
 - using*, 263
- Air Command, 190
- Anti-aliasing, 140
- application, 190
- Assignment Order, 148
- Assignments, 149
- Auto, 135
- B, 56
- Camera, 56
- Chromakey
 - Off At End*, 139
 - On*, 139
- Color, 55
- ColorFX, 136
 - using*, 246
- Create
 - basics*, 53
 - using*, 266
- Create New Object Track
 - basics*, 129
 - using*, 269
- Cut, 135
- Default, 99
- Delete, 54
- Director
 - basics*, 53
 - using*, 165
- Effect, 133

- Far Clip, 56
- Flip on X, 64
- Flip on Y
 - basics*, 64
 - using*, 351
- G, 56
- Gradient Style, 99
- Graphic Style
 - basics*, 141
 - using*, 260
- Graphics
 - basics*, 139
 - using*, 258, 301
- HSV, 98
- In, 41
- Inc Effect
 - basics*, 134
 - using*, 218, 243, 295
- Inc Project
 - basics*, 134
 - using*, 218, 243, 295
- Invert, 156
- Loop End
 - basics*, 140
 - using*, 302
- Loop Start
 - basics*, 140
 - using*, 302
- Make Effect
 - basics*, 135
 - using*, 215, 240, 293
- Mapping Mode
 - basics*, 65
 - using*, 338, 351
- Morph, 63
- Move
 - basics*, 54
 - using*, 56, 208, 232, 308
- Next Key, 189
- No Path, 41
- Object, 52

- Out*, 41
 - Panamation*, 190
 - Path Style*, 144
 - Pick*, 99
 - Pick a Color*
 - basics, 158
 - Preditor*, 190
 - Prev Key*, 189
 - R*, 56
 - Raytraced Shadows*, 79
 - Raytraced Transparency*
 - basics, 78
 - using, 272
 - Redo*, 55
 - Replace Current Selection*, 129
 - Rescale*, 137
 - Reset*
 - basics, 55
 - using, 211, 287
 - Resource Sorting By*, 148
 - Resources*, 136
 - RGB*
 - in *Color Palette and Gradient Editor*, 98
 - in *Object Controls*, 55
 - Rotate*
 - basics, 54
 - using, 234, 281, 307
 - Rotate 90*, 64
 - Safe Area*
 - basics, 42
 - Safe Area Indicator*, 146
 - Save Now*, 133
 - Scale*
 - basics, 54
 - using, 272
 - Scene*
 - basics, 136
 - using, 357
 - Select*
 - basics, 54
 - using, 306
 - Set Picon*
 - basics, 134
 - using, 217, 242, 294
 - Small View*, 43
 - Surface*
 - in *Object Creation panel*, 128
 - in *Object Properties panel*, 64
 - Test*, 158
 - Test Frame*
 - basics, 135
 - using, 79
 - Texture*
 - in *Object Creation panel*, 128
 - in *Object Properties panel*, 65
 - using in *Object Creation panel*, 268, 322
 - using in *Object Properties panel*, 265
 - Tile Horizontal*
 - basics, 94
 - using, 313
 - Tile Vertical*
 - basics, 94
 - using, 314
 - Titlewave*, 190
 - Transition/Overlay*
 - basics, 139
 - using, 201, 224, 259, 301
 - Transport Controls*, 188
 - Type*
 - in *Color Effects panel*, 156
 - in *Object Creation panel*, 124
 - using in *Object Creation panel*, 267
 - Undo*, 55
 - Upper Bins*, 43
 - Video Src*, 136
 - Warp*, 139
 - Wipe*
 - basics, 139
 - using, 259
 - Wireframe/Flat/Gouraud*
 - basics, 44, 136
 - using, 27, 304
 - with no function, 38
- X**
- Application button*, 190
 - basics, 55
 - using in movement, 57
 - using in rotation, 58
 - using in scaling, 58
- X-Axis*, 63
- Y**
- basics, 55
 - using in movement, 57
 - using in rotation, 58
 - using in scaling, 58
- Y-Axis*, 63
- Z**
- basics, 55
 - using in movement, 57
 - using in rotation, 58
 - using in scaling, 58
- Z-Axis*, 63
- Zoom**
- for camera, 56
 - in workspace, 40

C

- Camera Button*, 56
- Camera Tracks In Timeline*, 172
- Center Pan*, 44
- Changing Objects*
 - see *Editing Objects*
- Clipping Video Edges*, 125, 149
- Clipping Video Edges Window*, 149
- Color Button*, 55
- Color Dots*, 100
- Color Effects*
 - angular falloff, 158

angular width, 158
basics, 152
creating sepia effect, 246
creating single hue effect, 254
editing, 246
hue
 basics, 157
 using, 250
levels
 basics, 158
loading reference still, 247
new hue, 157
new saturation, 157
radial falloff
 basics, 157
radius
 basics, 157
saturation
 basics, 157
 using, 251
saving, 155, 252
selecting type, 156
the color wheel, 153
types
 All 1 Color But Hue Circle, 159
 All 1 Color But Hue Wedge, 160
 All B/W But Hue Circle
 basics, 159
 All B/W But Hue Wedge, 159
 Inverse Chroma, 160
 Inverse luma, 160
 Inverse Video, 160
 Monochrome B/W, 160
 Monochrome Color
 basics, 160
 using, 249
 Posterize Chroma, 160
 Posterize Luma, 160
 Posterize Video
 basics, 160

Pseudo Color and Luma, 161
Pseudo Color Preserve Luma, 161
 selecting, 158
 using, 155
 using in Air Command, 253
 using stills, 153
 Color Effects and Gradient Editor Panel, 97
 Color Effects Panel, 155
 Color Palette and Gradient Editor, 97
 Color Picon, 98
 Color Wheel, 153
 ColorFX Button, 136
 Column Angle Window, 128
 Columns Window, 128
 Compiling, 215, 240, 293
 Control Points, 171
 Controls
 Effect, 133
 Keyframe, 187
 Object
 basics, 52
 camera controls, 56
 light controls, 55
 variations, 55
 Transport
 basics, 187
 using, 210, 231
 View
 basics, 40
 using, 203
 Conventions in Document, 5
 Create Button, 53
 Create New Object Track Button, 129
 Creating
 bouncing ball transition, 297
 Color Effects, 152
 effects, 133
 flying transition effect, 221

keyhole, 113
loop, 302
new scene, 197, 222, 255, 298
objects
 20-sided shape, 266
 assigning texture, 268
 basics, 122
 lights, 127
 procedural morph, 331
 selecting types, 124
 procedural morph, 331
 sliding transition effect, 196
 sliding transition with 3D object effect, 255
 spinning cube effect, 297
 transition effect, 17
 Ctrl Key, 59
 Cubic, 182, 186
 Cut Button, 135

D

Default Button, 99
 Delete Button, 54
 Deleting Object Tracks, 122
 Deleting Objects, 54
 Diffuse Level
 basics, 72
 using, 271, 326
 Director Button, 53
 Director Mode
 basics, 165
 editing in, 168
 getting oriented, 165
 keyboard commands, 167
 mouse functions, 167
 scene camera, 165
 viewing in, 166
 Director's Axis, 166
 Displays
 Timecode, 189
 Type, 61
 Document
 conventions, 5

overview, 4
Dots, Color, 100
Dropoff Window, 61
Duration
 changing, 200, 257, 300
Duration Window, 138

E

Edit Key Panel, 185

Editing

Ambient Light, 358
color effects
 loading reference still,
 153, 247
 starting, 246
constraining edits, 55
deleting events, 185
Duration, 200, 257, 300
effect properties, 136, 223
effects
 basics, 133
 overlay, 201, 224, 259, 301
 properties, 199, 299
 saving, 218, 243
 transition, 201, 224, 259,
 301
in Director mode, 168
keyframe, 185
light properties, 60
loop
 creating, 177
 moving, 177
 using trimming handles,
 177
movement path, 59
object properties, 61, 205,
 270
objects
 applying textures, 309,
 323
 basics, 50
 creating, 321
 deleting, 54

grouping and parenting,
 162
keyboard commands, 59
moving, 12, 54, 232, 234,
 274
naming, 62
placing together, 341
properties, 228, 256
redo, 55
resetting, 55
rotating, 15, 54
scaling, 54
tiling textures, 313, 314
undo, 55
pause point, 178
Procedural Morph
 moving, 179
procedural morph
 using trimming handles,
 179
scaling with ctrl key, 59
scene camera, 354
textures
 flipping, 351
 Height Y, 85
 Offset, 82
 Origin X, 87
 Origin Y, 87
 Span X, 89
 Span Y, 89
 tiling, 94
 Width X, 85
value tracks, 277, 283, 284

Effect Button, 133
Effect Controls, 133
Effect Picon, 133
Effect Properties, 223
Effect Types
 basics, 139
 Graphics, 139
 Transition/Overlay, 139
 Warp, 139
 Wipe, 139
Effects

compiling, 20, 30, 215, 240,
 293
creating basic transition, 17
properties, 199, 223, 299
saving, 20, 30, 218, 243, 295
setting types, 201, 224, 259,
 301
Elapsed Time, 151
Environment Properties Panel,
 146
Estimated Time Remaining,
 151
Events
 deleting, 185
Events Pop-Up, 183

F

Fade In Window, 63
Fade Out Window, 63
FAQ, 369
Far Clip Button, 56
Flat, 141
 viewing workspace in, 46
Flip on X Button, 64
Flip on Y Button, 64
Flying Transition, 221
Focus Window, 61
Frequently Asked Questions,
 369

G

G Button, 56
G Key, 164
Gouraud, 46
Gradient
 recreating examples, 102
 styles
 4 corner, 106
 4 sided, 112
 bevel box, 108
 circular, 107
 horizontal, 110

- linear*, 104
 - solid*, 103
 - vertical*, 111
- Gradient Editor, 100
- Gradient Picon, 100
- Gradient Style Button, 99
- Gradient Styles Pop-Up, 101
- graphic style, 141
- Graphic Style Button, 141
- Graphic Styles
 - Flat*, 141
 - Phong*, 141
- Graphics, 139
- Graphics Button, 139
- Group Mode, 162
 - see also Parenting*

H

- Height Y Window, 85
- Hiding Object Tracks, 122
- Hold
 - basics*, 182, 186
 - using*, 278
- Hot Keys
 - see Keyboard Commands*
- HSV Button, 98
- Hue
 - basics*, 157
 - using*, 250
- Hue Window, 157

I

- Importing Objects, 131
- In Button, 41
- Inc Effect Button, 134
- Inc Project Button, 134
- Include Effect, 134
- Include Project, 134
- Index of Refraction
 - basics*, 77
 - using*, 271, 326
- Interface

- 3D space*, 36, 194
- bins*, 11, 36
- learning*, 36
- timeline*, 11, 38
- toolbar*, 11, 37
- workspace*
 - basics*, 10, 36, 194
 - movement path*, 40

Invert Button, 156

K

- Keyboard Commands, 365
- Keyframe Pop-Up, 181
- Keyframes, 171
 - animating*, 230
 - controls*, 187
 - cubic*, 182, 186
 - deleting*, 122, 182
 - Edit Key*, 182
 - hold*, 182, 186
 - linear*, 182, 185
 - pop-up menu*, 181
 - viewing*
 - next*, 189
 - previous*, 189

Keyhole, 113

L

- Lathing, 128
- Left Window, 149
- Levels Window
 - basics*, 158
- Light Color, 142
- Light Color Picon, 142
- Light Position, 143
- Light Position Picon, 143
- Light Properties Panel, 60
- Lights
 - Spot Light*, 51
 - Star Light*, 51
- Linear
 - basics*, 182, 185

- using*, 279, 284, 346

Live Video Textures, viewing

- in workspace, 48

Loop

- creating*, 177
- moving*, 177
- rotation*
 - calculation*, 344
 - t key*, 343
- selecting track*, 184
- setting*, 302
- using trimming handles*, 177

Loop Control Track

- basics*, 303
- in timeline*, 176

Loop End Button, 140

Loop Event

- basics*, 303
- in timeline*, 176

Loop Start Button, 140

Luminosity

- basics*, 74
- using*, 265

M

- Make Effect Button, 135
- Making Objects
 - see Creating Objects*
- Mapping Mode Button, 65
- Mapping Mode Pop-Up, 112
- Mapping Modes
 - camera*, 113
 - cube wrap*
 - basics*, 119
 - using*, 338
 - project in X*, 115
 - project in Y*, 116
 - project in Z*, 117
 - shrink wrap*, 114
 - spherical*
 - basics*, 118
 - using*, 351
- Message Window, 187

Mini Color Picons
 basics, 99
 using, 359
Morph
 see Procedural Morph
Morph Event, 178, 335
Morph Pop-Up Menu, 65
Most Features, 148
Most Memory, 148
Move Button, 54
Movement
 animating, 207, 230
 calculating placement, 341
 constraining, 55
 editing, 232, 274
 objects, 12, 54
Movement Path, 59
 basics, 40
 lines, 144
 styles, 144
 triangles, 145
Movement Paths
 showing, 122

N

Name Window
 in Object Properties panel,
 62
 in Surface Settings panel, 70
New Hue Window, 157
New Saturation Window, 157
New Scene, 197, 222, 255, 298
Next Key Button, 189

O

Object Button, 52
Object Controls, 52
Object Creation Panel, 122
Object Picon, 53
Object Pop-Up, 121
Object Properties Panel, 61
Objects

animating movement, 207,
230
applying procedural morph,
331
applying textures, 309, 323
creating
 basics, 50, 122, 321
 lights, 127
 selecting types, 124
editing
 deleting object tracks,
 122
 hiding object tracks, 122
 keyboard commands, 59
 object properties, 205
grouping and parenting, 162
importing
 Amorphium, 132
 basics, 131
 how to, 131
 supported formats, 131
 tips, 131
manipulating, 50
moving
 basics, 232
 calculations, 341
properties, 228, 256
rotating, 234
types
 imported, 51, 131
 lights, 50
 primitives, 51
 see also Primitives
 scene camera, 50
 selecting, 124
viewing
 3D axis, 42, 145
 Active Video Textures, 48
 flat, 46
 gouraud, 46
 in workspace, 39
 live video textures, 48
 texture mapping, 47
 wireframe, 45

Off At End Button, 139
Offset X Window, 82
Offset Y Window, 82
On Button, 139
Origin X Window, 87
Origin Y Window, 87
Out Button, 41
Overlay
 setting, 201, 224, 259, 301

P

Panamation Button, 190
Panels
 accessing from Effect Picon
 pop-up menu, 141
 Color Effects
 basics, 155
 using, 248
 Color Palette and Gradient
 Editor
 basics, 97
 using, 358
 Edit Key, 185
 Effect Properties
 basics, 136
 using, 199, 224, 257, 299
 Environment Properties,
 146
 Light Properties, 60
 Object Creation
 basics, 122
 using, 267, 321
 Object Properties
 basics, 61
 using, 205, 229, 263
 Progress, 150, 241
 Scene Properties
 basics, 141
 using, 357
 Surface Settings
 basics, 69
 using, 264, 271, 316, 325
 Texture Settings

- basics*, 79
- using*, 81, 311
- Video Sources*
 - basics*, 149
 - using*, 22
- Parenting
 - basics*, 162
 - keyboard commands*, 164
 - Object picon*, 163
 - selecting objects*, 162
- Path Style Button, 144
- Pause Point
 - creating*, 178
- Percent Done, 151
- Phong, 141
- Pick a Color Button, 158
- Pick Button, 99
- Picons
 - Ambient Light*
 - basics*, 143
 - using*, 358
 - Backdrop*, 143
 - Color*, 98
 - Effect*
 - basics*, 133
 - setting*, 242, 294
 - using*, 222
 - Gradient*, 100
 - Light Color*, 142
 - Light Position*, 143
 - Mini Color*
 - basics*, 99
 - using*, 359
 - Object*, 53
 - Surface Color*, 64
 - View*, 41
- Polygons, 127, 322, 348
- Pop-Ups
 - Effect Picon*
 - Basics*, 141
 - using*, 197
 - Event*, 183
 - Gradient Styles*, 101
 - Keyframe*, 181
 - Main Track*, 182
 - Mapping Mode*, 112
 - Morph*, 65
 - Object*, 121
 - Surface*, 129
 - Texture*, 120
 - Timeline*, 179
 - tracks in timeline*, 180
 - Type*, 158
 - View Picon*, 43
 - Wireframe/Flat/Gouraud*
 - basics*, 44
 - using*, 305
- Position Bar
 - position bar*, 170
 - timecode*, 170
 - zooming at*, 180, 181
- Preditor Button, 190
- Preparing Workspace, 202, 226, 261, 304
- Prev Key Button, 189
- Previewing
 - using Test Frames*, 79
 - work*, 212, 238, 292
- Primitive Tracks
 - in timeline*, 173
- Primitives
 - 12 sided shape*, 126
 - 20 sided shape*
 - creating*, 266
 - description*, 126
 - 4 sided shape*, 126
 - 6 surface video block*, 125
 - cone*, 126
 - creating*, 321
 - cube*, 126
 - cylinder*, 126
 - plane*, 125
 - selecting type*, 124
 - sphere*, 126
 - video plane*, 125
- Procedural Morph
 - adding*, 331
 - amplitude*, 63
 - angle*, 63
 - applying*, 68
 - fade in*, 63
 - fade out*, 63
 - Morph button*, 63
 - morph event*, 335
 - Morph pop-up menu*
 - basics*, 65
 - moving*, 179
 - removing*, 68
 - selecting track*, 184
 - tracks in timeline*, 178
 - turning off*, 65
 - types*
 - flag*, 66
 - page turn*, 68
 - twist*, 67
 - wave*, 66
 - using trimming handles*, 179
 - X/Y/Z-Axis buttons*, 63
- Progress Meter, 150

R

- R Button, 56
- Radial Falloff Window, 157
- Radius Window
 - basics*, 157
- Raytraced Shadows, 79
- Raytraced Shadows Button, 79
- Raytraced Transparency
 - basics*, 78
 - using*, 271, 327
- Raytraced Transparency Button, 78
- Redo, 55
- Redo Button, 55
- Reflectivity
 - basics*, 76
 - using*, 271, 326
- Replace Current Selection Button, 129
- Rescale Button, 137
- Reset Button, 55

- Resetting
 - constraining*, 55
 - values*, 55
 - Resource Monitors, 151
 - Resource Sorting By Button, 148
 - Resources Button, 136
 - Revert, 38
 - RGB buttons in Object Controls, 56
 - Right Window, 149
 - Rotate 90 Button, 64
 - Rotate Button, 54
 - Rotating
 - constraining*, 55
 - editing*, 234
 - loop*
 - calculation*, 344
 - object degrees*, 343
 - t key*, 343
 - objects*, 15, 54
 - Rotate button*, 54, 281
 - Row Angle Window, 128
 - Rows Window, 128
-
- S**
- Safe Area
 - safe action area*, 146
 - safe title area*, 146
 - turning on*, 146
 - Safe Area Button, 42
 - Safe Area Indicator Button, 146
 - Saturation
 - using*, 251
 - Saturation Window, 157
 - Save Now Button, 133
 - Saving
 - effects*, 218, 295
 - Saving Effects, 243
 - Scale Button, 54
 - Scaling
 - constraining*, 55
 - ctrl key*, 59, 273
 - objects*, 54
 - using Scale button*, 272
 - Scene Button, 136
 - Scene Camera
 - editing*, 354
 - in Director mode*, 165
 - scene camera*, 50
 - Scene Properties Panel, 141
 - Select Button, 54
 - Selecting Objects
 - with button*, 54
 - with slider*, 52
 - Sepia Color Effect, 246
 - Set Picon Button, 134
 - Setting Effect Picon, 217, 242, 294
 - Setting Up Workspace, 202, 226, 261, 304
 - Shinyness
 - basics*, 73
 - using*, 317, 326
 - Shortcut Keys
 - see Keyboard Commands*
 - Single Hue Effect, 254
 - Size Window, 101
 - Sliders
 - Angle*, 101
 - Event Value*, 186
 - Object*
 - basics*, 52
 - using*, 355
 - Size*, 101
 - Time*, 186
 - timecode*, 189
 - Value*, 99
 - Slot Order, 148
 - Small View Button, 43
 - Snap, 179, 181, 184
 - Source Window, 149
 - Span X Window, 89
 - Span Y Window, 89
 - Specularity
 - basics*, 71
 - using*, 317, 325
 - Spinning Cube Effect, 297
 - Spot Light, 51
 - Spot Light Tracks
 - in timeline*, 174
 - Spread Angle Window, 61
 - Star Light, 51
 - Star Light Tracks
 - in timeline*, 175
 - Surface Button
 - in Object Creation panel*, 128
 - in Object Properties panel*, 64
 - Surface Color Picon, 64
 - Surface Pop-Up, 129
 - Surface Settings
 - Absorption*, 78
 - Diffuse Level*
 - basics*, 72
 - using*, 326
 - Index of Refraction*
 - basics*, 77
 - using*, 326
 - Luminosity*
 - basics*, 74
 - using*, 265
 - preset values*, 129
 - Raytraced Shadows*, 79
 - Raytraced Transparency*
 - basics*, 78
 - using*, 327
 - Reflectivity*
 - basics*, 76
 - using*, 326
 - Shinyness*
 - basics*, 73
 - using*, 317, 326
 - Specularity*
 - basics*, 71
 - using*, 317, 325
 - Transparency*
 - basics*, 75
 - using*, 326
 - Surface Settings Panel, 69

T

Test Button, 158

Test Frame Button, 135

Texture Button

in Object Creation panel,
128

in Object Properties panel,
65

Texture Mapping

applying texture, 309

basics, 23, 323

using, 268

using Texture Settings
panel, 79, 81

viewing in workspace, 47

Texture Pop-Up, 120

Texture Settings Panel, 79

Textures

applying, 265, 268, 309, 323

editing

mapping modes, 112

tiling, 94, 313, 314

tiling with Offset, 97

using Texture pop-up
menu, 120

flipping, 351

mapping, 23

surface vs texture, 69

texture vs surface, 80

Textures, 80

Three-Dimensional Space, 194

Three-dimensional Space, 36,
194

Tile Horizontal Button, 94

Tile Vertical Button, 94

Timecode Window, 189

Timeline

basics, 11

control points, 170, 171

Edit Area

basics, 169

Collapse Tree, 181

expand all, 181

expand tree, 180

editing

delete event, 184

delete selected events,
184

events

select all, 184

select from here, 184

select from here on this
track, 184

select none, 184

select track, 184

Keyframe Timecode, 170

layout, 169

loop event, 303

morph event, 335

position bar, 170

position bar timecode, 170

procedural morph tracks,
178

snap, 179, 181, 184

tracks

basics, 170

camera, 172

clip depth, 173

invert selection, 184

invert tracks, 184

load geometry, 174

load lights, 175, 176

loop, 176

loop control, 303

primitives, 173

procedural morph, 335

R/G/B intensity, 175, 176

select from here on this
track, 184

set camera, 173

spot light, 174

star light, 175

X/Y/Z positions, 173, 174,
175, 176

X/Y/Z Rotation, 173, 174,
175

X/Y/Z Scale, 174

zoom, 173

using, 169

value tracks

editing in, 277, 283, 284

viewing

fit all, 180, 181

fit selected, 181

track height, 180

zoom 1/2, 179, 181

zoom all

Zoom

timeline, 181

zoom at position bar, 180,
181

zoom x2, 179, 181

Timeline Pop-Up, 179

Titlewave Button, 190

Toolbar, 11

Top Window, 149

Tracks

camera, 172

invert selection, 184

invert tracks, 184

load geometry, 174

load lights, 175, 176

loop, 176, 303

primitives, 173

procedural morphs, 178

R/G/B intensity, 175, 176

spot light, 174

star light, 175

using, 170

X/Y/Z positions, 173, 174,
175, 176

X/Y/Z Rotation, 173, 174, 175

X/Y/Z Scale, 174

Transition

setting, 201

Transition, Setting, 201, 224,
259, 301

Transition/Overlay, 139

Transition/Overlay Button, 139

Transparency

basics, 75

using, 271, 326
Transport Controls
 message window, 198, 223
 using, 210, 231
Transport Controls Buttons, 188
Tutorials
 basic flying transition, 221
 basic sliding transition, 196
 bouncing ball transition,
 297
 list of, 193
 sepia color effect, 246
 single hue effect, 254
 sliding transition with 3D
 object, 255
 spinning cube, 297
Type Button
 in Color Effects panel, 156
 in Object Creation panel,
 124
Type Pop-Up, 158

U

Undo, 55
Undo Button, 55
Upper Bins Button, 43

V

Value Tracks
 editing in, 277, 283, 284
Value Window, 99
Values
 Duration, 138
 X, 55
 Y, 55
 Z, 55
Video Sources Panel, 149
Video Src Button, 136
View Controls
 basics, 40
View Picon, 41
View Picon Pop-Up, 43

Viewing
 active video textures, 48
 flat, 46
 gouraud, 46
 live video textures, 48
 movement path
 in workspace, 40
 No Path button, 41
 objects, 39
 previewing work, 212, 238,
 292
 texture mapping, 47
 timeline, 180
 wireframe, 45
 Wireframe/Flat/Gouraud
 button, 44
 workspace, 39
 center pan, 44
 movement path, 122
 path styles, 144
 safe area, 43
 zoom
 fit selected, 180
 zoom basics, 40, 203

W

Warp, 139
Warp Button, 139
Warp Smoothness Window,
 138
Width X Window, 85
Windows
 Amplitude, 63
 Angle, 63, 101
 Angular Falloff, 158
 Angular Width, 158
 Bottom, 149
 Clipping Video Edges, 149
 Column Angle, 128
 Columns, 128
 Dropoff, 61
 Duration
 basics, 138
 using, 200, 257, 300
 Fade In
 basics, 63
 using, 332
 Fade Out
 basics, 63
 using, 332
 Focus, 61
 Height Y
 basics, 85
 using, 312
 Hue, 157
 Left, 149
 Levels, 158
 Message, 187
 Name
 in Object Properties
 panel, 62
 in Surface Settings panel,
 70
 using in Object
 Properties panel, 315
 New Hue, 157
 New Saturation, 157
 Offset X, 82
 Offset Y, 82
 Origin X, 87
 Origin Y, 87
 Radial Falloff, 157
 Radius, 157
 Right, 149
 Row Angle, 128
 Rows, 128
 Saturation, 157
 Size, 101
 Source, 149
 Span X, 89
 Span Y, 89
 Spread Angle, 61
 Timecode, 189
 Top, 149
 Value, 99
 Warp Smoothness, 138
 Width X

basics, 85
using, 312

X

basics, 55
using in movement, 57
using in rotation, 58
using in scaling, 58

Y

basics, 55
using in movement, 57
using in rotation, 58
using in scaling, 58

Z

basics, 55
using in movement, 57
using in rotation, 58
using in scaling, 58

Wipe, 139

Wipe Button, 139

Wireframe, viewing in
workspace, 45

Wireframe/Flat/Gouraud
Button, 44

Working in 3D, 194

Workspace

preparing for editing, 202,
226, 261, 304

previewing, 212, 238, 292

viewing

basics, 39

object 3D axis, 145

*using Wireframe/Flat/
Gouraud button*, 304

working in 3D, 194

zoom, 203

X

X Button, 55

X Window, 55

X-Axis Button, 63

Y

Y Button, 55

Y Window, 55

Y-Axis Button, 63

Z

Z Button, 55

Z Window, 55

Z-Axis Button, 63

Zoom

basics, 40

timeline, 179, 181

View picon options, 43

Zoom Button, 40

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