Photoshop for Video Editors

With RICHARD HARRINGTON

Richard Harrington
President, RHED Pixel

Richard Harrington is a certified Project Management Professional, Adobe Certified Expert in Photoshop and After Effects, and Apple-certified instructor in Final Cut Pro. Additionally, he has completed Avid's Master Editor Workshop and the Avid Certified Instructor Program. His visual communications consultancy, RHED Pixel, creates motion graphics and produces video and multimedia projects. He is a faculty member at The Art Institute of Washington and American University, a popular speaker at conferences, and an instructor for Future Media Concepts. He is the author of *Photoshop CS for Nonlinear Editors* and as well as a moderator Creative Cow's Photoshop Forum. Richard is an accomplished video producer, having been named to AV Multimedia Producer's List of Top Producers for 2004 and winning a Cine Golden Eagle Award.

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Where it All Began
Photoshop has Always Been a Video Tool

People often forget that Photoshop was developed in part by an engineer doing motion picture work at Industrial Light and Magic. In fact these roots were lost for many years and forced video professionals to develop their own coping strategies and workarounds.

Tough issues like image size and pixel-aspect ratio have plagued video professionals. Open up two owner's manuals for Nonlinear Editing systems and you'll find contradicting information about how to build graphics and prepare them for import into a video edit session or motion graphics work. The goal of this session is to teach you the essentials when designing for the television screen

Reality Check

If you design for print, web, interactive, animation, or video, you likely use Photoshop. Because it is the tool-for-everybody, Photoshop sometimes gets a little crowded. There are many features (distractions) that have nothing to do with video. I am not suggesting that you write Adobe asking for a refund on unused features. Instead, accept that all you need (and more) is waiting for you.

Be prepared to change your viewpoint. Editors often want to understand every bell and whistle in a particular application. Contained on the following pages are selections from my book *Photoshop CS for Nonlinear Editors* published by CMP Books. I have given you some of the most essential items to get you started. However I cannot condense the 350 physical and 300+ digital pages into a single handout. If you find this session helpful, you can purchase the book at major resellers or find a link at my website (http://www.rhedpixel.com).
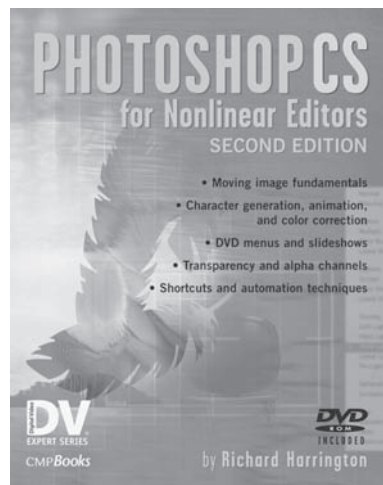
Excerpts from Photoshop CS for Nonliear Editors, Second Edition published by CMP Books ©2004

Video's Unique Requirements

Video is a unique creature; it does not enjoy the careful management that other formats do. Web designers have the benefit of designing on computers, for computers. Print designers have precise control during the printing stage, with dedicated professionals calibrating their output devices. The general population installs $199 color televisions but won't even read the instruction manuals. To make things worse, there's a standards war going on between multiple formats, digital versus analog, standard versus widescreen.

Canvas size. This is the area in which you will work. In Photoshop, specify your work area in pixels. It is a good idea to check with the manufacturer of your nonlinear edit system for requirements. These can be found in your owner's manual or on the manufacturer's website.

Aspect ratio. Television is generally a 4X3 aspect ratio, while widescreen is a 16X9 aspect ratio.

Image mode. Photoshop supports eight image modes, including bitmap, grayscale, RGB, and CMYK color spaces. For video, work in RGB mode for consistent results with nonlinear editing systems.

Bit depth. A measurement of how much color information is available to be displayed for each pixel in an image. Photoshop users generally work in 8-bits per channel mode because it provides a full set of tools. These 8 bits combine to a total of 24 bits for an RGB image or 32 bits for an RGB image with an alpha channel.

Luminance ranges. The range of colors supported by video. There are two major color spaces in use for nonlinear edit systems, RGB mapping and 601 Mapping.

Alpha channels. An alpha channel contains information about all of the transparent areas in your composition. All objects should be on transparent layers when creating an alpha channel. Do not place any of your objects on the background layer.

Anti-aliasing. Anti-aliasing causes a gentle blending of the colors along the edge of an image. It is often used to reduce flicker. This technique is effective for straight lines and text, to create a smoother composite of foreground and background elements. It is most common for low-resolution output (such as video or web). There are four types of anti-aliasing, which can be accessed from the Options bar or Character palette.

Non-square pixels. Your own personal demon. These cause more problems for more people than anything else about Photoshop. In a nutshell, computers and Photoshop traditionally work with square pixels (1.0 aspect); most digital video works with non-square pixels (0.9 aspect). Thankfully, Photoshop CS supports non-square pixels, but you will still need a thorough understanding of square pixels.

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Suggested Hardware

Photoshop ish a great tool right out of the box. Here are a few things that will help you get more work done, however. The order in which you add these items on will vary, depending on your work environment and budget. I will not assume you have any of these, other than access to an RGB video monitor in either NTSC or PAL (depending upon your country).

A video card with S-Video out. These are not very expensive anymore and will let you plug your system into a standard television or NTSC monitor. These cards are useful for checking interlace and flicker issues, but are not necessarily good for checking color because they do not use an accurate video setup. You might consider moving up to a higher-end video card with component or digital outputs for more accurate color monitoring.

For Mac users, a two-button mouse. Because Ctrl+clicking gets a little old after a while. Many options are available these days, since USB became a common standard between Mac and Windows.

An NTSC monitor. So that you can check your work before going into the edit suite.

A scanner that matches your imaging needs. I own four scanners. None of them had a price tag of more than $400, and they all work great for video. In fact, the $99 portable one scanned several of these photos.

A Pantone color book. So that you have some sort of reference guide for matching the PMS logo colors that your clients give you. A Pantone Color Cue for selecting colors from physical objects is also a great option.
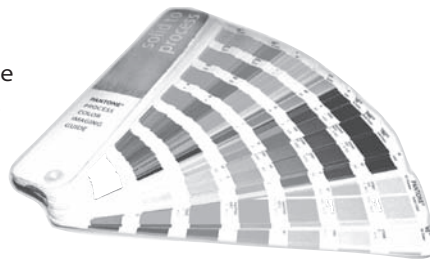
A tablet and pressure-sensitive pen. This can be for both fun and serious work. A little bit of digital doodling can be a relaxing activity. Moreover, a pen is often an easier input device than a mouse or trackpad for realistic brushstrokes and tracing activities. The newer tablets feature great sensitivity that can be helpful in rotoscoping or channel masking.

An optical storage device. I am a big fan of the new generation of DVD burners. It is possible to back up 4.4GB of project data onto a single $2 disc. A CD or DVD burner will also allow you to burn your projects to disc for testing in a Video CD/DVD player on consumer televisions.

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Computer and Video Issues

Video traces its history to early pioneers such as John Logie Baird, who managed to record a recognizable human face on video in 1925. The first microcomputer appeared in 1960, developed by Digital Equipment. For a mere $120,000, it did include a keyboard and mouse. These two technologies existed very independently of each other for many years. All computer pixels are square in their native format. Professional video applications generally use pixels that are non-square.

The National Television Standards Committee, known as the NTSC, has set the standard that television fits to the 4X3 aspect ratio. This is often interpreted by video boards as an image that is 648X486 pixels. Those countries that use the PAL format use boards that work with images that measure 768X576 square pixels. If designing for square systems, it is easy because no conversions are necessary.

Of course, if you offer a standard, it will be broken. In an effort to pack more pixels and increase resolution, the ITU-R BT 601 video standard was developed. It is often called "D1" (after the D1 format invented by Sony in 1986 which was the first component digital format available). In NTSC, the native "board" size of a D1 frame is 720X486 non-square pixels. The PAL format uses 720X576 non-square pixels.

This format has evolved into the Digital Video (DV) standard, which is employed in the consumer DV format, as well as DVCAM and DVCPRO tape and DVD authoring. The native size for DV frames is 720X480 non-square pixels for NTSC, six less than the D1 format. The PAL DV format is identical to the standard PAL format and remains unchanged at 720X576 non-square pixels. These pixels are played back on analog televisions, which must display them as square pixels at the 4X3 aspect ratio.

Houston, we have a problem.

Pixel aspect ratio

Remember, video is displayed on standard televisions at a 4X3 aspect ratio. Even video that has a different native size must be eventually converted. Natively, an NTSCD1/DV pixel is taller than it is wide, approximately 0.9 to 1. PAL pixels on the other hand are wider than tall, 1.066 to 1.
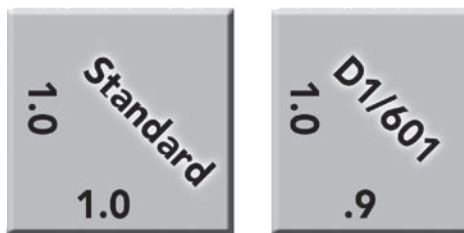
Many video edit systems, as well as Adobe After Effects, can work with square pixel images, ensuring that they display correctly throughout the editing stage.   These video applications must resize square pixel graphics to conform to digital video's non-square pixel shape. To avoid this problem, however, many designers choose to manually stretch or interpret their images within Photoshop, which offers powerful interpolation tools that produce exceptional scaling. Before going any further, let me say three things:

- First, there are many conflicting opinions on what size to build graphics and what application to use when resizing them.
- Second, read the manual that shipped with your editing software because different companies have their own procedures for each editing system.
- Third, if using Photoshop CS, build your graphics with the non-square pixel presets and avoid a big headache.

With those three points cleared, I will present your options for building graphics that will work for most users on most systems.

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Photoshop for Video Editors

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Step 1: Determine the native size of your video frame

Frame size can be found in your NLE's manual, or you can export out a single frame. If you are working with a traditional analog system, the frame is likely equates to 648X486 for NTSC or 768X576 for PAL square pixels. Most hardware-dependent nonlinear systems, such as Avid Media Composers, Media 100s, or Accelerated Premiere-based systems, use the ITU-R BT 601 format (often referred to as D1). The native size is 720X486 non-square pixel image for NTSC or 720X576 non-square pixel image for PAL.

Recently, many DV solutions have appeared. These use a 720X480 non-square pixel image for NTSC and 720X576 non-square pixel image for PAL.
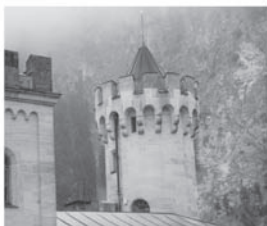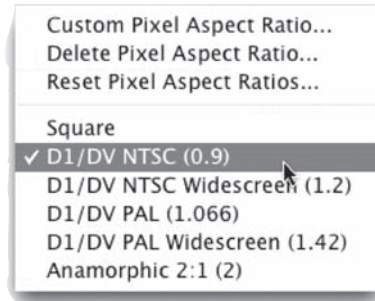
Step 2: Design your graphics in Photoshop

Depending on your version of Photoshop, your technique will vary. Photoshop CS offers the monumental change of non-square pixel support. Chances are that not every computer in your shop or that you will encounter while freelancing will have Photoshop CS so I've included both methods here.

Method #1: Using Photoshop CS

Photoshop CS supports non-square pixels... Life is good!

- Create all new documents using the built in templates that match your edit system. This can be found in the New Image dialog box File>New or pressing Cmd+N (Ctrl+N).
- If working with square pixel images (such as those from scanners, stock photo collections, or digital cameras) be sure to reinterpret the pixels. This can be done in three ways.
    - Drag the square pixel images into a non-square document
    - Paste the square pixel images into a non-square document by pressing Cmd+V (Ctrl+V).
    - Place square pixel images into a non-square document by choosing File>Place
- If you are working with a frame grab or exported frame from a video editing application that uses non-square pixels, you must identify it to Photoshop. Choose Image>Pixel Aspect Ration and select the right preset for your country and screen shape.

Custom Pixel Aspect Ratio...
Delete Pixel Aspect Ratio...
Reset Pixel Aspect Ratios...

Square
✓ D1/DV NTSC (0.9)
D1/DV NTSC Widescreen (1.2)
D1/DV PAL (1.066)
D1/DV PAL Widescreen (1.42)
Anamorphic 2:1 (2)

(Left) Original image viewed in D1 editing system such as Avid Media Composer.with Square Pixels.

(Middle) Same image viewed in Photoshop with NTSC D1/DV Pixel Aspect Ratio correction applied..

(Right) Same image viewed in Photoshop with PAL D1/DV Pixel Aspect Ratio correction applied.

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Method #2: Using Photoshop 7 (or Earlier)

Design your graphics in Photoshop 7 (or earlier) using square pixels. When the design is finished, you then need to resize your graphic for video usage and force the pixel aspect ratio to change. There are two major camps: those who recommend stretching horizontally and those who prefer vertically. In the spirit of Dr. Seuss' Sneetches, I'll call them the 'Zontals and the Verts.

The 'Zontals argue that it is best to maintain the same number of scan lines throughout. This is usually done by using an image size such as 648X486 for NTSC D1. This method helps maintain fine details, such as text, by not compressing them. Using this approach, the final image is stretched horizontally to 720X486 (Image>Image Size, Constrain Proportions unchecked) to fill the video screen. Eventually this image will be squeezed back when playing back on televisions.
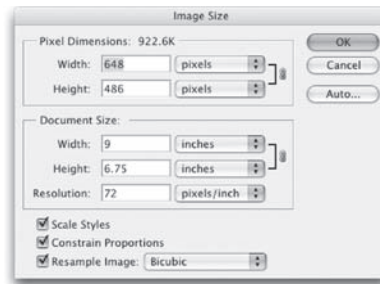
The Verts counter that it is always better to shrink raster images than to blow them up. By employing a 720X540 image in Photoshop, the files can be scaled down (as opposed to up). Before saving the file out for video editing, the file must be resized (Image>Image Size>Constrain Proportions unchecked). The 720X540 file is squeezed vertically to 720X486. This vertical stretch will be counteracted by the horizontal stretch when the image is transferred to video.

Square Pixel Graphic Sizes

Format	4 X 3 Aspect Ratio (Square Pixels)	16 X 9 Aspect Ratio (Square Pixels)	Native Size Non-Square Pixel
NTSC D1	648 X 486 or 720 X 540	864 X 486	720 X 486
PAL D1	768 X 576 or 720 X 540	1024 X 576	720 X 576
NTSC DV	648 X 480 or 720 X 534	853 X 480	720 X 480
PAL DV	768 X 576 or 720 X 540	1024 X 576	720 X 576

Interlaced displays

Interlacing video is another leftover technology meant to serve as a temporary fix. When television was invented, it was decided that 30 frames per second generated smooth motion. However, it took 60 images per second to reduce flicker. The problem is that the broadcast signal could not hold that much information without significant softening, and the slow speed of phosphors produced banding.

In order to maintain a relatively crisp picture, the solution of interlacing was decided upon by the first National Television Standards Committee in 1940. By showing half an image 60 times per second, both goals could be met. The electron beam would scan across the tube, painting every other line. It would then return to the top and paint the remaining lines. These alternating lines are often identified by field dominance, and are referred to as upper (or odd field first) or lower (or even field first). This solution solved the problem between bandwidth, flicker, and smooth motion.

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It's important to note that only analog televisions are interlaced. If your video is intended for traditional output, you need to keep this in mind. Standard analog televisions display interlaced video, but newer digital televisions may show progressive scan (or noninterlaced). If you are designing for web or CD output, you will work with noninterlaced video. Interlacing is not a big issue when you start your graphic in Photoshop, but becomes very important when importing video freeze frames or working in Adobe After Effects. In Photoshop it is important to avoid lines thinner than three pixels, or you will definitely introduce flicker to the image. Be sure to choose an anti-aliasing method for fine details such as text as well.
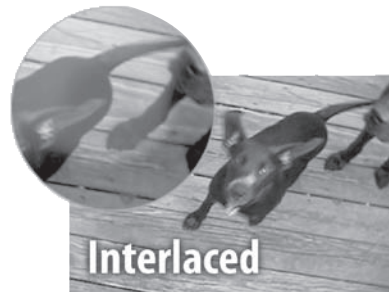
If you import a freeze frame from a source with fast motion, you will likely have visible fields (areas where the two frames of video mixed and a jagged result appears). If this happens, you can choose to run the De-Interlace filter (Filter>Video>De-Interlace). You will have the choice of keeping the odd or even field, as well as creating the replacement through duplication or interpolation. This step is especially important for broadcast designers who are working with freeze frames. If your video contains movement (and you didn't remove interlacing during export from the NLE), you will definitely see the need for this filter. Many lower-cost digital cameras will show a similar problem because they use a similar, image-capture device. It is a good idea to run this filter on video freeze frames every time if the work is to be done in Photoshop.

When animating your graphics in After Effects, interlacing provides smoother movement between frames. The render times are longer, but the quality is worth it. You need to do nothing different inside of Photoshop; just make sure to turn on Field Rendering in After Effects' render settings. In fact, make it part of your presets in After Effects by modifying your output settings.

Anti-aliasing

Did you ever play with Lego building blocks as a child (I still do). Perhaps you noticed how hard it was to build an arch or a curve. The best you could achieve still had noticeable stair stepping. Guess what, pixels are just like those building blocks. Curved or diagonal lines will not look good at low resolutions, and you must soften the edge.

By choosing to use an Anti-aliasing method, Photoshop will generate smoother results—especially when using selection tools (such as the magic wand or lasso tools) or vector-based type. Anti-aliasing works by softening the color transition between edge pixels.

Since only the edge pixels are changed, you lose no detail in the image itself. Anti-

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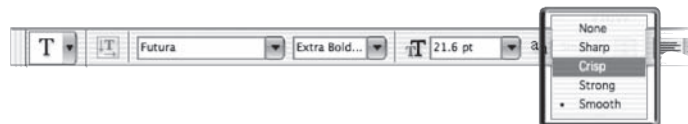
aliasing is a useful option for creating text, making selections for filters, or copying and pasting. It will be a recurrent topic throughout this book. You can adjust the anti-aliasing for many tools directly in the Options bar. You must apply this option before a selection is made.

RGB versus YCC color

As if the non-square pixels, aspect ratios, interlacing, and anti-aliasing weren't enough, let me present our next problem. Photoshop works in the RGB color space. Each pixel you see on your monitor is comprised of light being emitted by a red, a green, and a blue phosphor placed closely together. Our eyes perceive that light as a single-colored dot, or pixel. These red, green, and blue components are referred to as channels.

A Firewire to Analog video converter can be useful for previewing your graphics on a television
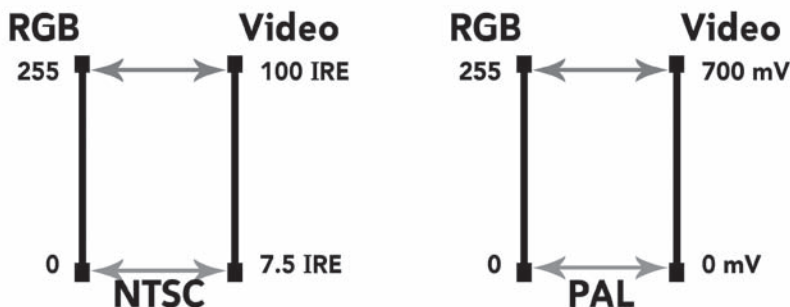
So what's the problem? Televisions use the same red, green, and blue phosphors right? Not exactly. Television signals are not transmitted or stored in RGB due to our final leftover problem. Initially, television was black and white. These images were actually a grayscale signal consisting of only one channel that contained the brightness information (known as luminance). In an effort to keep consumers happy, color television was made backwards compatible. An RGB broadcast would not work on a black-and-white television, so broadcasters chose (and still use) the YCC color space. The Y is the luminance information, while the two Cs represented the color components (hue and saturation). These three signals would combine to form the composited pixels. The YCC color space goes by many names, it is often clarified as YCrCb, and can also be found as YUV or as YIQ.

How does this affect you? Don't worry too much about the engineering side, but realize that colors will look different on a television screen than they do on a computer monitor. The color shift is minor, but present. There is no setting in Photoshop to correct this. The best solution is to have an NTSC or PAL video monitor (or consumer television) connected to your system. Many video cards will let you output via S-Video. If a television monitor is not an option, periodically test your graphics by importing them into your NLE, then outputting to tape.

Many editors choose to look at HSB sliders (hue, saturation, and brightness). This color model is very compatible with RGB and allows you to examine color information in a more video-like manner.

RGB versus 601

Photoshop and video handle luminance values differently. When working in

RGB **Video** **RGB** **Video**

255 ↔ 100 IRE   255 ↔ 700 mV

0 ↔ 7.5 IRE   0 ↔ 0 mV

NTSC   PAL

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Photoshop, black is an absolute black and white is an absolute white. Photoshop assigns a value of 0 to black and a value of 255 to white. There is no allowance for anything beyond this range. This process is referred to as computer graphics or RGB mapping.
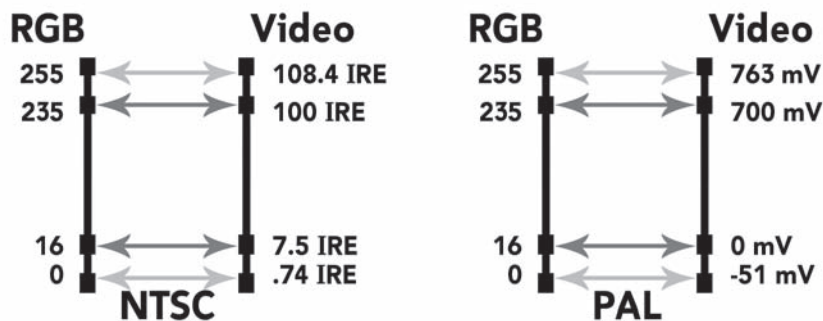
Adobe Photoshop and After Effects both work with RGB mapping.

RGB mapping assumes that video black (NTSC 7.5 IRE, PAL 0 mV) is assigned a value of 0, and video white (NTSC 100 IRE, PAL 700 mV) a value of 255. If you import or export video from your edit system as RGB, signals above or below this range will be clipped.

The ITU-R BT.601 digital video standard (commonly referred to as 601 mapping) does not handle black and white as absolutes. It is allowable to go above "white "and below "black." One reason for this is superblack, which places a darker black in areas that are meant to be luma keyed. Many hardware-based switchers will use a luma key, instead of tying up two channels of a still store to use the fill and alpha matte. Video cameras also allow a photographer to shoot beyond 100 IRE, giving the user some overshoot in the captured signal, which can be corrected during editing or playback.

601 mapping specifies that video black (NTSC 7.5 IRE, PAL 0 mV) is assigned a value of 16, and video white (NTSC 100 IRE, PAL 700 mV) a value of 235. This allows for reasonable footroom and headroom in the signal.

When importing or exporting your frames, it is important to use a consistent color mapping method. Avid, Media 100, Sony Vegas, and many others support the 601 color space. Currently Adobe Premiere and Apple's Final Cut Pro do not. More support across all edit systems is very likely as software-based NLEs improve in quality. Specifying the color method is part of the import dialog box on these systems. To make things easier, I suggest that you add 601 to the file name of those graphics that have been prepared with 601 compliant levels.

When to use RGB levels.

You want to use RGB for exporting frames from your NLE to be used in print, web, or CD-ROM. You also may choose RGB if you plan to modify the image greatly with filters, and then re-import the image.

When to use 601 levels.

If you plan to create graphics that use superblack for keying, export from your NLE as a 601 image, if it is an option. Also, if you are exporting a frame for touch up, such as to paint out a scratch or dropout, export as 601. This will allow you to keep the full color

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range of your video image, thus avoiding color shift when moving between applications. 601 is best used when you intend to export from video, do minor processing on the image, and import the frame back into the timeline.

Luminance and Saturation

The issue of color choice has two issues, broadcast safe and good taste. Many excellent books are available to assist you with color choice. The principles of a color wheel and selecting harmonious colors are worth your time to study. To get you started, I suggest Color Theory, a Photoshop plug-in from Digital Anarchy. Color Theory helps you select color combinations that look good on video.

Unfortunately, video is a limited medium with a limited color palette. You need to learn what colors look good on video and, even more importantly, which colors look good on VHS tapes played back on $59 VCRs. It is a good idea to test your graphics often on a vectorscope and waveform monitor, especially for your first few years of working in Photoshop.

To make things simpler, here's a crash course in building your own "big box of crayons." Here are a few color rules to keep in mind:

- Certain colors do not look good on video. Reds have a tendency to bleed on screen; light yellows look like a dog used your TV as a fire hydrant.
- Oversaturated colors will cause problems. Consumer televisions ship with the saturation and red tones turned up too high. You can't tell the customers that they're wrong (even if their TVs are), so turn down the saturation on bright colors. Muted colors will become more vibrant once they make it out to TVs.
- Avoid extremely dark colors. On video, there is very little difference between indigo, charcoal, and slate. Dark tones tend to gravitate towards black in the viewer's eyes.
- Maintain proper contrast. Some viewers will view your work on black-and-white sets; others may be color-blind. Even those with perfect eyes will have a hard time seeing a difference in grayscale contrast between certain color combinations such as blue and purple or red and green. Print your graphics out in grayscale, tape them on the wall, and stand back 15 feet. Can you read it?
- Avoid "pure" white. It will bloom on screen, making it difficult to read. Use off-white, especially for text. Also stroke the text or add a drop-shadow with a contrasting color.
- Not all graphics need to be full chroma. Using one color—for example, a base blue—with multiple shades, with darker and lighter accents often looks very good. Duotone effects, where
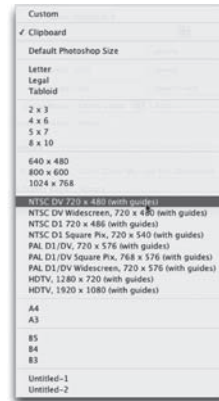
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a grayscale image has a new color mapped to it, often look good as well.

- When in doubt, use the NTSC Colors filter (Filter>Video>NTSC Colors) to check your work. But do not rely on the NTSC color filter to fix problems as it produces visible banding.

Working with Photoshop CS's Presets

Photoshop CS offers nine new presets for building video graphics. These can be picked from a dropdown menu when you create a new document Cmd+N (Ctrl+N). You can access templates NTSC and PAL systems, Standard or Widescreen, and 601, DV/DVD, or HDTV. These templates include non-square pixel support, as well as safe-title overlays. By default they are set to the proper RGB color mode and to the more widely accepted 8-bits per channel mode. You can of course change to 16-bits per channel mode before clicking OK. These templates are a well-deserved addition to Photoshop (especially since it started its life as a tool for touching up video and film frames).

Safe title area

If you put a computer screen next to a television screen, one distinction should stand out. Computer monitors have black borders around the viewable areas, while televisions provide edge-to-edge viewing. On any given television set, up to 10% of the viewable signal is lost because the tube is recessed into a case. This viewable area is called the action safe area. We must move all text elements in an additional 10% (or 20% from the edge.) By placing text within the safe title area, we ensure that it is readable. Unlike Adobe After Effects, Photoshop does not have a safe title area overlay. It is necessary for us to use a template, run an action, or manually create safe title area markers.

Several alternatives to creating a safe title area are available. Here is one method using Photoshop's built-in features: create an action for this item so that you can recall it for later use. There are several steps involved, so if you have a good template, use that. I present this so that if you are ever in a jam, you can build your own safe area overlay document.

We are going to build a safe title document for a D1 system, sized 720 — 540 square pixels. Feel free to pick any video preset

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as this will work for all sized documents.

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Step 1 Create a new document, and pick the 720 X 540 Std. NTSC 601 preset from the dropdown menu. Set the document to RGB mode.

Step 2 Choose Select All by pressing Cmd+A (Ctrl+A). Then, choose Edit>Fill and fill with black.

Step 3 Create a new (empty) layer, and then name it Safe Area Overlay. You should still have an active selection.

Step 4 Scale the active selection to 90% by choosing Select>Transform Selection, and then typing in 90% in the Options bar for width and height. Press Return (Enter).

Step 5 Load a red swatch as the foreground color. Then choose Edit>Stroke and specify four pixels centered. This is the action safe area.

Step 6 Choose Select All by pressing Cmd+A (Ctrl+A), and scale the active selection to 80% by choosing Select>Transform Selection.

Step 7 Type in 80% in the Options bar for width and height. Press Return (Enter).

Step 8 Choose Edit>Stroke and specify four pixels centered. This is the Safe Title Area.

Step 9 Lock the Safe Area Overlay layer by clicking on the Lock icon in the layer's palette.

**Step 10** Save your work.
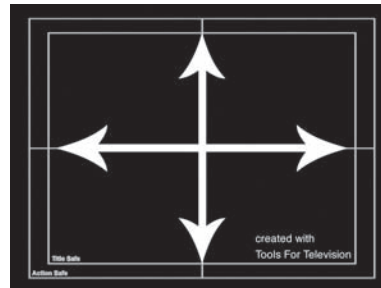
Creating Lower Thirds

Most video editors choose to build their title graphics (or lower thirds) within the title tool of their nonlinear edit system. These built-in character generators are very limited and do not give the precise control over text and graphical elements that Photoshop provides. I recommend that you use Photoshop as a supporting player, or let it assume the role of character generator entirely.

As a supporting player, Photoshop is quite effective at making complex gradients for use in bars. Let's create a lower-third bar from scratch.

Step 1 Create a new video sized document with a safe title guide.

Step 2 Grab the corner and expand the document so that you can see some of the empty space around the canvas. It is a good idea to place a photo or freeze frame in the background for reference purposes.

Step 3 With the Rectangular Marquee tool, draw a box across the lower fifth of the screen. You may choose to have the box extend to the bottom or have it stop around the action safe area.
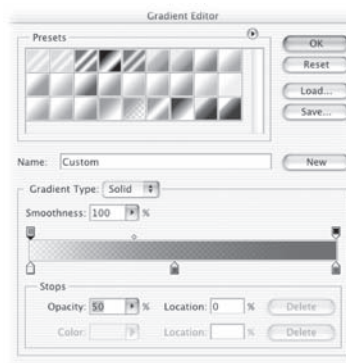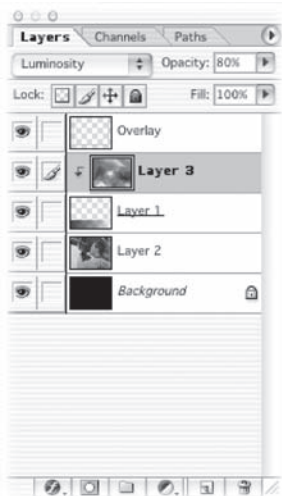
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Step 4 Select the Gradient tool. Click on the gradient in the Options bar to edit the gradient to your choice. You may load gradients from the submenu or create your own from scratch. You may want to adjust the opacity stops for a ramp effect.

Step 5 Draw the gradient within the selection. Experiment with different gradient shapes, as well as point of origin and length of gradient.

Step 6 Deselect the gradient, and apply a Gaussian blur filter on the layer to soften the edge.

Step 7 If you'd like to introduce some texture, place a grayscale photo or pattern directly above the layer and group it with the bar with Cmd+G (Ctrl+G). You may also choose to adjust the blend mode (luminosity works well) and the opacity to achieve the desired effect.

Step 8 Add the logo. If the file is an Adobe Illustrator file, choose Place from the File menu. Otherwise, you can open the document, and copy and paste the logo. Or better yet, just drag it in with the Move tool (V). You may want to use layer styles, such as a drop shadow or glow to offset the logo from the bar.

Step 9 Draw the text block for the name, I recommend using Paragraph text so you have better control over the characters.

Step 10 Duplicate the text layer, shift it down, and modify the text and font. Choose a smaller point size and different font or style for the title, which is generally longer than the name.

Step 11 Apply a contrasting edge effect such as a glow, drop shadow, or stroke.

Creating an Alpha Channel by Targeted Flattening

When you are ready to save for your NLE, you must save the composition out as a flattened file (generally PICT or TARGA) with an alpha channel. There are several approaches to flattening a file. Targeted flattening, introduced in Chapter 4, is one technique that works well.

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Step 1 Turn off all elements you do not want flattened (including the background or placement image). Create a new (empty layer) and highlight it.

Step 2 While holding down the Option (Alt) key, choose Merge Visible. All layers are now flattened to a single layer.

Step 3 Turn this layer off by clicking on the Eye icon.

Step 4 Hold down the Cmd (Ctrl) key and click on the layer name in the layer's palette. The marching ants should encircle the layer.

Step 5 Switch to the Channels palette and click on the Save Selection as Channel button. Choose Save As from the file menu and Save A Copy as a PICT or TARGA with an alpha channel included.

Step 6 If you have multiple titles, discard the alpha channel (NLEs get confused if there are multiple alpha channels) and repeat for each lower third.

While this process may seem time consuming, you'll become quick at it with a little practice. The quality you can achieve is superior to any standalone character generator or built-in title tool. The time-savings really add up for multiple titles. Remember to always save a layered file so that you can make changes.

Color Correction: How to Get It Right

When working in Photoshop, the most common type of color correction you will need to perform is scene-to-scene correction. That is to say, you will need to bring a variety of shots, from a variety of sources, closer together. They will need to seem as if the same photographer shot them under similar lighting conditions. This is an extremely challenging task if you consider the likelihood that you will pull images from several different stock libraries, client-provided sources, and video frame grabs.
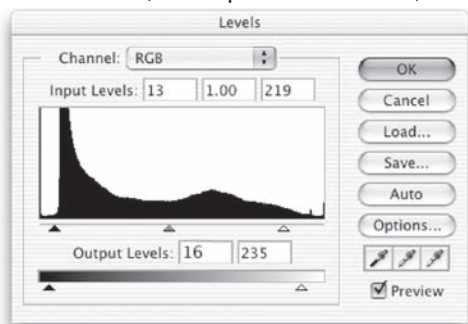
The key when starting out is to work on a copy of the image. This way you always have a copy to return to if something goes wrong. Open the image in question, then choose File>Save As, and give the corrected version a new name. In fact, this is always a good idea. Image correction is often destructive editing, meaning that you cannot revert to the original state at a later date. Once the modified file is closed and saved, you lose

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the ability for multiple undos. By preserving an original version, or employing adjustment layers, non-destructive editing is possible.

Levels

There's a very good reason this image adjustment comes first in the menu. You will need to make a Levels adjustment on every image. The Levels command allows you to correct tonal ranges and color-balance issues. That is to say, that you can fix poor exposure and adjust your white and black point. If you understand the need to white balance a video camera, the Levels command will soon make sense.

The key to understanding the Levels adjustment is the histogram. If you can learn to read this graph, it can serve as a visual guide for adjusting the image. To illustrate this powerful command, open up the file Ch8ImageAdjust1. tif. Launch the Levels dialog by choosing Image>Adjust>Levels or by pressing Cmd + L (Ctrl + L). Be sure the Preview box is checked so that you can see your changes update.
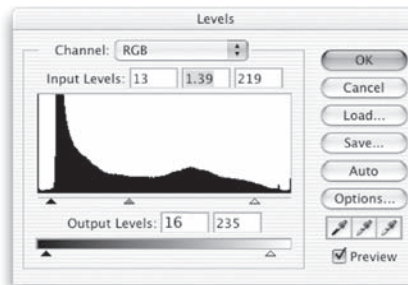
By adjusting the black and white input sliders, you can set the black and white points. Move the slide to the first group of pixels on each end. This will map the pixels to the values set for black and white in the Output levels area. The pixels that fall in between are adjusted proportionally in order to maintain a proper color balance. For this photo, I've adjusted the Input and Output levels to restore some of the missing contrast in the image. While a separate command exists for brightness and contrast, the levels adjustment lets you perform several improvements with one adjustment, thus cutting down on quantization (loss of quality) introduced from multiple image processing steps.
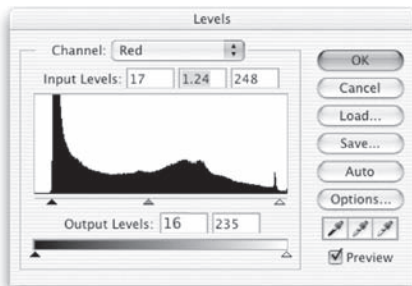
The true power lies in the middle slider. Here you can modify the gamma setting. Effectively, you can use the middle Input slider to change the intensity of the midtones, without making dramatic changes to the highlights and shadows. In a sense, you can better expose the picture, adding or subtracting "light" from the midtones.

This adjustment is critical to creating a continuous flow between images. Levels adjustments do not offer as many precise adjustment points as Curves adjustments, but they are significantly easier to perform, and they generally create very good results.

So far you have been making Levels adjustments across all channels evenly. You can

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choose to isolate your corrections to a specific channel by clicking on the dropdown list. This can be used to remove colorcast issues, such as spill from a background or a photo shot under colored lighting. In this particular example, I switched to the Red channel to make adjustments to the skin tones. You can automate this process a bit by using the eyedroppers. Use the black or white eyedroppers to click on an area to define its target color. For example, if you have a blue cast, clicking on a white area with the Set White Point eyedropper will remove the blue cast from the image.
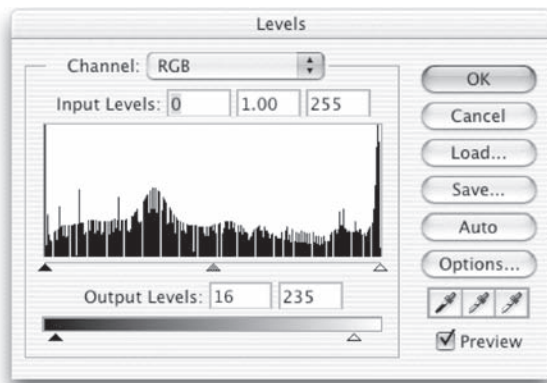
Broadcast-Safe Color Concerns

Whenever you adjust an image, you have to be concerned about modifying its colors to the point where they are no longer "broadcast safe." Even if you have a video frame grab that was legal, any of the previous image adjustments could push its white levels too high or blacks too low.

The key is to adjust the output levels to pull things into the 16–235 broadcast safe range. In doing so, however, you don't want to overdo it, so you must monitor the adjustment. By placing targets using the Color Sampler tool (stored in the same well as the Eyedropper and Measure tools), you can monitor the values of white and black.

In the example, I have placed targets on the clouds (for white) and the deepest shadows (for black). In the Info palette, it is clear that these colors are out of the safe range.

Add a Levels adjustment layer and set the output levels to 16 and 235. The colors are now in the safe range. You can leave the adjustment layer floating and modify it at any time within Photoshop.

Converting Channels into Masks

Sculptors often say that the figures are already in the stone; they just release them. The same is often true with alpha channels. Look at each channel independently until you find the ones with highest contrast. We will use an advanced procedure called Calculations to combine two channels into a new channel, which will function as the alpha. Depending on the source photo, you
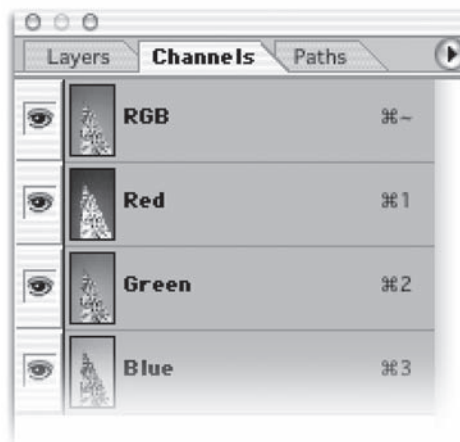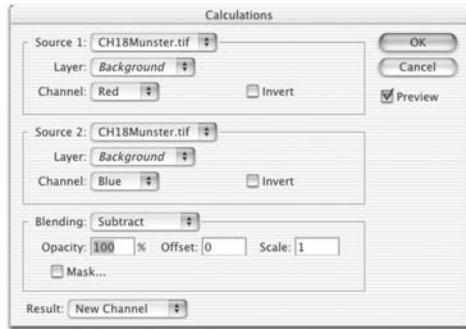
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will generate anything from a perfect mask to a great start.

Step 1 Open up the image you want to create a matte from.

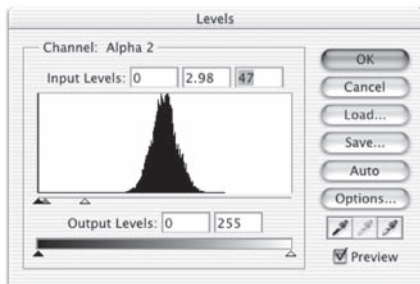**Step 2** Call up the Channels palette and look for the highest contrast-ing channels. Because you want to remove the background, look for the highest contrast between foreground and background. The red channel should stand out the most.

We will now use an advanced com-mand to merge channels together. Before Photoshop had layers, it had calculations. The name scares most people off—math is not a favor-ite course at most journalism and art schools. Relax. The computer does the math. All you have to do is enable the Preview function and tweak a few dropdown menus. This feature is designed to combine channels from the same document or documents of an identical size.

Step 3 Call up the Calculations command from the Image menu. Make sure the Preview box is active.

Step 4 You can now combine the red, blue, green, or grayscale compos-ite channels to form a new channel. With this image, use the red channel as your first source.
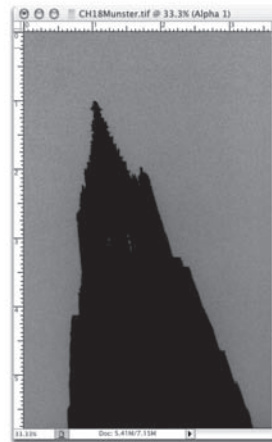
Step 5 Combine it with the blue channel, using the Subtract blending mode. The resulting image should show a high-contrast image, a dark shape for the church tower, and a gray image for the sky.

Step 6 Click OK and generate the new alpha channel.

Step 7 Now make a Levels adjustment to clean up the matte. You want a high-contrast black-and-white matte. Adjust the midpoint and white point until a clean matte is generated.
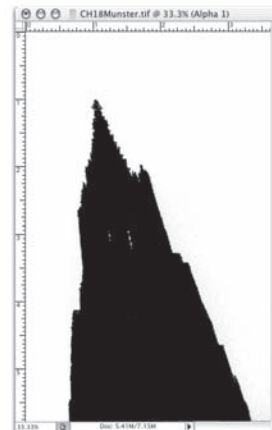
notes

Preserving Flexibility

While done is a four-letter word you like, it frequently leads to several others you may not want your mother to hear. Thanks to nonlinear editing and the Internet, nothing is ever done. It is always subject to tweaks, revisions, and repurposing. If you cut corners in the design and archiving stages, you will regret it later.

Never flatten your Photoshop Design files. Create a second copy for Production purposes, or use the Save A Copy feature mentioned earlier. Chances are you archive your source tapes, project files, and EDLs for your video programs, not just the finished master. For the same reasons, you must save your Photoshop layered files.

- Thanks to adjustment layers, several of the image adjustments and filters previously used can now be applied to the layered file.
- Additionally, you can apply effects to a layer filled with 50% gray; this can then be blended with layers below it, providing an AE-style adjustment layer.
- Lastly, use the Copy Merged command to Flatten Visible Layers to an intermediate copy. This will allow several filter and blend mode combinations.
- Change the way you work, and it won't be as much work to make changes.

Want to keep in touch?

The Creative Cow website (http://www.creativecow.net) offers several free forums and tutorials. With a distinct slant towards video professionals, the Photoshop/Illustrator forum offers a great place to look for ideas or troubleshooting advice.