

## Chapter Thirteen: Color Picker





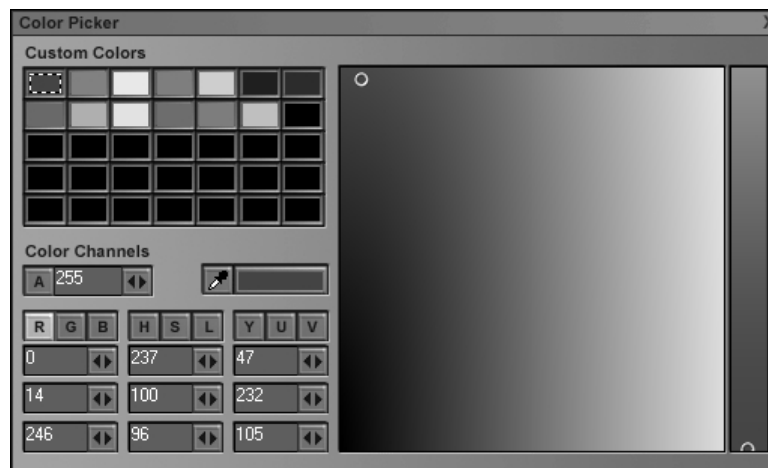
# Chapter Thirteen: Color Picker

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## WORKING WITH THE COLOR PICKER

The Color Picker looks similar to the standard color pickers found in paint programs like Aura, and it works the same way, too. You access the Color Picker from the main menu and from several different panels: the Background Generator, the Chroma Keyer, and the Character Generator.

This chapter gives you a tour of the Color Picker panel. You learn how to add and change color and how to create custom colors. Choosing color is essential to specific areas of Video Toaster: for fonts and font attributes, for graphics and for keying. In Video Toaster, you can also color-code panels and files.



**Figure I3.1.** The Color Picker

## PALETTE OF COLOR SWATCHES

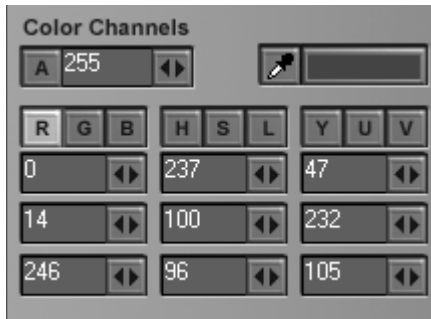
At the top left of the panel is a palette that holds color swatches. The panel launches with a default set of colors. When you load or recall palettes, they replace the default set.



**Figure 13.2.** The palette of swatches in the Color Picker

## COLOR CHANNELS

Below the palette of swatches are the channels where you can concoct new colors. The color systems represented are RGB, HSL, and YUV. The color spectrum at the right displays the colors available within the current values in each system. That means more colors are available than what you see. Beside the spectrum is a ramp that represents the luminance values for your colors.



**Figure 13.3.** RGB system, HSL system, and YUV system in the Color Picker.

## Alpha Channel

The **A**, or Alpha, option lets you apply transparency to a color. The **A** option has values between 0 and 255, where 0 is completely transparent and 255 is completely opaque. For example, you can open the Background Generator and create a pink with alpha values and you'd have a transparent pink. Then if you place that pink background on the downstream keyer (DSK) you would give a rosy tint to all video and transitions beneath it, until you turned off the DSK.

### **RGB Channels**

**RGB** stands for **R**ed, **G**reen, and **B**lue. You can use values between 0 and 255 for RGB. 255 in all fields makes white, and 0 in all fields makes black. When you adjust the values in the RGB fields, you can see the selector, which is a small circle, move around the color spectrum. You can also move the selector graphically in the spectrum with your mouse. The color preview updates to show your current color. The values for the other systems also update.

### **HSL Channels**

**HSL** stands for **H**ue, **S**aturation, and **L**ightness. When you change the **H** value, you change the hue, or pure color, and you see the selector move in the color spectrum. Hue accepts values in degrees between 0 and 360 (it works on the principle of a color wheel). When you change the **S** value, you change the intensity of your color. The color selector moves more towards the edges of the color spectrum for colors with stronger intensity and toward the middle for colors with less intensity. When you change the **L** value, you change the lightness of the image and you can see the selector in the gray ramp move. **S** and **L** accept values between 0 and 255. Any change that you make to HSL values is automatically shown in the color preview, and it affects the other systems.

### **YUV Channels**

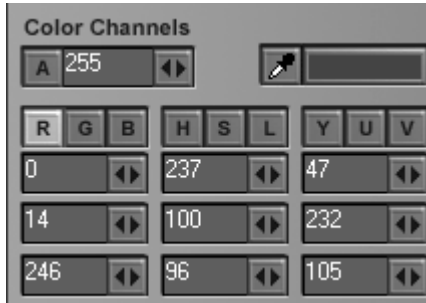
**YUV** represents **Y** (luminance) and **UV**(chrominance); these fields accept values between 0 and 255. When you change the **Y** value, you adjust the brightness of the image and you can see the change on the gray ramp. Brighter images will use values near the top of the ramp and darker images use values near the bottom. Changing the **U** or **V** values will change the color of the display.

### **Channels and the Spectrum**

You can select a different channel to view in the spectrum, which also changes the display in the ramp. The default channel when you open the Color Picker is **G**, or Green. However you can choose to see **R**ed values, **H**ue values, **A**lpha values, and so on.

### I 3.4 VIDEO TOASTER [2]

Click on the letter for a color system to activate a specific channel. The channel that you choose appears in the spectrum, and gives you a graphical representation of the values available in that channel in relation to your current color. Your current color does not change until you move the color selector in the spectrum or in the ramp. For example, you choose a blue and you want to see alpha values for that color. You must choose the Alpha channel; the ramp will update and display alpha values between 0 and 255 for blue.



**Figure 13.4.** Channels in the Color Picker, with the R channel active.

#### PICK COLOR/EYEDROPPER

The pick color button lets you use the eyedropper tool to choose a color from anywhere on the Video Toaster interface. You must click on the button and hold as you drag the eyedropper around the interface. The color preview updates in real-time as you drag the eyedropper over different colors. When you find the color that you want, release the mouse button to accept it.



**Figure 13.5.** The Eyedropper tool and color preview.

#### Illegal Colors

If you choose a color that is outside the video palette—an “illegal” color—a message appears at the bottom of the color picker stating, “This color does not follow broadcast standards.” Usually this means that the color cannot be accurately represented by YUV values. The color may work in video, but it will not accurately display for broadcast television. For example, a computer can display a black RGB value of 0,0,0 but U.S. NTSC televisions cannot. U.S. NTSC black is a setting on the Waveform monitor of 7.5 IRE, which has an RGB value of 15,15,15. Anything below that value is considered ‘Super Black’ and cannot be displayed on screen.

## ACCESSING YOUR COLORS

When you create a swatch from your custom color, you can access it again at any time, as long as you don't copy over that color. The Color Picker shares colors across Video Toaster panels, so if you create a color while working with the Background Generator, you can access that color when you work with the CG.

### Saving Palettes

You can always save your palette by saving the panel configuration with a specific name. Just right-click to open the context menu and choose **Save**. This way, you can save palettes of colors for different projects. Load a palette by right-clicking to open the context menu, choosing **Load** and selecting the configuration that you saved.

### VIDEO 101: WHAT IS COLOR?

Light travels in waves of varying lengths, and humans see color as a result of these wavelengths hitting objects at certain angles. The human retina contains three types of color photoreceptor cone cells that respond to either red, green, or blue. So, the angle of a light determines which photoreceptor cell recognizes it, and thus what color that light is. To recognize light and dark values, the eye employs rod receptor cells.

Computers and video also use three components to describe color, though these components have specific numerical values.

A computer monitor uses a numerical RGB system where each color is represented by a value between 0 and 255. In a CRT (Cathode Ray Tube) monitor, an electron gun receives a signal that tells it to activate phosphors on the screen. Red, green, or blue

phosphors illuminate depending on the numeric value sent to the electron gun.

In most video, the YUV system is the standard color system, and it also uses a scale between 0 and 255 for all values. Although the cones in our retinas perceive light as RGB, our eyes are actually more sensitive to luminance (brightness) values received by the rod receptors. The YUV system relies heavily on sending picture information through Y (luminance), which is the black and white part of an image. The video signal sends less information for U and V, which are the RG and BG color (chrominance) parts of the image.

These color systems refer to human perception of light and color. Color systems in the print world, such as the CMYK system or the artist's color wheel of red, blue, and yellow, refer to pigment instead of light. Pigment is a horse of a different color. At any rate, it's beyond the scope of this brief review.

## **NTSC and PAL**

You can specify whether the colors you create are intended for NTSC video or PAL video. NTSC video is the standard used for U.S. and Japanese television, and PAL video is the standard for most European television. The default standard for the Video Toaster is U.S. NTSC. To configure Video Toaster for PAL, you must choose PAL on the Preferences panel. For more information, see Chapter Three: Video Toaster Interface.



### **NOTE**

When you change between PAL and NTSC in the Preferences, any Background Generators that are running will automatically switch mode.



### **NOTE**

The Preferences offers an option so that you can activate pedestal for Japanese NTSC. See Chapter Three.

## **CLOSING THE COLOR PICKER**

When you close the Background Generator or any other panel from which you accessed the Color Picker, you also close the Color Picker. The only time that the Color Picker does not automatically close is when you choose it from the main menu.

## **TINTING WITH THE COLOR PICKER**

In Chapter Three: Video Toaster Interface, you learned that you can tint panels, files, and the Video Toaster desktop. Basically, you drag and drop a swatch from the Color Picker onto the panel or file. To tint the Video Toaster desktop and certain panels that accept color as input (Background Generator, Chroma Keyer, and Character Generator) you must hold the CTRL key while you drag and drop the swatch. For more information on tinting panels and the desktop, see Chapter Three. For information on tinting your files, see Chapter Six: The File Bin.



### **NOTE**

You cannot tint the Switcher.



## TASK: COLOR PICKER

You can create a custom color by entering specific values in the color system fields or by dragging your mouse in the color spectrum. Note that any value that you enter in any of the three color systems affects the other two systems; these fields are not exclusive to themselves. So if you change the **RGB** values, the **HSL** and **YUV** values update to reflect the change.

### CREATE A CUSTOM COLOR SWATCH

For this exercise, make a yellow swatch the easy way.

- 1 Place the mouse cursor in the spectrum and drag over a yellow color. The color preview updates in real-time.
- 2 Drag the color preview onto one of the swatches in the custom color palette. Your yellow is now available as a swatch in the palette.

### RIGHT-CLICK TO CREATE A CUSTOM COLOR

For this exercise, make a swatch the other easy way.

- 1 Right-click on a swatch in the palette and hold the mouse button.
- 2 Holding the right mouse button, drag the mouse over any color on your desktop. That color replaces the swatch in the palette.

### ENTER VALUES TO CREATE A CUSTOM COLOR

For this exercise, make a yellow swatch again.

- 1 Place the mouse cursor in the first field under the RGB buttons.
- 2 Enter the following values in each field: Top: 220 Middle: 220 Bottom: 0. The color preview updates in real-time as you change the values.
- 3 Drag the color preview onto one of the swatches in the custom color palette. Your yellow is now available as a swatch in the palette.

### SELECT A SWATCH AND CREATE A CUSTOM COLOR

You can also just select a swatch in the palette and change its color.

- 1 Select a swatch in the palette.
- 2 Use one of the methods above to change the color (drag in the spectrum or enter values in the color system fields).

### **CREATE A SWATCH WITH TRANSPARENCY**

You can add an alpha value to a swatch to make it transparent.

- 1 Select a swatch in the palette.
- 2 Enter a value of 100 in the A channel. This gives the swatch an alpha value of 100 and makes it semi-transparent.

### **RANGE OF COLORS IN THE PALETTE**

You can create a range of colors, such as a range of blues from light to dark, or a range of colors that fall between red and yellow. In the examples outlined below, you place the range on one row, but you can always create a range that covers several rows.

#### **RANGE OF COLORS FROM DARK TO LIGHT**

- 1 Create or choose a dark color swatch; let's use blue. Place this blue swatch at the far left (just drag and drop it.)
- 2 Place a white swatch on the far right of the same row.
- 3 Click on the blue swatch, then SHIFT-click on the white swatch and the swatches between become intermediate levels of blue.

#### **RANGE BETWEEN TWO COLORS**

- 1 Create or choose a color swatch; let's use red. Place this red swatch on the far left of a row.
- 2 Create or choose a second color, such as yellow. Place the yellow swatch on the far right of the same row.
- 3 Click on the red swatch, then SHIFT-click on the yellow swatch. The swatches between the two fill with colors that range between red and yellow.