Greg Lam

Switching From Video Cameras to DSLRs

You have heard about and, more importantly, have seen the results your peers in the event world have achieved shooting video on video-capable DSLR cameras. You'd love to try out DSLR video production yourself, but you don't know how to go about it. You've heard about the giant leap your work will take when you master DSLR production, but right now you just need to take the practical steps to get started.

The good news is that DSLRs are different when you think in terms of the looks they create versus traditional video cameras. The bad news is that when you take the DSLR plunge and start shooting moving pictures with cameras built for stills, you'll have new issues to worry about that were solved long ago on video cameras.

RECORD TIME

It is well-known to DSLR users and many nonusers alike that one of the biggest issues with using DSLRs for event coverage is the limited record time. The maximum record time is 12–14 minutes. This corresponds to the 4GB file size limit on the recording media, which use a FAT32 file system.

One workaround is to use the camera's HDMI out port to record onto a separate unit, such as to a compact flash recorder, to a hard drive-based direct disk recorder (DDR), or directly to a laptop. Unfortunately, Flash drives and DDR solutions are neither ideal nor inexpensive; they all cost more than $600.

Beyond price, the main problem is that the signal output by the HDMI is not a full 1080p signal—it is both letterboxed and pillarboxed. The effective resolution is closer to 720p, which isn't horrible, but it is definitely not the 1080p signal that is normally recorded by the camera on its regular recording media.

The other problem is that when you plug an external device into the HDMI output of the DSLR, the LCD screen on the DSLR is deactivated. This means that if you're shooting to a compact flash recorder, you are effectively shooting blind. If you're shooting to a laptop, then you may be able to see a preview on the capture software, although there might be a slight delay.

VIEWFINDER AND LCD

Another aspect of DSLR use that makes for a difficult adjustment for videographers is the cameras' lack of electronic viewfinder (EVF). What's more, until the recent release of the Canon 60D, none of the video-capable DSLRs used in the videography community featured an articulating LCD—that is, one that can be rotated or flipped. When shooting with the popular 5D Mark II, EOS 7D, or Rebel T2i in bright daylight, it's difficult to use the LCD screen. A common solution is to add an optical viewfinder to the LCD screen, as this helps to block out the light.

In addition, certain optical viewfinders aid in achieving critical focus as they can offer 2–3 times the magnification of the LCD screen. The most popular, and expensive, optical viewfinder, the Z-finder, is made by Zacuto. There are also versions out by LCDVF and Hoodman.

With a fixed LCD screen, you have to always shoot from right behind the camera, wherever it is positioned. If you're going for a really low shot, you have to lie on the ground; if you're going for a high overhead shot, you need to find yourself a ladder. The way to get around this is by using an


Canon
EOS 7D
CANON ZOOM LENS EF 28-135mm 1:3.5-5.6 IS
CANON INC.
72mm

external monitor, although this does add expense and bulk to your setup. Additionally, when your external HDMI output is in use, the LCD on your camera turns off, which makes switching between the two difficult.

AUDIO

The audio recorded on DSLRs is perhaps the single biggest limitation of shooting video with the cameras. If you're shooting a home movie, the audio is passable. But for a professional shoot, the audio is unacceptable. There are two solutions to this.

The first is to use an external microphone device and plug it straight into the DSLR. This approach has three problems:

1. The connection into the DSLR is a 3.5" mini-jack, not a professional XLR input, and the mini-jack is easy to pull out and damage.

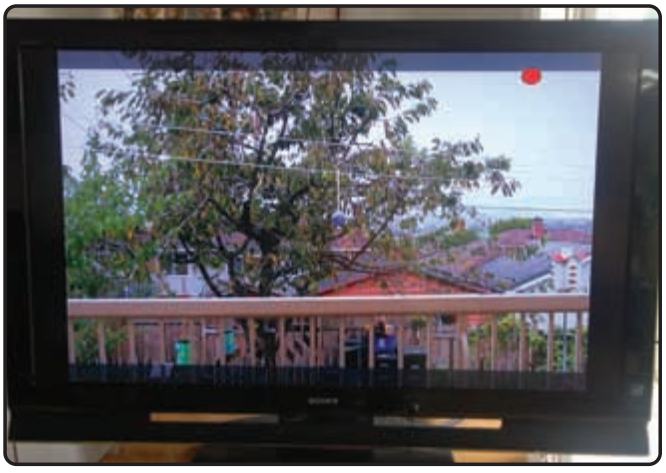
2. When DSLRs first came out, the audio was locked on automatic gain control (AGC). This boosts the background noise in quieter sections and doesn't produce consistent professional results. Recent firmware updates to the 5D Mark II model have included manual audio controls. But at the time of this writing, the 7D and most other models were stuck with AGC.

3. You can't monitor the audio with a pair of headphones.

Now, for some DSLRs, there are firmware upgrades that can add manual audio control and meters to your camera. It must be noted that these are unsupported third-party firmware upgrades, and I've read about complaints of unclean audio even with AGC turned off.

The best way to address the limitations of DSLR audio is to use an external audio recorder. A popular device is the Zoom H4n from Samson Technology. It can record two separate audio inputs at a time, and it features professional XLR and 1/4" inputs. A device such as this allows you to visually monitor and control audio levels as well as monitor the audio on headphones. It also has two onboard microphones of its own, although you will most likely still want to use a properly placed shotgun or lavaliere microphone.

The Canon 5D Mark II, the video-capable DSLR that kicked off the DSLR-based event filmmaking craze



Letterboxed/pillarboxed HDMI output from an EOS 7D: The top is a transparent gray overlay, and there are black pillar boxes.

Canon's new 60D (left) is the first Canon DSLR to feature a camcorder-style articulating LCD screen; previous Canon models such as the 5D Mark II (right) use a fixed LCD, which limits where shooters can position themselves to monitor their shots.

The challenge with using an external audio recording device is resyncing the audio with the video in the editing room. The tried-and-true, low-tech method is to do a clap sync on camera using a slate or your hands, in order to create an easy-to-find audio and video reference point.

The high-tech method is to use software to autosync the footage for you. Singular Software's PluralEyes is a plug-in for Final Cut Pro, Premiere Pro, and Sony Vegas Pro that does the syncing for you. The Final Cut version was the first version out; it can autosync very quickly. The Premiere Pro version officially launched in late summer. The interface to sync with Premiere Pro is a bit clumsier than the Final Cut Pro version because you have to export and import reference files. These extra steps take more time, but once completed, the software automatically does its magic and does a great job of syncing the audio and video files. [*For more detail on using PluralEyes with Sony Vegas Pro, see David McKnight's May 2010 review at http://bit.ly/clkUB0.* —Ed.]

More recently, Singular Software has developed DualEyes, an automatic audio-syncing stand-alone application built specifically for use with DSLRs. DualEyes was still in beta at press time, but you can track its progress at www.singularsoftware.com/dualeyes.html.

The Zacuto Z-Finder optical viewfinder

INTERCHANGEABLE LENS

Like most videographers who have not yet begun or only recently began the transition to DSLRs, I've shot mostly with fixed-lens video cameras, which means that I was stuck with whatever lens came built into the camera. With DSLRs, you can put virtually any lens you want on your camera (although some may require an adapter ring), and there are many to choose from. The benefit of interchangeable lenses is that you can select the ideal lens for almost any situation you run into.

Lens selection and use are topics that could fill a whole series of articles (check out Sara Frances' InFusion series at www.eventdv.net/Authors/4173-Sara-Frances.htm). But here are a few important points to get you started:

- You will have different options for zoom levels, image stabilization, *f*-stop (speed of glass), and quality of glass. Depending on the types of shoots you will be doing, there is a good lens for you.
- The cost of multiple good lenses adds up, and it will most likely cost more than your DSLR camera unless you go with older manual-focus lenses, an adventurous approach that comes with its own learning curve. [*See Chris Watson's June cover story at http://bit.ly/aa8Iyv.* —Ed.]
- Lenses from different manufacturers are not necessarily compatible with one another. In some instances you can buy adapter rings, but some of the functionality can be disabled when doing this, and the lenses may need to be slightly modified to accommodate the adapter. [*Again, see Watson's vintage lens article.* —Ed.)
- Lenses for DSLRs don't have the wide-to-telephoto range that fixed lenses on video cameras do. On my Z7U, my lens ranges from 29.5 mm to 590 mm. A lens like this simply doesn't exist for DSLRs. You have to purchase several lenses to cover this range on a DSLR.

The Zoom H4n four-channel audio recorder

FOCUS

While autofocus is available on DSLR prime lenses, using it during a live shoot is not practical. When you press the autofocus button, it takes a few seconds of focus jogging before the camera finds the focus point. During this time, the image is brightened and darkened repeatedly, and the footage won't be usable for the few seconds it is doing this.

The weak autofocus may actually be a good thing because most professionals manually focus shots anyway.

Canon's EF lens series is only part of the vast range of lens choices for your DSLR.

One very handy feature that I love is the 5x and 10x zoom feature, which makes achieving critical focus much easier. Unfortunately, this feature is usable only when you are not recording.

DEPTH OF FIELD

One of the most compelling and most-talked-about reasons to switch to a DSLR for video is that these cameras allow you to achieve a very shallow depth of field, which has a more filmic look than the everything-in-focus video that is typical on video cameras.

The flip side is that achieving spot-on focus on DSLRs is more challenging, especially with the combination of a low *f*-stop and a high zoom level. In this scenario, the depth of field can be as shallow as a fraction of an inch, so you have to be especially precise with where you locate your focal point.

ZOOM CONTROL

There is no power zoom on DSLRs. There are no rockers or remote zoom controllers. Your zoom is completely controlled on the lens barrel. This means that if, like me, you're used to doing smooth zoom ins or outs using a zoom rocker, you're going to have a difficult time relearning this on a DSLR.

One technique that I have seen used to achieve smooth zooms out is to simply do the move in post. With the HD footage, you can zoom in 10% or 20% without much noticeable quality difference—even more when your video is destined for lower-resolution DVD or web delivery.

ACCESSORY MOUNTS

DSLRs only have one shoe from which you can use to accessorize your rig. If you have an external audio recorder on your shoe mount, there is no room for on-camera wireless lavalieres or lights.

You can buy cages as well as DSLR rigs that will help you stabilize your camera when going handheld. In addition to improving the ergonomics, rigs provide additional accessory mounts. There are a variety of versions available from Redrock Micro, Cinevate, and K-Tek. A disadvantage to the rigs and cages is that they add more money, weight, size, and parts to your DSLR setup.

Cinevate's Medusa DSLR cage

HD EDITING

DSLRs all use the AVCHD codec. This is a resource-intensive codec that requires a fast computer and the right combination of graphics card, operating system, RAM, and software in order to be able to edit the HD AVCHD footage with the same ease that you have become accustomed to with SD footage.

Adobe launched the 64-bit Premiere Pro CS5 earlier this year. I've found that, in addition to offering native support for the codec, CS5 handles my DSLR footage quite smoothly. That said, if you're looking to edit with this software, you're still going to need a solid system to really use the software to its fullest, so expect to pay a few thousand on setting it up.

ISO (GAIN)

If you've never shot still photography, you may not know what ISO is. The simplest way to get your head around ISO is to think of it as gain. Like gain, ISO adds grain and noise to the image the higher it gets. Every time you double the ISO, such as from 100 to 200 and 200 to 400, this adds a stop to your exposure. With gain, every 6 decibels is equal to an *f*-stop.

PEAKING AND ZEBRAS

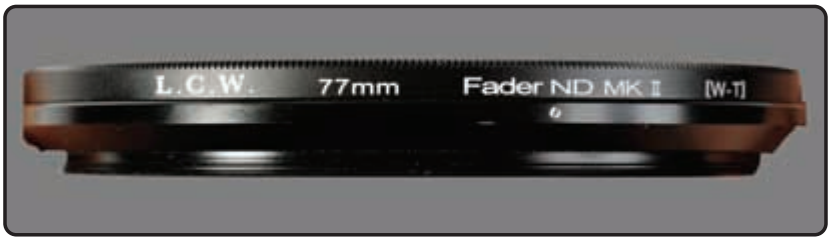
There is no live monitoring of peaking (for focus) and zebras (for exposure) on the LCD. On the 7D you're stuck with these limitations. But if you have a 5D Mark II or the T2i/550D, there is an unofficial firmware upgrade called Magic Lantern that can add zebras and a few other neat tricks.

The DSLRs do have an exposure meter, which acts as an on-camera light meter. If you're not shooting live, there is a way to get a zebra-like effect. You can either view some prerecorded footage in playback mode or take a still photo. The exposed areas will flash black and white. If this is not working for you, make sure to enable "highlight alert" in your menu.

One option for external live video monitoring with peaking comes from Marshall. Using a larger external monitor with peaking is especially useful for rack focus pulling.

ND FILTERS

With a video camera, you're probably accustomed to built-in ND (neutral density) filters. DSLRs don't have built-in filters, so you have to use an external ND filter for bright situations. Your options include screw-on filters, or you can equip a matte box with slide-in ND cards. But I found threaded filters inconvenient, so I use a Fader ND filter from Light Craft Workshop that allows me to rotate the filter to adjust between two and eight stops down. This system saves me the hassle of having to screw on and off individual filters as well as having to own multiple filters.



The Light Craft Workshop Fader ND

The Panasonic AG-AF100, the first "video" camera to feature a 4/3" sensor and interchangeable lenses

NOT AN ALL-IN-ONE DEVICE

The biggest difference I noticed when working with a DSLR is that to get the camera to function like your all-in-one video camera, you have to purchase add-ons that simply wouldn't come into play with a camcorder. Video cameras have been refined over many years to include all the features that professional video producers use on a daily basis, e.g., power zoom, audio control, or a swivel-mounted LCD. DSLRs, while admittedly delivering video imagery that's all-but-unimaginable in a video camera, are designed for photographers, and they function like products that have matured along a photography path rather than a video one.

A DSLR's video capability was initially added on as a bonus to a still camera's capabilities, as opposed to being a part of its core design. This is changing, as Canon and other DSLR makers integrate more video-friendly features with each new model and (where possible) in some of their firmware upgrades. What's more, both Sony and Panasonic have large-sensor and interchangeable-lens video cameras in the works. The first professional model to feature a 4/3" image sensor and lens interchangeability in a video camera design, the Panasonic AG-AF100, was set (at press time) to ship in mid-November with an MSRP of $4,999. In the meantime, you have to live with and work around the limited abilities of the DSLR in order to get the awesome image quality. And if still-image capability is a feature you prize as well—and one you find a way to integrate into your professional offerings—you may find yourself a long-term convert, regardless of what the "4/3" crop of video cameras offers.

Switching to a DSLR has definitely been worth it for me, but I haven't sold off my video camera either. My video camera is still the ideal tool for shooting long-form, audio-intensive projects such as lectures and conferences.

FINAL WORDS OF ADVICE

If you're a good videographer working with video cameras and are unsure about whether you can make the switch to a DSLR, you should be confident that you can learn to use a DSLR and achieve the stunning image quality you see all over the web these days, within the limitations of your own abilities and experience and the environments in which you shoot. In some instances, you'll have to use additional devices to achieve the same results that you did with a video camera, such as an external audio recorder or an optical viewfinder. And even though the cameras themselves are inexpensive in comparison to professional video cameras, I've found that once you add up all the different accessories—especially lenses—it can easily end up doubling your initial investment.

As an added bonus, you'll also be regarded differently by your clients and subjects because the form factor of the DSLR is that of a still camera. I was filming with a DSLR at a wedding recently, and a lot of people would freeze up as soon as I pointed the camera at them, as if I had pressed the Pause button. They were posing for the still photo that I was never going to take. It's quite funny, but it can also become frustrating when you're capturing a gorgeous shot and the people freeze in their tracks and stare at the camera. Maybe being treated like a photographer has a *few* disadvantages after all.

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Comments? Email us at eventdv@infotoday.com, or check the masthead for other ways to contact us.