

become apparent around the edges of your foreground subject when you start to key. With a high-quality DV camera and good lighting, it's possible to pull a reasonable key using DV clips, but you cannot expect the kind of subtleties around the edges of a keyed subject that you can get with uncompressed or minimally compressed video (decent) or film (best). For example, while you may be able to preserve smoke, reflections, or wisps of hair when keying uncompressed footage, with equivalent DV footage this probably won't be possible.

On the other hand, if your foreground subject has slicked back hair, a crisp suit, and there are no translucent areas to worry about, you may be able to pull a perfectly acceptable key.

The following example presents an impeccably shot bluescreen image, recorded using a high-quality DV camera.

When you key the image and place it over a background (a red field is used in this example), the result is marred by blocky, aliased-looking edges all around your foreground subject. Unfortunately, that's the 4:1:1 color sampling of DV making itself seen.



DV bluescreen



Key pulled on DV bluescreen

Why is this happening? In the RGB color space, each pixel in your picture is represented with a value of Red, Green, and Blue.

When you shoot video—which uses the YUV (or YCrCb) color space, each pixel is represented by a luminance value (Y) and two chrominance values: red/green difference (Cr) and blue/green difference (Cb). This is done because green has a higher luminance value, and is therefore more likely to display artifacts if too much information is taken away.

In the video world, 4:4:4 color sampling means that for every four pixels in a row, you get four pixels each for Y, Cr, Cb. This is equivalent to 8-bit RGB. 4:2:2 means that you get four Y pixels and two each of Cr/Cb for every four pixels in a row. You get less information in a smaller package, giving you a little more speed and a usually acceptable loss of detail.

The DV format's 4:1:1 color sampling means that you get four Y (luminance) pixels and a single each of Cr/Cb (red/green and blue/green difference). In other words, luminance can change at every pixel, but color changes only once every four pixels.

If you look at the keyed DV footage, you see that each of those blocks around the edge of your subject is four pixels wide. A lot of data is saved. Unfortunately, bluescreen keyers pull keys from color, not luminance; hence the artifacts.

Although the information in video is transferred from the YUV colorspace into the RGB colorspace, you can still examine the original YUV channels. Attach a ColorColorSpace node to the FileIn and set the outSpace to be YUV. With the pointer over the Viewer, press the R, G, and B keys to look at the new YUV channels.

