

# Creating publishable pictures from video

Stephen Johnson Copyrightimage Ltd

**Production companies can with greater confidence start using stills taken from their video assets in a wider range of print and web stills applications than has been the case in the past.**

Grabs from video can be used to increase the visibility of a production in the print media, as well as web and other screen based uses. Uses include PR, Promotion, sales of products (books, calendars etc). In this way they extend the value and assets obtained from a production.

A series of grabs from a filmed sequence (such as an animal chase) offers greater visual communication opportunities than a single image from a stills

**To work well and work efficiently the production of stills grabs need to be incorporated into the standard production process as an important element and not done adhoc as an afterthought.**

Key to Stills grab image quality is care taken over image quality, colour management and grading of the “Master Files”.

It's not enough to just export a grab from a sequence and send it off for someone to use, without colour management, considered adjustments or sharpening as the results will disappoint.

Imaging standards already exist in the stills production world and it is sensible to meet them.

Best practice for workflow would be to work on each image just once and produce a retouched “Master tiff” that is the definitive version of the image (16bit, Adobe 1998 colour space, no sharpening). This “Master Tiff” must originate from a full res full quality grab taken from the Camera file and not from a low res editing proxy.

The derivative files for delivery to clients can then be made (either automatically or in a considered way) to produce files for print uses: 8bit sharpened tiffs for print (RGB or CMYK or both) and files for screen uses (High quality jpegs in the sRGB colour space).

I have broken the talk down into the following areas to cover best practice:

1. Image quality of capture
2. Obtaining frame grabs
3. Grading and retouching to enhance the image quality
4. Preparing deliverables from the Master files

## 1. Image Quality:

With care HD and (more easily) 4k+ video frame grabs can be used in quality repro and other stills screen uses and the larger captures can start to be compared with some stills cameras in terms of image quality.

In my findings and all things being equal (lens quality, iso, exposure) 4k+ grabs can be comparable to a mid range quality compact camera of equivalent Megapixel count (or higher). A 20mp+ professional stills camera will still deliver more detail than a 4k-6k grab (I have yet to see an 8k grab so cannot comment). Improvements in video

camera technology may close this gap in the future. Don't abandon Stills cameras from a production just yet, these will still be needed for the "hero" images that can be used poster size.

A key component of absolute image quality is the question of shutter speed, a shutter of 1/50, 1/60 or even 1/120 on a video camera will cause a reduction of resolution due to motion blur on each frame when the camera is panned or moved, it's hard to get around this. (The exception being higher shutter speeds used when filming at a high frame rate for better slow motion).

For most shots its usually possible to "peck" through footage a frame at a time and find a frame that either has no or minimal motion blur compared to the rest.

Assuming a good grab let's see what we can do with each frame in terms of repro size:

### The Magic Repro Standard 300dpi (150 line screen)

	Camera	Pixel count		Megapixels	Print size @ 300dpi	
		width	height		inches	mm
<b>Video</b>	SD NTSC	720	x 480	0.35	2.40" x 1.60"	61 x 41
	SD Pal	720	x 576	0.41	2.40" x 1.92"	61 x 49
	HD	1920	x 1080	2.07	6.40" x 3.60"	163 x 91
	UHD	3840	x 2160	8.29	12.80" x 7.20"	325 x 183
	4k	4096	x 2160	8.85	13.65" x 7.20"	347 x 183
	5k	5120	x 2880	14.75	17.07" x 9.60"	433 x 244
	6k	6144	x 3160	19.42	20.48" x 10.53"	520 x 268
	8k	7680	x 4320	33.18	25.60" x 14.40"	650 x 366

<b>Stills</b>	Canon 1Ds	4064	x 2704	10.99	13.55" x 9.01"	344 x 229
	Canon 5D MKIII	5760	x 3840	22.12	19.20" x 12.80"	488 x 325
	Nikon 800e/ 810	7360	x 4912	36.15	24.53" x 16.37"	623 x 416
	Canon 5Ds / sr	8688	x 5792	50.32	28.96" x 19.31"	736 x 490

Repro	Size	width	height	Megapixels required	Page size	
<b>(Europe)</b>	A3 Double page spread	4961	x 3508	17.40	16.50" x 11.70"	297 x 420
	A4 Full page	2481	x 3508	8.70	8.30" x 11.70"	210 x 297
	A5 Half Page	2481	x 1754	4.35	8.30" x 5.80"	148 x 210
	A6 Quarter page	1241	x 1754	2.18	5.80" x 4.10"	105 x 148
<b>(US)</b> eg. Scientific American Magazine	Double page spread	4800	x 3150	15.12	10.50" x 16"	
	Full page	2400	x 3150	7.56	8" x 10.5"	
	Half page	2400	x 1575	3.78	5.25" x 8"	
	Quarter page	1575	x 1200	1.89	5.25" x 4"	

**Final repro quality depends on the actual image quality, a poor quality image will always look poor!**

"a picture is only as good as it looks" - Stephen Johnson

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## 2. Obtaining frame grabs:

The method of exporting a still image differs for each NLE, these are the generic requirements for obtaining a stills file:

1. Ensure you're working with the original full res footage, do not take stills from lower res proxies.
2. If you are supplying grabs to be retouched out of house (eg: [www.copyrightimage.co.uk](http://www.copyrightimage.co.uk)) and use RED cameras, consider exporting the frame as a single R3D file. If possible, grade or rough grade the file to the desired look.
3. 16bit colour depth – don't choose 8bit if offered. Sometimes 8 bit is defined as 24bit colour and 16bit referred to as 48bit colour (ie all 3 colour channels combined) in cases such as these choose 48bit colour
4. If exporting graded or rough graded tiffs ensure there is no clipping, a slightly flat look can be corrected in Photoshop but lost highlight or shadow detail is much harder to recover.
5. Some NLEs offer different qualities of export, in this case use the highest possible quality setting.
6. Do not apply sharpening of any kind to the exported file, if you have applied sharpening to the footage beforehand switch it off whilst taking the grab.
7. Colour space is problematic, RAW exported frames can contain camera metadata that enables choice of colour space for the render later. A single frame R3D file gives the most possible options.

Once rendered to Tiff I have found that sometimes the colour space profile of the file is not embedded in the image and the file will either open in Photoshop with a missing profile warning or just open up in the default colour space if the missing colour profile warning is turned off.

In the case of a missing profile the best you can do is open the image without colour management and use Edit: Assign colour profile in Photoshop and choose the colour space that works best for the image (sRGB or Adobe 1998 are the first ones to try)

Sometime a colour space is embedded but it turns out to be the monitor colour profile and not the colour space defined in the NLE. (oops!)

If the file has been assigned a colour profile other than Adobe 1998 or has a monitor profile then the next step is to convert the file to Adobe 1998 (In Photoshop: Edit: convert to profile and select Adobe 1998 as the destination.

Colour spaces and colour management workflow in video is more varied and can be more complex than in the stills world, developments are happening fast (eg HDR) and colour management advice could well change so be sure to refer to [www.copyrightimage.co.uk](http://www.copyrightimage.co.uk) for any updates.

If you're shooting mpeg you may find the colour space can be defined on the camera, common colour spaces on GoPro and other cameras can be Rec709 or sRGB, let's just hope the shadows or highlights are not clipped...

### 3. Retouching

Once the image is in tiff form with the Adobe 1998 colour space and having 16Bits colour depth the image can be considered as the source of a Master Tiff and be retouched to produce one. A retouched Master Tiff differs from the original grab file by being an optimised (colour/tone/detail) version.

#### **Image Series rather than single images:**

If you are working on a series of related images you may want to open them all together in Photoshop and if careful colour and tone matching is required that you apply each stage of the adjustment to each image in turn and use Photoshop window stacking to keep track of images and how they look in relation to each other.

Image series are one of the extended possibilities in this new era and you don't want a series of unevenly graded images to distract from the "story".

Ideally any major cast or tonal problem was rectified at the RAW stage in the NLE but if that is not the case then the Adobe Camera Raw filter can be used to set a white point from which it is then possible to adjust the shadows, midtones and highlights using a combination of sliders and the curves dialog.

The intention of this first grade is to get the image more or less in place colour and tonal wise with perhaps a slightly low contrast look – contrast can be improved gradually as the image is worked on locally.

If the image has a wide tonal range with problematic dark areas and highlight areas its best to work locally on them using either quick masks or layers to correct the balance.

In theory (and with a large budget) its best to work on colour and tone using non-destructive adjustment layers. Adjustment layers are great for adjusting when you're not sure of the direction the image needs to travel to "look right" then adjustment layers are a possibility.

In the real world (and by the advantage of working in 16bit) I find it possible to meet the quality of an adjustment layer based workflow by working in 16 bits and travelling in the direction from a lower contrast grab to an optimised contrast master by never reversing direction in tonal control and by a holistic understanding of where the image "is" and where it "needs" to be.

Shadows can be lightened using curves or shadow recovery (in moderate amounts). Highlight detail can be strengthened by darkening the higher midtones using curves or the highlight recovery tool (in moderate amounts). By limiting adjustment to just the shadow or highlight it prevents the adjustment from causing the rest of the image to go flat.

#### **Noise reduction:**

If the image has excessive noise (mostly visible in out of focus mid tone areas) then duplicate the image to a new layer and run a noise reduction filter on it (At copyrightimage I use the dedicated filter Neat image ([www.neatimage.com](http://www.neatimage.com)) rather than the Adobe denoise filter as Neatimage has superior noise reduction that can retain more detail when reducing noise.

You can then add a black layer mask to this reduced noise layer and using a white brush paint on the mask to allow the reduced noise image through. Often you will find that you can paint through the noise reduction just to the out of focus or really noisy areas leaving the noise intact in the detailed areas where the noise can act as a proxy to detail (eg foliage or fur).

Check the image at 100% view and adjust the mask as required before flattening the image.

### Specialist sharpening:

The general rule is **not** to apply any sharpening to the Master Tiff, sharpening is to be applied later to “delivery files” derived from the Master tiffs

The exception to applying sharpening to Master Tiffs is if there is movement blur (or sometimes out of focus areas) that would benefit from the Shake reduction filter in Photoshop, it’s important that this specialist sharpening be incorporated into the Master as otherwise results will differ or have to be applied to multiple delivery files which is not a good or efficient workflow.

Any shake reduction must be applied sparingly and preferably through a mask to the specific area that needs the treatment, running anti shake on a whole image is generally not done unless the whole image is shaken.

It’s important to remove any artefacts from a deshaken area, this may include black or white halos around high contrast edges, use the layer mask to brush through the original image and thence remove the artefact.

Once Retouching is complete the file can be saved to a Master Tiffs folder (and backed up).

## 4. Preparing deliverables

Just as in the same way you wouldn’t deliver a series of edited together RED files to a broadcast client you wouldn’t want to send out your Master images either.

Instead the **16 bit Master** becomes the source file for a series of cascading deliverables. Commonly I supply my clients with the following:

1. Master Tiff file in the Adobe 1998 colour space with generally no sharpening applied. Specialist motion blur or large radius (eg under sea images) sharpening may be applied if it is better to do so.
2. Delivery Tiff, 8bit, Adobe 1998 colour space with sharpening
3. Quality 10 Jpg or 8 bit tiff files in the sRGB colour space with moderate sharpening for PR web/print distribution
4. Optional: Generic CMYK file based on the likely printing location (US/Japan/Europe)
5. With some clients I will be working to a specific brief for a named book or publication. In these cases, I will make a manually produced CMYK file that is sized to its usage size on the page @300dpi and sharpened for this specific use.
6. It is possible to automate the production of deliverable files using Photoshop actions or Lightroom presets.

### A note about CMYK:

It’s important to note that if you’re unsure where a CMYK file is going to be used/printed then its best to provide an RGB file and let the origination house for the publication make the CMYK separations.

In any case the responsibility of producing a CMYK file will mean taking ownership of the proofs signing stage of any publication process – signing a proof means you’re happy with the result and the onus is on the printer to match the proof.

If the origination house is different from the printer, then this can become complex. Providing RGB files in this case may be a better option but reduces your control of the image. The world is full of compromises but its best to play safe, if you’re not comfortable that the chain is strong enough connecting you, the repro house and the printer when providing CMYK then **send RGB**.

At the very least and at a minimum you should be providing your PR department with a jpeg in the sRGB colour space and tagged as such. This at least works well for screen uses (web/social media) as well as print.

If your images contain saturated cyan (blue/green) then an adobe 1998 colour space file will produce a more accurate print (at the expense of looking weak and unsaturated if accidentally used for social media /web uses without conversion to sRGB)

My preferred option is to provide 2 folders to end users, a “print” folder containing a sharpened Adobe 1998 full res file (tiff or jpeg) and a web folder containing a 2000 pixel sRGB image for web and social media uses.

### **Managing images**

I respect the filenames of images clients send me and I do not change them. If your organization already has a naming convention (perhaps based on frame metadata) then it’s safe to let the still inherit this structure as it will aid tracing a still back to the footage it came from

Still frames may be registered using your Digital Asset management system, but if not a low cost way of keeping tabs on a dedicated Master collection of images is to use Adobe Lightroom.

Lightroom itself will not be able to handle or produce CMYK files but it is a quick way of managing Master Files and even producing RGB deliverable files from them.

### **Finally:**

I hope you have found this useful. If you have any queries or would like to use my services, then please get in touch with me directly:

### **Services:**

**Colour grading and retouching Stills and Grabs to repro standard**

**Training in image workflow and retouching**

**Technical advice**

**Quality control**

**Managing image collections**

**Sanity checking projects.**

**Blue Sky thinking.**

If you are a software company, manufacturer or supplier in the digital video world and would like my help or cooperation in improving your software or products in the direction of easier and better stills production then please feel free to get in touch.

Stephen Johnson

Copyrightimage Ltd  
[www.copyrightimage.co.uk](http://www.copyrightimage.co.uk)

[Stephen@copyrightimage.co.uk](mailto:Stephen@copyrightimage.co.uk)

01263 825277  
07776 448621

From outside the UK:

Landline +44 1263 825277  
Mobile +44 7776 448621