

How to Shoot Video on your Nikon DSLR

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I have been a photographer for over forty years but until recently was never really interested in video. My current cameras are a Nikon D810 and a Nikon D750 both of which can shoot broadcast quality video. Over the last year I decided to dive-in and start shooting video and this is what I learned.

Shooting video has been an interesting journey; there are several ways in which video is different from still photography and it is difficult to get accurate information on how to set up the camera. Some key issues I will discuss are:

- Even pros will often use auto focus and auto modes for still photography, Videos are shot in full manual.
- Nikon limits video recording on their DSLRs to 20 minutes to avoid paying video camera import tariffs in the European Union, but there is a work around and you get better video at the same time.
- It is very difficult to determine exactly what video cages and accessories fit and work together with your camera, I will describe my specific set up.
- When my camera is in the video cage I can't fit the vertical grip with the extra battery and battery life is an issue. I will tell you how to hook up an external battery pack to the camera (no one seems to know how to do this on the internet).

The basic settings

To-date I have shot all of my video on the D750 although the D810 should be similar (I am typically using the D810 as a still camera at the same time that I am shooting video on the D750).

The D750 can shoot 1080p video at 60, 50, 30, 25 and 24 frames per second (fps) and also 720p at 60 and 50 fps. I always shoot 1080p for best quality; I don't see any reason to shoot 720p unless you have storage space limits. In terms of frame rate, I use 24 fps because I am told it is the most "film like", although honestly I haven't experimented with other fps settings yet.

Once you set the frame rate you want to set the shutter speed to twice the frames rate, so for 24 fps I shoot 1/50 second, for 30 fps you would shoot 1/60 second, etc. In live view I set my aperture and adjust the ISO until I like the picture.

To shoot video there is a switch on the bottom right side of the back of the camera that you switch from the camera symbol to the video symbol, there is also a button in the middle to start live view. Once you are in live view there is a red button up near the shutter button to start and stop recording (you won't use this button with the external recorder described later).

Whatever lens you use you should set it to manual focus, the auto focus doesn't work well for video. Even high-end broadcast cameras are typically manually focused.

In terms of lens I have a 28-300mm f/3.5-5.6 lens I have used several times. The key to this lens is to set the aperture to 5.6 so the aperture doesn't change as you zoom (if you plan to zoom). Rokinon makes a nice and reasonably priced line of manual video lens and I have their 35mm f/1.4 that should be good in low light, I just haven't used it yet. I have also thought about eventually getting their 85mm but so far I have found the 28-300mm lens has worked well for me. With a 1/50 second exposure I have shot

concert video in a pretty dark auditorium and been pretty happy with it so the need for faster lens hasn't been a big deal yet.

Accessories

Now that we have covered the camera basics lets talk about the accessories you will need to get the best results.

- Live view magnifier - The first issue I found is that it is difficult to see well enough in live view to reliably focus (I shot an entire concert out of focus once). Also, when shooting outside in daylight the live view screen is difficult to see at all (same out of focus concert). Zacuto Z-Finder Pro attaches to the back of the camera and gives you an eye piece with 3x magnification of the live view screen. This makes focusing easier and it also blocks out any extraneous light so you can clearly see the screen. The Zacuto has a plate that attaches to the bottom of the camera and holds the Z-Finder up against the live view screen. A couple of thumb screws allows you to easily remove the Z-Finder. Make sure you get the right model for the size view screen you have!
- Microphone – if you want a better microphone than the internal camera mic with better “reach” the Rode VideoMic Pro is a nice compact shotgun mic that works well for video. I had a different mic at first and it was really hard to get the right volume on my recordings. The Rode attaches to the camera flash hot shoe and has a small cord that plugs into the camera. This is fine as long as you don't have any other accessories you want to use at the same time that also mount to the hot shoe.
- Video Light – DSLRs are so good in low light you won't need a lot of light but there are certainly times when you will want to light up your subject. I have a Manfrotto ML360HP light. It is a variable intensity rechargeable LED light. I mount the light on an OrangeTag 1 X 7 Inch Articulating Magic Friction Arm for Hot Shoe Mounts to get it away from the camera and allow me to position it where I want it. Of course the problem this creates is the microphone and light both want to be mounted to the hot shoe. That brings me to the next item.
- Video Cage – this is where deciding what to do gets really frustrating. Finding something that works for your set-up can take a lot of trial and error. I bought an inexpensive Neewer Aluminum Alloy Camera Video Cage, it is actually pretty well made for an inexpensive set up. The camera mounts in the middle and the top rail has a bunch of threaded holes. I bought a bunch of Foto&Tech 1/4" Male to 1/4" Male Threaded Screw Adapters and used them to attach a series of VONOTO Metal Flash Hot Shoe Mount Adapters. This gives me 3 hot shoe mounts so I can mount the mic, video light and one more item all at once. The video cage also has rods at the bottom that can hold a follow focus or matte box. I tried their follow focus but it would fit with my lens.
- Video Recorder – one of the most frustrating things about shooting video on a DSLR is the camera stops recording after 20 minutes. Sure you can restart it right away but during a performance it is really annoying. Also, to store video internally the camera compresses it. The good news is you can work around both of these limitations. Atomos makes the Ninja Blade, a 5" video recorder that attaches to a hot shoe mount (in case you were wondering what I do with the third hot shoe mount on my cage). The Ninja Blade holds a 2.5" hard drive (sold separately) and you stream video out of the D750 using the HDMI port and into the Ninja for recording. The video you stream is higher quality than the video that is stored internally and you can record any video length that will fit on the hard drive. I use a 500GB solid state hard drive (you can use a regular hard drive but they are sensitive to being bumped). I can record over 5 hours of 1080p video on the 500GB hard drive. You can also use the Ninja's 5" HD screen for focusing as well as playing back your video as soon as it is recorded (the Ninja Blade has a really good HD screen). To connect the camera to the Ninja blade you will need an HDMI mini to HDMI cord

approximately 1 foot long (the D750 has an HDMI mini out). The Ninja blade comes with a battery and you can mount two batteries at once for extended shooting. I bought two Sony NP-F970 6300 mAh batteries for the Ninja Blade so long shooting sessions are no problem. I also bought an Atomos Sun Hood for outdoor use. To set up the camera to use the Ninja Blade:

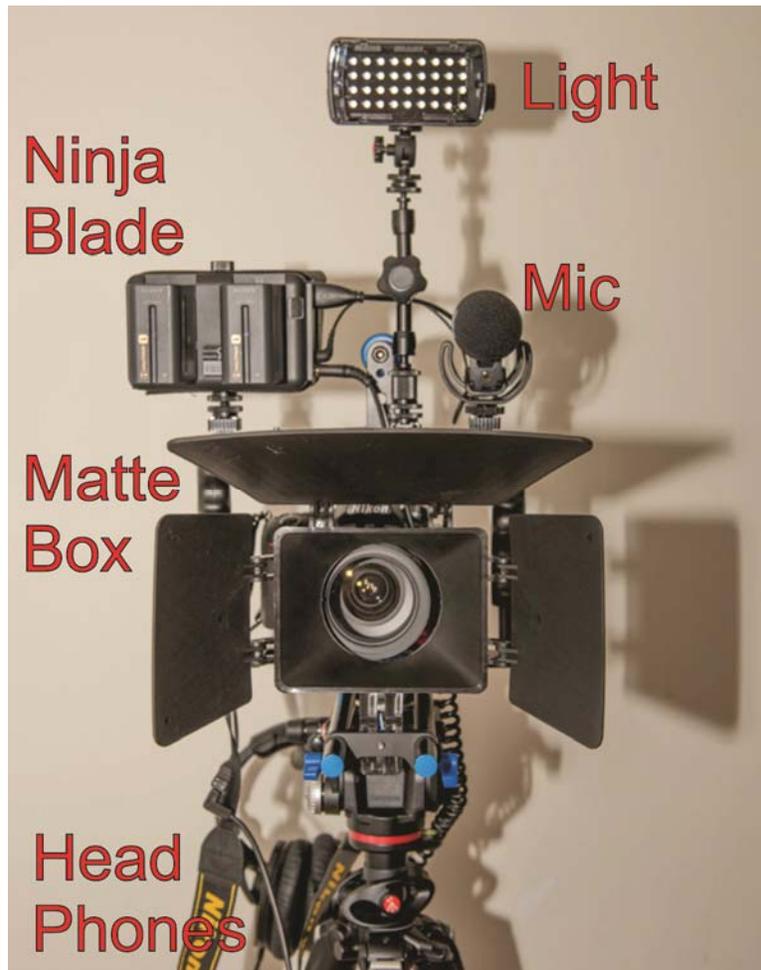
- Setup Menu > HDMI > Output Resolution > Auto
 - Setup Menu > HDMI > Advanced > Output Range > Limit
 - Setup Menu > HDMI > Advanced > Output Display Size > 100%
 - Setup Menu > HDMI > Advanced > Live view on-screen display > Off (this prevents the camera data from being recorded on your video)
 - Custom Settings Menu > c Timers/AE lock > c4 Monitor off delay > Live view > No limit (this keeps the camera from switching out of live view)
- External camera battery – when the camera is in the cage there isn't enough room for a vertical grip with a second battery and I have had the single camera battery die while shooting video. I searched all over the internet and no one seemed to know how to hook up an external battery but I figured it out. You start with a Nikon EP-5B Power Supply Connector that inserts where the battery goes and has a cord that sticks out of the camera through a little door on the camera next to the battery door. This is made so you can hook the camera up to a power supply but I use a battery. I have Quantum Turbo 3 battery pack I use to run a big Flash for events. They make a Quantum Turbo Power Cable for Digital Nikon Cameras (CD100) that can connect the battery pack to the input of the EP-5B. The Turbo 3 is a massive battery pack; I can't imagine the camera ever running it down in a single session.
 - Matte Box – a Matte Box blocks out extraneous light from the lens and attaches to the rods on the cage system. Neewer makes an inexpensive Matte box that works with the cage. I just got this and haven't used it yet so I am not sure how helpful it really is.
 - Head Phones – head phones are useful for monitoring the audio feed you are capturing plus for play back. You want headphones that block out noise around you; I like Sennheiser HD280 pro headphones.
 - Camera bag – I carry all this in a Lowepro Magnum 650 shoulder bag.
 - Tripod – I have a Manfrotto MHXPRO-2W XPRO Fluid Head with Fluidity Selector (Black) I use on my regular photo tripods.
 - Editing – the Ninja Blade comes with a hard drive cradle with a USB cable so you can download files from the hard drive onto a computer. To-date I have used Corel Visual Studio for editing because it is relatively inexpensive and really easy to learn. I do have Adobe Creative Cloud with Premiere but I haven't worked with it yet.

Video Set Up

Following this are some pictures of the whole set up. Typically I wouldn't use all of this at once, for example I have two big batteries on the Ninja Blade and that would only be used for very long sessions. The Matte box is new and I am not sure how much I will really use that especially with the zoom lens where I would likely just use the lens hood. Not shown in the picture is the Turbo Q3 battery pack.

Conclusion

In this article I have described a video set up based on a Nikon D750 that allows several hours of continuous video recording with high audio and video quality. Problems of the 20 minute camera limit and an external camera battery pack are solved. This set up should enable the user to capture high quality in most situations.



Ninja
Blade

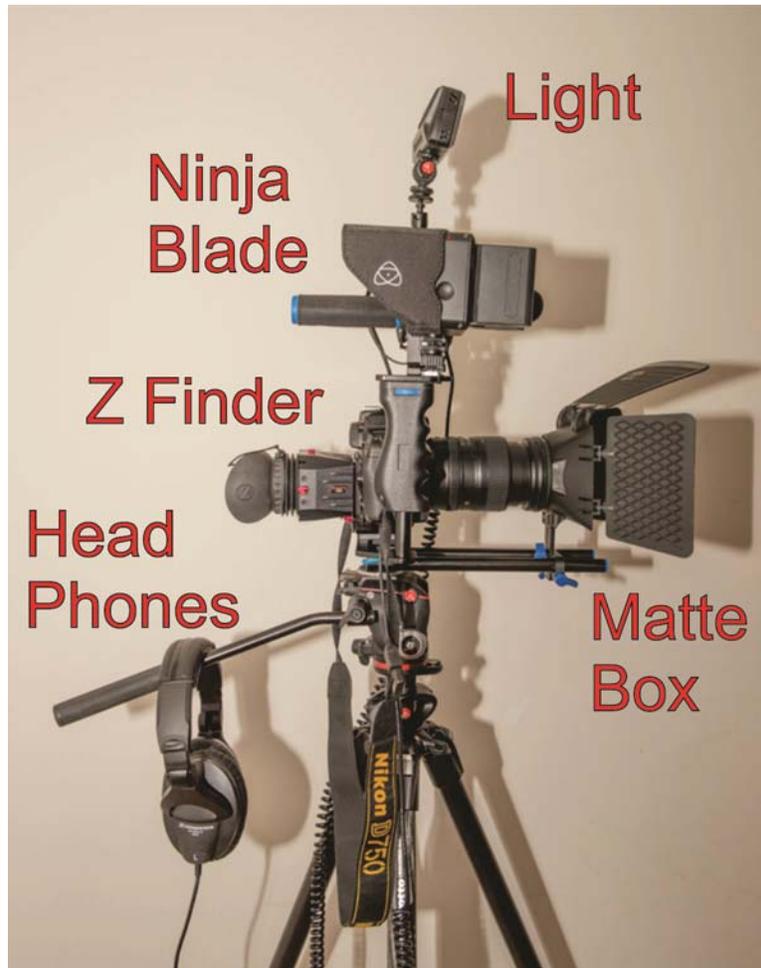
Light

Mic

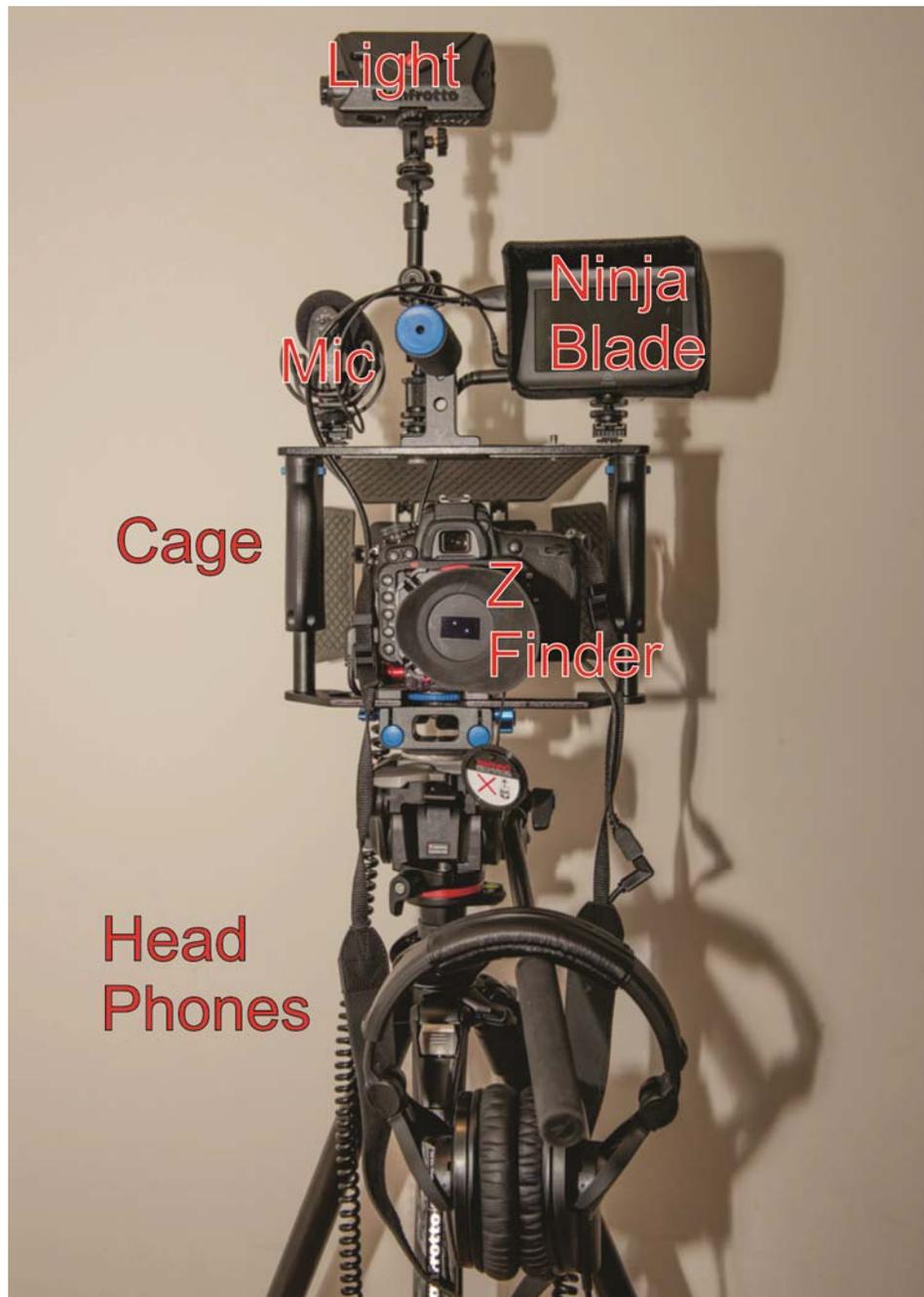
Matte
Box

Head
Phones

Front View of the Video Set Up



Side View of the Video Set Up



Light
Ninja
Blade
Mic
Cage
Z
Finder
Head
Phones

Rear View of the Video Set Up