



Air Command Manual

PLAY.

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Chapter 1

Document Overview

This manual gives you an overview of what Air Command is, and how to efficiently use it. It also shows what you see when you navigate through the Air Command 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 Air Command's, buttons, panels, and functions are covered here as well.

This chapter contains the following:

- Introduction..... 2
- Conventions..... 3
- Contact Information 5

Introduction

This manual gives you an overview of Air Command. 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 Air Command.

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.

**2.1
only**

This manual covers both versions 1.3 and 2.1. When a feature is only available in 2.1, this icon appears in the margin to let you know that this feature is not available in the 1.3 software. If you decide later you would like these features, your Trinity dealer can sell you the Trinity 2.1 software upgrade kit. Version 2.1 is required for Time Machine users, and it includes many new features for users without Time Machine as well. Contact your dealer for more information.

The Trinity software version 1.3 is a free upgrade available on the Play web site (www.play.com) or from your Trinity dealer. The 1.3 software patch upgrades version 1.2 to 1.3. It includes many enhancements and bug fixes, and is recommended for all 1.2 users.

Mouse Conventions

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

Contact Information

If you have questions about Trinity and its applications or hardware, there are a number of ways to contact Play's friendly, knowledgeable support staff.

Email	General Questions:	customerservice@play.com
	Trinity Support:	trinitysupport@play.com
Mail	Play's Intergalactic Headquarters	Play Incorporated 2890 Kilgore Road Rancho Cordova CA 95670-6133
Phone & Fax	Technical Support	916.636.2444 (7:00 AM to 6:00 PM PST, Monday-Friday)
	Corporate Office:	916.851.0800
	General Fax:	916.851.0801
	Customer Support Fax:	916.853.9831
	Sales Department Fax:	916.631.0705
Web Pages	Trinity Updates:	http://www.play.com/trinity/updates
	Main Page:	http://www.play.com
	Contact Page:	http://www.play.com/play/trinity/phone.cfm
	Knowledge Base and FAQ:	http://www.play.com/cgi-bin/rightnow
	Trinity Forum:	Go to cf.play.com/play/trinity , click on Discussion Forum in left column under User Resources.
	Trinity Q & A	cf.play.com/play/support



Chapter 2

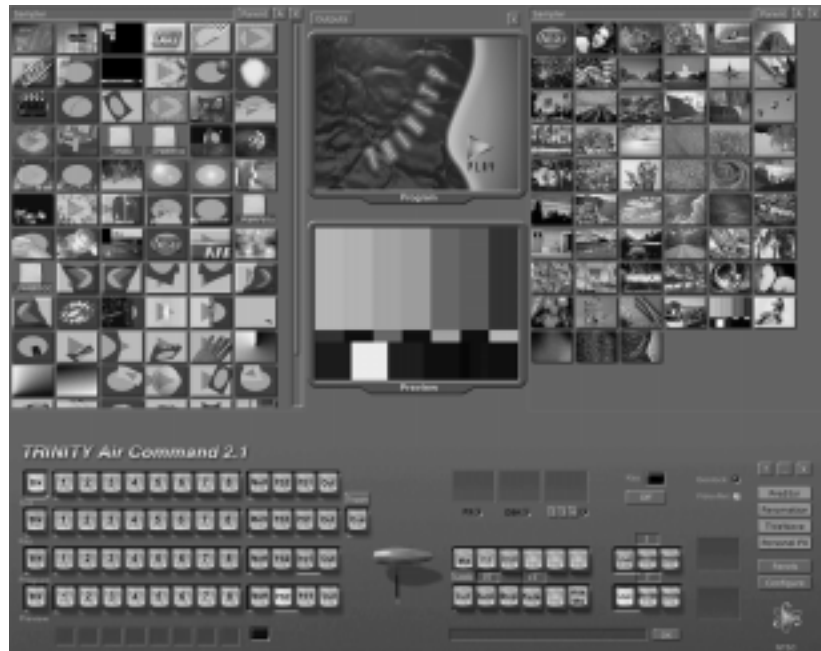
Quick Start

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

The following topics are covered in this chapter:

- Performing A Cut..... 9
- Performing A Dissolve 11
- Performing A Wipe 13
- Using Digital Video Effects 16
- Effect Properties Panel 18
- Creating A Timeline..... 21
- Digitizing Live Clips With Time Machine 27
- Moving On 32



The Air Command Interface

The basic function of a 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. Trinity provides many variations of all of these including, chroma keying, alpha keying, down stream keying of animations, freeze frames, and more.

Performing A Cut

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

Find the following picon in the **Bins\Stills\Sampler** bin.



The First Still Picon

1. Double-click on the picon. This loads the still into one of Trinity's framestore channels, and you see it appear in the Preview (bottom) monitor.

NOTE The Program and Preview monitors in the Trinity interface can only be seen with an optional ClipGrab card installed.

2. 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**.)



Cut Button

You see the image move to the Program (top) monitor.

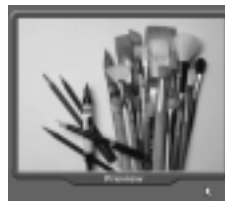
NOTE The Program monitor displays what is going out over the air, while the Preview monitor displays an image source that is cued up.

3. Locate the following picon, also in the **Bins\Stills\Sampler** bin.



The Second Still Picon

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



Picon in Preview Monitor

5. Click **Cut** again.

Air Command 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 Trinity, 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 (following figure).



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.)



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.

NOTE

When using the **Fade** button, you see the program fade to black on your external monitor only. The Preview and Program monitors in Air Command remain unchanged.

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 Air Command interface.

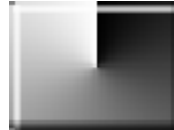
2. Click the **Fade** button again to bring the program back to normal.

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

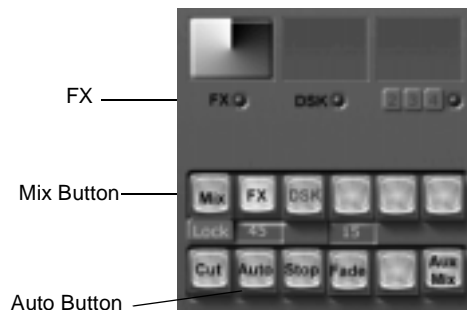
Trinity can also perform a large variety of wipes. For an example, locate the following picon in the **Bins\FX\Sampler** bin.



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 (following figure).



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

Trinity 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.



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 (following figure).



Picon in FX Window

2. Click **Auto**.

You see the image transition in the Program monitor.

Overlay Effects

Trinity also lets you create graphics in Panamation or TitleWave and use them in effects you can run from Air Command. To see an example, locate the following picon in the **Bins\FX\Sampler** bin.



Picon For Overlay Effect

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



Picon in DSK Window

2. Click **Auto**.

You see the transition in the Program monitor.

Using Digital Video Effects

Trinity 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.



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.



Picon for Digital Video Effect with Graphics

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

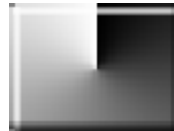
You see the transition in the Program monitor.

Effect Properties Panel

With the Effect Properties panel, Trinity's Air Command 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 and 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.



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 (following figure).



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 (following figure).



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.

NOTE Close the **Effect Border Color** and **Effect Properties** panels.

9. Click **Auto**.

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

10. 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.

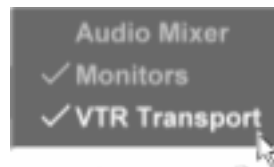
Creating A Timeline

Building a timeline in Air Command 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 Predator and make minor adjustments or corrections.

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

1. Click the **Panels** button, in the lower right corner of the Air Command interface, and choose **VTR Transport** from the pop-up menu (following figure).



Selecting VTR Transport

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



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 (following figure).



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 (following figure) onto the **FS2** button on the Preview bus.



White House Framestore Picon

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



FS2 Button on the Preview Bus

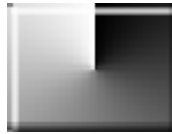
5. Load the American Flag framestore from the **Bins\Stills\Sampler** bin into the Program bus by dragging-and-dropping its picon (following figure) onto the **FS1** button on the Program bus.



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 (following figure) from the **Bins\FX\Sampler** bin by double-clicking its picon.



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.



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 Air Command 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 (following figure).



Timeline With Content

12. Save the timeline by dragging-and-dropping the timeline picon (following figure) 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 (**Trinity/Bins/Clips/Projects**) set in the **Global Settings** panel (See the chapter on “Using Configure Panels” in the *Trinity 2.1 User Guide* for more information on the **Global Settings** panel).



Timeline Picon

The timeline you created can be edited in Preditor or played back in Air Command. Play back a timeline in Air Command 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

2.1
only

With the **VTR Transport/Sync Roll/Live Digitize** panel and a Time Machine, live clips can be digitized from the Air Command 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 Air Command 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 paint brushes from the **Bins\Stills\Sampler** bin into the Preview bus by dragging-and-dropping its picon (following figure) onto the **FS2** button on the Preview bus.



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 clouds from the **Stills Sampler** bin into the Program bus by dragging-and-dropping its picon (following figure) onto the **FS1** button on the Program bus.



Clouds 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 (following figure) from the **FX Sampler** bin by double-clicking its picon.

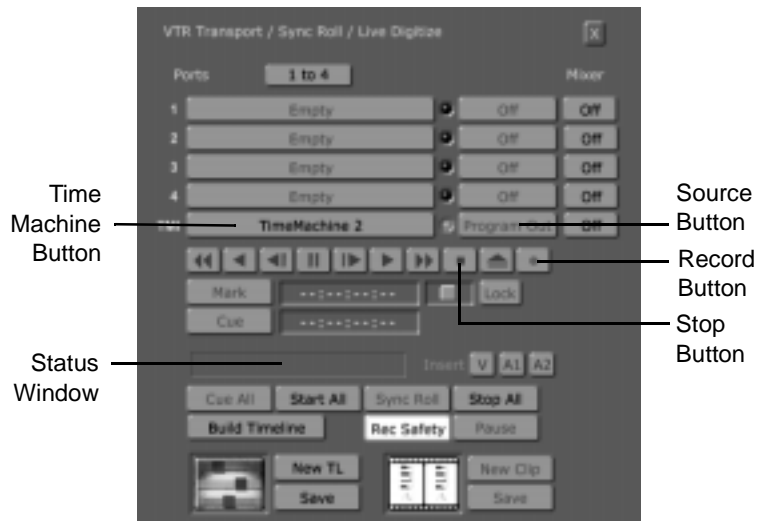


Picon For Wipe

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 Air Command interface, and choose **VTR Transport** from the pop-up menu.

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



The VTR Transport/Sync Roll/Live Digitize Panel

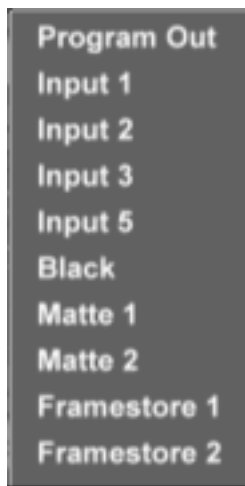
6. Click the **TimeMachine 2** button.

You see **TimeMachine 2** 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 (following figure).



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.



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 Air Command 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 clouds on it (following figure) in the lower right corner of the **VTR Transport/Sync Roll/Live Digitize** panel.



Digitized Clip Picon

The clouds on the digitized clip picon represent the first frame of the clip.

You now have a digitized clip, which can be played back in Air Command 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 *Trinity 2.1 User Guide* for more information on using the **Global Settings** panel).

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.

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 *Trinity 2.1 User Guide* for more information on the **Global Settings** panel).

Moving On

Congratulations, you have mastered the basics of controlling and mixing image sources, using transitions, building a timeline, and digitizing live clips using Trinity's Air Command. The bins are filled with all kinds of effects, so go ahead and try as many as you like.

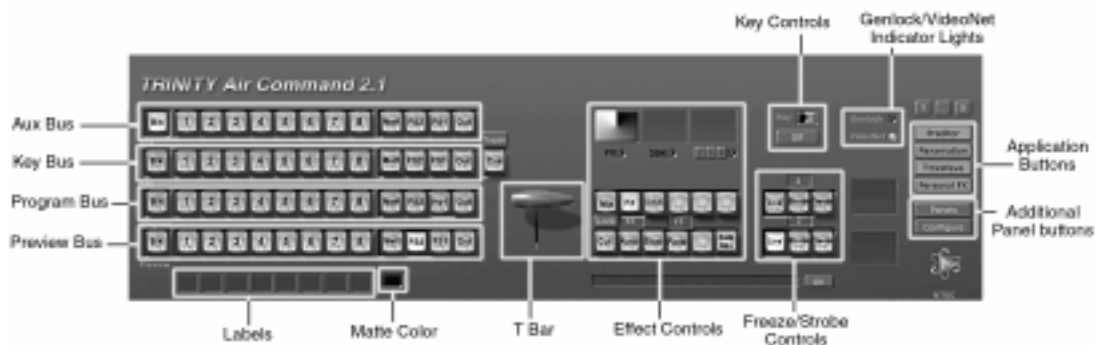
Chapter 3 Reference

The functions of the following Air Command controls are covered in this chapter:

• Video Busses	35
• Matte Color Panel	39
• Effect Controls	41
• Effect Properties Panel	45
• Freeze and Strobe Controls	49
• Keyer Controls	50
• Keyer Settings Panel	51
• Application and Additional Panel Buttons	56
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• VTR Transport/Sync Roll/Live Digitize	64
• Other Air Command Controls	70

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

The following figure illustrates Air Command's many function controls.



Video Busses

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



Video Busses

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 Air Command, 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.
Aux Bus	Another video bus just like the Program bus and the Preview bus. Certain Trinity 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 Trinity 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.



Blk (Black) button and Inputs 1-8

The following list explains the input buttons and their functions:

Inputs 1-8 On each bus, these buttons represent the different video inputs on Trinity. 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 *Trinity 2.1 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).

The four softbuttons (following figure) represent video signals internal to Trinity. Choose the function of each softbutton by right-clicking on one and selecting a function from the pop-up menu.



Softbuttons and Toggle Button

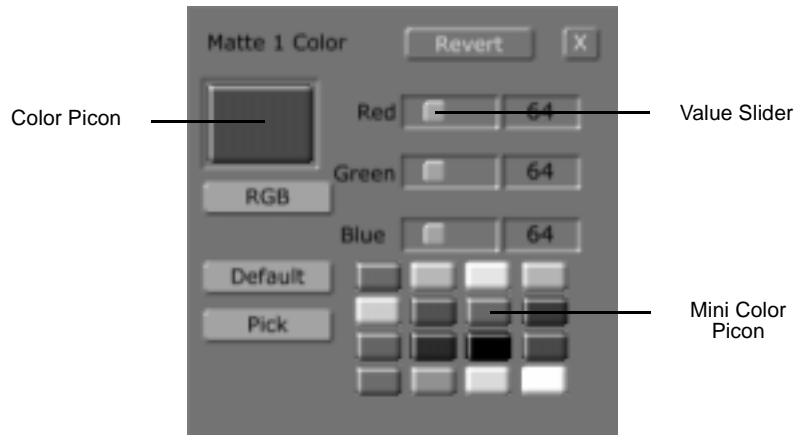
The following list explains these buttons and their functions:

- | | |
|-----------------------|--|
| 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 39 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 . 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. |
| 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 soft buttons, 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. |

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 (following figure) 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.



The Matte Color Panel

Bring up this panel by clicking the **Matte Color** button under a **Matte** softbutton (following figure). 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**.



The Matte Color Button

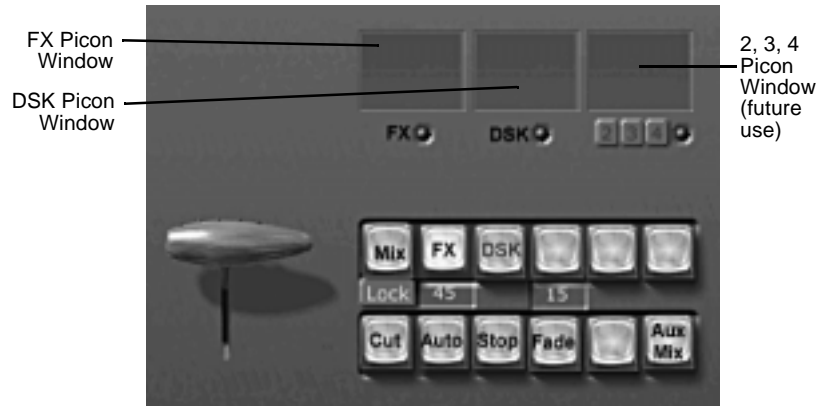
The following list explains how to use this panel:

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 (following figure) is the area of Air Command where you can control how the video busses are mixed.



Effect Buttons and T-bar

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 Trinity is loading the effect, you see the effects picon being animated until the effect is completely loaded and ready to use. The light 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 45 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. Choosing Effect Properties from the pop-up menu brings up the Effect Properties panel (See "Effect Properties Panel" on page 45 for more information about this panel).
2, 3, 4 Picon Window	Reserved for future expansion of multiple down stream keys.
2, 3, 4	Reserved for future expansion of multiple down stream keys.
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 Air Command, 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 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.

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.
Aux Mix, blank buttons	The blank buttons are reserved for added functionality in future versions of Trinity.
Auto	<p>Generally speaking, triggers the current effect. More specifically, its behavior is dependent on which of the effect controls is selected:</p> <ul style="list-style-type: none"> • 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. <p>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.</p>
Fade	The master Fade to black button fades Program Out to black. This happens downstream of everything else inside of Trinity, 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.

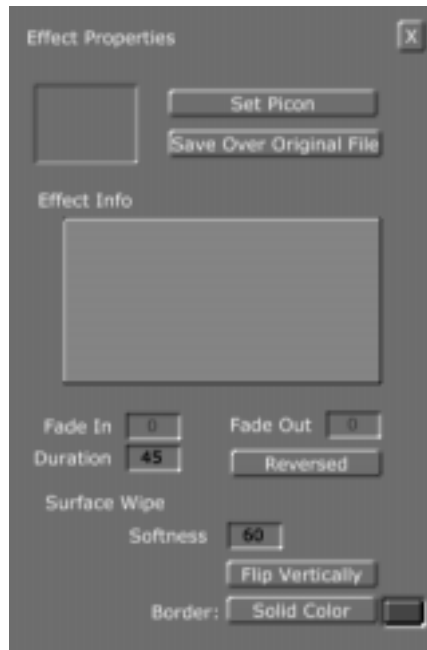


T-Bar

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 (following figure), you can alter an effect's properties, such as softness and duration, allowing you to tailor effects to your needs.



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:

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 following section for more information about this panel).
- 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 (following figure), 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.



The Effect Border Color Panel

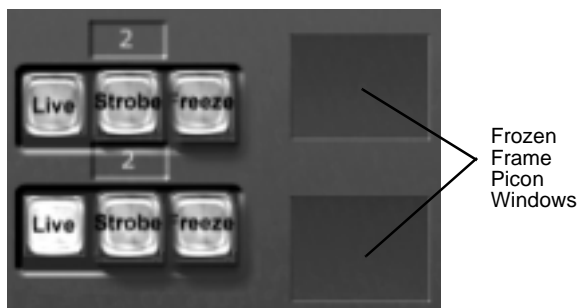
Bring up this panel by clicking the color box next to the **Border** button in the **Effect Properties** panel.

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

The **Effect Border Color** panel buttons function the same as the **Matte Color** panel's buttons (See "Matte Color Panel" on page 39 for more information on the functions of these buttons).

Freeze and Strobe Controls

The Freeze and Strobe controls (following figure) 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.



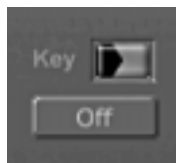
Freeze and Strobe Controls and Frozen Frame Picon Windows

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

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 <i>Trinity 2.1 User Guide</i> 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 Air Command.
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 (following figure), you can tailor Trinity's versatile keyer to key out precisely what you want.



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 51 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 Air Command or Predator, 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 (next figure).



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 (next figure)



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 Trinity 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 Trinity 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 (following figure).

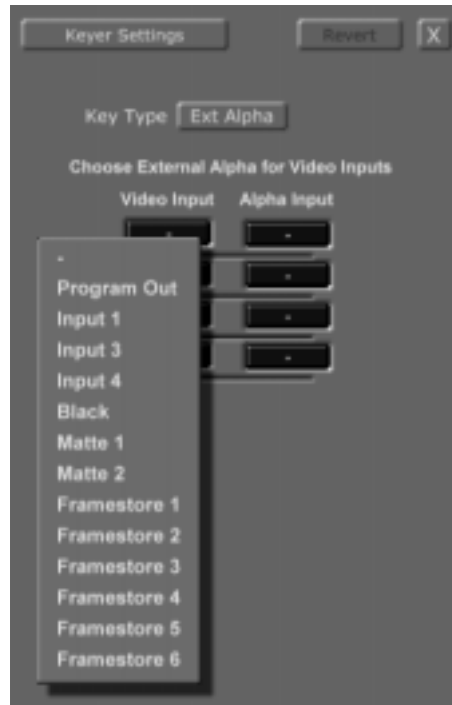


External Alpha Panel

To set an external alpha channel, do the following:

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

This brings up a pop-up menu (following figure).



External Alpha Pop-Up Menu

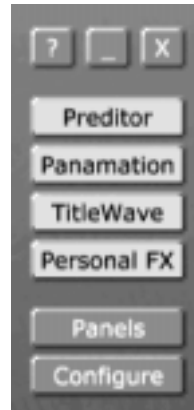
The selections on the pop-up menu vary according to what is loaded into your Trinity system. For example, it lists installed input cards. In this case, input cards are installed in slots 1, 3, and 4 of the Trinity. You can also use mattes, framestores, black, or Program Out as your video source.

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 Air Command, Trinity 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 (following figure) to close Air Command and open the appropriate application. To leave Air Command open, hold down the **Shift** key while you click the application button. The **Panels** and **Configure** buttons (following figure) bring up a variety of panels.



Application and Additional Panel Buttons

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

Preditor, Panamation, TitleWave, PersonalFX	Closes Air Command and opens up the appropriate application. For example, clicking the Preditor button closes Air Command and brings up the Preditor application.
?	Calls up the Help window. It can guide you through tours of each activity and help you learn each application.
_	Minimizes the Trinity application you are in.
X	Closes the Trinity 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 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 Sources , Input Settings , Output Settings , Global Settings , and Digitize Settings (if Time Machine is installed). (See the chapter on “Using Configure Panels” in the <i>Trinity 2.1 User Guide</i> for more information on using these panels.)

Audio Mixer

The audio mixer is found in both Air Command and Predator. The mixer in Predator is used for post-production mixing, while the mixer in Air Command is designed for live audio mixing. You can access the audio mixer from the **Panels** button, located on the bottom right of the screen (following figure).

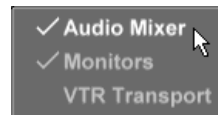
—

Master
Level



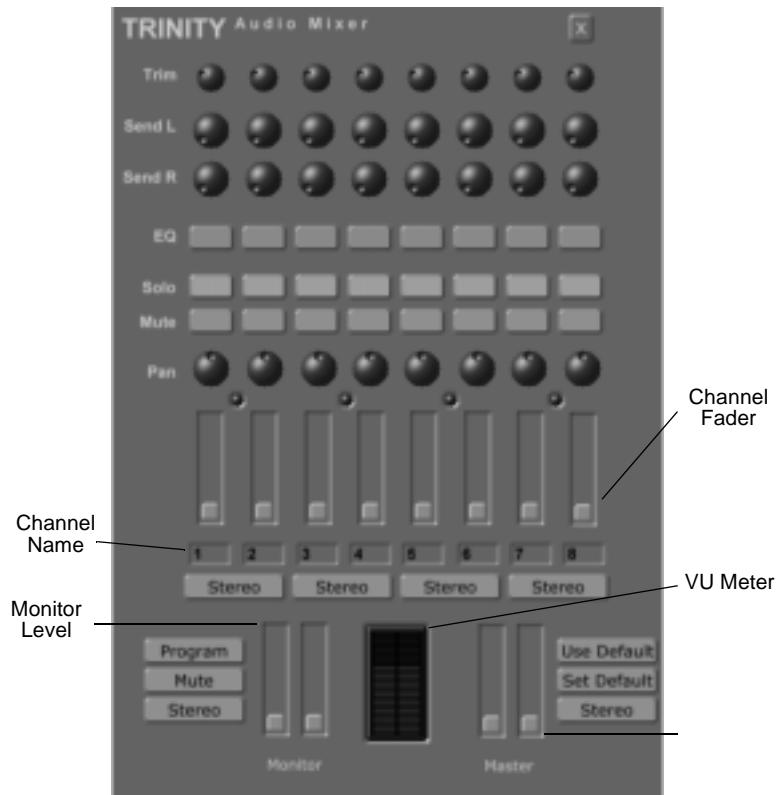
Panels Button

Select **Audio Mixer** from the pop-up menu (following figure).



Selecting Audio Mixer

The audio mixer appears (following figure).



Audio Mixer

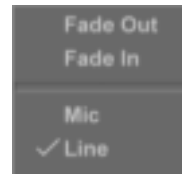
Here's how to use the features in the audio mixer.

- 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 63.
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 (following figure). Right-clicking on the slider displays a pop-up menu (following figure).



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.

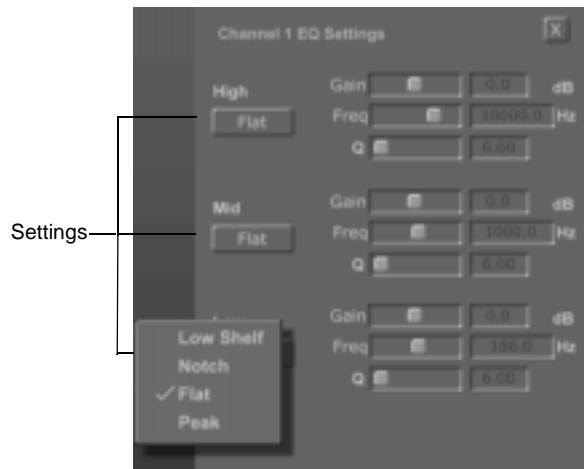
Channel Name	A piece of “virtual masking tape” that can be used to name your inputs. The default names of each input are 1 , 2 , and so on. To change these names, click and highlight the existing name and type in a new one. Press Enter or click in another channel name box to have the change take effect.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



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.

VTR Transport/Sync Roll/Live Digitize

With the **VTR Transport/Sync Roll/Live Digitize** panel (following figure), you control VTRs directly from the Air Command interface. This panel also gives you the flexibility to digitize live clips or build timelines that can be played back from Air Command or edited in Predator.

Play back a timeline in Air Command 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.



VTR Transport/Sync Roll/Live Digitize Panel

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

2.1
only

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 Trinity. 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

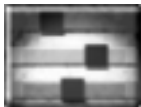


- **Record**

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.
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 Trinity generates the timeline for you.
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**.

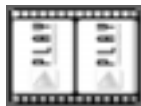
- Choosing **Properties** brings up the **Timeline Properties** panel.
- Choosing **Rename** lets you name the timeline.
- Choosing **Set Picon** changes the picon of the timeline from the default picon to the image on the program monitor.
- Choosing **Make all Picons** creates picons for all events 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 *Trinity 2.1 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.

Other Air Command Controls

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

Vector Scope

From Air Command, as well as Preditor, you can access the **Vector Scope/Waveform Monitor**. In Preditor, 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 Trinity are digital, there is no viewable timing data for the vector scope/waveform monitor to display.

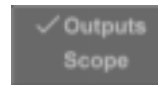
To access the scope, click on the **Outputs** button above the program monitor (following figure).



Outputs Button

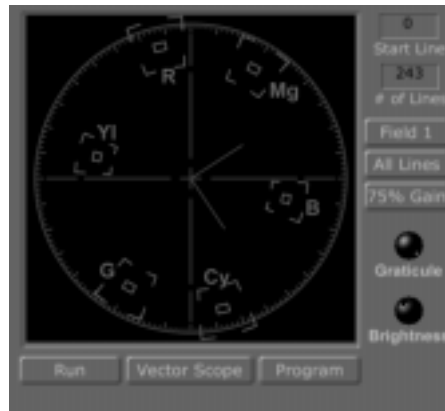
NOTE The vector scope can be seen at the same time as the program monitor if your PC screen resolution is at least 1280 x 1024.

Select **Scope** from the Output drop-down menu (following figure).



Output Menu

When you select **Scope**, the vector scope appears (following figure).



Vector Scope in Air Command

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

YI 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.

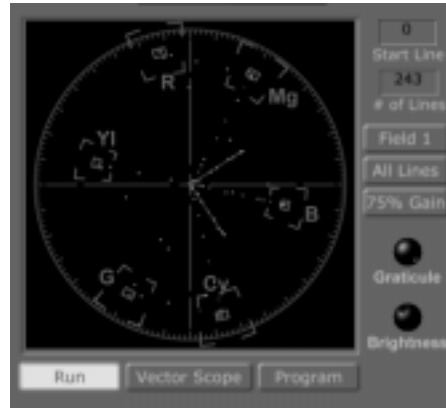
Here's how to use the options on the scope:

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 <i>Trinity 2.1 User Guide</i> .
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**.

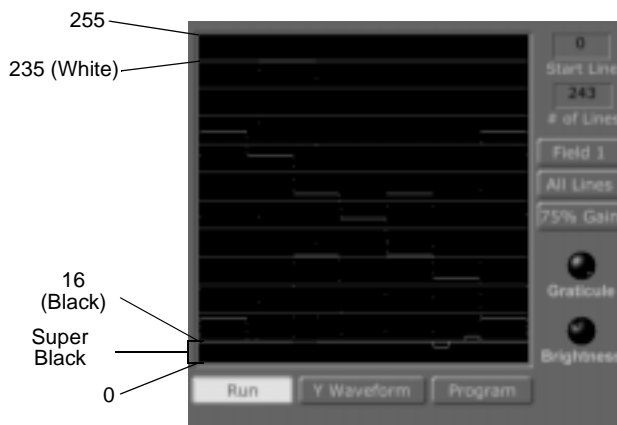
- **Vector Scope:** Analyzes color information.



The Vector Scope, Analyzing Color Bars

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.

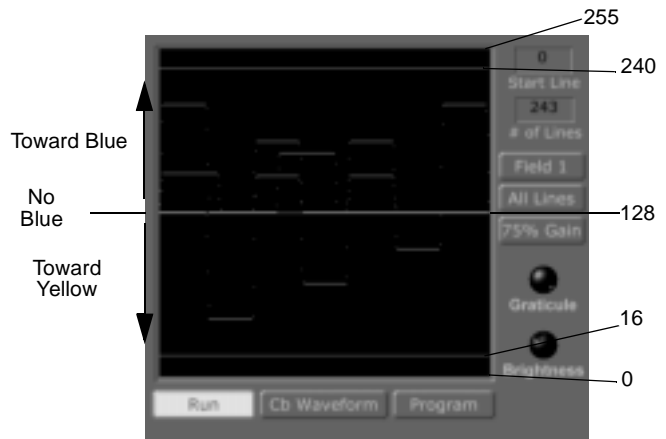


The Y Waveform Monitor, Analyzing Brightness

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.

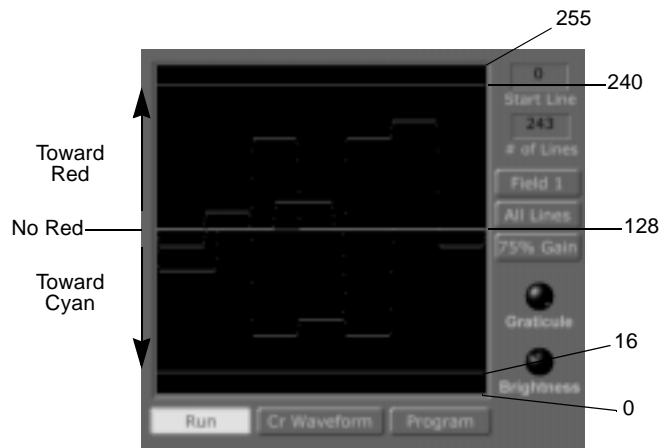
- **Cb Waveform:** Measures the relative blueness of the picture.



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.

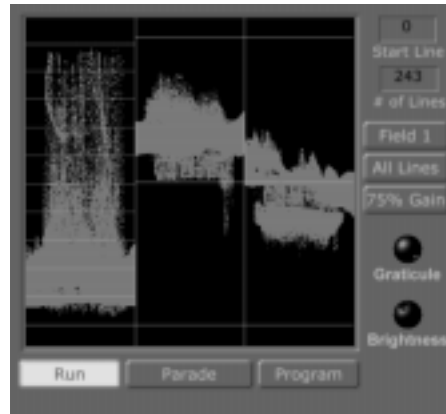
- **Cr Waveform:** Measures the relative redness of the picture.



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.

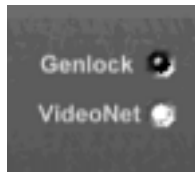
- **Parade:** Displays the Y Waveform, Cb Waveform, and Cr Waveform monitors in the same panel, from left to right.



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 Air Command interface.



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 Trinity are communicating. If for some reason Air Command 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 Trinity is not genlocked to an outside source. A green light indicates Trinity 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.

Chapter 4

Tutorials

This chapter is designed to get you up and running with Air Command. There are four tutorials that cover the basics of using Air Command.

- Setting Up a Chroma Key 80
- Setting Up and Performing Live Switching..... 91
- Performing a Sync Roll With The VTR Transport Panel..... 101
- Using Virtual Sets..... 109

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 Trinity 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 Trinity 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 **Trinity\Bins\Stills\Manmade** (following figure).



Trinity\Bins\Stills\Manmade

2. Double-click on the picon with three balloons (following figure) to load the framestore into the **Preview** bus.



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. Click on the small color rectangle next to the **Key Off** button in the Keyer Controls (following figure).



Keyer Controls

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



Keyer Settings Panel

4. Click on the **Key Type** button in the **Keyer Settings** panel and choose **Chroma** from the pop-up menu.
5. 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.

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.

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

You see the the Program monitor change to black.

7. Click the **FS** button that corresponds to the framestore of the three balloons on the **Key** bus.

You see the balloons over the black background in the program monitor (following figure).



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 (following figure) on the **Keyer Settings** panel to clean up the key.



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 (following figure) in the **Bins\Stills\Manmade** bin to load the framestore into the **Preview** bus.



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 (following figure).



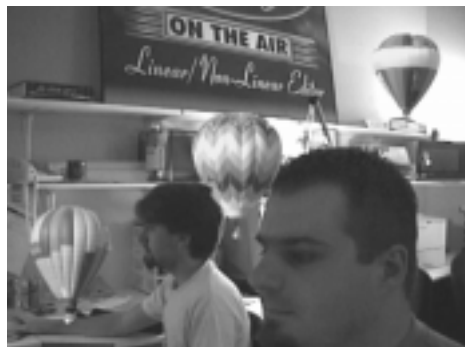
Balloons Keyed over the Los Angeles Skyline

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 (following figure).



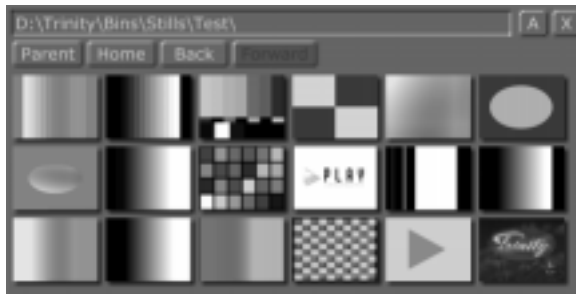
Balloons Keyed over a Live Camera Source

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.

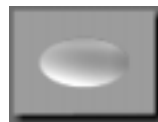
Once you are comfortable using the keyer, the **Keyer Settings** panel can be used to pick a specific color to be keyed out. Since this is your first time, a framestore of a color wheel is used to illustrate how and which colors are manually keyed out.

1. Locate the bin labeled **Trinity\Bins\Stills\Test** (following figure).



Trinity\Bins\Stills\Test

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



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.



You see the Program monitor change to black.

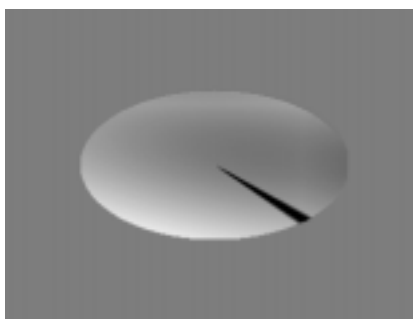
4. Click the **FS** button that corresponds to the color wheel framestore on the **Key** bus.

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 (following figure). The sliver of black is the color keyed out of the video signal.



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 (following figure). This picon always shows the color that is keyed out.



*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 (following figure) in the **Keyer Settings** panel affects what colors are keyed out.



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

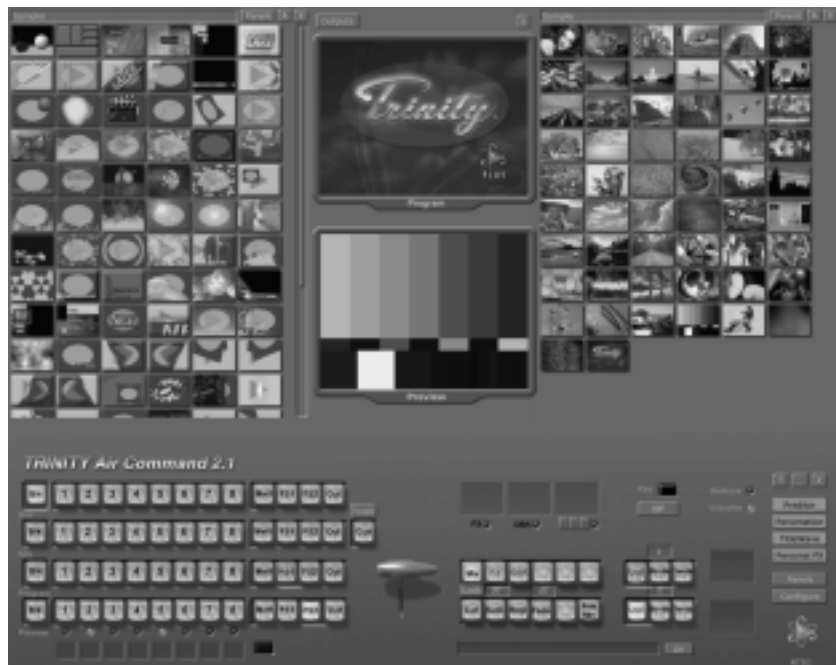
This tutorial covers some of the basics of setting up and performing live switching. The basics include:

- 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 Air Command 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.

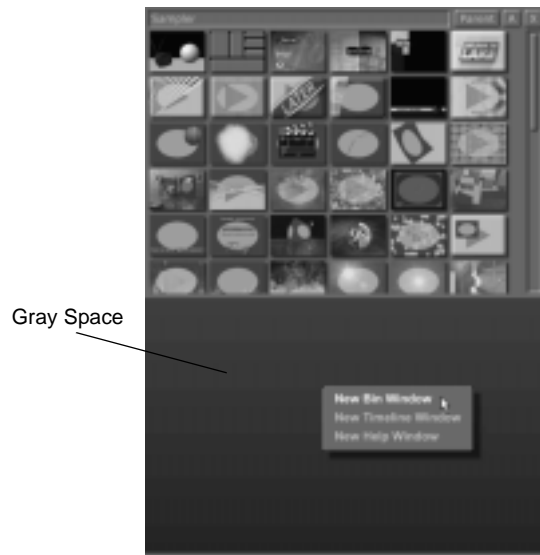


Air Command Layout

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

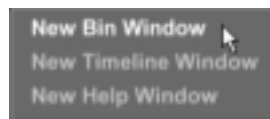
1. Click-and-drag the bottom edge of one of your bins so that it is only half as tall as the default window.

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



Gray Space Below Bin

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

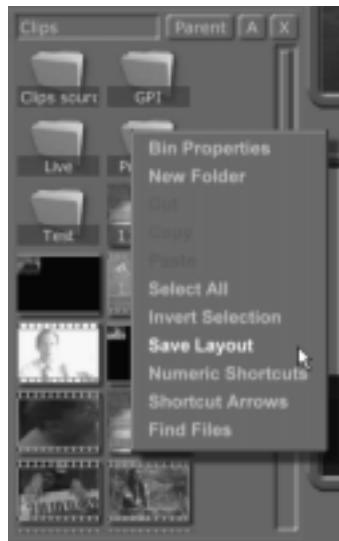


Choosing a New Bin Window

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

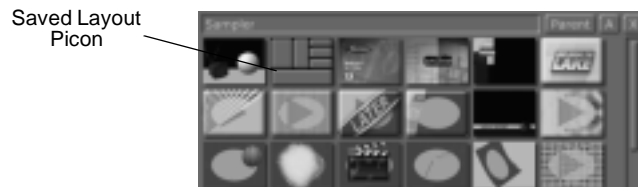
3. Navigate through the bin (by double-clicking on the folders and using the **Parent** button to go back to a previous folder, if necessary) until you have a folder displayed in the bin that you would like to see displayed in your Air Command interface.
4. Repeat this process as needed until your desktop 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.



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.



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** busses 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.



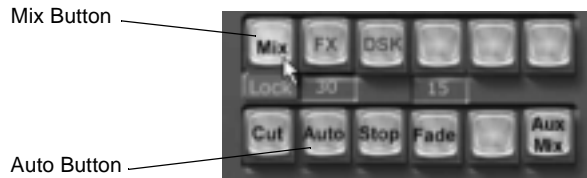
FS1 and FS2 Buttons

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



Preview Bus

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.



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 Trinity 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 **Trinity\FX\Sampler** bin.
2. Find the basketball transition picon in the **Trinity\FX\Sampler** bin (following figure).



Basketball Transition

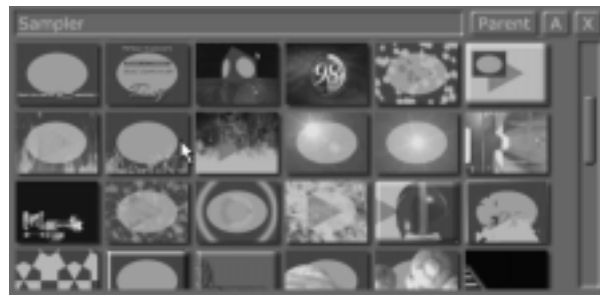
3. Double-click on the picon.

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 (following figure).



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).



Flame DSK

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

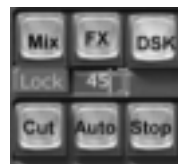


Flame DSK in DSK Window

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.



Length of Effects in Frames

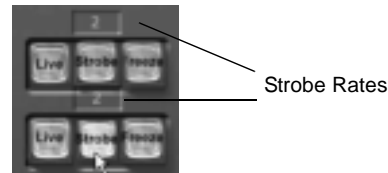
In some cases, you will also want to load a still into your live video. To do this, simply double-click on a framestore picon in one of your bins, and it loads

automatically into your Preview bus. You can now use FS1 and FS2 as inputs for live switching.

Freezing And Strobing Live Video

The Trinity 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).



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.

Tip

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).

Using The Audio Mixer

Air Command 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.



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 Air Command.
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 57.

Performing A Sync Roll With The VTR Transport Panel

This tutorial guides you through the basics of using the **VTR Transport Panel** to perform a sync roll. Sync roll starts all source decks playing back and starts the edit deck recording. Sync roll does a 5-second pre-roll before the cue point to ensure the edit deck is up to speed at the beginning of the sync roll.

The following topics are covered in this section:

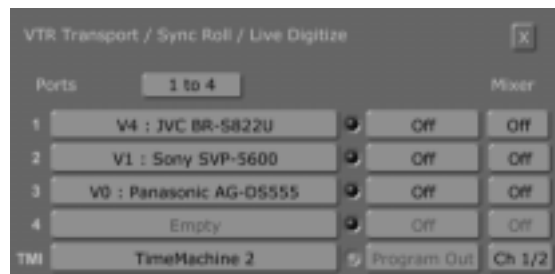
- Selecting decks
- Using the audio panel
- Starting the sync roll
- Recording to tape and to the Time Machine
- Building a timeline

Selecting Decks

The Air Command program includes a **VTR Transport Panel**, which allows you to control any of the RS-422a tape decks that you have connected to your Trinity. One of the most useful properties of the **VTR Transport Panel** is the sync roll feature.

Before beginning your sync roll, you must first set up your decks and your Trinity for the task.

1. Open the **VTR Transport / Sync Roll/ Live Digitize** panel by clicking on the **Panels** button and selecting **VTR Transport**. You see a list of your decks (following figure).



List of Decks

2. To set up your decks correctly, you must have already configured your decks in the **Serial Devices Panel**. For more information on the Serial Devices Panel, see **Serial Devices** in the *Trinity 2.1 User Guide*.
3. Click on each deck and on the button to the right of the name, select whether the deck is a **Play** or **Record Deck**. (You **must** have one deck to record to, unless you are recording to the Time Machine or building a timeline, see “Recording to Time Machine” on page 105).



Setting a Deck to Record

4. Select each deck, one at a time, and use the transport controls to select the desired point. Click on the **Mark** button to mark that point. Repeat this process for each source and record deck. On the record deck, make sure that the **V**, **A1**, and **A2** buttons are lit up accordingly. These buttons are only selectable if there is a recordable tape in the record deck.

The button turns yellow as you're cueing the deck. You are now ready to begin your sync roll.

Using The Audio Panel

If you are going to want to have full audio control of your decks while sync rolling, you need to configure this in the **VTR Transport Panel** as well. Here's how:

1. First, open the **Audio Mixer Panel** by clicking on the **Panels** button and selecting **Audio Mixer**.



Audio Mixer Panel

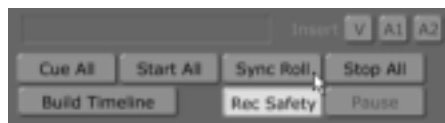
2. Notice there are eight tracks, labeled 1-8. If you go to your **VTR Transport Panel**, you will notice that by clicking on the buttons located below the **Mixer** column, you can assign each of your decks a pair of these audio tracks in the mixer.



Assigning Audio Tracks

Thus, if you set mixer channels **1** and **2** to your first source deck, you can control the audio coming from the source deck with the level sliders labeled **1** and **2** in the **Audio Mixer** panel. Try this now, assigning mixer channels to each of your source and record decks. You will now be able to control audio during your sync roll.

NOTE Many people make the mistake at this point of pressing the **Start All** button rather than the **Sync Roll** button when trying to create a sync roll. Although they can both be used to create somewhat similar effects, there is a fundamental difference between the two. **Sync Roll** requires that you mark in an edit point on your source(s) and record deck(s). This is where the edit point will start at when you click on **Sync Roll**. **Start All** starts all the tapes playing and recording, without regard to where on the timecode the tape started. Make sure you always use the **Sync Roll** button when attempting a sync roll, and only use the **Start All** button if you specifically need to start all your decks immediately.



Selecting Sync Roll

Recording To
Tape And To
Time Machine

Now that you are ready to begin sync rolling, there are two different ways to record your progress: recording to tape and recording to Time Machine (if you have it installed).

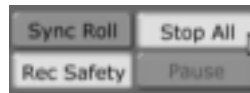
Record to Tape

You should already have your record deck selected in the VTR Transport Panel.

1. Press the Sync Roll button (previous figure).

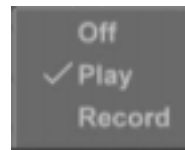
Your decks simultaneously begin pre-rolling, then start up so that all your decks hit their cue points at the same time. Now, using your Air Command interface, you can select your deck inputs, live inputs, framestores, etc. and combine them with effects, downstream keys, transitions, anything you like. What is displayed on your Program Out is what is recorded onto your record deck's tape.

2. When you are done, press the **Stop All** key.



Stop All Key

3. Now you can use the transport controls to change your record deck to a play deck, then play back your creation. To do this, click on the deck and select **Play** from the menu.



Selecting Play

2.1
only

Recording to Time Machine

To record to a Time Machine, you must (of course) have one installed in your Trinity.

1. Select the **Time Machine** button on the **VTR Transport Panel** and then make sure that the button to the right of the Time Machine button reads **Program Out**. You can leave the **Mixer** channel turned **Off**.

- Next to the TM clip window, select the **New Clip** button.



New Clip Button

- Click on the **Sync Roll** button to start the pre-roll on your decks.
- While your decks are pre-rolling, make sure **Time Machine** is selected and press the **Record** button.
- Your program out is recorded to your Time Machine as a TMClip (time machine clip).
- Once you are done, press **Stop All**. Click on the **Save** button by the Clip picon window (following figure).



Save Button

Building A Timeline

Another feature of the **VTR Transport Panel** is that you can create a timeline for use in Predator, using much the same procedure as for recording a sync roll. To create timelines, follow these steps:

- Select the **Build Timeline** button (it should turn yellow).



Build Timeline Button

2. Click on the **New TL (Timeline)** button, and set up your VTR panel as you normally would a Sync Roll. One thing you do not need, however, is a record deck.
3. When you are set up and ready, press the **Sync Roll** button and create your project using the same procedure as you did for the Sync Roll.
4. When you are finished, click **Stop All** and then click **Save**. (Alternately, you could drag-and-drop the timeline picon into a bin.



Saving a Timeline

5. You can now go into Preditor and open the newly created timeline. You see all of the clips, stills, effects, downstream keys etc., that you created in the **VTR Transport** panel.



Using Virtual Sets

This tutorial guides you through setting up and using virtual sets.

The following topics are covered in this section:

- Setting up a virtual set
- Cutting cameras and backgrounds simultaneously
- Using a foreground downstream key

Color Balancing Cameras

Chroma keys require very specific color values to work correctly. For this reason, it is extremely important that you white balance your cameras so that they display color values accurately. If your white balance is off, you may be switching between two cameras that are reporting the color value of the Chroma set differently. This can lead to unclean keys and a generally unprofessional look. Make sure to read your camera's documentation for details on white balancing.

Setting Up A Virtual Set

Setting up a virtual set requires several steps. If you have a chroma set handy, feel free to replace the "hot air balloon" framestore with a live shot of your talent in the chroma set.

1. In the **Bins/Stills/Sampler** bin, find and double-click on the still of three hot air balloons floating in a blue sky; this will load the picon into Preview.



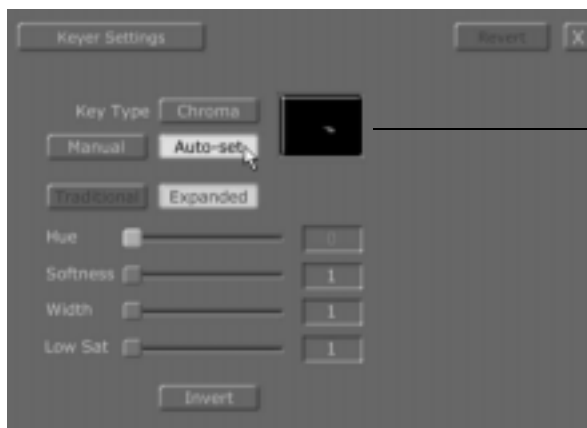
Hot Air Balloon Still

2. Click on the black button next to **Key**.



Black Button Next to Key

This will open the **Keyer Settings** panel (following figure).



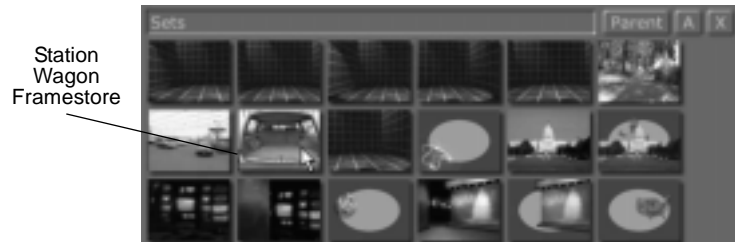
Keyer
Setting
Picon
Window

Selecting Auto-Set in the Keyer Settings Panel

3. Make sure that **Manual** is de-selected (if it isn't already) and select **Auto-Set**.

You see a spot of blue show up in the **Keyer Settings** picon window.

4. Close the **Keyer Settings** panel and press the **Enter** key (or click on **Cut**) to move the balloon framestore from Preview to Program.
5. Find the **Bins/FX/Sets** folder and double-click on the framestore of the back of the station wagon, this loads the framestore into Preview. Press **Enter** or click on **Cut** to swap Program (the balloons) and Preview (the station wagon).



Station Wagon Framestore

6. Set your Key bus to the same input as the Preview bus (if Preview is FS1, then Key will be FS1 as well).



Setting the Key Bus

You see the balloons keyed over the station wagon (following figure). This is the basic setup for a chroma key.



Balloons over Station Wagon

Cutting Cameras And Backgrounds Simultaneously

Often, you will want to be able to cut between two or more cameras while using a virtual set. This can be done in Air Command. Here's how:

1. Set up your beginning shot as described in the section above, but this time use a live camera input as your source.

You should have your camera called up on your Key bus, your background on Program, and your camera on Preview.

To perform a two-camera shoot, you first need to establish your backgrounds and shots.

2. Select your second background set and load it into Preview.

You'll notice that if you try to cut right now, only the backgrounds change, and not the camera. To change the camera

3. Press the **Cue** button on the right side of the key bus (so that it is highlighted) and select your next camera source on your key bus. You can also use the keyboard shortcut for **Cue**, (press the backslash character, '\').



Selecting the Cue Button

4. Now try cutting between the two shots. You will notice that your cue light turns off, and both the camera and the background are switched.
5. To go back to your previous shot, select **Cue** again and select your camera input on the key bus, then press **Cut** (or the **Enter** key).
6. Instead of cueing each camera shot between shots, use the **Toggle** key. Press **Cue** and select your next input as you did before, but this time make sure that you select the **Toggle** key before pressing **Enter** or **Cue**.



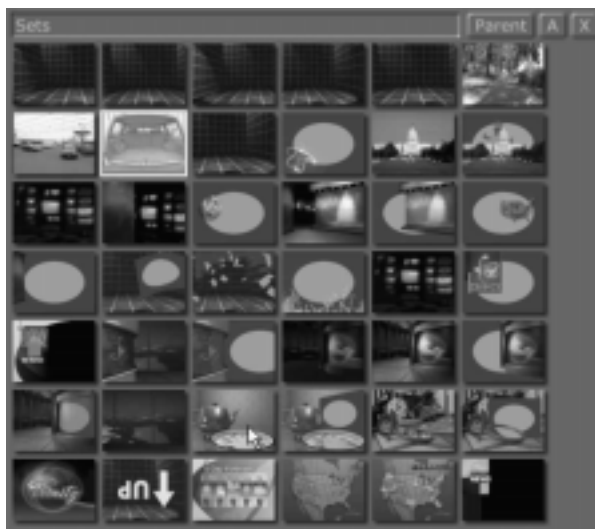
Selecting the Toggle Key

7. When you press **Enter**, the switch still occurs, but this time the **Cue** button stays lit. Press **Enter** again, and it switches back to your beginning position. The **Toggle** button is designed for a two-camera shooting situation.

Using A
Foreground
DSK

You can pull off a bit of virtual optical illusion using a foreground downstream key in your virtual set. Here's an example:

1. Find the **Bins/FX/Sets** bin and locate the framestore of the teapot on a table. Double-click on teapot, this will load it into Preview, and load the picon to the right of it into the DSK bus as well (following figure).



Framestores

2. Select **Enter** and double-click on the hot-air balloon, (found in the **Bins/Stills/Sampler** bin) this will load it into Preview.
3. Set up your key and then set up your chroma shot.
4. Once you have your balloons floating in front of the teapot, press the **Space Bar** or click on the **Auto** key.

You see that your balloons no longer look as though they are in front of the teapot, but next to it. Notice also that the balloons are reflecting off of the teapot and the bowl of milk.



Balloons in Action!

If you wish, you can replace the balloons with a live input. Once keyed out, your talent can walk off the left side of the shot and disappear behind the teapot. You can create your own DSKs and background to include many special effects such as this one. Feel free to experiment with the other virtual sets and DSKs in this folder.



Appendix 1: 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 Air Command:

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	First Softbutton on Program Bus.
F10	Second Softbutton on Program Bus.
F11	Third Softbutton on Program Bus.
F12	Fourth Softbutton on Program 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	First Softbutton on Preview Bus.
0	Second Softbutton on Preview Bus.
- (minus)	Third Softbutton on Preview Bus.

=	Fourth Softbutton on Preview Bus.
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	First Softbutton on Key Bus.
p	Second Softbutton on Key Bus.
[Third Softbutton on Key Bus.
]	Fourth Softbutton on Key Bus.
Insert	Mix.
Home	FX.
Page Up	DSK.
Delete	Lock.
Page Down	Fade to Blk.
, (comma)	Effect Duration = ¼ sec.
. (period)	Effect Duration = ½ sec.
/	Effect Duration = 1 sec.
\	Cue button
Space Bar	Auto.
Return/Enter	Cut.
Esc	End current effect.
Up Arrow	T-bar up one step.

Down Arrow	T-bar down one step.
f	Freeze.
Scroll Lock	Go to Predator.
Ctrl+Back Space	Grabs a still of the program source. This still is saved in Trinity\bins\stills\grabs.



Appendix 2: Trinity Technical Support

If you should ever need technical support for your Trinity, you should contact your Trinity dealer. We understand that you can't afford any downtime with your Trinity, so we have empowered the Trinity Dealer Network to directly provide you with rapid service for any problem that may occur.

Each Trinity dealer has been through extensive training on all aspects of Trinity, and has at his or her disposal a wealth of resources to quickly handle all your technical support requirements.

Should you find it necessary to contact Play directly, there are several methods at your disposal.

- **Via the Internet**

For **updates** on Trinity documentation and software, point your browser to:

www.play.com/products/trinity/updates

For answers to **FAQ's** (frequently asked questions) or to contact the Trinity technical wizards via **e-mail**, go to the following web page:

www.play.com/cgi-bin/rightnow

- **By Phone:(916) 636-2444**

Trinity technical experts are on hand from 7:00AM to 6:00PM Pacific Time, Monday thru Friday, excluding major national holidays.

- **By Mail or Fax**

Play Incorporated
Attn: Trinity Support
2890 Kilgore Road
Rancho Cordova, CA 95670-6133
Fax: (916) 853-9831

Appendix 3: 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 Trinity software relies on a correctly functioning PC. If the PC is not working correctly or does not meet the minimum requirements for a Trinity system, then it could affect the Trinity software or VideoNet drivers and cause unpredictable results.

This section is a troubleshooting guide to problems and possible solutions for Air Command.

This chapter contains the following:

- Troubleshooting Air Command 124
- Frequently Asked Questions..... 125

Troubleshooting Air Command

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 Air Command 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 Air Command busses for easy identification?

Yes. Play has included "virtual masking tape" on the Air Command interface so you can type in a name for each input.

Does Trinity perform strobing effects?

Yes. Strobing is turned on and controlled from the Air Command 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 Trinity 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 Predator, audio levels can be automated and animated for split edits, cross-fades, dips, etc.

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

Yes. The base Trinity 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 Trinity 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 Trinity's wildly flexible architecture.

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