Switcher™ Manual

GlobeCaster STUDIO 8000™

GlobeCaster STUDIO 4000™

GLOBAL STREAMS™

Acknowledgments. The Software is based in part on the work of the Independent JPEG Group. Artbeats Software, Inc. provided visual imagery for the Fire, Arc, Bloom, Cityscape, Waterfall, Smoke, Tvwater, and FireStage effects.

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Chapter 1

Document Overview

This manual gives you an overview of what GlobeCaster Switcher is, and how to efficiently use it. It also shows what you see when you navigate through the GlobeCaster Switcher interface.

Within these pages are instructions on how to switch video, use transitions, digitize clips, set up a timeline, and set up a keyer. All of the GlobeCaster Switcher's, buttons, panels, and functions are covered here as well.

This chapter contains the following:

Chapter 1

Introduction

This manual gives you an overview of GlobeCaster Switcher. It explains buttons, panels, controls, and pop-up menu functions. It also includes tutorials and a Quick Start section to help you get started with GlobeCaster Switcher.

The following topics are covered in the tutorial:

- Setting Up A Chroma Key
- Setting Up And Performing Live Switching
- Performing A Sync Roll With The VTR Transport Panel
- Using Virtual Sets

Conventions

Before we get too far into the manual, let's take a moment to explain some of the conventions that appear within.

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.
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.

Mouse Conventions

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

Click	Place the mouse pointer over an object. Press the *left* mouse button and immediately release.
Click-and-drag	Place the mouse pointer over an object. Press the *left* mouse button. While holding the button down, move the mouse around. This is used mainly to draw boxes over objects to select them.
Double-click	Place the mouse pointer over an object. Press the *left* mouse button twice quickly and immediately release.
Drag-and-drop	Place the mouse pointer over an object. Press the *left* 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 *right* mouse button and immediately release.

SWITCHER MANUAL
QUICK START

CHAPTER 2

Chapter 2

Quick Start

Welcome to the GlobeCaster Switcher quick start. Before diving into the function of every button, panel, and pop-up menu in the GlobeCaster Switcher, let's run through a general overview of some of the basic functions, as well as a look at some of the powerful video effects and transitions that only GlobeCaster can perform. To get a complete list of the function of every button, panel, and pop-up menu, skip ahead to the GlobeCaster Switcher Reference chapter.

When you finish the tours in this chapter, remember that there is a veritable cornucopia of other effects to play with in your GlobeCaster bins. Explore and have fun.

The following topics are covered in this chapter:

The Switcher Interface

There are two versions of Switcher: Studio 8000 and Studio 4000. The interfaces only differ in terms of which controls are not available due to the Studio 4000's limited hardware: bus row inputs 5, 6, & 7 are permanently disabled, and DSK3 & DSK4 controls are permanently disabled.

Figure 2.1: The Studio 8000 Switcher Interface

Figure 2.2: The Studio 4000 Switcher Interface

The basic function of the GlobeCaster Switcher is to provide a transition between video sources. Whether or not you are in a live or post-production environment, there are four basic transitions: cut, dissolve, wipe, and digital video effect. GlobeCaster provides many variations of all of these including, chroma keying, alpha keying, down stream keying of animations, freeze frames, and more.

1024 Mode

There are some GlobeCaster users who's monitor and video card do not support viewing a 1280 x 1024 resolution. For this reason, there is an alternate software layout that is specific to a 1024 x 768 resolution. Although GlobalStreams stongly recommends using 1280 mode, you can view the 1024 mode by right-clicking on your desktop and choosing **Properties** < **Settings** < **Screen Area** and selecting **1024**.

Figure 2.3: The Studio 8000 Switcher Interface in 1024 Mode

The main difference between the two versions is the absence of the three additional soft buttons and the Auxiliary Bus row. *You can toggle between the Key Preview Bus and the Auxiliary Bus by clicking over the Bus Row button and selecting one of the two options.*

Performing A Cut

Let's start with a cut, the simplest transition.

1. Find the following picon in the **Bins\Stills\Manmade**.

Figure 2.4: The First Still Picon

2. Double-click on the picon. This loads the still into one of GlobeCaster's framestore channels, and you see it appear in the Preview (Figure 2.7) monitor.
3. Click on the **Cut** button near the bottom of the screen, to the right of the **T-Bar** handle. (The keyboard shortcut for this is **Enter**.)

Figure 2.5: Cut Button

You see the image move to the Program (Figure 2.1 and Figure 2.2) monitor.

NOTE: The Program monitor displays what is going out over the air, while the Preview monitor displays an image source that is cued up.

4. Locate the following picon, also in the **Bins\Stills\Manmade**.

Figure 2.6: The Second Still Picon

5. Double-click on the picon. This loads it into the other still store channel, and you see it appear in the Preview monitor (Figure 2.7).

Figure 2.7: Picon in Preview Monitor

6. Click **Cut** again.

   The GlobeCaster Switcher swaps the images in the Program and Preview monitors, and the second image is now broadcast.

NOTE: If you have one or more video sources connected to GlobeCaster, feel free to use them instead of one or both stills.

Performing A Dissolve

You can create a dissolve between the two images. This mixes the two sources together, producing a smooth fade from one image to the other. To create a dissolve, do the following:

1. Click on the **Mix** button, above the **Cut** button (Figure 2.8).

Figure 2.8: Mix Button

   You see the **Mix** button turn yellow.

2. Click on the **Auto** button, to the right of the **Cut** button. (The keyboard shortcut for this is the spacebar.)

Figure 2.9: Auto Button

   You see the image in the Program monitor smoothly fade into the image in the Preview monitor.

You can vary the duration of the dissolve by setting the effect duration above the **Auto** button to a different number. The effect duration is the number of frames it takes the transition to occur. To change it, do the following:

1. Click on the **Mix** button.

   You see the **Mix** button turn yellow.

2. Click on the number just above the **Auto** button, delete the existing number, and type in a new number. Or click in the box and drag up or down on the screen with your mouse. Try 60 for a two second dissolve NTSC, (50 for two second dissolve for PAL).

3. Click on **Auto** to see the framestore image dissolve at the interval you set.

Fade To Black

A useful basic function is fade to black. This is often used to fade to black before a transition to commercials occurs or at the end of a show or segment.

To perform a fade to black, do the following:

1. Click on the **Fade** button.

   You see the **Fade** button turn yellow, and the program on your external monitor fade to black. You do not see this on the Program monitor on the GlobeCaster Switcher interface.

2. Click the **Fade** button again to bring the program back to normal.

NOTE: When using the Fade button, you see the program fade to black on your external monitor only. The Preview and Program monitors in your GlobeCaster Switcher will remain unchanged.

TIP: The default duration for this fade is 15 frames. To change it, select the number in the box just above the Fade button and type in a new number. Or click in the box and drag up or down on the screen with your mouse.

Performing A Wipe

GlobeCaster can also perform a large variety of wipes. For an example, locate the following picon in the **Bins\FX\Sampler bin**.

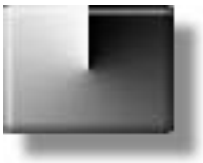

Figure 2.10: Picon For Wipe

1. Double-click on the picon.

   This loads it as the current effect, and you see it in the display above the **FX** (effects) label, above the **Mix** button (Figure 2.11).

Figure 2.11: Loading the Current Effect

2. Click the **FX** button.

   You see the **FX** light up.

3. Click **Auto**.

   In the Program monitor, you see the image from the Preview monitor wiped on, replacing the image in the Program monitor.

Organic Wipes

GlobeCaster can do more than just standard wipes. It can also perform organic wipes. An organic wipe is a transitional effect that uses some kind of natural pattern to remove one video source and replace it with another.

To see an example of an organic wipe, locate the following picon in the **Bins\FX\Sampler** bin.

Figure 2.12: Picon For Organic Wipe

1. Double-click on the picon to load the effect as the current FX.

   You see it load into the display above the **FX** button (Figure 2.13).

Figure 2.13: Picon in FX Window

2. Click **Auto**.

   You see the image transition in the Program monitor.

Overlay Effects

GlobeCaster also lets you create graphics in the GlobeCaster Animator/ Compositor or GlobeCaster Character Generator and use them in effects you can run from the GlobeCaster Switcher. To see an example, locate the following picon in the **Bins\FX\Sampler** bin.

Figure 2.14: Picon For Overlay Effect

1. Double-click on the picon. You see it load into the display above the **DSK** (downstream key) button (Figure 2.15).

v

Figure 2.15: Picon in DSK Window

2. Click **Auto**.

   You see the transition in the Program monitor.Using Digital Video Effects

GlobeCaster can perform another class of effects called digital video effects. Digital video effects change the shape of (or warp) the video picture, rather than just replacing one picture with another as in a wipe. To see an example of a digital video effect, locate the following picon in the **Bins\FX\Sampler** bin.

Figure 2.16: Picon for Digital Video Effect

1. Double-click on the picon to load the effect.
2. Click **Auto**.

You see the transition in the Program monitor.

Digital Video Effects With Graphics

Finally, let's combine a graphic with a digital video effect. Locate the following picon in the **Bins\FX\Sampler** bin.

Figure 2.17: Picon for Digital Video Effect with Graphics

1. Double-click on the picon to load the effect.
2. Click **Auto**.

   You see the transition in the Program monitor.

Effect Properties Panel

With the **Effect Properties** panel, the GlobeCaster Switcher gives you the power to alter transition properties, such as softness and duration, allowing you to tailor transitions to your needs.

To get a feel for how the **Effect Properties** panel works, let's reverse the direction of the wipe, soften and add a blue border to its edges. From this panel you can also adjust other properties, such as duration.

1. Locate the following picon in the **Bins\FX\Sampler bin**.

Figure 2.18: Picon For Wipe

2. Double-click on the picon to load it as the current FX.

   You see it load into the display above the **FX** button.

3. Right-click on the picon, in the display above the **FX** button, and choose **Properties** from the pop-up menu.

   You see the **Effect Properties** panel appear in the upper left portion of the screen (Figure 2.19).

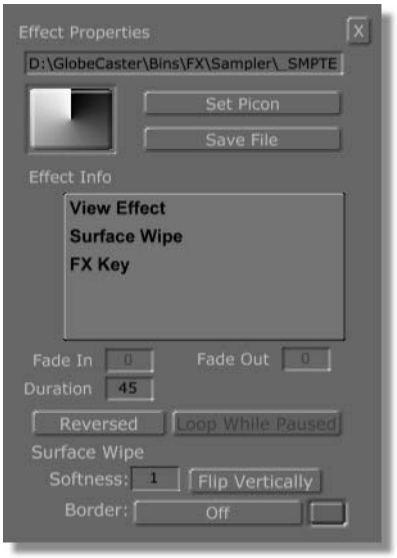

Figure 2.19: The Effect Properties Panel

4. Change the **Softness** value for this wipe by deleting the current value of **1** and replacing it with **60**.

The default softness is **1**, which is a hard edge. A softness of **60** gives the wipe a nice soft edge.

5. Click the **Reversed** button.

   The default direction for this wipe is clockwise. When reversed, this effect wipes counter-clockwise.

Now we want to change the look of the wipe's border.

6. Click the **Border** button and select **Solid Color** from the pop-up menu.
7. Click the colored box next to the **Border** button to bring up the **Effect Border Color** panel.

   You see the panel appear next to the Program and Preview monitors (Figure 2.20).

Figure 2.20: The Effect Border Color Panel

8. Click on any of the 16 color boxes in the lower right corner of this panel. These small color picons represent pre-mixed colors.

   You see this color appear in the box next to the **Border** button in the **Effect Properties** panel.

9. Close the **Effect Border Color** and **Effect Properties** panels.
10. Click **Auto**.

    You see the image transition in the Program monitor. Note the soft edges and color border as the transition wipes counter-clockwise.

11. Close this panel by clicking on the small "x" after you have chosen your color.

When this wipe is reloaded as the current effect, it reverts to its default settings. However, there are two ways to save the effect you created. One method creates a new file, while the other replaces the original file with your new properties. To save your effect as a new file, simply drag-and-drop the picon from the display above

the FX button into a bin. To replace your original effect, click the **Save Over Original File** button in the **Effect Properties** panel.

Creating A Timeline

Building a timeline in Switcher works in conjunction with the sync roll editing feature of the **VTR Transport/Sync Roll/Live Digitize** panel. Sync roll editing is a technique used when two or more cameras were set up at a live event, such as a wedding, and the feed from each camera was recorded to a different tape. The the tapes are then brought back, synchronized to the same point in time, and played back simultaneously while the editor switches the tapes as if they were on location switching cameras live.

With the **VTR Transport/Sync Roll/Live Digitize** panel, you can create a timeline as you switch these tapes. That way, you can bring your timeline into Editor and make minor adjustments or corrections.

To get a feel for how to create a timeline with Switcher, let's build a simple timeline using two framestores and a wipe.

1. Click the **Panels** button, in the lower right corner of the GlobeCaster Switcher interface, and choose **VTR Transport** from the pop-up menu (Figure 2.21).

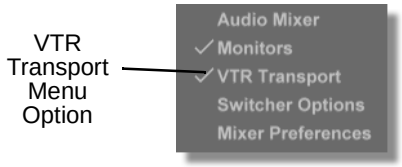

Figure 2.21: Selecting VTR Transport

You see the **VTR Transport/Sync Roll/Live Digitize** panel (Figure 2.22) appear in the upper right corner of your screen.

Figure 2.22: The VTR Transport/Sync Roll/Live Digitize Panel

2. Make room for your timeline by clicking and dragging the edge of the **FX Sampler** bin up, in the upper left corner of your screen, until there is an empty space under or above the bin.
3. Right-click in the empty space and choose **New Timeline Window** from the pop-up menu.

   You see a timeline window fill the space (Figure 2.23).

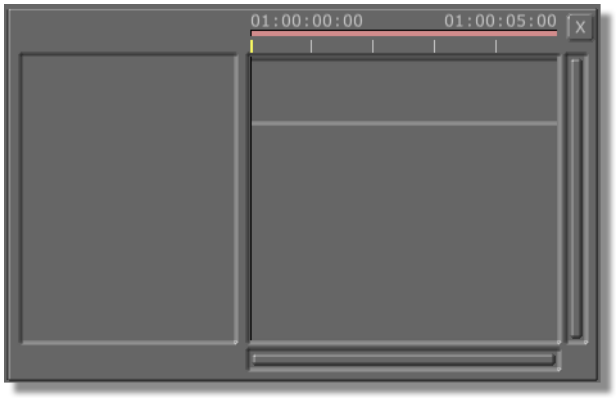

Figure 2.23: A Timeline Window

4. Load the White House framestore from the **Bins\Stills\Sampler** bin into the Preview bus by dragging-and-dropping its picon (Figure 2.24) onto the **FS2** button on the Preview bus.

Figure 2.24: White House Framestore Picon

You see the **FS2** button light up, indicating that the framestore is loaded into the Preview monitor.

Figure 2.25: FS2 Button on the Preview Bus

5. Load the American Flag framestore from the **Bins\Stills\Sampler** bin into the Program bus by dragging-and-dropping its picon (Figure 2.26) onto the **FS1** button on the Program bus.

Figure 2.26: American Flag Framestore Picon

You see the **FS1** button light up, indicating that the framestore is loaded into the Program monitor.

6. Load a wipe (Figure 2.27) from the **Bins\FX\Sampler** bin by double-clicking its picon.

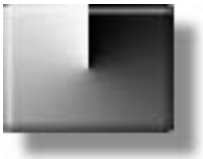

Figure 2.27: Picon For Wipe

You see it load into the FX window above the **Mix, FX,** and **DSK** buttons.

7. Click the **Build Timeline** button in the **VTR Transport/Sync Roll/ Live Digitize** panel.

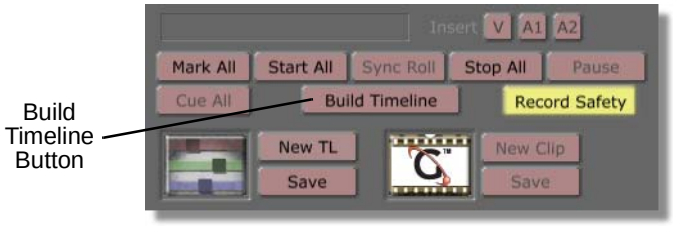

Figure 2.28: Build Timeline Button

You see the button turn yellow.

8. Click the **Sync Roll** button in the **VTR Transport/Sync Roll/Live Digitize** panel.

   You see the button's letters turn gray.

9. Click the **Auto** button in Switcher three times, allowing time for the wipe to complete its transition before each click.

   You see the framestore in the Program monitor transition into the framestore in the Preview monitor three times.

10. Click the **Stop All** button in the **VTR Transport/Sync Roll/Live Digitize** panel.

11. You see the transitions and framestores you switched appear in the timeline window (Figure 2.29).

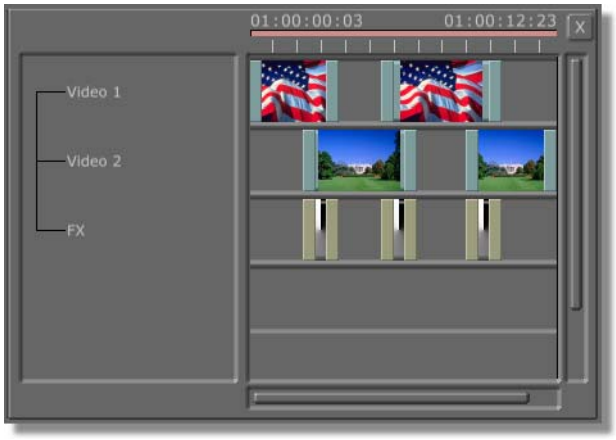

Figure 2.29: Timeline With Content

12. Save the timeline by dragging-and-dropping the timeline picon (Figure 2.29) from the **VTR Transport/Sync Roll/Live Digitize** panel into the desired bin.

You can also save your timeline by clicking the **Save** button in the **VTR Transport/Sync Roll/Live Digitize** panel. This saves the timeline in the default bin (**GlobeCaster/Bins/Clips/Projects**) set in the **Global Settings** panel (See the chapter on "Using Configure Panels" in the *GlobeCaster User Guide* for more information on the **Global Settings** panel).

Figure 2.30: Timeline Picon

The timeline you created can be edited in the GlobeCaster Editor or played back in GlobeCaster Switcher.

Play back a timeline in GlobeCaster Switcher by loading it into the FX window, above the **Mix, FX,** and **DSK** buttons. Do this by dragging-and-dropping it into the FX window from the bin where you saved it. Timelines loaded into the FX window are sent out "over the air" by clicking the **Auto** button.

Digitizing Live Clips With Time Machine

With the **VTR Transport/Sync Roll/Live Digitize** panel and a Time Machine, live clips can be digitized from the GlobeCaster Switcher interface. This feature is effective if you want to create a digitized clip as you switch video or if you want to digitize from a tape that is not 422 controllable. These clips can be played back from your GlobeCaster Switcher or dropped onto any timeline.

To learn the basics of digitizing live clips, let's digitize a clip as we transition between two framestores.

1. Load the framestore of a flag from the **Bins\Stills\Sampler** bin into the Preview bus by dragging-and-dropping its picon (Figure 2.31) onto the **FS2** button on the Preview bus.

Figure 2.31: Paint Brushes Framestore Picon

   You see the **FS2** button light up, indicating that the framestore is loaded into the Preview monitor.

2. Load the framestore of the White House from the **Stills Sampler** bin into the Program bus by dragging-and-dropping its picon (Figure 2.32) onto the **FS1** button on the Program bus.

Figure 2.32: White House Framestore Picon

   You see the **FS1** button light up, indicating that the framestore is loaded.

3. Click the **FS1** button on the Program bus to choose the clouds framestore as the program source.

   You see the clouds framestore in the Program monitor.

4. Load a wipe (Figure 2.33) from the **FX Sampler** bin by double-clicking its picon.

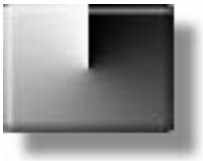

Figure 2.33: Picon For Wipe

You see it load into the **FX** window above the **Mix, FX,** and **DSK** buttons.

5. Click the **Panels** button, in the lower right corner of the Switcher interface, and choose **VTR Transport** from the pop-up menu.

You see the **VTR Transport/Sync Roll/Live Digitize** panel (Figure 2.34) appear in the upper right corner of your screen.

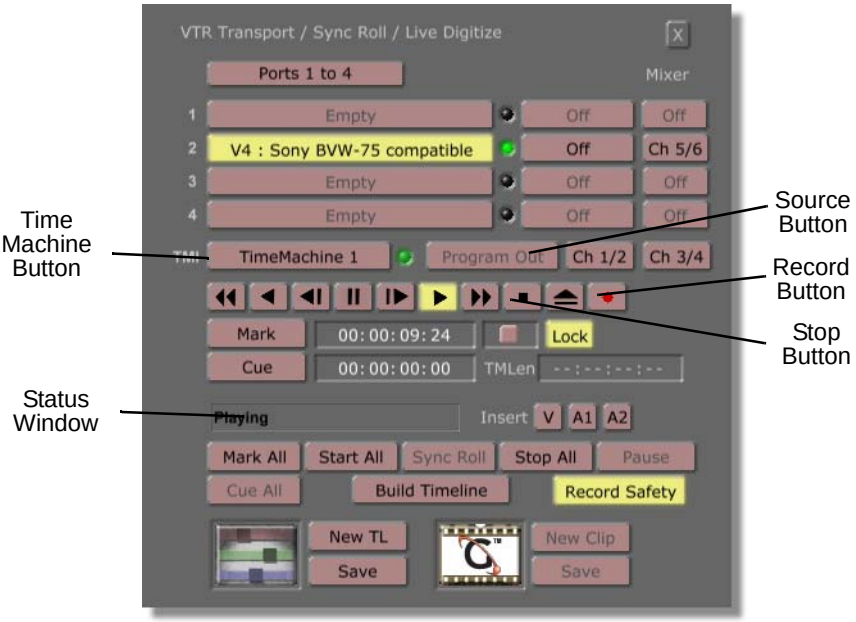

Figure 2.34: The VTR Transport/Sync Roll/Live Digitize Panel

6. Click the **TimeMachine** button.

You see the **TimeMachine** button turn yellow, indicating that Time Machine is active.

You see the transport control buttons, except **Record**, turn gray. When digitizing live clips, you only have the option to record or stop recording.

In the status window you see the words **Ready to record**.

7. Click on the **Source** button and choose **Program Out** from the pop-up menu (Figure 2.35).

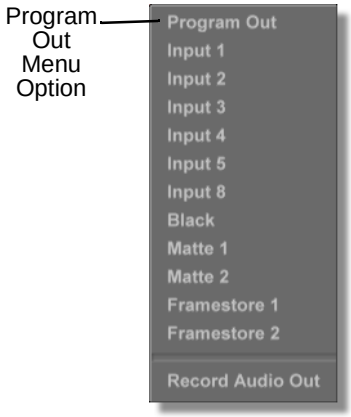

Figure 2.35: Time Machine Pop-Up Menu

This chooses **Program Out** as the source of the clip being digitized.

8. Click the **Record** button on the transport controls.

Figure 2.36: Stop Button

In the status window you see the word **Recording**.

With the **Record** button selected, Time Machine digitizes what is seen on the Program monitor.

9. Click the **Auto** button in your GlobeCaster Switcher three times, allowing time for the wipe to complete its transition before each click.

You see the framestore in the Program monitor transition into the framestore in the Preview monitor three times.

10. Click the **Stop** button on the transport control.

In the status window you see the word **Stopped**.

You see the digitized clip picon with the flag on it (Figure 2.37) in the lower right corner of the **VTR Transport/Sync Roll/Live Digitize** panel.

Figure 2.37: Digitized Clip Picon

The flag on the digitized clip picon represents the first frame of the clip.

NOTE: The picon for any digitized clip is actually a shortcut to the digitized clip saved on Time Machine's hard drives. This shortcut can be dragged to a timeline and edited as a normal clip. The name given to the picon shortcut is applied to the digitized clip on Time Machine's hard drives.

You now have a digitized clip, which can be played back in GlobeCaster Switcher or dropped into any timeline. Digitized clips are automatically saved to Time Machine's hard drives and by clicking **Save**, a shortcut to these clips is saved in the default bin set in the **Global Settings** panel (See the chapter on "Using Configure Panels" in the *GlobeCaster User Guide* for more information on using the **Global Settings** panel).

Save the digitized clip's picon by dragging-and-dropping it from the **VTR Transport/Sync Roll/Live Digitize** panel into the desired bin. You can also save your digitized clip's picon by clicking the **Save** button in the **VTR Transport/Sync Roll/Live Digitize** panel. This saves the digitized clip's picon in the default bin set in the **Global Settings** panel (See the chapter on "Using Configure Panels" in the *GlobeCaster User Guide* for more information on the **Global Settings** panel).

SWITCHER MANUAL REFERENCE

CHAPTER 3

Chapter 3

Reference

The functions of the following GlobeCaster Switcher controls are covered in this chapter:

Switcher Overview

The basic function of any switcher is to provide an easy way to switch between different video sources.

The following figures illustrates the GlobeCaster Switcher's many function controls.

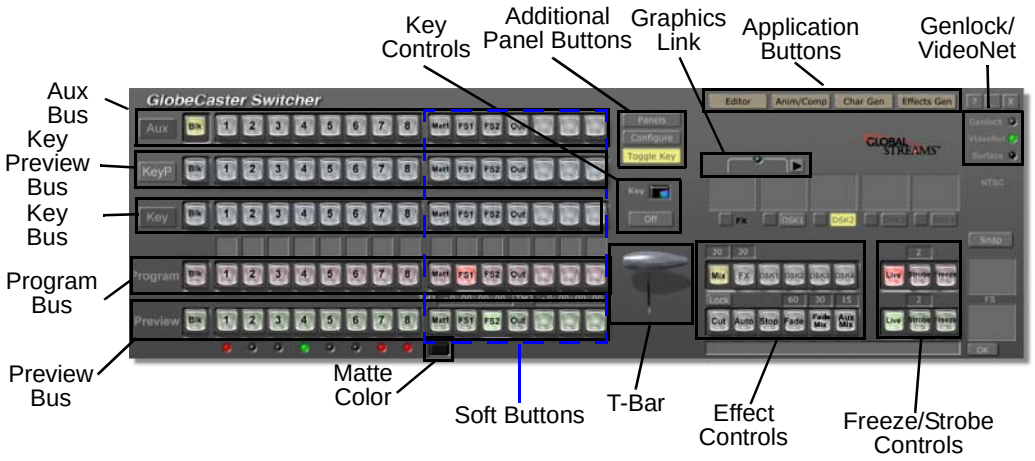

Figure 3.1: Switcher's Function Controls in GlobeCaster Studio 8000

Video Busses

Each row of buttons is called a video bus (following figures). Each button represents a channel of video running through GlobeCaster.

Figure 3.2: Video Busses in GlobeCaster Studio 8000

Figure 3.3: Video Busses in GlobeCaster Studio 4000

Following is a list of the functions of the busses:

Program — Represents what is actually going out "over the air." This is the most important bus in the GlobeCaster Switcher, as whatever is selected here is what is actually broadcast or recorded. The Program bus must always have a button selected.

Preview — A secondary video bus used to preview video sources to decide which should go out on the air next. Most transitional video effects take the current Program video source and replace it with the Preview source. The Preview bus must always have a button selected.

Key — Selects what video source is keyed in over the top of the Program source using the chroma/luma keyer. The Key bus is only turned on when the chroma/luma keyer is used.

Key Preview — Takes the place of the **Cue** button, rather than alternating between **Key** and **Key Preview** on the bus row above **Program** via the **Cue** button.

Aux Bus — Another video bus just like the Program bus and the Preview bus. Certain GlobeCaster configurations with multiple video paths can use the Aux bus to specify a third video source for effects using three video sources. For example, two framestore cards and a warp engine or two warp engines and a framestore card.

The numbered buttons on each bus represent the video input slots on the back of the GlobeCaster hardware except number eight. The eighth input card is placed in one of the slave output slots, which are numbered 10-12 on the back.

NOTE: For GlobeCaster Studio 4000 users only: There are only buttons 1-4 in GlobeCaster Studio 4000.

Figure 3.4: Blk (Black) button and Inputs 1-8 in GlobeCaster Studio 8000

Figure 3.5: Blk (Black) button and Inputs 1-4 & 8 in GlobeCaster Studio 4000

The following list explains the input buttons and their functions:

Inputs 1-8

GlobeCaster Studio 4000: Inputs 1-4 — On each bus, these buttons represent the different video inputs on GlobeCaster. Each active button (that has an input module installed) lights up when the cursor passes over it. Left-clicking on any active button selects that input. Right-clicking on a button brings up a pop-up menu, from which you bring up the **Input Sources, Input Settings, Color Correction,** or **Pro Color Correction** panels (See the chapter on "Using Configure Panels" in the *GlobeCaster User Guide* for more information on these panels). Below each of the input buttons, there is a small box that can be used to label the input. Simply click in the area and type in the name of the input.

Blk (Black)	Causes the video bus to display black (7.5 IRE).

Softbuttons The seven softbuttons (Figure 3.6) represent video signals internal to GlobeCaster.

Figure 3.6: Softbuttons

Choose the function of each softbutton by right-clicking on one and selecting a function from the pop-up menu. The following figure shows an example of the menu when right-clicking on an unassigned soft button.

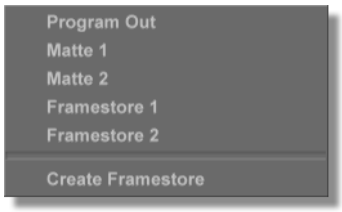

Figure 3.7: Context Menu for Softbuttons

The following list explains these buttons and their functions:

Mat1, Mat2	Selects the matte color for that bus. A matte is a solid color screen. Matte color is shown by the **Matte Color** button located next to the input labels. Matte color can be set by right-clicking on any of the **Mat** buttons, or by clicking on the **Matte Color** button. Clicking the **Matte Color** button brings up the **Matte Color** panel (See "Matte Color Panel" on page 43 for more information about this panel).

TM1, TM2, etc. Represents a digitized clip. These are where digitized clips are chosen as a video source. To load a digitized clip into a softbutton, simply double-click on a digitized clip's picon. The digitized clip loads into an available channel in the soft buttons, which is now labeled **TM1** or **TM2**. Once a cut is made, and the clip is on the Program monitor, the clip begins playing. Unload this clip from the softbutton by right-clicking on the softbutton and choosing **Unload Digitized** from the pop-up menu.

Figure 3.8: Timecode Counters

Between the **Program** and **Preview** bus rows, you'll notice two timecode counters. These counters show the current timecode of the corresponding Time Machine clips. The counters can either: show the timecode of the current position (Count Up), show the amount of time left (Count Down to -0:00:00:00) or be hidden. This feature is controlled through the **Switcher Options Panel**. For more information on this panel, see "Switcher Options Panel" on page 73.

CM1, CM2, etc. Represents a ClipMem. These are where ClipMems are chosen as a video source. To load a ClipMem into a softbutton, simply double-click on a ClipMem in a bin. The ClipMem loads into an available channel in the softbuttons, which is now labeled **CM1**. Once a cut is made, and the clip is on the Program monitor, the clip begins playing. Unload this clip from the softbutton by right-clicking on the softbutton and choosing **Unload Digitized** from the pop-up menu.

NC1, NC2

Represents a nonlinear deck clip. If there is a nonlinear deck set up, a clip from that deck can be double-clicked like a Time Machine clip and loaded as a softbutton. A NC# (nonlinear clip followed by the video input slot of the deck) softbutton behaves similar to the TM1 or TM2 softbuttons, except that it cannot be looped. The **loop** button is replaced by a **cue** button so the user can cue the clip to its start position.

A nonlinear deck clip can be unloaded by right-clicking on the bus source button and selecting **Unload NLR Deck Clip**.

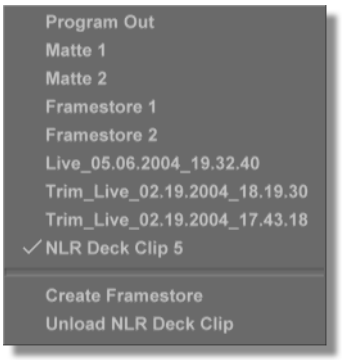

Figure 3.9: Unloading NLR Deck Clip

Loop

The **loop** button appears when a digitized clip or ClipMem is loaded into a softbutton. Clicking the **Loop** button loops the digitized clip or ClipMem when it's playing on the Program bus.

FS1, FS2, etc.

Represents framestores, or stills. These are where still images are chosen as a video source. To load a still into one of the framestores, simply double-click on it. Additional **FS** buttons can be created by right-clicking on a softbutton and choosing **Create Framestore**. The framestores that are manually created can be deleted by right-clicking on the framestore button and choosing **Unload Framestore** from the pop-up menu.

When additional **FS** buttons are created, it is necessary to drag-and-drop stills to load them into the **FS** buttons because double-clicking on a still loads it into a random **FS** button.

Out	Feeds the Program output back into itself, creating bizarre recursive feedback effects. These look especially good on dance shows or at parties. To really see this in action, set the Program bus to **Out** and run a digital warp effect.
Cue	Tells the Key bus to turn on a specific input when the next Cut is performed. To use this function, simply click the **Cue** button and then click the desired key source on the **Key** bus. The next time a cut is performed, the selected Key input is activated.
Toggle	Clicking on this button locks a key image to a background source for the purposes of transitions. That way, you can use a single keyboard command to toggle two sources (such as a camera and a background) between Program and Preview simultaneously.

Matte Color Panel

With the **Matte Color** panel (Figure 3.10) you can select a color from a set of pre-mixed colors or mix your own color. This color is set as the matte color.

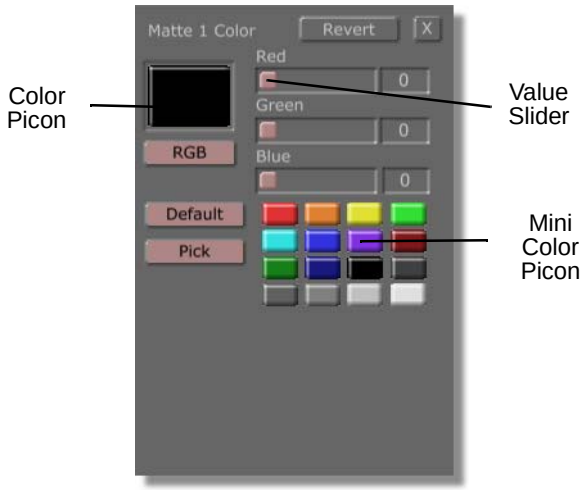

Figure 3.10: The Matte Color Panel

Bring up this panel by clicking the **Matte Color** button under a **Matte** softbutton (Figure 3.11). If this panel is brought up by clicking the **Mat1** button, it is labeled **Matte 1 Color**. If this panel is brought up by clicking the **Mat2** button, it is labeled **Matte 2 Color**.

Figure 3.11: The Matte Color Button

The following list explains how to use this panel:

Revert — Removes any changes made in this panel and resets it to its original color.

Color Picon — Shows the current color. As you edit the color, the picon changes to match the new color.

RGB/HSV	Sets the color format. Clicking this button brings up a pop-up menu with the options **RGB** or **HSV**. In RGB mode, you can mix a color using the three additive primary colors used to construct video images. They are red, green, and blue. In HSV mode you can adjust the three properties of color. They are hue, saturation, and value.
Red, Green, Blue/Hue, Saturation, Value	Clicking and dragging a slider changes the values of the color. If **RGB** was selected with the **RGB/HSV** button, the sliders adjust the red, green, and blue values. If **HSV** was selected, the sliders adjust the values for hue, saturation, and value. These values can also be adjusted by typing a new value in the boxes to the right of the sliders.
Mini Color Picons	A set of small color picons. These colors can be loaded as the Color picon by dragging-and-dropping them into the Color picon or by double-clicking on one. A Mini Color picon can be changed by clicking-and-dragging the Color picon onto it.
Default	Resets the mini color picons to the default colors.
Pick	Selects a color. To do this, click the **Pick** button and drag to any point on the screen. When the **Pick** button is clicked, the video in the Program and Preview monitors freezes, allowing you to pick a color from video. To select the color you have dragged over, release the mouse button. The new color loads as the Color picon, and its values are displayed in the color values.

Effect Controls

The Effect Controls (Figure 3.12) is the area of Switcher where you can control how the video busses are mixed.

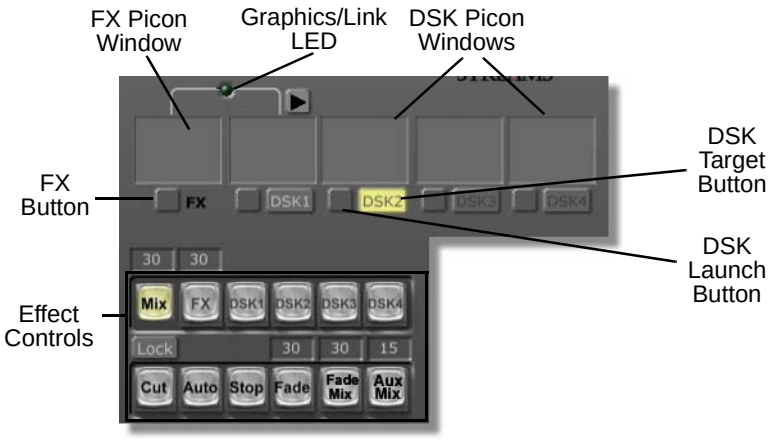

Figure 3.12: Window Picons and Effect Buttons

Following is a list of how these controls function:

FX Picon Window Displays the picon for the transitional effect currently loaded. To load an effect from a bin, simply double-click its picon. While GlobeCaster is loading the effect, you see the effects picon being animated until the effect is completely loaded and ready to use. To use the effect instantly, click the **FX** button and the effect will run in the program window. The button under this picon lights up when an effect is running. More than one transition can be loaded in the **FX** picon. Right-clicking on this picon brings up a list of all effects loaded into the **FX** picon. It also gives a choice for **Effect Properties**, and a way to unload effects. Choosing **Effect Properties** from the pop-up menu brings up the **Effect Properties** panel (See "Effect Properties Panel" on page 50 for more information about this panel).

DSK Picon Window

Displays the picon for any downstream key effect loaded. The light under this picon lights up when a DSK effect is running. DSK effects include any type of graphic overlay, animation, or credit roll that doesn't involve a transition from one video source to the next. More than one transition can be loaded in the DSK picon. Right-clicking on this picon brings up a list of all effects loaded into the DSK picon. It also gives a choice for **Effect Properties**, and a way to unload effects (Figure 3.13).

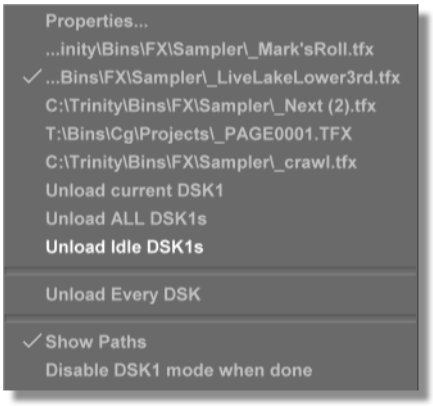

Figure 3.13: DSK Properties Menu

Properties—Choosing this brings up the **Effect Properties** panel (See "Effect Properties Panel" on page 50 for more information about this panel).

Unload current DSK—Unloads the current DSK in the window.

Unload ALL DSKs—Unloads all the loaded DSKs in a *particular* window.

Unload Idle DSKs—Unloads all effects of the corresponding FX or DSK, except for those already running or prepared to run. This is beneficial if you want to free up memory for a new effect and not unload each effect by hand.

Unload Every DSK—Unloads all the loaded DSKs in *all* the windows.

Show Paths—Shows the entire path (active when a check mark is present) where the effect is saved or just the effect name by selecting this option.

Disable DSK1 mode when done—Automatically turns off the corresponding DSK mode button when the effect is completed.

DSK2, DSK3, DSK4 Picon Windows

These windows represent the DSK card(s) that you have installed in your GlobeCaster. *Certain versions of GlobeCaster do not come with additional DSKs.* If you have one DSK card installed, then the DSK2 window will be active. You can drag and drop picons into the DSK windows to load the effect(s).

DSK Target Buttons

Clicking on this button will determine which card will be responsible for loading the effect. For example, clicking on the DSK2 indicator button will cause that button to be highlighted. Now, when you double-click on a downstream effect in the bins, that effect will be loaded into the DSK2 picon. The DSK selection buttons are radio buttons which means that only one button can be highlighted at a time.

DSK Launch Buttons

This button serves two functions. First, it represents the state of the effect similar to the **FX LED** button. When the button is green, it means that the effect is running. When the button is dark green, the effect is turned off. Secondly, it behaves just like the **Auto** button does. Clicking on the button toggles its state; if the effect is off (dark green), clicking the button launches the effect. Alternatively, clicking the button while running (green), turns off the effect.

Graphics Link Button

Represents a sharing resource issue betwen an effect and a DSK. If your effect uses the **Switcher**'s graphic layer and a DSK is cued up, this will warn you (light up) that running the effect will stop the other effect.

Mix, FX, and DSK

These buttons are collectively called the **Effect Controls**. These buttons control what action is performed when the **Auto** button is pressed. When effects are loaded into the GlobeCaster Switcher, the appropriate buttons automatically light up for the effect. If the **Mix** button is selected, clicking **Auto** performs a dissolve between program and preview video. If the **FX** button is selected, clicking **Auto** or the **FX** button performs whatever is loaded as the current FX. DSK effects and transitions can be run at the same time by turning both buttons on. If the **DSK** button is grayed out when a transitional effect is loaded, it means the transitional effect contains graphics that use the DSK channel. In this situation, the DSK cannot be used at the same time as the transitional effect. The keyboard command for **Mix** is the **Insert** key. The keyboard command for **FX** is the **Home** key. The keyboard command for **DSK** is the **Page Up** key.

DSK2, DSK3, and DSK4	These buttons function the same as the other buttons in the effect controls. They relate to their corresponding installed cards.
Cut	Performs the most basic transitional effect. It flip-flops the Program and Preview busses. Whatever was on Preview is now on Program, and vice-versa. This is probably the most used button in any switcher. The keyboard shortcut is the **Enter** key. If the **Lock** button above the **Cut** button is selected, the **Auto** button performs a cut before it does the selected action on the effect controls.
Fade Mix	Performs a fade out transition from **Program** to a fade in to **Preview**. This is similar to a dissolve, *except* that it fades to and from black rather than mixing the two sources. Notice the editbox located above this button, it specifies the duration of the transition. Half of the time is used to fade out **Program** and the other half is used to fade in **Preview**. For example, a 20 frame value means that 10 frames to fade **Program** and 10 frames to fade in **Preview**.
Aux Mix	Performs a dissolve between **Program** and **Auxillary** instead of a dissolve between **Program** and **Preview**. This is beneficial if you want to leave **Preview** alone or if you want to avoid having to hit the **Auto** button because other effects are cued up. You would use this button instead of turning off all the **mode** buttons. You'd simply select the Preview source on the **Auxillary** bus and hit **Aux Mix**. Notice the editbox located directly above this button, it is used to specify the duration in frames. The **Aux Mix** button will be ghosted out if less than *three* video paths are available (i.e. requires a Framestore card and two warp engines.)

Auto Generally speaking, triggers the current effect. More specifically, its behavior is dependent on which of the effect controls is selected:

If **Mix** is selected, **Auto** performs a simple dissolve.

If **FX** is selected, pressing **Auto** performs whatever transitional effect is loaded as the current **FX**.

If **DSK** has been selected, **Auto** brings up the image loaded as the current **DSK**.

Some effects pause or loop in the middle of the effect. If this is the case, click the **Auto** button again to end the effect. The keyboard shortcut for **Auto** is the space bar. The numerical window above the **Auto** button is the number of frames in the selected effect. If an effect has a modifiable length, it can be changed by simply clicking on the numerical display and entering a new value.

Fade The master **Fade to black** button fades Program Out to black. This happens downstream of everything else inside of GlobeCaster, so it leaves effects and graphics loaded but not showing. This gives an easy way to come back from a commercial break with an effect still running. The time it takes to fade to black can be adjusted by changing the number of frames listed in the **Fade** speed display above the **Fade** button. The keyboard command for the **Fade** button is the **Page Down** key.

Stop Immediately stops any **DSK** or **FX**. The keyboard command for the **Stop** button is the **Escape** key.

T-Bar A graphic representation of the physical control on a switcher. By dragging this bar up or down, whatever effect or DSK is selected is controlled manually. The faster the T-bar is pulled, the faster the effect runs. The T-bar is especially useful for pausing midway through an effect.

Effect Properties Panel

With the **Effect Properties** panel (Figure 3.14), you can alter an effect's properties, such as softness and duration, allowing you to tailor effects to your needs.

Figure 3.14: The Effect Properties Panel

Bring this panel up by loading an effect into the FX or DSK picon window by double-clicking the effect. Once the effect is loaded, right-click on it and choose **Properties** from the pop-up menu. The panel appears in the upper left corner of the screen.

Some of the values in the **Effect Properties** panel applies specifically to transitions or DSK effects. Values and buttons are grayed out when they aren't applicable to the effect you are altering.

The following list explains how to use the **Effect Properties** panel:

Path Name	Displays the current path the effect. To enter a new path, type in the path of your choice and click on **Save File**. You'll notice that the **Save File** button switches to **Save Over Original File** as you type a new path.
Set Picon	Creates a new picon for the effect. The new picon is the image on the Program monitor when the **Set Picon** button is clicked.
Save Over Original File	Saves your effect, with its new properties, over the original effect. To load the effect with the new values, double-click on its picon in its bin.

Effect Info Box	Contains information about the effect, including effect type and transition information.
Fade In	Sets the amount of time (in frames) it takes for an effect to fade in when the **Auto** button is clicked. Set the **Fade In** value by clicking on the numeric value, typing in a new value, and pressing the **Enter** key on your keyboard. You can also click on the numeric value and drag the mouse up or down to change the value.
Fade Out	Sets the amount of time (in frames) it takes for an effect to fade out. Set the **Fade Out** value by clicking on the numeric value, typing in a new value, and pressing the **Enter** key on your keyboard. You can also click on the numeric value and drag the mouse up or down to change the value.
Duration	Sets how long the effect runs. Set the **Duration** value by clicking on the numeric value, typing in a new value, and pressing the **Enter** key on your keyboard. You can also click on the numeric value and drag the mouse up or down to change the value.
Reversed	Reverses the direction of an effect.
Softness	Adjusts the softness of an effect's edges. Set the **Softness** value by clicking on the numeric value, typing in a new value, and pressing the **Enter** key on your keyboard. You can also click on the numeric value and drag the mouse up or down to change the value.
Flip Vertically	Flips a transition vertically. For example, if a wipe transitioned from the top, clicking the **Flip Vertically** button would make it transition from the bottom. This option is grayed out for some effects.
Border	Clicking the **Border** button brings up a pop-up menu with these options: **Off, Solid Color, Graphics,** and **Auxiliary Source**. Choosing **Off** gives the effect no border. Choosing **Solid Color** adds a colored border to an effect. This color can be changed by clicking the color box next the **Border** button. This brings up the **Effect Border Color** panel (See "Effect Border Color Panel" on page 52.). Choosing **Graphics** allows you to select a graphic as a border. Choosing **Auxiliary Source** allows you to choose a video source as the effect's border.

Effect Border Color Panel

With the **Effect Border Color** panel (Figure 3.15), you can select a color from a set of pre-mixed colors or mix your own color. This color is set as the border color.

Figure 3.15: The Effect Border Color Panel

NOTE: The **Border** button is grayed out for some effects, but it is available for all of the wipe effects.

Bring up this panel by clicking the color box next to the **Border** button in the **Effect Properties** panel.

The **Effect Border Color** panel buttons function the same as the **Matte Color** panel's buttons (See "Matte Color Panel" on page 43 for more information on the functions of these buttons).

Freeze and Strobe Controls

The Freeze and Strobe controls (Figure 3.16) are used on either the Preview or Program bus. The red buttons are for Program, and the green buttons are for Preview. Keep in mind as you swap between Program and Preview bus that the **Live, Freeze,** and **Strobe** settings swap as well. This allows you to set the strobe rate on an input ahead of time on the Preview bus, and then cut to it.

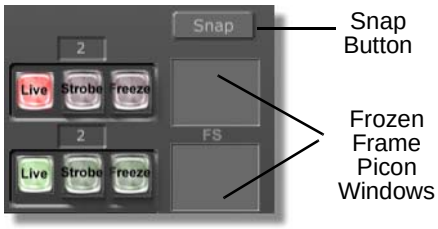

Figure 3.16: Freeze and Strobe Controls and Frozen Frame Picon Windows

Following is a list of how the freeze and strobe controls function:

Snap — Snaps a still of the program source. The still is then saved in your configurable snap directory. Right-clicking on this button displays a menu that allows you to designate a new path or lets you keep the default path.

Frozen Frame Picon Windows — Displays the picon of the frozen image. Dragging this picon to a bin saves whatever format is selected in the **Framestore Settings** properties panel. To quickly change these settings, right-click on the picon and adjust the settings in the panel that appears (See the chapter on "Using Configure Panels" in the *GlobeCaster User Guide* for more information on using this panel).

Live — When lighted, indicates that live video is playing on the indicated bus. This is the default setting for both the Program and Preview busses on Switcher.

Freeze — Creates a still of the source on the selected video bus. It appears as the Frozen Frame picon.

Strobe — Makes the video strobe (stutter step, like a strobe light is going off) at a frame rate set by the indicator above the button. The strobe effect cannot be used with stills.

Keyer Controls

With the **Keyer Controls** (Figure 3.17), you can tailor GlobeCaster's versatile keyer to key out precisely what you want.

Figure 3.17: Keyer Controls

The top **Key** button is a representation of a color wheel displaying the color being keyed out. The colors not keyed out are shown as black in the top key button. Clicking this button brings up the **Keyer Settings** panel (See "Keyer Settings Panel" on page 55 for more information about this panel).

Clicking on the bottom **Keyer Controls** button, below the word **Key**, brings up a pop-up menu from which you can select a keyer mode. Choose between **Off, Normal, Mix, Add, Luma,** and **Ext Alpha** modes.

Following is a list of how each keyer mode functions:

Off	When selected, the keyer is off.
Normal	Overlays a video source on top of a key.
Mix	Performs color canceling before keying the foreground video.
Add	Performs color canceling, preserving shadows and highlights on the background video.
Luma	Uses luminance to key the foreground video.
Ext Alpha	Uses alpha from an external source to key the foreground video.

Keyer Settings Panel

The **Keyer Settings** panel allows you to select the type of keyer you want and to control what part of the signal is being keyed out. To access it, click on the **Configure** button in either the GlobeCaster Switcher or the GlobeCaster Editor, and select **Keyer Settings** from the pop-up menu. Clicking on the **Key Type** button allows you to select either a **Chroma** or **Luma keyer,** or **External Alpha** from a pop-up menu. The following section explains how to use the settings.

Chroma Keyer

A chroma keyer is a key that electronically cuts a specific color or range of colors out of a video image and inserts another video source in that hole. To set up a chroma key, on the **Keyer Settings** panel select **Chroma** as the **Key Type**. This brings up the **Chroma Keyer** panel (Figure 3.18).

Figure 3.18: Chroma Keyer Panel

Here's how to adjust the settings:

Color Picon — The colored square to the right of the **Key Type** button is the color picon. The picon represents a color wheel and displays the color that is keyed out. As the various values are adjusted, the picon automatically reflects the changes. To save a specific setting, drag-and-drop the picon into a bin. To recall the setting, drag-and-drop the picon back into the color picon square on this panel.

Manual/ Auto-set	Click on these buttons to select the manual or automatic color selection mode. Generally, the **Auto-set** mode is the fastest and easiest way to set up a key. The **Auto-set** mode uses an algorithm to determine the predominant hue in an image in the Preview video source. It selects the optimum shades to remove without affecting other colors in the image. You see this represented in the color picon as a small dot or starburst centering on a specific saturation of the selected hue. If the image has uneven lighting or an uneven background color, you may need to use the **Manual** mode and the **Hue** slider to select the colors to be removed. In **Manual** mode, you select a pie-shaped wedge of the color wheel. In other words, a range of saturations of the selected hue are keyed out.
Traditional/ Expanded	This feature is for luma keying. **Expanded** is the only option for chroma keying.
Hue	Used only in **Manual** mode, this slider selects the colors to be keyed out. The numbers to the right of the slider represent the 360 degrees of the color wheel. A value of 1 is pretty close to chroma key blue. Chroma key green is around 230.
Softness	Smooths the edges of the areas keyed out. Set this for a value that softens the edges of the keyed area without adversely affecting the edges of other parts of the image. Increasing this value too much makes the image transparent.
Width	Adjusts the range of color that is keyed out. If too many shades of a certain color are removed, lowering the width value decreases the number of shades keyed out.
Low Sat	Affects the neutral colors found in the center of the color wheel. It acts as a circle emanating from the center, limiting the keyer. The higher the value, the bigger the circle and the fewer low-saturation tones that are removed. Usually tinkered with to remove “sparklies” caused by uneven lighting in a live environment.
Invert	Reverses the settings to form a “mask” around the previously keyed areas, and the opposite of the values selected is keyed out.

Luma Keyer

A luma keyer is a key that electronically cuts a specific luminance value or range of luminance values out of a video image and inserts another video source in that hole. To set up a luma keyer, in the **Keyer Settings** panel select **Luma** as the **Key Type**. This brings up the **Luma Keyer** panel (Figure 3.19)

Figure 3.19: Luma Keyer Panel

The settings work the same as those in the **Chroma Keyer** Panel, except for the following differences:

Threshold — Replaces the **Hue** setting on the chroma panel. Used only in manual mode, this slider adjusts the level of brightness to be keyed out. Brightness values range from 0 to 359.

Traditional — In this mode, the GlobeCaster keyer works like a traditional keyer. You set a threshold value, and everything above or everything below (depending on whether you click the **Invert** button) this value is keyed out. The other option is **Expanded** mode.

Expanded — In this mode, you can set a specific range of values to be keyed out, and all other values, both higher and lower, are retained. This enables you to set a mid-range of luminance values to be removed. Use the **Threshold** slider to select the approximate range to key out, then use the **Width** slider to fine-tune the size of that range (how wide a piece of the luminance spectrum is keyed out). The other option is **Traditional** mode.

External Alpha

The **External Alpha** option on the **Keyer Settings** panel is where you tell GlobeCaster which video input an external alpha channel is linked to. To set an external alpha channel, on the **Keyer Settings** panel select **External Alpha** as the **Key Type**. This brings up the **External Alpha** panel (Figure 3.20).

Figure 3.20: External Alpha Panel

To set an external alpha channel, do the following:

1. Click on a button under **Video Input**.

This brings up a pop-up menu (Figure 3.21).

Figure 3.21: External Alpha Pop-Up Menu

The selections on the pop-up menu vary according to what is loaded into your GlobeCaster system. For example, it lists installed input cards. In this case, input cards are installed in slots 1, 3, and 4 of the GlobeCaster. You can also use mattes, framestores, black, or Program Out as your video source.

2. Select the appropriate video input source.
3. Click on the **Alpha Input** button next to the **Video Input** button.
4. From the pop-up menu, select the source you want to use as the alpha channel for the video input.

When you set the key to **External Alpha** in Switcher, GlobeCaster automatically uses the designated source as an alpha channel for the video source you chose.

Application And Additional Panel Buttons

Click on any of the four **Application** Buttons (Figure 3.22) to close GlobeCaster Switcher and open the appropriate application.

To leave GlobeCaster Switcher open, hold down the **Shift** key while you click the application button. The **Panels** and **Configure** buttons bring up a variety of panels.

Figure 3.22: Application and Additional Panel Buttons

Following is a list of how these buttons and panels function:

Editor, Animator/ Compositor, Character Generator, Effects Generator	Closes GlobeCaster Switcher and opens up the appropriate application. For example, clicking the **Editor** button closes your GlobeCaster Switcher and brings up your GlobeCaster Editor application.
?	Calls up the **Help** window. It can guide you through tours of each activity and help you learn each application.
_	Minimizes the GlobeCaster application you are in.
X	Closes the GlobeCaster application you are in.
Panels	Brings up a pop-up menu, from which you can toggle the **Audio Mixer, Monitors,** and **VTR Transport/Sync Roll/Live Digitize, Switcher Options, and Mixer Preferences** on and off. When the Audio **Mixer** is brought up, it appears in the upper left corner of the screen, the monitors appear in the middle, and the **VTR Transport/Sync Roll/Live Digitize** panel appears in the upper right corner of the screen.
Configure	Brings up a pop-up menu, from which you can open the panels for various settings. These panels are **Installed Cards, Keyer Settings, Framestore Settings, Color Correction, Pro Color Correction, GPI Settings, Serial Devices, Input Settings, Advanced Input Settings, Output Settings, Global Settings,** and **Digitize Settings** (if Time Machine is installed). (See the chapter on "Using Configure Panels" in the *GlobeCaster User Guide* for more information on using these panels.)

Audio Mixer

The audio mixer is found in both Switcher and Editor. The mixer in GlobeCaster Editor is used for post-production mixing, while the mixer in GlobeCaster Switcher is designed for live audio mixing. You can access the audio mixer from the **Panels** button, located on the bottom right of the screen (Figure 3.23).

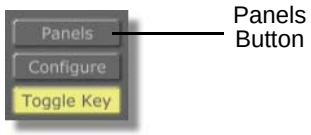

Figure 3.23: Panels Button

Select **Audio Mixer** from the pop-up menu (Figure 3.24).

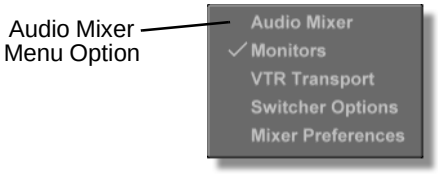

Figure 3.24: Selecting Audio Mixer

The audio mixer appears (Figure 3.25).

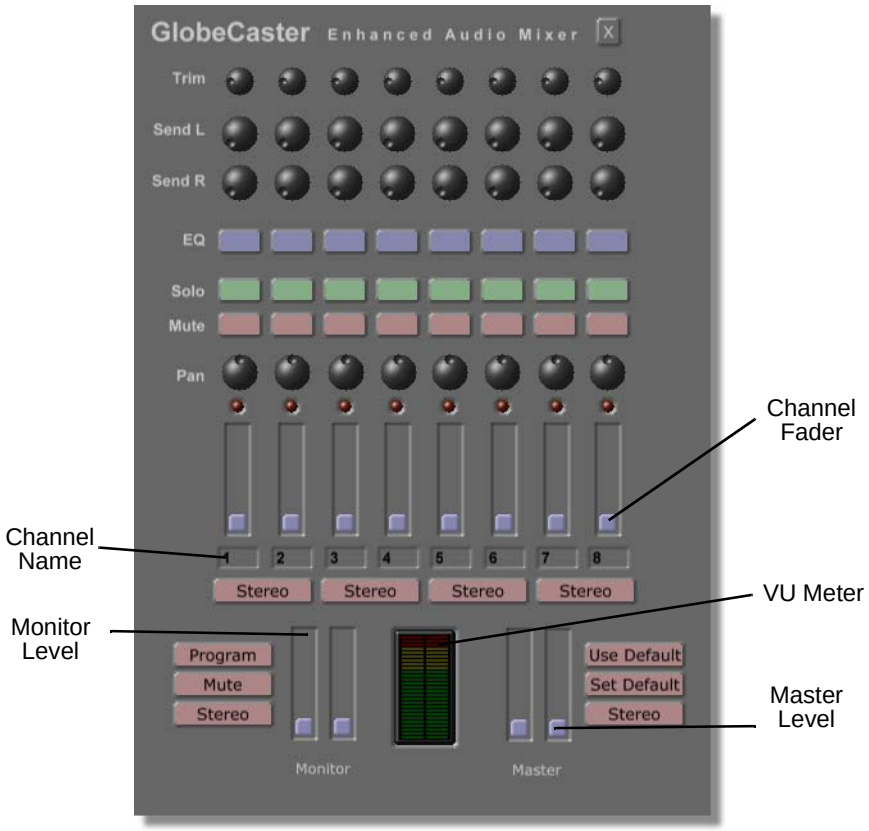

Figure 3.25: Audio Mixer

Here's how to use the features in the audio mixer.

Trim — Controls the input gain of the channel. This generally is adjusted once using a reference tone for the input device and left alone from that point. The trim is effective before any other levels are set.

Send L — Controls the level of the channel that is sent to the left effects send output jacks. When working with an external effects device, you may want a small amount of effect applied to a channel. Send L controls the level of the mix sent to the effects processor. This level is adjusted after the fader is adjusted.

Send R Controls the level of the channel that is sent to the right effects send output jacks. When working with an external effects device, you may want a small amount of effect applied to a channel. Send R controls the level of the mix sent to the effects processor. This level is adjusted after the fader is adjusted.

EQ Each channel has its own **EQ Settings** Panel. To set the EQ for an input, click on the **EQ** button. This opens up the **EQ Settings Panel** for the selected channel. For more information on the **EQ** panel, see "EQ Settings Panel" on page 66.

Solo Sets the selected channels to be audible, as indicated by the select lights. The channels are only heard through the **Monitor** outputs, when **Solo** is selected, allowing you to cue up the volume of the track without having the track go out "over the air."

Mute Mutes or silences the selected channels.

Pan Set how much of the channel is sent to the right program output and how much is sent to the left program output. In a mono situation, the **Pan** knob should be set to the middle. If the channel is one of two channels linked as a stereo pair, the knob is automatically set to either the left or right.

Channel Fader (Attenuator, Slider)

Controls the level of the channel. By clicking-and-dragging on the slider, the level can be controlled. Clicking-and-holding in the area either above or below the fader will increase or decrease the value. Right-clicking on the slider displays a pop-up menu (Figure 3.26).

Figure 3.26: Channel Slider Pop-Up Menu

Fade Out—Fades from the current location to off.

Fade In—Fades from the current location to zero decibels (full on).

Mic—Adds an additional 20 decibel gain to the channel's signal before the signal is digitized. Selecting **Mic** controls one channel (in the original Graham-Patten configuration, selecting **Mic**, controlled two channels).

Line—Removes the 20 decibel gain that gets added when **Mic** is selected. Selecting **Line** controls one channel (in the original Graham-Patten configuration, selecting **Line**, controlled two channels).

Right-clicking on channels seven and eight display the same pop-up menu, but with the addition of two more functions: **Input** and **Return**.

Input—Gives you two additional inputs without having to re-connect any cables.

Return—Gives you two additional returns without having to re-connect any cables.

Channel Name

A piece of "virtual masking tape" that can be used to name your inputs. The default names of each input are **1**, **2**, and so on. To change these names, click and highlight the existing name and type in a new one. Press **Enter** or click in another channel name box to have the change take effect.

Stereo

Links pairs of channels as stereo pairs. When this button is selected, the **Pan** knobs are automatically set for full left and full right. The sliders (faders) will lock together as well, so any movement of one slider affects the other.

VU Meters	These red and green rectangles mimic an LED level readout. When working with the mixer, your levels should peak just inside the red; about 0db. Right-clicking on the meter allows you to change its metering properties. You can change the meter to **VU** or **PPM**. A **VU** (Volume Unit) meter is an averaging volume level meter whose response is closely related to the perceived loudness of an audio signal. A **PPM** (Peak Program Meter) displays peak audio signals.
Monitor Levels	Controls the levels of the monitor speaker outputs.
Program	Displays a menu that allows you to choose which output the monitor outputs are listening to. You can choose between the **Program Out**, **Effect Send**, or the channels with **Solo** turned on.
Mute	Silences the monitor speaker output.
Monitor Stereo	Links the monitor sliders so that when one is adjusted, the other one follows automatically.
Master Levels	Controls all left and right levels going out to **Program Out**. When dragging these sliders, you should see a small decibel listing for the levels. Like most digital audio equipment (and unlike analog equipment), the maximum level is 0dB, so keep that in mind when setting your master record levels.
Use Default	Adjusts your settings to the default settings for the mixer.
Set Default	Allows you to save a particular mixer setting as your default.
Master Stereo	Links the master record levels, so both slide together.

EQ Settings Panel

The EQ style used is a three-band parametric equalizer, with individual settings for the **High**, **Mid** and **Low** bands.

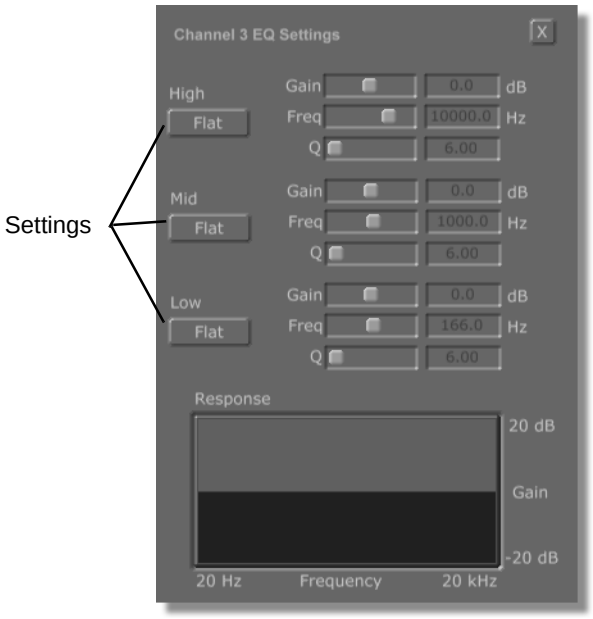

Figure 3.27: EQ Settings Panel

Settings — Chooses between the different settings for each part of the equalizer. Each section can be set to **Flat** (default settings), **Notch**, or **Peak**. The high and low ranges have an additional setting called **Shelf**. This gives you the ability to set a high shelf or low shelf limit to the frequencies passed through the mixer. **Flat** doesn't make any modification to the sound. **Notch** lowers the level of the frequencies in this range. **Peak** raises or lowers the levels in this range.

Gain — Sets the amount of EQ effect applied to the frequencies in this range.

Frequency — Sets the center frequency that the setting is applied to. This frequency is at the top of the **Peak** or at the bottom of the **Notch**, or set at the **High Shelf** or **Low Shelf**.

Q — Sets the band of frequencies around the center frequency that is affected. A high value means a very sharp drop-off before or after the selected frequency, and a low Q value means the EQ affects a larger range of frequencies around the center frequency.

Response Window

This window provides a graphic representation of the EQ settings. EQ settings can be saved by clicking-and-dragging a picon from this window into a bin. Once this picon (following figure) is saved to a bin, it can be used by dragging-and-dropping it from a bin into the Response window or by dragging-and-dropping it from a bin onto an **EQ** button in the **Audio Mixer** panel or onto a clip or audio track in a timeline. If the picon is dropped onto a clip in the timeline, the EQ settings will affect all channels of audio for this clip. If the picon is dropped onto an audio track, the EQ settings will only affect that track.

Figure 3.28: A Typical EQ Settings Picon

VTR Transport/Sync Roll/Live Digitize

With the **VTR Transport/Sync Roll/Live Digitize** panel (Figure 3.29), you control VTRs directly from the GlobeCaster Switcher interface. This panel also gives you the flexibility to digitize live clips or build timelines that can be played back through GlobeCaster Switcher or edited in GlobeCaster Editor.

You can play back a timeline in your GlobeCaster Switcher by loading it into the FX window, above the **Mix, FX,** and **DSK** buttons. To do this, double-click the timeline's picon or drag-and-drop it into the FX window. Timelines loaded into the FX window are sent out "over the air" by clicking the **Auto** button.

Figure 3.29: VTR Transport/Sync Roll/Live Digitize Panel

Following is a list of the buttons and functions of this panel:

Ports — Ports are serial inputs that control external devices such as tape decks. Clicking on the **Ports** button brings up a pop-up menu that gives the option to choose ports **1 to 4, 5 to 8, 9 to 12,** or **13 to 16**.

1, 2, 3, 4, etc.	**1, 2, 3, 4, etc**. represent the ports with VTRs connected to GlobeCaster. The number corresponds to the port the VTR is connected to. Choose the VTR to be controlled from the **VTR Transport/Sync Roll/Live Digitize** panel by clicking its button, turning it yellow. Assign each deck as a record or play deck by clicking the button to the right of the VTR's name and choosing **Record** or **Play** from the pop-up menu. The LEDs show the status of the decks. A red light means that there is no signal and that the deck is out of sync. A green light means that there is a good signal and the deck is in sync. Right-clicking on the **Mixer** button brings up a pop-up menu, from which you can assign audio channels from the Audio Mixer to the VTR.
TMI (Time Machine)	Clicking the **TMI** button allows you to digitize live clips. If Time Machine is selected (button is yellow), all of the transport control buttons are disabled, except the **Stop** and **Record** buttons. Assign which source Time Machine digitizes from by clicking the button to the right of the **TMI** button and selecting a source from the pop-up menu. Right-clicking on the **Mixer** button brings up a pop-up menu, from which you can assign which audio mixer channels the Time Machine will record and play through.
Status Window	Displays current status of the selected VTR or Time Machine.
Insert V, A1, A2	Chooses what is recorded by a record deck. A record deck must be selected to use these buttons. Clicking on **V** selects video. Clicking **A1** and **A2** selects audio. The buttons turn yellow when they are selected.

Transport Controls	Control the selected device. The buttons, in order from left to right, are:
	Rewind Rewinds
	Reverse Play Plays in reverse
	Jog Back 1 Frame Moves back one frame at a time
	Pause Puts the deck into pause mode, pauses playback if the tape was moving or spools the tape up so it is ready to play.
	Jog Forward 1 Frame Moves ahead one frame at a time
	Play Plays normally
	Fast Forward Fast forwards
	Stop Stops play or recording
	Eject Ejects tape
	Record Starts recording
Mark	Marks an in point. During sync roll editing, it is only necessary to mark in points.
Cue	Cues a single deck to a marked in point.
TMLen	Timecode box that displays the approximate number of frames that have been recorded while crash recording a Time Machine clip.
Shuttle Slider	Clicking the shuttle slider and dragging it right or left shuttles a selected deck forward or in reverse.

Lock	Used in conjunction with the shuttle slider. If the **Lock** button is on, when you release the mouse button while shuttling, the tape pauses. If the **Lock** button is off, the tape continues shuttling after the mouse button is released.
Cue All	Simultaneously cues all of your tapes to their respective reference point.
Start All	Starts all decks rolling. If a deck is selected as a record deck, it puts the deck in **Assemble** mode for recording over any existing information on the tape.
Sync Roll	Starts all source decks playing back and starts the edit deck recording. Sync Roll does a 5-second preroll before the cue point to ensure the edit deck is up to speed at the beginning of the sync roll.
Stop All	Stops all controlled VTRs.
Rec Safety	When **Rec Safety** is on, clicking the **Start All** button brings up a pop-menu that asks if you really want to record.
Build Timeline	Automatically builds a timeline as events, such as clips and transitions, are switched. **Start All** must be on while you create your timeline. Once you've switched your project, click the **Stop All** button and GlobeCaster generates the timeline for you.
Mark	Copies the current timecode into the **Cue** timecode box.
Mark All	Simultaneously copies all of the current timecodes to the cued timecodes.
Pause/ Continue	When clicked, the **Pause** button pauses the build timeline function, and its face changes to read **Continue**. Press **Continue** to restart the build timeline function. **Pause/Continue** only functions if **Build Timeline** is on; otherwise the button's letters are grayed out.

Timeline Picon

Represents the timeline. Right-click on the **Timeline** picon to bring up a pop-up menu with these options: **Properties, Rename, Set Picon, Make all Picons, Save Text EDL,** and **Play in Loop**.

Choosing **Properties** brings up the **Timeline Properties** panel.

Choosing **Rename** lets you name the timeline.

Choosing **Set Picon** changes the picon of the timeline from the default picon to the image on the program monitor.

Choosing **Make all Picons** creates picons for all events in the timeline.

Choosing **Save Text EDL** changes the format the timeline is saved in. When this is selected, dragging the timeline picon into a bin saves the timelines as a CMX text EDL. Any CMX editor can use this EDL. Multiple export formats will be available in addition to the current CMX format.

Choosing **Play in Loop** plays the selected clips in a loop.

New TL

Clears the timeline and starts a new one.

Digitized Clip Picon

The picon of a live clip digitized with Time Machine. The clip's picon is the first frame of the clip.

New Clip

Clears the clip and starts a new one.

Save

Clicking the **Save** button to the right of the Timeline picon saves the timeline to the default bin set in the **Global Settings** panel (See the chapter on "Using Configure Panels" in the *GlobeCaster User Guide* for more information on the Global Settings panel). Timelines can also be saved by dragging-and-dropping them into a bin. Clicking the **Save** button to the right of the **Digitized Clip** picon saves the clip to the default bin set in the **Global Settings** panel. Clips can also be saved by dragging-and-dropping them into a bin.

Switcher Options Panel

With the Switcher Option Panel, you have control over the following elements:

- Audio follows video
- On Effect Load
- Timeline Playback
- Time Machine Clip Counters
- External Command Settings

Figure 3.30: Switcher Options Panel

The **Switcher Options** Panel is displayed by clicking on the Panels button on the main interface and selecting **Switcher Options**. The following features are found on this panel:

Audio follows video	Allows you to transition the audio along with the video, for example: when dissolving the video, it cross-fades the audio. You can specify whether the audio fade in and out takes the entire length of the transition by clicking on **Use Transition Length** or you can specify your own lengths.

Audio follows video drop-down button

Drop-down menu to the right of the **Audio follows video** button that contains numerous **Audio follows video** options that you can enable or disable.

Support Aux Mix—Cross-fades the audio between the sources on the Program and Aux busses.

Support Fade Mix—Cross-fades the audio between the sources on the Program and Preview busses.

Support Fade To/From Black—Enables the audio to fade in/out when fading to/from black.

Support Fade Scaled Audio—When selecting a source with audio, its volume is scaled relative to the current fade to black value.

Support Instant Trigger Dissolve—Running the dissolve via the Instant Trigger accelerator key supports Audio follows Video as if you had clicked on the **Auto** button with the Mix mode enabled.

Support Instant Trigger FX—Running the dissolve via the Instant Trigger accelerator key supports Audio follows Video as if you had clicked on the **Auto** button with the FX mode enabled.

Aux Source is Always Audible—The source selected on the **Aux** bus is always audible.

Key Source is Always Audible when Keying—The source selected on they the Key bus is always audible when chroma keying.

Effect Sources Audible on Non-Transition Effect—The other sources of an effect (i.e., Preview, Aux, and/or Key) are audible even if the effect is not a transition.

Enable All—Enables all of the above options.

Disable All—Disables all of the above options.

TIP: It is generally recommended that all options be enabled.

Fade in

Box that allows you to specify your own *fade in* length. Clicking on **Use Transition Length** will force the fade in to use the entire fade in length.

Fade out

Box that allows you to specify your own *fade out* length. Clicking on **Use Transition Length** will force the fade out to use the entire fade in length.

On Effect Load

Allows you to specify the action taken after an effect has been loaded.

No Action—nothing is changed

Autoselect Mode—the corresponding mode button is enabled

Autoselect Mode Exclusive—the corresponding button is enabled and all other mode buttons are disabled.

Timeline Playback

Allows you to enable decks in Switcher (auto shuttle when scrubbing the timeline).

TMClip Counters

Controls the use of the Time Machine Clip Counters located between the **Preview** and **Program Bus** rows. This menu allows you to set the counters to **Count Up**, **Count Down**, or to be hidden. The Time Machine Clip Counters show the current timecode of the corresponding Time Machine clips.

External Command Settings

Allows you to send commands to Switcher via a serial port or pipe. This will enable an external computer to send commands via a serial port, or a program running on the same machine (or on a different machine on the same LAN) to send commands via a pipe. The commands are sent via ASCII text strings delimited by the return character, OxD (e.g., the string "PGM1" followed by a return character will select the 1st input on Program).

Connection Type—either **Pipe Server** or **Serial Port**. If **Pipe Server** is selected, a number box becomes active allowing you to specify the maximum number of client connections.

Connection Data—displays the pipe name for the pipe server or the port number for the serial port.

Connection Status—green LED indicates that the **External Command Handler** is ready for a connection. Right-click on the LED to connect or disconnect. Auto Connect button automatically creates a connection on start-up.

Mixer Preferences Panel

The Mixer Preferences Panel allows individual mixers to be enabled or disabled for Audio follows Video support.

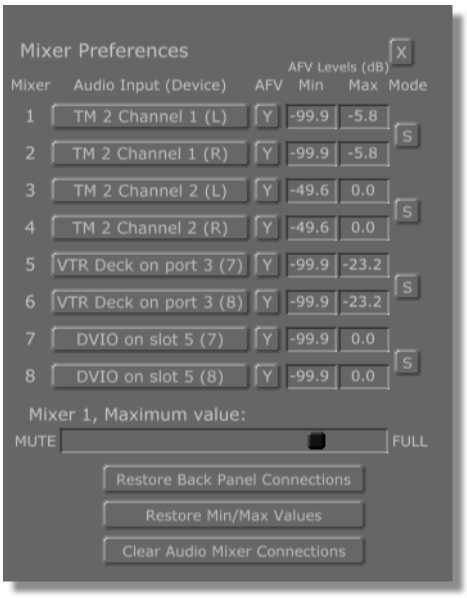

Figure 3.31: Mixer Preferences Panel

Audio Input (Device) 1-8	Select type of device (and channel) associated with the mixer channel, such as a deck, Time Machine audio channel, or the back panel.
AFV	Represents whether **Audio Follows Video** is supported for the mixer channel or not, (Y) is yes and (N) is no.
Min	Minimum level value to set when the device is turned down in an **Audio Follows Video** transition.
Max	Maximum level value to set when the device is turned down in an **Audio Follows Video** transition.
Mode	Whether the mixer channel pairs are handled as a stereo pair or independent mono mixers. (S) is stereo and (M) is mono.
Min/Max Value Slider	When clicking on a **Min** or **Max** edit box, this slider is linked to that control if you prefer to adjust the value with the slider.

Restore Back Panel Connections	Connects the back panel's audio channels to the corresponding mixer channels (e.g. audio pin 1 to mixer channel 1, audio pin 2 to mixer channel 2, etc.)
Restore Min/ Max Values	Restores the minimum and maximum values to their default values (0 dB for max, -99.9 dB for min).
Clear Audio Mixer Connections	Unassigns all mixer connections.

Other Switcher Controls

This section explains the usage of the vector scope and the status lights.

Vector Scope

In both the GlobeCaster Switcher and the GlobeCaster Editor, you can access the **Vector Scope/Waveform Monitor**. In GlobeCaster Editor, the vector scope/waveform monitor functions the same, the only difference is that the user interface looks slightly different. The vector scope/waveform monitor analyzes details of the internal signal waveforms. It is available if you have a ClipGrab card installed. The vector scope/waveform monitor is useful for analyzing picture content information, such as color correction, setup level, and peak signal levels, but not timing information. Because the internal signals in GlobeCaster are digital, there is no viewable timing data for the **vector scope/waveform monitor** to display.

NOTE: The vector scope can be seen at the same time as the program monitor if your PC screen resolution is at least 1280 x 1024.

To access the scope, click on the **Outputs** button above the program monitor (Figure 3.32).

Figure 3.32: Outputs Button

Select **Scope** from the **Output** drop-down menu (Figure 3.33).

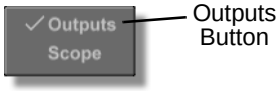

Figure 3.33: Output Menu

When you select **Scope**, the vector scope appears (Figure 3.34).

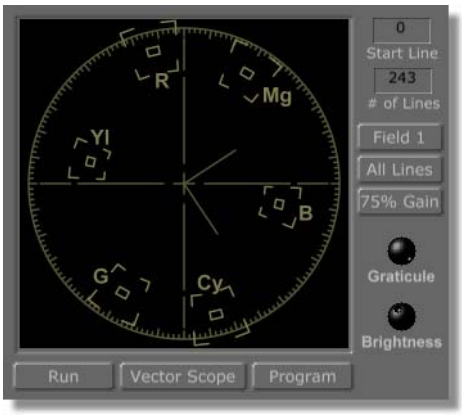

Figure 3.34: Vector Scope in GlobeCaster's Switcher

To turn the scope on, click the **Run** button on the bottom left corner. When this button is on, the scope updates as the video plays. If this button is not on, the scope displays color information from a frozen frame. This can be useful if you want to look at the information from a particular section of video. To do this, click the **Run** button off at the desired point, and it freezes the scope output.

When viewing the scope, the letters stand for the following colors:

R	Red
Mg	Magenta
B	Blue
Cy	Cyan
G	Green
Yl	Yellow

Colors show up on the scope as illuminated areas in a position on the display that is proportional to their color. The distance of the illuminated area from the center of the scope is proportional to the saturation, and the position in the arc of the circle (at which degree it shows up) is proportional to the hue. White and black both show up as dots in the center of the scope.

To close the scope, select **Output** from the **Scope** button, located on the top of the screen.

Here's how to use the options on the scope:

Program (Source Button) — Selects the source of the video to be analyzed. Click the button and select the desired source from the pop-up menu. The options are: **Program, Preview, Input 1-Input 8**. The default is **Program**.

Run — Turns the scope on. Click this button if you want the scope to update as video plays. If this button is off, the scope analyzes a frozen frame.

Field 1, Field 2 — Selects which video field of each frame, **Field 1** or **Field 2**, is analyzed. The button displays the field currently selected. To switch to the other field, click on the button. It toggles to the other field. For more information on video fields, see "Field" in the glossary of the *GlobeCaster User Guide*.

75% Gain — Allows PAL users to adjust 100% color values to 75% color values.

Vector Scope — Click this button to choose from the following types of scopes: **Vector Scope, Y Waveform, Cb Waveform, Cr Waveform,** or **Parade**. The default is **Vector Scope**.

Vector Scope: Analyzes color information.

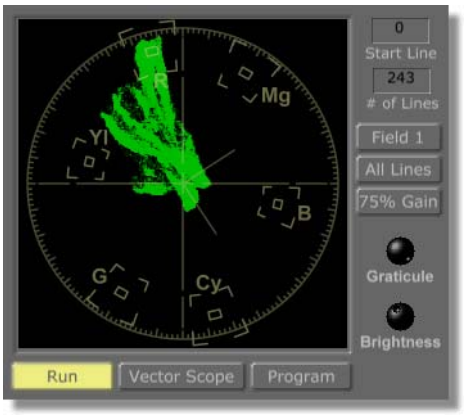

Figure 3.35: The Vector Scope, Analyzing Color

With the color bars loaded, the dots line up into boxes. The dots are sharp points, indicating the source is a sharp signal. For the color bars, hazy, scattered dots indicate the signal has a lot of noise. For other images, which don't have only pure colors as the color bars do, a pattern of scattered dots is normal.

Y Waveform: Analyzes levels of brightness.

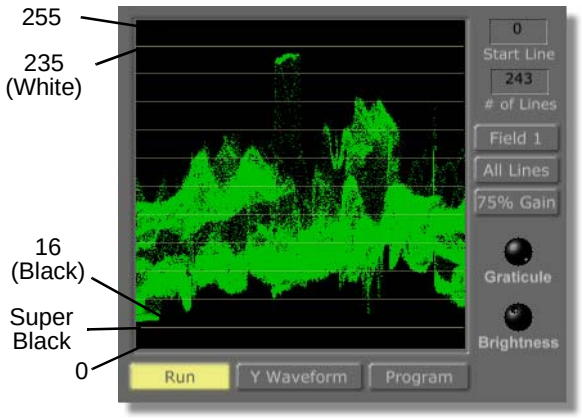

Figure 3.36: The Y Waveform Monitor, Analyzing Brightness

The horizontal axis of the display represents the position of the signal on the screen from left to right.

The vertical axis represents luminance values from 0 (bottom) to 255 (top).The top line represents a digital value of 235 (which corresponds to about 100 IRE for NTSC), and represents the whites in the picture. The bottom line represents a digital value of 16 (which corresponds to about 7.5 IRE for NTSC), and represents the blacks in the picture. Anything below this line is considered super black.

Cb Waveform: Measures the relative blueness of the picture.

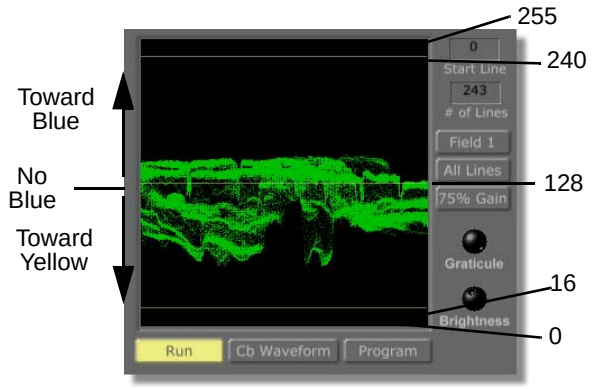

Figure 3.37: The Cb Waveform Monitor, Analyzing Color Bars

The line in the center is a zero color value (no blue; a numeric value of 128 equals zero color). Dots above the line represent blues in the picture. Dots below the line represent yellows.

Cr Waveform: Measures the relative redness of the picture.

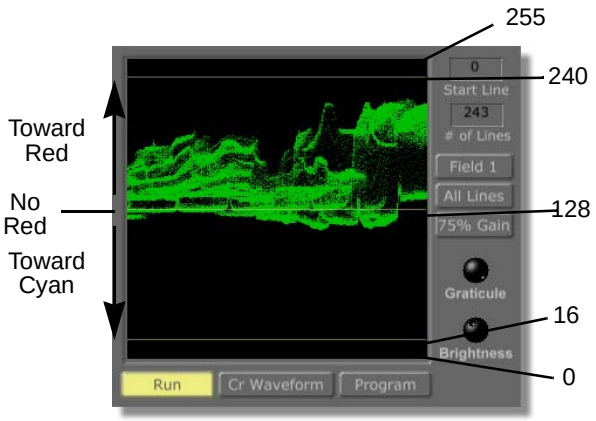

Figure 3.38: The Cr Waveform Monitor, Analyzing Color Bars

The line in the center is a zero color value (no red; a numeric value of 128 equals zero color). Dots above the line represent reds in the picture. Dots below the line represent cyans.

Parade: Displays the Y Waveform, Cb Waveform, and Cr Waveform monitors in the same panel, from left to right.

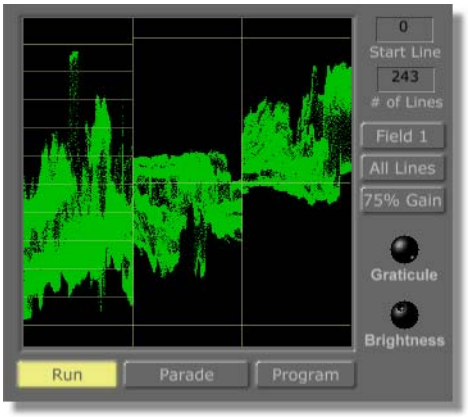

Figure 3.39: Vector Scope in Parade Mode

Start Line — Sets the horizontal line of the picture at which the scope begins analyzing color information. The top of the screen is line 0, and the bottom is line 243.

# of Lines — Sets the size of the vertical band that the scope analyzes. The entire screen is 243 lines.

All Lines — Resets **Start Line** to 0 and **# of Lines** to 243 so that all lines of the picture are analyzed.

Graticule — Adjusts the brightness of the scope overlay.

Brightness — Adjusts the brightness of the picture information the scope displays.

Status Lights The status lights are located on the lower right-hand section of the Switcher interface.

Figure 3.40: VideoNet and Genlock Status Lights

Following is a list of how the Genlock and VideoNet status lights function:

VideoNet Shows whether the PC and the GlobeCaster are communicating. If for some reason Switcher stops responding, check to see if the green light is lit. You can also check the status of the last VideoNet transmission by right-clicking on the light.

Genlock Shows the status of the external genlock. If there is no light, this means GlobeCaster is not genlocked to an outside source. A green light indicates GlobeCaster is genlocked to a good reference signal. A red light means a bad reference signal is being fed into the genlock input. This could mean that a PAL or monochrome signal is being used as a genlock reference signal. This is generally not what you want to see.

Note that if the **Black Out** is used to genlock all other devices, this light is off. The status light reflects only what is hooked to the genlock input.

SWITCHER MANUAL
TUTORIALS

CHAPTER 4

Chapter 4

Tutorials

This chapter is designed to get you up and running with your GlobeCaster Switcher program. There are four tutorials that cover the basics of using Switcher.

Setting Up a Chroma Key

The chroma key is one of the most widely used tools in news broadcast. It is used nightly on weather broadcasts. The concept behind chroma keying is simple: remove a selected color from a video signal and replace it with another video signal. Chroma keying allows your local meteorologist to stand in front of a satellite map and point out a storm moving in. In actuality, the weatherman is standing in front of a green or blue wall, and a chroma keyer is removing the green or blue from the video signal and replacing it with another video image, in this case a satellite image.

The following topics are covered in this tutorial:

- Auto-setting the chroma keyer
- Cleaning up a key
- Adjusting a chroma key
- Keying in framestores and live sources
- Manually setting the chroma keyer

Auto-Setting The Chroma Keyer

The GlobeCaster chroma keyer has a sophisticated **Auto-set** function that automatically chooses the predominant color value in a video image. For example, if you use a framestore with a predominantly blue background, **Auto-set** sets the chroma keyer to key out, or remove, certain shades of blue.

This project shows you how to use the **Auto-set** function of the GlobeCaster chroma keyer, and how to use the chroma keyer to key in part of a framestore image over several different backgrounds.

1. Locate the bin labeled **GlobeCaster\Bins\Stills\Manmade** (Figure 4.1).

Figure 4.1: GlobeCaster\Bins\Stills\Manmade

2. Double-click on the picon with three balloons (Figure 4.2) to load the framestore into the **Preview** bus. Note which framestore button the framestore was loaded into.

Figure 4.2: Three Balloons Picon

You see the three balloons framestore in the **Preview** monitor.

The **Auto-set** chroma keyer feature looks at framestores or video only on the Preview bus to find the prevalent color value. Framestores on the Program bus do not effect which color is keyed out.

3. In the **Key Bus**, click the **Framestore** button that corresponds with the balloon still. For colors to be keyed out of a video source, that video source must be selected in the **Key Bus**.
4. Click on the small color rectangle next to the **Key Off** button in the **Keyer Controls** (Figure 4.3).

Figure 4.3: Keyer Controls

You see the **Keyer Settings** panel (Figure 4.4) in the upper left corner of your screen.

Figure 4.4: Keyer Settings Panel

5. Click on the **Key Type** button in the **Keyer Settings panel** and choose **Chroma** from the pop-up menu.
6. Click the **Auto-set** button. This sets which color is keyed out, based on which source is selected on the Preview bus.

   You see the color picon in the **Keyer Settings** panel turn black with a small blue dot in the center. The picon in this panel represents a color wheel. The colors visible in the wheel are the colors that are keyed out. Since our still is mostly blue, the keyer is now set to key out, or remove, the blue from it. The **Auto-set** function uses an algorithm to choose the best possible shades of blue to remove from the image, without removing the other colors in the picture.
7. Click the **Blk** button on the **Program** bus to set the program out to black.

   You see the Program monitor change to black.
8. Click the **FS** button that corresponds to the framestore of the three balloons on the **Key** bus.

NOTE: If the **Manual** button is selected (is yellow) you cannot use the **Auto-set** function. Turn off the manual function by clicking on the **Manual** button.

You see the balloons over the black background in the program monitor (Figure 4.5).

Figure 4.5: Keyed Image of Balloons over Black

Cleaning Up The Key

The edges of the balloons are a little fuzzy at this point, so use the **Width**, **Softness**, and **Low Sat** sliders (Figure 4.6) on the **Keyer Settings** panel to clean up the key.

Figure 4.6: Width, Softness, and Low Sat Sliders

Following is a list of the functions of the **Width, Soft,** and **Low Sat** sliders:

Width — Increases or decreases the amount of color taken out of the signal. If too much blue is removed from the image, lowering the range value compensates.

Softness — Affects the edges of the objects. Increasing the softness smooths the edges of the objects you are trying to key. Be careful not to increase the **Softness** value too much, or it will cause your image to become transparent.

Low Sat — Used to limit which colors are being removed from the video signal. It specifically affects colors that are closest to white, so by increasing the **Low Sat** value in this tutorial, you no longer key out the lightest shades of blue. In practical use, the **Low Sat** value is usually tinkered with to remove “sparklies” caused by uneven lighting in a live environment.

Adjusting A Chroma Key

Adjusting the **Width, Softness,** and **Low Sat** values is a bit of an art form. Usually, the best way to do this is to start with the **Width** value first.

1. Click on the **Width** slider and drag it right or left to adjust the value.

   You can also adjust values by clicking on the numeric value and dragging the mouse up or down. Typing in a numerical value also works.

2. Set the **Width** value to the lowest value that still keys out the majority of the blue.

   Keep an eye on the blue stripes on the middle balloon. Notice that if the range is set too high the blue stripes disappear. It's okay to have rough edges at this point.

3. Click on the **Softness** slider and drag it right or left to clean up the edges of the balloons.

   Because of the blue stripes in the balloons, it is difficult to get clean edges without removing the edges of the stripes. Try to get the edges as clean as you can.

4. Click on the **Low Sat** slider and drag it right or left to adjust the value if you are having difficulty getting soft edges.

Keying In A Framestore

You should be able to achieve a good key. The difficult part is keeping the blue stripes in the balloons. Now let's see what the balloons look like with a different background keyed in.

1. Double-click the Los Angeles skyline picon (Figure 4.7) in the **Bins\Stills\Manmade** bin to load the framestore into the **Preview** bus.

Figure 4.7: Los Angeles Skyline Picon

2. Click the **FS** button that corresponds to the Los Angeles skyline framestore on the **Program** bus.

You see the balloons over the Los Angeles skyline in the Program monitor (Figure 4.8).

Figure 4.8: Balloons Keyed over the Los Angeles Skyline

Keying In A Live Source

Do you have a camera hooked up to an input? If so, let's use it as our background video source.

1. Click the **Input** button that corresponds to your live camera source on the **Program** bus.

   You see the balloons over the your live camera source in the program monitor (Figure 4.9).

Figure 4.9: Balloons Keyed over a Live Camera Source

Manually Setting The Chroma Keyer

Because of uneven lighting or an uneven background color, there are times when the **Auto-set** feature won't be the best selection. In these situations, you need to manually set the chroma keyer.

Once you are comfortable using the keyer, the **Keyer Settings** panel can be used to pick a specific color to be keyed out. Since this is your first time, a framestore of a color wheel is used to illustrate how and which colors are manually keyed out.

1. Locate the bin labeled **GlobeCaster\Bins\Stills\Test** (Figure 4.10).

Figure 4.10: GlobeCaster\Bins\Stills\Test

2. Double-click on the color wheel picon (Figure 4.11) to load the framestore into the **Preview** bus.

Figure 4.11: Color Wheel Picon

You see the color wheel framestore in the Preview monitor.

3. Click the **Blk** button on the **Program** bus to set the program out to black.

Figure 4.12: The Black Button in GlobeCaster Studio

Figure 4.13: The Black Button in GlobeCaster Studio 4000

4. Click the **FS** button that corresponds to the color wheel framestore on the **Key** bus.

You see the color wheel framestore in the Preview monitor.

5. Click on the small color rectangle next to the **Key Off** button in the **Keyer Controls** to bring up the **Keyer Settings** panel.

6. Click the **Manual** button in the **Keyer Settings** panel to choose the manual keyer settings option.

   You see the **Manual** button turn yellow.

   In the Program monitor you see the color wheel framestore with a small sliver of black taken out (Figure 4.14). The sliver of black is the color keyed out of the video signal.

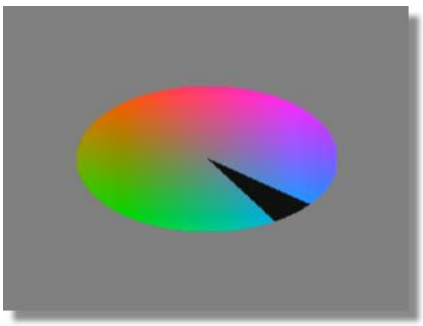

Figure 4.14: Color Wheel Framestore with a Small Sliver of Black Taken Out

You see the Keyer picon, in the **Keyer Settings** panel, with the sliver of color missing from the color wheel (Figure 4.15). This picon always shows the color that is keyed out.

Figure 4.15: Keyer Picon with Sliver of Color Missing

Changing The Keyed Color

Changing which color is keyed out of a video source is simple. Adjusting the **Hue, Width, Softness,** and **Low Sat** sliders (Figure 4.16) in the **Keyer Settings** panel affects what colors are keyed out.

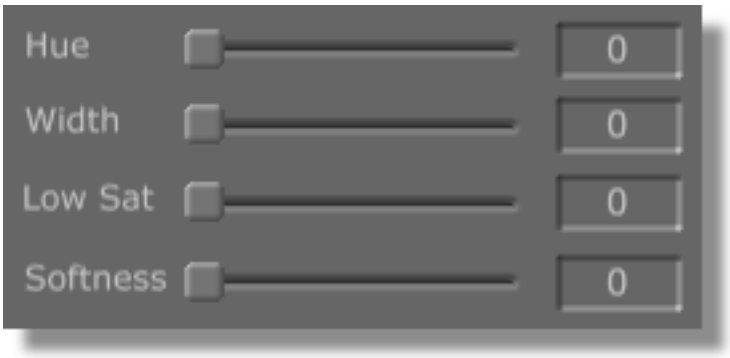

Figure 4.16: Hue, Width, Softness, and Low Sat Sliders

By playing with these values, you should be able to set a very crisp and clean key. Try not to take too many colors out, or you may find a piece of clothing being keyed out inadvertently. This happened often during weather broadcasts in the 1970s.

Following is a description of how the **Hue, Width, Softness,** and **Low Sat** sliders affect what color is keyed out. You can adjust these values by clicking and dragging their sliders right or left, by clicking on the numeric value and dragging the mouse up or down, or by typing in a numeric value:

Hue	The **Hue** value is a number from 1 to 360 that corresponds to the degree on the color wheel. A value of **1** is pretty close to chroma key blue. The value for chroma key green is around **230**. By clicking on the **Hue** slider and dragging it right or left, you see the sliver of color move around the **Keyer** picon in the **Keyer Settings** Panel.
Width	Adjusts the size of the sliver of color in the **Keyer** picon, affecting the number or range of colors keyed out. A value of **1** is a small sliver, while a value of **40** is a large sliver. By clicking on the **Width** slider and dragging it right or left, you see the size of the sliver of color grow and shrink.
Softness	Can be used to make the edges of a chroma key look soft and natural. By clicking on the **Softness** slider and dragging it right or left, you see the edges of the sliver of color in the **Keyer** picon change in degrees of softness.
Low Sat	Controls how much of the neutral colors in the center of the color wheel are eliminated. By clicking on the **Low Sat** slider and dragging it right or left, you see a circle of color in the center of the **Keyer** picon grow or shrink, changing what colors are keyed out. The higher the **Low Sat** value, the bigger the circle of color that is keyed out.

Now that you've mastered the basics of keying out colors using the **Keyer Settings** panel and its functions, try experimenting with your own video sources.

Setting Up And Performing Live Switching

This tutorial covers some of the basics of setting up and performing live switching. The basics include:

- Setting up a custom layout
- Selecting inputs
- Loading and using framestores, downstream keys, and effects
- Freezing and strobing live video
- Using the audio panel

Setting Up A Custom Layout

Everything needed to switch a production studio can be found on your GlobeCaster Switcher interface. The bottom half of the screen is dedicated to the most commonly used switcher elements (input bus, T-Bar, and Effect Controls), but the top half of the screen is configurable to meet the your needs.

At any given time, you can have any of the following features available to you on your interface: bins (which contain FX, DSK, framestore and other important files), a VTR transport panel, an audio mixer panel, and for those systems fitted with the optional ClipGrab card, a monitor panel (which displays both Program

and Preview screens) as well as a waveform vectorscope. The bin layout can be configured to accommodate your needs.

Figure 4.17: Switcher Layout in GlobeCaster Studio

Figure 4.18: Switcher Layout in GlobeCaster Studio 4000

The following steps describe how to modify and store your own personalized Switcher bin layout.

1. Click-and-drag the bottom edge of one of your bins so that it is only half as tall as the default window.

   This leaves a blank gray space just below your newly-sized bin (Figure 4.19).

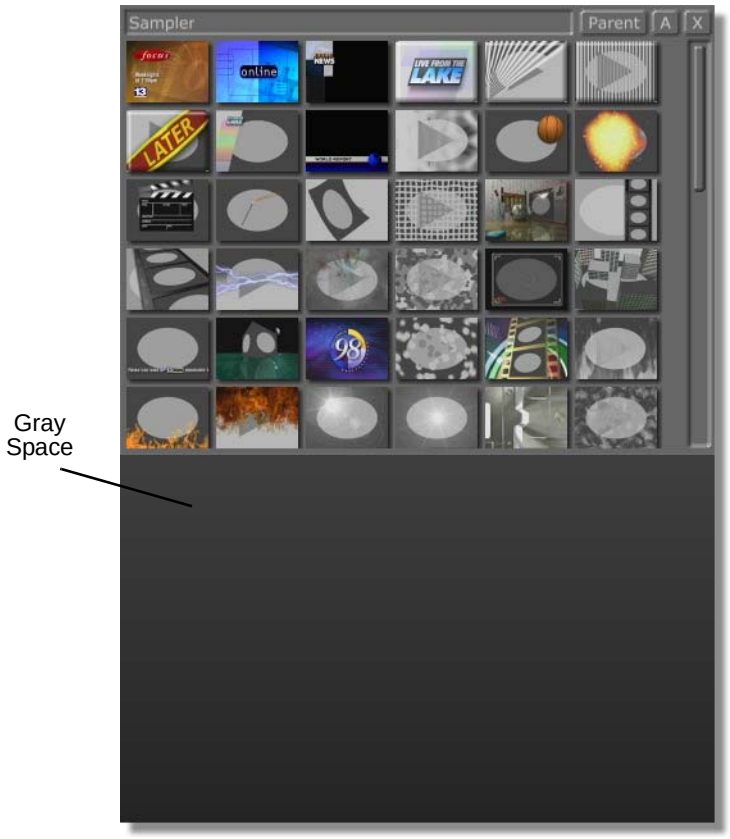

Figure 4.19: Gray Space Below Bin

2. Right-click on this empty gray space and select the **New Bin Window** option (Figure 4.20).

Figure 4.20: Choosing a New Bin Window

This opens a new bin window which displays the contents of your **GlobeCaster/Bins** folder.

3. Navigate through the bin (by double-clicking on the folders and using the **Parent** button to go back to a previous folder, if necessary) until you have a folder displayed in the bin that you would like to see displayed in your Switcher interface.
4. Repeat this process as needed until your desktop is set up in a layout that is comfortable for you.
5. Once you have your desktop set up, right-click in any bin slot, but not directly on one of the files, and select the **Save Layout** option.

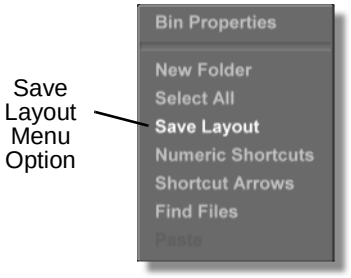

Figure 4.21: Save Layout Option

This saves a layout picon in that bin that can be used at a later date to reload this layout, should you need to change it around.You can save multiple layouts for each application. Layouts can be loaded by double-clicking on the saved layout picon.

Figure 4.22: Saved Layout Picon

Selecting Inputs

All of your inputs can be selected directly from the busses located in the lower left side of the interface. These busses are **Program, Preview, Key,** and **Aux**. **Key** and **Aux** are used only in specific circumstances. For now, only the **Program** and **Preview** buses will be covered.

In order to select any of your inputs, click on the numbered button that is associated with your input (click on the 1 button to switch to input 1). In most live situations, you will want to follow the procedure outlined here:

1. Select your beginning shot (live video, graphic, color bars, still, etc.) either by loading from a bin and selecting **FS1** (or **FS2**) or by clicking on the appropriate input on the Program Bus.

Figure 4.23: FS1 and FS2 Buttons

2. Select your next input from the Preview Bus; this should be displayed on your Preview monitor.

Figure 4.24: Preview Bus In GlobeCaster Studio

Figure 4.25: Preview Bus In GlobeCaster Studio 4000

3. To cut from Program to Preview, simply press **Enter**, or click on the **Cut** button to the right of the busses.
4. To dissolve from Program to Preview, make sure that **Mix** is highlighted and then press the space bar or click on the **Auto** button to the right of the **Cut** button.

Figure 4.26: Mix and Auto Buttons

5. Once you have switched your Preview input to your Program input, be sure to select your next input from the Preview bus, and get ready for your next transition.
6. Repeat this process whenever you want to select an input.

Using Framestores, DSKs, And Effects

In many situations, you will not want to simply cut and dissolve between two sources. The GlobeCaster system is capable of processing some very complex effects, downstream keys, transitions, etc. In order to load any of these from a bin, double-click on the appropriate picon. The selected picon loads into the interface and is ready to use in your live switching.

To load and use a picon, follow these steps.

1. Find the **GlobeCaster\FX\Sampler** bin.
2. Find the basketball transition picon in the **GlobeCaster\FX\Sampler** bin (Figure 4.27).

Figure 4.27: Basketball Transition Picon

3. Double-click on the picon.

   You see a thin green line scanning over the FX picon (just to the right of the T-Bar). When the transition is finished loading, you see the picon of the transition in the FX picon window (Figure 4.28).

Figure 4.28: Basketball Picon in FX Window

4. After the transition loads, the **Mix** button turns off and the **FX** button turns on.
5. Press the space bar or the **Auto** button to run the transition.
6. Now find the Flame DSK in the **FX/Sampler** bin (it should look like a band of fire on the bottom, with a white oval sitting just above it).

Figure 4.29: Flame DSK Picon

7. This loads into the **DSK** picon window, just as the previous transition loaded into the **FX** picon window.

Figure 4.30: Flame DSK in DSK Window

8. As it loads, the **FX** button turns off and the **DSK** button turns on.
9. Run the transition (using **Auto** or the space bar).

Now you have two different effects loaded into the memory. You can switch between them by changing between **Mix** (for dissolve), **FX** (for transition), or **DSK** (for fire effect).

In some cases, you can modify the speed of the current effect by changing the number above the **Auto** button (this represents the length of the effect in frames). You can select the field and type in a new value, or click and drag up or down to modify the value.

Figure 4.31: Length of Effects in Frames

In some cases, you will also want to load a still into your live video. To do this, simply double-click on a framestore picon in one of your bins, and it loads automatically into your Preview bus. You can now use **FS1** and **FS2** as inputs for live switching.

Freezing And Strobing Live Video

The GlobeCaster system also comes with features that allow you to freeze and strobe a live video source on the fly. You can use the following process for either the Program or Preview channels.

1. With your live source running in the Program channel, click on a number value above the **Strobe** key and select the rate at which you wish the video to strobe (the number corresponds to the number of frames skipped per strobe, i.e. 2 means that every second frame is used to update the video source).

NOTE: You can also freeze a framestore on the fly, without freezing your Program Out. At any point, you can press **Ctrl-Backspace** to take a snapshot of your program video, which will be saved in the **Bins/Stills/Grabs** directory).

Figure 4.32: Strobe Button

2. Press **Enter** to set the number and then press **Strobe** to activate the effect.
3. **Freeze** makes the Program video "freeze" while the source continues to play in the background.
4. To change back to live video, click on the **Live** button.
5. If you wish to save the Freeze-frame, drag-and-drop the frozen picon to a bin.

Using The Audio Mixer

Your GlobeCaster Switcher also integrates with an optional audio mixer module. The **Audio Mixer** panel allows you to access all eight of these live audio inputs at any point in your broadcast. While the mixer panel simply emulates the functions of a traditional audio mixer, you are able to set a default configuration, to which you can return with the click of a button. To do so, do the following:

1. Click on the **Panels** button in the lower right of the screen. You should now see your mixer panel on the upper left of your display.

Figure 4.33: Audio Mixer Panel

2. Set the mixer settings to the appropriate levels for your studio.
3. Click on **Set Default**. This saves the settings you have made as the default mixer settings for Switcher.
4. To use these settings at any time, click on the **Use Default** button.

   For a complete description of the audio mixer, see “Audio Mixer” on page 61.

For more tutorials using Switcher, see the *GlobeCaster Tutorial Manual*.

SWITCHER MANUAL
APPENDICES

Appendix I

Keyboard Commands

Keyboard commands are a cool way to navigate through applications, and perform functions with swiftness. In this appendix, you find keyboard commands for your GlobeCaster Switcher:

Bus Row Commands

Program Bus

Backspace	Matte Black on Program Bus.
F1	Input 1 on Program Bus.
F2	Input 2 on Program Bus.
F3	Input 3 on Program Bus.
F4	Input 4 on Program Bus.
F5	Input 5 on Program Bus.
F6	Input 6 on Program Bus.
F7	Input 7 on Program Bus.
F8	Input 8 on Program Bus.
F9 or Alt+F1	First Softbutton on Program Bus.
F10 or Alt+F2	Second Softbutton on Program Bus.
F11 or Alt+F3	Third Softbutton on Program Bus.
F12 or Alt+F4	Fourth Softbutton on Program Bus.
Alt+F5	Fifth Softbutton on Program Bus.
Alt+F6	Sixth Softbutton on Program Bus.
Alt+F7	Seventh Softbutton on Program Bus.

Preview Bus

‘ (accent)	Matte Black on Preview Bus.
1	Input 1 on Preview Bus.
2	Input 2 on Preview Bus.
3	Input 3 on Preview Bus.
4	Input 4 on Preview Bus.

5	Input 5 on Preview Bus.
6	Input 6 on Preview Bus.
7	Input 7 on Preview Bus.
8	Input 8 on Preview Bus.
9 or Alt+1	First Softbutton on Preview Bus.
0 or Alt+2	Second Softbutton on Preview Bus.
- (minus) or Alt+3	Third Softbutton on Preview Bus.
=(equal) or Alt+4	Fourth Softbutton on Preview Bus.
Alt+5	Fifth Softbutton on Preview Bus.
Alt+6	Sixth Softbutton on Preview Bus.
Alt+7	Seventh Softbutton on Preview Bus.

Key Bus

\ (backslash)

Q	Input 1 on Key Bus.
W	Input 2 on Key Bus.
E	Input 3 on Key Bus.
R	Input 4 on Key Bus.
T	Input 5 on Key Bus.
Y	Input 6 on Key Bus.
U	Input 7 on Key Bus.
I	Input 8 on Key Bus.
O or Alt+T	First Softbutton on Key Bus.
P or Alt+Y	Second Softbutton on Key Bus.
[(left bracket) or Alt+U	Third Softbutton on Key Bus.

] (right bracket) or Alt+I	Fourth Softbutton on Key Bus.
Alt+O	Fifth Softbutton on Key Bus.
Alt+P	Sixth Softbutton on Key Bus.
Alt+[	Seventh Softbutton on Key Bus.

Key Preview/Aux Bus

Shift+	Matte Black on Key Preview/Aux Bus.
Shift+Q	Input 1 on Key Preview/Aux Bus.
Shift+W	Input 2 on Key Preview/Aux Bus.
Shift+E	Input 3 on Key Preview/Aux Bus.
Shift+R	Input 4 on Key Preview/Aux Bus.
Shift+T	Input 5 on Key Preview/Aux Bus.
Shift+Y	Input 6 on Key Preview/Aux Bus.
Shift+U	Input 7 on Key Preview/Aux Bus.
Shift+I	Input 8 on Key Preview/Aux Bus.
Shift+O or Shift+Alt+T	First Softbutton on Key Preview/Aux Bus.
Shift+P or Shift+Alt+Y	Second Softbutton on Key Preview/Aux Bus.
Shift+[or Shift+Alt+U	Third Softbutton on Key Preview/Aux Bus.
Shift+] or Shift+Alt+I	Fourth Softbutton on Key Preview/Aux Bus.
Shift+Alt+O	Fifth Softbutton on Key Preview/Aux Bus.
Shift+Alt+P	Sixth Softbutton on Key Preview/Aux Bus.
Shift+Alt+[	Seventh Softbutton on Key Preview/Aux Bus.
Tab	Toggle Key Preview/Aux Bus.

Action Accelerators

Return/Enter	Cut.

Space Bar	Auto.
Page Down	Fade to Black.
Ctrl+Page Down	Do Fade Mix.
End	End Current Effect.
Escape	Cancel Current Effect.
L	Live Program.
F	Freeze Program.
S	Strobe Program.
Shift+L	Live Preview.
Shift+F	Freeze Preview.
Shift+S	Strobe Program.
Delete	Toggle Cut Lock
;	Toggle ToggleKey
Down Arrow	T-bar down one step.
Up Arrow	T-bar up one step.

FX Accelerators

Insert	Toggle Mix Mode.
Home	Toggle FX Mode.
Ctrl+Home or Ctrl+F	Toggle FX Run.
Shift+Ctrl+F	Unload All FX.
Shift+Ctrl+ Alt+F	Unload Idle FX.
Ctrl+Insert	Do Mix.
Ctrl+Alt+Insert	Do Aux Mix
, (comma)	Effect Duration = quarter second.
. (period)	Effect Duration = half second.
/ (slash)	Effect Duration = 1 second.

DSK Accelerators

Page Up or G	Toggle DSK1 mode.
Ctrl+Page Up or Ctrl+G	Toggle DSK1 run.
Ctrl+Page Up or Shift+G	Select DSK1 as default.
Shift+Ctrl+G	Unload All DSK1.
Shift+Ctrl+Alt+G	Unload Idle DSK1.
Ctrl+P	Toggle DSK preview.
H	Toggle DSK2 mode.
Ctrl+H	Toggle DSK2 run.
Shift+H	Select DSK2 as default.
Shift+Ctrl+H	Unload All DSK2.
Shift+Ctrl+Alt+H	Unload Idle DSK2.
J	Toggle DSK3 mode.
Ctrl+J	Toggle DSK3 run.
Shift+J	Select DSK3 as default.
Shift+Ctrl+J	Unload All DSK3.
Shift+Ctrl+Alt+J	Unload Idle DSK3.
K	Toggle DSK4 mode.
Ctrl+K	Toggle DSK4 run.
Shift+K	Select DSK4 as default.
Shift+Ctrl+K	Unload All DSK4.
Shift+Ctrl+Alt+K	Unload Idle DSK4.

VTR Accelerators

C	Play.
Shift+C or Alt+C	Play 2x.

V	Pause.
Shift+V or Alt+V	Stop.
Z	Rewind.
Alt+Z	Reverse play.
X	Fast Forward.
Alt+Q	Rewind 4x.
Shift+Alt+Q or Shift+Z	Rewind 8x.
Alt+W	Rewind 1/4x.
Alt+E	Fast Forward 1/4x.
Alt+R	Fast Forward 4x.
Shift+Alt+R or Shift+X	Fast Forward 8x.
Alt+A	Rewind 5 frames.
Alt+S	Rewind 1 frame.
Alt+D	Forward 1 frame.
Alt+F	Forward 5 frame.

Edit Guide Accelerators

Ctrl+M	Toggle edit guide.
Alt+M	Go to next edit guide.
Shift+Alt+M	Go to previous edit guide.
Ctrl+Alt+M	Go to next created edit guide.
Shift+Ctrl+Alt+M	Go to previous created edit guide.
Shift+Ctrl+M	Select edit guide.

Panel Accelerators

Ctrl+A	Toggle Audio Mixer Panel.

Shift+Ctrl+D	Use Default Audio Settings.
Ctrl+V	Toggle VTR panel.
Shift+Ctrl+R	Record.
Shift+Ctrl+S	Save clip.
Ctrl+T	Toggle monitors.
Ctrl+O	Toggle Switcher Options Panel.
Ctrl+X	Toggle Mixer Preferences Panel.

Application Accelerators

Scroll Lock	Toggle Switcher/Editor applications.
Ctrl+Alt+A	Launch Animator/Compositor (quit).
Shift+Ctrl+Alt+A	Launch Animator/Compositor (minimize).
Ctrl+Alt+C	Launch Character Generator (quit).
Shift+Ctrl+Alt+C	Launch Character Generator (minimize).
Ctrl+Alt+E	Launch Effects Generator (quit).
Shift+Ctrl+Alt+E	Launch Effects Generator (minimize)

Miscellaneous Accelerators

Ctrl+Backspace	Grab/Snap a still of the program source.
Shift+1	Toggle TM1 Loop Mode.
Shift+2	Toggle TM2 Loop Mode.
Ctrl+?	Launch Help window.
Ctrl+Up Arrow	Zoom In Timeline (x2).
Ctrl+Alt+Up Arrow	Zoom In Timeline (+10%).
Ctrl+Down Arrow	Zoom Out Timeline (x1/2).
Ctrl+Alt+Down Arrow	Zoom Out Timeline (-10%).

Appendix II

Troubleshooting Guide

One of the most important questions to ask yourself when troubleshooting is what has changed since the system last worked correctly? This question applies to both hardware and software. Sometimes it's the smallest change to the system that causes everything to stop operating properly. When troubleshooting, remember that the GlobeCaster software relies on a correctly functioning PC. If the PC is not working correctly or does not meet the minimum requirements for a GlobeCaster system, then it could affect the GlobeCaster software or VideoNet drivers and cause unpredictable results.

This section is a troubleshooting guide to problems and possible solutions for GlobeCaster Switcher.

This chapter contains the following:

Troubleshooting Switcher

I have a ClipGrab card but I don’t see monitors on the VGA screen.

Click on the **Panels** button and turn on the check mark next to monitors.

When I freeze video, my framestore is jittering.

Go into **Framestore Settings** and select interpolate **field 1** or **field 2**. This will eliminate any jittering from fast motion video.

Frequently Asked Questions

Can you modify or adjust the GlobeCaster Switcher effects?

Yes. Each effect has its own property effects window. By simply right-clicking the mouse on the effect, an **effect properties** window opens. Effect attributes which can be changed include: border, duration, fade in and out, gradient, direction, etc. Not all attributes are adjustable for every effect. The buttons will appear gray for attributes with fixed values.

Can you label individual video inputs (Cam1, VCR1, etc.) on the Switcher busses for easy identification?

Yes. GlobalStreams has included “virtual masking tape” on the GlobeCaster Switcher interface so you can type in a name for each input.

Does GlobeCaster perform strobing effects?

Yes. Strobing is turned on and controlled from the GlobeCaster Switcher interface. Strobing intervals are set with the keyboard or mouse by number of fields to hold between 1 and 999.

On the optional audio sub-system, are balanced (XLR) and unbalanced (RCA) connectors available?

Yes. Two types of 16-bit automated digital audio mixers are available, both with eight inputs and stereo output. They are identical except for their input and output connectors.

What can the optional audio mixers do?

The optional GlobeCaster audio mixer provides eight inputs and stereo output with a 3 band parametric equalizer, stereo panning, level indicators, plus trim, solo and mute controls, plus effects send outputs with return inputs, program and monitor outputs. When working with Editor, audio levels can be automated and animated for split edits, cross-fades, dips, etc.

Can GlobeCaster perform a dissolve while simultaneously overlaying a downstream key in real-time?

Yes. The base GlobeCaster system has the hardware power to perform several functions at once, independently and in real-time. Additional processing cards such as the Warp Engine can be added to the GlobeCaster to expand these capabilities even further (actually creating effects that no other single system can do in real-time regardless of price). This is the power of GlobeCaster's wildly flexible architecture.

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FCC Notice

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

GlobeCaster System License Agreement

IMPORTANT - READ THIS LICENSE AGREEMENT (“AGREEMENT”) CAREFULLY BEFORE USING OR OTHERWISE OPERATING THE GLOBECASTER SYSTEM. BY USING THE GLOBECASTER SYSTEM, YOU INDICATE YOUR ACCEPTANCE AND AGREEMENT OF THE TERMS AND CONDITIONS OF THIS AGREEMENT. GLOBALSTREAMS, INC.’S (“GLOBALSTREAMS”) ACCEPTANCE OF YOUR GLOBECASTER SYSTEM ORDER IS EXPRESSLY CONDITIONED UPON YOUR ASSENT TO ALL THE TERMS AND CONDITIONS OF THIS AGREEMENT TO THE EXCLUSION OF ALL OTHER TERMS, INCLUDING WITHOUT LIMITATION ANY SUPERSEDING OR ADDITIONAL TERMS PROPOSED BY YOU (OTHER THAN CONFIRMING AGREED-UPON PRICE, QUANTITY AND SHIPPING INFORMATION); IF THESE TERMS ARE CONSIDERED AN OFFER BY GLOBALSTREAM, ACCEPTANCE IS EXPRESSLY LIMITED TO THESE TERMS. IF YOU ARE NOT WILLING TO BE BOUND BY THE TERMS AND CONDITIONS OF THIS AGREEMENT, YOU SHOULD PROMPTLY RETURN THE GLOBECASTER SYSTEM, INCLUDING ANY UNOPENED SOFTWARE PACKAGE(S) AND ACCOMPANYING DOCUMENTATION, FOR A FULL REFUND OF APPLICABLE FEES PAID. THIS IS A LEGAL AGREEMENT BETWEEN YOU (YOUR COMPANY IF APPLICABLE) AND GLOBALSTREAMS. THIS AGREEMENT REPRESENTS THE ENTIRE AGREEMENT CONCERNING THE GLOBECASTER SYSTEM (AS DEFINED BELOW) BETWEEN YOU AND GLOBALSTREAMS AND SUPERSEDES ANY PRIOR PROPOSAL, REPRESENTATION, OR UNDERSTANDING BETWEEN THE PARTIES. IN THE EVENT OF ANY CONFLICT BETWEEN THIS AGREEMENT AND ANY OTHER DOCUMENT RECEIVED FROM YOU, INCLUDING WITHOUT LIMITATION ANY PURCHASE ORDER DOCUMENTATION, THE TERMS OF THIS AGREEMENT SHALL PREVAIL.

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4. SUPPORT AND MAINTENANCE. Support and maintenance services are not provided under this Agreement. You must separately contract with GlobalStreams and pay any applicable fees for these services.

5. TERM. This Agreement is effective upon your initial operation of the GlobeCaster System and shall continue until terminated. You may terminate this Agreement at any time by returning the Software and Documentation and extracts therefrom to GlobalStreams. Upon such termination by GlobalStreams, you agree to return to GlobalStreams all copies and portions thereof of the Software and Documentation. GlobalStreams may terminate this Agreement upon the breach by you of any term hereof. Termination of this Agreement by GlobalStreams shall not release you from any liability which at the time of termination has already accrued to GlobalStreams or which thereafter may accrue in respect to any act or omission prior to termination or from any obligation specified to survive termination.

6. CONFIDENTIALITY. You acknowledge that, in connection with this Agreement and your relationship with GlobalStreams, you may obtain information relating to the GlobeCaster System and to GlobalStreams that is of a confidential and proprietary nature ("Confidential Information"). Such Confidential Information may include, but is not limited to, trade secrets, know how, inventions, techniques, processes, programs, schematics, software source documents, data, customer lists, financial information, and sales and marketing plans, or information that you know or have reason to know is confidential, proprietary or trade secret information of GlobalStreams. You shall at all times,

both during the term of this Agreement and for a period of at least five (5) years after its termination, keep in trust and confidence all such Confidential Information, and shall not use such Confidential Information other than as expressly authorized by GlobalStreams under this Agreement, nor shall you disclose any such Confidential Information to third parties without GlobalStreams' written consent. You further agree to immediately return to GlobalStreams all Confidential Information (including copies thereof) in your possession, custody, or control upon termination of this Agreement at any time and for any reason. The obligations of confidentiality shall not apply to information that (a) is in the public domain, except as a result of your breach of this Agreement; (b) prior to disclosure hereunder was already rightfully in your possession, without an obligation of confidentiality; or (c) subsequent to disclosure hereunder is obtained by you on a nonconfidential basis from a third party who has the right to disclose such information to you.

7. INDEMNIFICATION. You will, at your sole expense and GlobalStreams' request, defend, indemnify and hold GlobalStreams and GlobalStreams' affiliates or any director, officers or employee of either (collectively the "GlobalStreams Parties") harmless from all damages, claims, actions, proceedings and/or settlements (including reasonable attorneys' fees and expenses) arising out of or in connection with: (i) your activities relating to the GlobeCaster System; (ii) any web site operated, controlled or in any way associated with you, (iii) any content used in any manner in connection with your GlobeCaster System (other than un-modified content supplied by GlobalStreams) (such content hereinafter referred to as your "Media") that infringes or violates any Intellectual Property, proprietary or contractual right of a third party; (iv) any use of the GlobeCaster System that causes GlobalStreams to violate any agreement GlobalStreams may have with a third party supplier; (v) any defamatory or libelous material or material that discloses private or personal matters concerning any person, without such person's consent; (vi) any violations of law or regulations; (vii) your Media or any messages, data, images or programs that are illegal, or are, by law, obscene, profane or pornographic or (viii) any messages, data, images or programs that would violate, interfere with, disrupt or otherwise materially harm the rights of others, including unauthorized copyrighted text, images or programs, trade secrets or other confidential proprietary information, or trademarks or service marks used in an infringing fashion, including claims by any guilds or other collective bargaining units or royalty tribunals (all of the foregoing claims or actions being referred to hereinafter as "Claims"). GlobalStreams agrees to: (a) provide Client reasonably prompt notice in writing of any such Claims and (b) provide you reasonable information and assistance, at your expense, to help defend the Claims. You agree to consult with GlobalStreams and obtain GlobalStreams' written approval on the choice of any counsel under this section.

8. LIMITATION OF LIABILITY. GLOBALSTREAMS' CUMULATIVE LIABILITY TO YOU OR ANY OTHER PARTY FOR ANY LOSS OR DAMAGES RESULTING FROM ANY CLAIMS, DEMANDS, OR ACTIONS ARISING OUT OF OR RELATING TO THIS AGREEMENT UNDER ANY THEORY (INCLUDING CONTRACT, NEGLIGENCE, STRICT LIABILITY OR OTHER LEGAL OR EQUITABLE THEORY) SHALL NOT EXCEED THE AGGREGATE OF THE AMOUNTS PAID BY YOU TO GLOBALSTREAMS FOR THE TWELVE MONTH PERIOD PRIOR TO THE DATE THE CAUSE OF ACTION AROSE. IN NO EVENT SHALL GLOBALSTREAMS BE LIABLE FOR ANY INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR EXEMPLARY DAMAGES OR LOST PROFITS,

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11.1 You have no right to assign or sublicense this Agreement or any Software licenses, in whole or in part, without GlobalStreams' prior written consent. Any attempt to assign or sublicense this Agreement without such consent will be null and void. GlobalStreams may assign this Agreement in whole or in part. In the event GlobalStreams is acquired, this Agreement will continue in accordance with its terms.

11.2 This Agreement will not establish any relationship of partnership, joint venture, employment, franchise, or agency between you and GlobalStreams. Neither you nor GlobalStreams will have the power to bind the other or incur obligations on the other's behalf.

11.3 This Agreement shall be construed and governed in accordance with the laws of the State of California, excluding its conflict of law rules, and venue and jurisdiction for any disputes lie exclusively in Alameda County, California. You consent to service of process and venue.

11.4 Should any term of this Agreement be declared void or unenforceable by any court of competent jurisdiction, such declaration shall have no effect on the remaining terms hereof.

11.5 If any action is brought by either party to this Agreement against the other party regarding the subject matter hereof, the prevailing party shall be entitled to recover, in addition to any other relief granted, reasonable attorney fees and expenses of litigation.

11.6 The failure of either party to enforce any rights granted hereunder or to take action against the other party in the event of any breach hereunder shall not be deemed a waiver by that party as to subsequent enforcement of rights or subsequent actions in the event of future breaches.

11.7 You will comply with the U.S. Foreign Corrupt Practices Act and all export laws and restrictions and regulations of the Department of Commerce, the United States Department of Treasury, or other U.S. or foreign agency and authority, and not export, or allow the export or re-export of any GlobeCaster System in violation of any such restrictions, laws or regulations. You will obtain and bear all expenses relating to any necessary licenses and exemptions with respect to the export from the U.S. of any GlobeCaster System to any location.

Application Notes