



MAGIC CAMERA SCRUBBING NOTES

Sometimes stuff ends up in your footage that you just don't want there. Wouldn't it be nice to fix just one element in a shot without reshooting the whole thing? Whether it's a C-stand or a competitors logo, here are a few notes on what kinds of footage can be fixed and things to consider in the process.

What files do you need to work with?

We can work with almost any footage format; your best bet is the highest resolution source available. ProRes 4444 works great.

Scrub before or after color grade?

We can do either, it's a chicken / egg issue and depends on your process. If we scrub footage before color grade then any changes to the scrubbing after grading will require another pass through color correction, but any changes to color grading will not require another pass through scrubbing. Conversely if we scrub after color grading then changes to scrubbing can happen without going back through correction, but changes to the color grade will require some rework in the scrubbing.

What if framing changes in the cleaned shot?

Some removal techniques can be resized meaning a reframed shot will not require a full redo, but others cannot be adjusted and would have to be redone if anything changes in the source. For this reason, we recommend that scrubbing happen in the full frame source file and any cropping or post camera moves are done on top of the scrubbed footage. This gives the editor the ability to change framing and apply post effects without requiring a potentially expensive redo on the scrubbing.

How much time will it take?

That's a trick question! Here are a few factors that affect the difficulty of scrubbing:

Duration: this one is self-explanatory – more frames to scrub mean more time.

Surface: A firm / stable / flat surface is quicker to change than flexing fabric.

Lighting: Shifting shadows falling across the scrubbed surface or moving from shade to light increases complexity.

Object motion: Is the scrubbed object moving, i.e. a license plate on a moving vehicle.

Camera moves: A still frame with no movement is simplest, a moving camera is trickier and a camera moving dramatically in 3d space is much more complicated, especially with motion blur & depth of field.

So a flat sign in a locked off shot with steady light is much quicker to change than a waving fabric surface in shifting shadow with objects moving in and out of the foreground.



WORKFLOW EXAMPLES

If you have original footage at 4k and are delivering the finished video at HD and a 4x5 crop here are a few possible workflows with pros and cons:

1. *Scrubbing on original 4k shots without color correction.*

PROS: Gives you the most flexible scrubbed source for conforming. If you're going to be producing a 9x16 version or anything that uses different framing from your HD 16x9 this will save having to scrub versions of the same shot twice.

CONS: If anything changes in scrubbing after the color correct has been done it will need to be regraded. Usually this is simply running it back through the color correction that was already done and wouldn't require additional correction, but talk to your color grader about their process before you rely on that.

2. *Scrubbing on color corrected 4k shots.*

PROS: Same advantages for versioning and framing as above, but after scrubbing footage is 'client ready' since it's already graded.

CONS: If anything changes in the color correct it will require an update to the scrubbing. This can either be a minor update or a complete redo since removing anything in footage involves matching the look of the footage.

3. *Scrubbing on conformed color corrected HD outputs.*

PROS: If your video is finished, color corrected and client approved other than the scrubbing this can be the fastest option. It means no time is spent scrubbing elements that end up out of frame or edited out.

CONS: The least flexible for any changes. If you have any formats that are not a crop in of the main version then they will need to be scrubbed separately making more redundant work (i.e 9x16 that are different framing from the 4k source)

RECOMMENDATION

All projects have different needs and constraints around schedule and budget, but our recommendation is to work on the highest available resolution file either before or after color grading giving you the flexibility to change framing and output multiple versions without extra scrubbing work.

Please provide a ProRes 4444 version of the original full-frame shot either trimmed to the edit points or the full shot with notes on which frame numbers cut in and out of the edit. A reference edit is important to see if anything is reframed and out of shot. There's no point spending time scrubbing out something that isn't even in the final framing!



Some examples of cleaned shots, view these in motion at this URL: oxen.at/scrub



A relatively simple scrub – locked off camera on a tripod. There is no motion crossing over in front of the painting that is removed, reducing complexity.



This is trickier – handheld camera moving toward subject, remove flag in background. The low resolution source adds an extra challenge.



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Changing logos on clothing is a challenge, complicated by items coming between the logo and the camera. The locked off camera and steady lighting make this manageable.



Shots with a moving camera, depth of field and a lot of motion between the camera and the scrubbed surface (graffiti removal) can be very time consuming.