

How does the Chroma key tool work

• Pinnacle Legacy

NOTE: The following information is also available from within the Studio software. It can be accessed by going to the Help menu and selecting Help Topics. Once in the help window, either browse through the displayed topics or choose the Search tab and type in the desired topic. It will display a list of topics based on the keyword(s) to choose from.

Chroma key is a widely-used technique that allows foreground objects to appear in a video scene even though they were not present and often could not have been present when the scene was shot. When an action star tumbles into a volcano, or battles a giant cockroach, or saves the crew with a daring space-walk, the chances are that chroma key or a related technology was involved in the scene.

Chroma key effects are often called blue-screen or green-screen effects because the foreground action is shot in front of a uniform blue or green background. The background is then electronically removed, leaving only the foreground action to be superimposed on the actual background of the final scene, which has been separately prepared.

Blue and green are the generally-preferred colors for chroma key use because their removal from an image will not affect human skin tones, but in principle any hue can be used with Studios chroma key tool.

As with picture-in-picture and while editing in "timeline view", the first step in using chroma key is to drag some video clips onto the Timeline. Drop the clips you want for background video onto the video track. The foreground clip, which should have a uniform, highly-saturated background like the center clip in the illustration above, goes on the overlay track below the main clip.

With the clips in place, select the foreground clip and open the Picture-in-picture and Chroma key (PIP/CK) tool. It is the sixth tool in the Movie Windows video toolbox. Select the Chroma key tab to display the controls you will need.

Chroma-key tool controls

The chroma key tool constructs a mask, shown in the Key channel graphic on the left side of the tool, where the transparent part of the frame is drawn in black, and the opaque part the part you will see in the final video is drawn in white. Most of the remaining controls are used to define exactly which areas of the frame will be included in the transparent part of the mask by setting the key color and related properties.

Transparency: Use this slider if you want the underlying video to show through the normally opaque overlay. Moving the slider to the right makes the overlay, with its border and shadow, increasingly transparent.

Presets: The tool provides two presets, called Green screen key and Blue screen key. These provide good starting points for setting up the tool if you are using one of the standard chroma key colors.

Key color: Use the color swatch or eye dropper buttons to select the color that will be removed from the video frame leaving only the desired foreground.

Rather than an actual color, you are really selecting only a hue, without regard to the other properties saturation and intensity that in combination with hue make a complete color specification. The chosen hue is shown by the position of the highlighted region on the circumference of the color circle display.

The color circle on the Chroma key tool highlights a range of hues (around the circumference) and color saturation

values (along the radius). Any pixel in the overlay frame whose hue and saturation fall within the highlighted region will be treated as transparent.

Color tolerance: This slider controls the width of the range of hues that will be recognized as belonging to the key color." Moving the slider to the right increases the angle of the arc covered by the highlighted region on the color circle.

Saturation minimum: Saturation is the amount of hue in a color. A pixel with zero saturation (corresponding to the center of the color circle) has no hue: it falls on the gray scale, " whose extremes are white and black. Chroma key works most effectively when the background is highly and uniformly saturated, allowing a high setting of this slider. In the real world, vagaries of lighting and apparatus often result in a background that falls short of the ideal. Moving the slider left allows a wider range of saturation values to be matched, indicated by a highlighted region that extends farther towards the center of the color circle.

Softness: This slider controls the density of the underlying video. When it is positioned all the way to the left, the main video is entirely black. As you move the slider to the right, the main video is brought up to full density.

Spill suppression: Adjusting this slider may help suppress video noise or fringing along the edges of the foreground object.

Enable chroma keying: This checkbox allows you to turn the chroma key effect on and off.

Apply to new clips: This option is handy when you want to set up the same chroma key settings for a number of different clips. As long the option is checked, chroma key will automatically be applied to each new clip that you drag onto the overlay track, using the same settings that were displayed the last time the tool was open.

The chroma key effect interface

If you prefer to enter your chroma key parameter settings numerically rather than graphically, you can turn to an alternative interface provided by the Video effects tool. You can also combine the two methods, using the chroma key tools graphical interface to specify the initial settings, then fine tuning them with the numerical effect parameters.

The Chroma key effect is found in the Overlay Effects group. The available parameter settings are almost identical to those offered by the chroma key tool, but provides one more option, Invert Key. When this option is activated, the normally opaque parts of the key are treated as transparent, and the transparent parts as opaque, so that the underlying video shows through only where the foreground object in the overlay video is not.

Chroma key tips

No matter how good your software may be, successful use of chroma key depends on carefully setting up your shot, and may require experimentation to get the details just right. Here are some tips to get you started:

Light the backdrop as evenly as possible: Very often, background coloring that looks flat to the naked eye will prove on playback to have areas that are too dark or too washed out to work well for chroma keying, which favors even, saturated color. Use multiple lights on the backdrop to ensure that it is well-lit across its whole area and without hot spots. Diffuse sunlight, as produced by a light overcast sky, can work well when shooting out of doors is an option.

Note: A professional background cloth for chroma key work is available as an inexpensive purchase at the Pinnacle web-site.

Don't let the subject shadow the screen: Arrange your subject and foreground lighting so that no shadows fall across the backdrop. The subject should be not less than one meter (three feet) in front of the backdrop.

Choose foreground colors carefully: Dont have your subject wear green if you are shooting on a green screen, or blue for a blue screen; those areas will be removed if they are taken to match the key color. You have to be

especially careful about this when working with less even backdrops that require you to set a wider color tolerance in the chroma keyer.

Make a smooth profile: Chroma keyers do better with a smooth edge than a jagged or complex one, so try to have your subject present a smooth profile to the camera. Hair is particularly tricky, and should be slicked down if possible. If the subject can wear a hat, so much the better.

Use tight framing: The wider your frame, the larger your background needs to be, and the more difficult it is to control your shot. One way to keep things simple is to shoot your subject from the waist up rather than in full view.

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