

# STAR Watch

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*DOUBLE ISSUE*

## *Make Your Own Videos*

### **An Overview of the Process**

Before we can discuss the creation of a video, we need to present a quick overview of the total process in order to understand how things relate to one another.

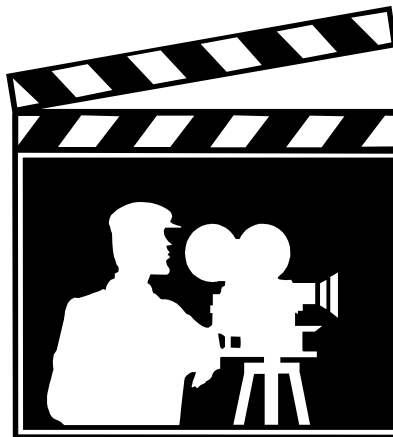
#### **What do you want to do:**

What kind of videos will you be making? Are you creating a training video, interviewing a person of interest, or making a permanent record of a speech by a public figure? Each has its own set of logistical issues that will influence the decisions about what equipment is needed.

Where will you be shooting the videos? If the end-result is to be an interview or training video, you have the ability to choose the location where the "shoot" is to take place and control the lighting, the background noise, and when people start/stop talking. Portability of equipment is not a big issue. If something goes wrong, it can be redone. On the other hand, taping a speech in a public venue gives you almost no control over anything—and the only equipment available to you is the equipment that you were able to lug in. If you need it, and you did not bring it, you have a big problem.

After you create the video, how will you distribute it? There are many formats with

which to share the final product. You could choose to output the final product as a video-tape, DVD, or streaming video from your website. The choice of format will depend on the audience that you are trying to reach and the hardware that you have to create that format.



And finally: While it is important to produce a product that is pleasurable to watch, the three most important criteria for judging its quality are content, content, and content. The reason for the creation of the video should be the information it conveys. People will ignore the minor technical problems in your video if it has substantial informational value. Be sure that you have something to say.

**Get the equipment:** Once the decisions have been made regarding what is to be done, it is time to decide on the equipment to be purchased. Make sure that everything is compatible. This is a big issue between cameras and editing software. Since money does not grow on trees, stick to your budget.



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Keep the quality level of the video equipment consistent. It makes no sense to buy a high-end professional grade video camera and have no money left in the budget to purchase an equally good tripod, lights and microphone. You will have a great camera that is recording jittery, poor quality video that has poor sound.

**Shoot the video:** At a minimum, you must have a video camera. But depending on the quality of final product that you are creating, there are a lot of decisions to be made regarding what kind of camera to purchase, such as where you will be shooting your video, lighting and sound issues.

**Capture the video:** Most video editing packages have a built-in capture feature, but, for reasons that will be discussed later, you might choose to use a stand-alone capture program. In order to turn the raw video footage into the final product that you desire, you will need to capture it and store it on your computer's hard drive in order to manipulate it. Depending on whether the video camera is analog or digital, you will need to make choices about the video capture card that is used. Raw video footage takes up a lot of space—approximately 4 megabytes for every second of footage. You will need a lot of disk space on your computer.

**Edit the video:** Once the raw video footage has been captured to disk, you will need video editing software to take the raw chunks of sight and sound and form them into a watchable, understandable final product. Your choice of video editing software must take into consideration whether your editing computer is Macintosh or PC based, which operating system is running on the computer, and most importantly, the skill level/experience of the person doing the editing.

There are video editing packages in every price range. Starting in the \$50-\$100 range, there are some easy to use products that will

produce acceptable results with little training or experience. If you have no experience, products in this price range will help you to learn the basics of video editing. After working with them for a short time, their limitations will become apparent but you will understand the basics. Consider purchasing a video editor in this price range for "basic training".

A quality video editing package is going to cost at least \$500, probably more like \$1,000+. After you have mastered the basics, these editors will allow you to put together a higher quality product. In this price range, there are two different types of editors. The first type uses the computer's CPU to do all of the processing work. Normally, this type of editor has the lowest incidence of compatibility problems with the computer hardware that it runs on. But in order to create the final edited product, it must plod through all of the raw video frame by frame, pixel by pixel. Depending on the speed of the processor and the demands of the editing software, it can take up to five minutes to "render" one minute of the final video product.

Other video editing software packages are "hardware accelerated". The editor uses the CPU for some operations, but also tries to use the display adapter (video card) or a special adapter card that can be plugged into the computer to offload the work. Most hardware accelerated video editing packages will render the final video in real-time, but with the increase in promised performance comes some issues. The computer still must have a tremendous amount of processing power. Not all display adapters (video cards) can be used by the software. The hardware accelerator cards that plug in to the computer itself do not necessarily work with every computer. Read all that you can about the product on the vendor's web site. Follow all of the vendor's recommendations for computer hardware or the video editor may be totally unusable.

While capturing video uses up a lot of disk space, the edit process can chew up an equally large amount of space—and, it needs a lot of processing horsepower to create the



final product. Consider purchasing a separate computer for video work.

Producing a quality video can be quite rewarding and it is not as scary as it might seem. Like all new ventures, you need some information up front in order to understand what you will be getting into. You need to look out for the pitfalls. Hopefully, this article will help you to get started.

### Tips for Shooting your Video

- Practice Makes Perfect: Practice working with the camcorder and rehearse all of the things you will need to do to make a great video. Do not try to learn how to use the equipment *and* making a video at the same time. Then when editing your video you are stuck with lousy lighting, lousy sound, etc. and no time to do anything about it.
- Shoot a few hours of practice video. Figure out what works and does not work. Practice using the microphone. Practice with various lighting techniques. Practice holding the camera steady. In short--practice!
- Use good sound sources. The VCR's built-in microphone is very convenient but has many inherent liabilities. Because it is far from the subject, it records background noise and the camcorder's motor, in addition to the sound you want. Whenever possible, use an extension microphone or a wireless mike, positioned near the subject. DO NOT rely solely on the microphone mounted on the top of the camcorder!
- Pay attention to lighting. While today's camcorders have excellent low-light capabilities, the quality of the image invariably goes down in lower light. Try to shoot in strong light. Shoot near windows (although be careful about window placement--see below), turn on all the lights, and consider setting up your own lights.



In general, you want lots of light directed on your subject, placing the light source behind the camera and in front of the subject.

- Be careful around windows. DO NOT photograph people or objects in front of windows! During the day the exterior light coming through the window will make your subject appear as a silhouette. During the evening, the window may inadvertently reflect your camera operator's image. In either case, it is best to keep windows behind the camera!
  - In order to save time in post-production editing, try to edit your video "in-camera." Believe it or not, it is possible to shoot a production so that what ends up on the original tape is close to your finished production. This is called "in-camera" editing. While this sounds like a straightforward way to achieve quality results, in practice it is extremely difficult because you must shoot in the production order and each time something goes wrong, you need to carefully position the tape at the end of the previous scene. In-camera editing sometimes interferes with the spontaneity of the action you are taping. However, if you do some in-camera editing, you can eliminate some post-production editing.
- The normal way to shoot a video involves filming as events unfold. When you "shoot to edit," you never back the tape up--you simply re-shoot the scene until you are happy with it. You leave bad scenes and mistakes on the tape, to be removed later in the editing room.

When you shoot to edit, follow these hints to make editing easier later:

- It is a good idea to take notes. When you edit, your notes will tell you which scenes are good, who the players are, etc.



Think of yourself as a story teller. The best videos have a beginning, middle, and end. Make sure you shoot the scenes you will need to tell the story. For instance, if you are traveling, shoot some road signs or wide shots to set the stage, so viewers know where you are.

Leave some room around each scene. Start recording before the action starts and continue recording for a few seconds after the scene is complete. When you edit, this extra room will make it a lot easier to get just the good footage without accidentally picking up footage from neighboring scenes.

Avoid the use of camera fades (fade to white or fade to black). If you will be editing the footage later, it is best to add fades as you edit instead of using camera fades, which cannot be removed or changed later.

Some camcorders permit you to add titles as you shoot. While this is handy, it is often better to skip the titles when shooting and add them while editing instead. Titles recorded while you shoot are there forever and cannot be changed. Separate titlers usually deliver more fonts and sizes and titles of much higher quality than those built into camcorders.

It is also a good idea to turn off the automatic time and date feature since, like camera titles, they are on the scene forever.

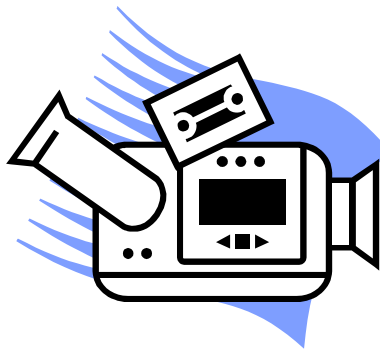
### Equipment

Before we can get into any discussion of equipment, it is absolutely necessary that we discuss one topic first: What is your budget? Is it \$2,000, \$20,000 or somewhere in between? Quality, watchable videos can be produced at both ends of the price

spectrum. It is not the equipment, it is what you do with the equipment.

While everyone will agree that professional grade equipment will produce better results than consumer grade equipment, it is also true that professional grade equipment requires much more of the person operating it. Professional grade equipment has a lot more settings to adjust, and in the hands of an untrained operator, will never live up to its potential. If you are just starting out, stay away from the very high-end professional equipment.

First, decide what your budget level is. At an absolute bare minimum, you could get a good quality consumer-grade digital video camera for \$750 - \$1500, tripod (\$50 - \$100), a single wireless microphone (\$100 - \$150), and an inexpensive video editing package (\$50 - \$100) to run on your current computer. The total cost? \$950 - \$1850. For this amount of money, you could produce simple videos without a tremendous amount of training or experience.



At a more realistic budget level, you could purchase an entry-level professional video camera for \$2,000 - \$4,000, a sturdy tripod (\$150 - \$500), quality wireless microphones (\$250 - \$500 ea.), a lighting system (\$1,000 - \$2,500), a video editing package (\$1,000 - \$2,500) and a stand-alone computer for editing (\$2,500 - \$4,000). For \$6,900 - \$13,000 and a little bit of trial-and-error, you could produce good quality video products.

So, what equipment will you absolutely have to have, what things would be nice, and what things are not worth worrying about?

### Choosing the right camera

Everyone agrees that in order to make a video, you need a video camera. But if you are trying to create a quality product, you



will need more than a *camera*. Regardless of which make and model of camera you choose, it should be digital, not analog. Beyond that, here is a list of features to look for:

- Output video format. The three most common digital output formats are Digital8, MiniDV, and MicroMV tape. All formats hold the same amount of video (~one hour). While both consumer and professional cameras use MiniDV, Digital8 and MicroMV are more commonly used in consumer grade cameras. In addition to these formats, you can also purchase cameras that output directly to a Mini DVD. Unfortunately, MiniDVD format disks can only hold a maximum of twenty-minutes of best quality video and are only available on consumer grade cameras.
- How many chips? Consumer-grade cameras have one chip to do all of the work. Better cameras have two chips: one picks up colors and the other picks up brightness. The best cameras use three chips, one for each of the primary colors. You can expect to pay at least \$2,000 (MSRP) for a three-chip camera.
- Actual video resolution. All things being equal, more pixels are better. But a professional camera that creates one mega-pixel images might have better quality images than a consumer camera that creates two mega-pixel images.
- Light sensitivity. The lower the number, the better. It seems like a contradiction, but professional grade cameras do not function in low light as well as consumer grade cameras. In fact, this spec is not even listed for many professional cameras. A good consumer-grade camera can capture an image at as low as two lux.
- Image stabilization. Even if the camera is mounted on the sturdiest of tripods, it is not always possible to place the tripod on a rock-solid surface. Image stabilization can eliminate or substantially reduce image jitter.
- Optical zoom vs. digital zoom. Most quality cameras have an optical zoom of at least 10x. The optical zoom is accomplished by physically moving the lenses to increase the size of the image. Digital zoom is done by the electronics in the camera. While it is okay to use a small amount of digital zoom, going beyond 20x can degrade the quality of the video image. Many camera manufacturers claim video zoom rates of 150x and beyond. Do not be impressed with the big numbers because you will probably never need to go that high.
- Battery life. If you are shooting your video at a remote location and your batteries run out of juice, it could be a disaster. If you cannot plug the camera into a 110 volt outlet, you are finished. Be sure to find out if the battery life quoted is standby time or actual run time. You will probably need to buy extra batteries. And a battery charger.
- Color viewfinder. Most cameras come with color viewfinders. It really does not matter if the viewfinder is color or black & white. It has no affect on the quality of the captured video.
- Size and weight. Little tiny cameras are easy to carry around, but have controls that are difficult to use because they are so tiny. Additionally, the small mass of the camera makes them susceptible to vibration and jitter. Consumer grade cameras normally weigh less than two pounds. Professional grade cameras start at about 3.5 pounds.
- IEEE 1394 (or DV) in/out. Every digital video camera can output digital video to an IEEE 1394 (also known as Firewire) port. After you have edited your video masterpiece, you may decide to save a copy back to digital tape that can be played in the camera. Most video editing software allows users to output the final product through the Firewire port back to the camera. Almost all digital video cameras sold in the U.S. have this feature.



Other nice features to have on the camera

- Analog video in/out. Do you need to create a VHS tape (remember those?) or convert a VHS tape to digital format? Many cameras can convert analog video to digital and vice versa. Some cameras also have an S-video connection.
- Headphone jack. You need to hear what is being recorded. If microphones are in use, you need to hear what they are picking up.

### Microphones

To get the best sound quality possible, the microphone must be as close to the sound source as possible. Distance allows echoes and background noise to mix in with the desired sound. By definition, the built-in microphone on the camera cannot do the job very well.

There are several types of microphones that can be used depending on the specific need.

- Lavalier microphone. This is a small microphone that can be clipped onto a speaker's clothing 4-6" from the speaker's mouth. A cord runs from the microphone to a battery pack/transmitter. It is the best type of microphone to use when the speaker is moving around, since the distance from the sound source to the microphone remains constant.
- Handheld microphone. This type of microphone works well in situations such as on-the-street interviews where it is not practical to wire up the interviewees. The interviewer controls the sound that the microphone picks up by moving it close to the person who is speaking, then moving it away when they are done. Handheld microphones can also be placed in a table or floor stand for use when the person who is speaking will not be moving around.
- Shotgun microphone. This long, narrow, extremely directional microphone is used to pick up sound that is far away. While it is not the weapon of first choice, it might be the only way to capture a

speech at a large gathering where you cannot get close to the podium.

All of these types of microphones can be wired directly to the "audio in" port on the camera or connected to a wireless transmitter. Both methods have their pros and cons. Wireless units allow the speaker to move around freely, but can be subject to radio interference. In situations where multiple wireless microphones are in use, each microphone/transmitter unit must operate on a separate frequency. Inexpensive wireless units have only a couple frequency choices. High-end units have a dozen or more frequency choices.

Connecting the microphone to the camera by wire is not trouble-free either. First, there is the obvious issue of cable length that limits the distance between the camera and the microphone. Attempting to solve this problem by purchasing longer microphone cords can introduce another problem: As cords get longer, they tend to pick up electrical interference.

And while we are on the topic of microphones, there is one additional issue to be aware of. There is only one "audio in" port on the camera. When using multiple microphones, a mixing board is a necessity. The function of a mixing board is simple: It combines the audio from multiple sources (microphone cords or wireless receivers) into a single audio source. At a minimum, a mixing board will allow the volume from each of the audio sources to be adjusted individually. You can purchase a simple four-channel (can handle up to four audio inputs) mixing board for \$50 –100. Depending on the number of channels and other options, the sky is the limit.

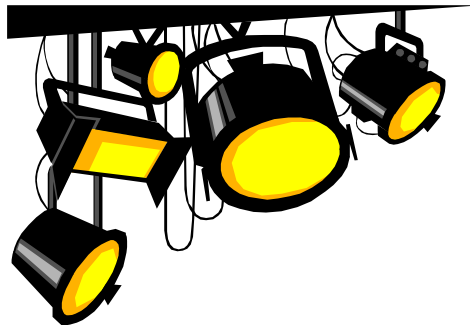
### Lights

As we stated earlier, some video cameras can operate at two lux where there is almost no light. But do not expect the image to be very good. It is generally agreed that 120 lux is the minimum for a video image of



reasonable quality. So how much light is needed to create the best video images? The answer is 2000 lux. That is the brightness of a commercial TV studio or outdoors on a lightly cloudy day.

But brightness is not the whole story. Depending on the type of light source and its placement, the quality of the video image could be enhanced or seriously compromised. While our eyes automatically compensate for differences in the color of the light, video cameras can get very confused. People's faces can look downright creepy when illuminated by more than one type of light. Fluorescent lights are slightly greenish. Standard incandescent lights are more yellow-red. Halogen lights are reddish. Sunlight is more bluish. When taping a presentation, an inexperienced videographer might attempt to flood the room with sunlight (it is very inexpensive) and fill in the shadows with incandescent light. The resulting affect on the appearance of the people in the video will be eerie. The side of their faces illuminated by sunlight will look pallid and ghost-like, while the side illuminated by the incandescent light will appear sunburned. Unless you are an expert and have the necessary colored filters (called gels) to correct the differences, stick to a single type of light.



So what about that little light on the camera? Good enough, right? While that low wattage light on the camera might be better than nothing, that is about all that it is good for.

The best way to light an individual is "3-point lighting" method. Place the strongest light slightly above and to the side of the subject. This will provide most of the lighting and create some shadows. On the opposite side and slightly above, place a soft diffused light. This light will fill in and soften some of the shadows. The third light should be

placed above and behind the subject to create a rim of light around the hair and shoulders. The result is an image that looks more three-dimensional.

Choosing the type of lights to use for a job is only the first hurdle. The next is deciding which kit will meet the needs of the job and be manageable for the crew. The whole purpose behind today's portable light kits is that they provide versatility. They must be flexible enough to allow you to use light in whatever creative ways you need to, and be easy to carry.

Because of the wide range of kits available, each containing a variety of different combinations, it is difficult to identify a true standard. However, most kits on the market today generally include a series of lights and lamps in various wattages, stands, power cords, and an array of accessories, from barn doors to color gels. No matter the specific contents, the most

important feature to look for in any light kit is versatility. More often than not, you will not know exactly what lighting equipment you will need until you have arrived on location and are able to assess the situation. It is essential that a lighting kit offer versatility to accommodate the different situations that may arise.

## Shooting the Video

**What is the plan?** If the resulting product is to be a training video, did someone create the lesson plan? If it is an interview, is there a list of questions to be asked? Where will the video be shot? Does everyone involved know where they should be—and when? Planning is essential to a successful outcome. Depending on the complexity of the project, a plan could be a single 3x5 note card or a 100+ page document. The plan needs to answer the following questions:



What is the purpose of this video project. If you are creating a training video, what are the goals of the training? If this is an interview, what are the topics to discuss with the interviewee? If you cannot clearly define a purpose, maybe the project should not be done.

Who will be involved in the project and what is his/her responsibility. There is an old saying: Everybody's responsibility is nobody's responsibility. People need to know what is expected of them. When issues arise, people need to know who to talk to.

Where will the video be shot. Is the area large enough to contain all of the people involved? Is the location well-lit or will you need supplemental lighting? Is there a lot of background noise to be dealt with? If at all possible, you need to scope out the location before you decide to use it.

When will things happen. You cannot start shooting a training video until you have a lesson plan. People involved in the production will need to be available at the right time.

Releases. It may be necessary to get a signed release form from everyone who appears in your video. Without that release, you might not be able to show your video to your intended audience if the individual in the video has not released the rights to their image, likeness and sound of his/her voice. It might be a good policy to routinely get releases from all persons in the video. The legal issues regarding release forms are beyond the scope of this article.

### Location

Choosing a location for shooting a video is one of the most troublesome issues that a beginning videographer can face. Typically, the neophyte will choose someone's office because the view out the windows is pleasing and the sunlight streaming in seems to sufficiently illuminate the room.

The taping begins and the sun promptly dives behind a cloud. Production ceases while extra lighting is brought in and set up. Production resumes, but the extra lighting is heating up the room. Windows are opened to cool the room, but along with the cooling air, comes the sound of every truck and bus within three blocks. And on it goes.

When shooting a video, you need a location that is totally under your control—or as controllable as you can get. Hopefully, it is a place where light, sound and people cannot enter or leave without your permission. You need a video production studio. But it is very doubtful that any legal services program will be receiving sufficient funding to build a studio for video production any time soon. You will have to pick a location that comes the closest to meeting the following criteria:

- Not on an outside wall. Outside walls have windows that let in uncontrollable light and noise.
- Away from hallways, lobbies and mechanical equipment. They have people and/or noise.
- Plenty of electrical outlets.

### Preparing for the shoot

Okay. You know what you want to do, with whom, where and when. It is time to get started. Unless you have a dedicated location for shooting your video, you will probably have to prepare the location. When shooting starts, there might be a lot of people and equipment in the area. Clear out anything that does not need to be there. Then, set up the chairs tables, podiums, etc. that will be used. Next, set up the cameras, lights, microphones and shoot a couple minutes of test video with the people who will be in the video or stand-ins. Play back the video and look for obvious problems: Is it in focus? Are there shadows on some of the people's faces? Is the sound ok? Is there any background noise? What is in the background of the shot? Is everything ok?





### Actually shooting the video

So how does one actually shoot the video? If you want some good pointers on technique, watch your local news program or one of the many Sunday morning interview programs. Most programs are a textbook case for how to shoot a video. Try to ignore the content of the news stories; concentrate on the camera angles, shots, movements and composition:

Camera shots. The opening image for the newscast is typically a *wide shot*. You see the whole scene including all of the on-camera people for the newscast. This sets the stage and gets the viewer oriented. For this shot, the camera is zoomed out as far as possible.

The next shot tends to focus on one person and shows a lot less of the scene than the wide shot. In this *medium shot*, you see the speaker from the waist up.



The *close up shot* shows the subject from the shoulders up and is used to show detail, such as a person's emotions or a piece of wreckage at the scene of an automobile accident.

*Cutaway shots* (also called *over the shoulder shots*) are short duration shots that take the viewer away from the main action. Whenever a reporter interviews someone, a cutaway shot is inserted to show the reporter nodding understandingly as the interviewee speaks.

Length of shot. Note how long the camera stays fixed on a specific shot. To keep the newscast visually interesting, the shot may change every three seconds. If there is a lot of action in the shot, it may last up to 30-seconds.

Camera angles. During the newscast, note how the camera angle changes. The anchorperson is usually shot at eye-level to create an impression of neutrality or objectivity. Placing a camera below eye-level and shooting up at a subject creates an impression of importance and power for the subject in the shot. The opposite occurs when the camera is placed above the subject. In this high angle shot, the camera looks down on the subject and gives an impression of decreased power, authority or importance. It can also make the subject appear helpless.

Camera movements. *Pan* and *tilt* refer to camera movements left/right and up/down.

Take note of how sparingly it is used. At some point during the newscast, usually during a longer duration shot, the camera will slowly, almost imperceptively *zoom* in on the person speaking. This type of zoom is used to maintain the visual interest of the shot. Sometimes, zoom can be used as a transition between a wide angle shot and a close-up.

Use camera movements carefully and sparingly. Overuse of pans/tilts/zooms can disorient the viewer and induce motion sickness.

Composition and framing. Notice how the news program uses the available space in the shot. Divide the video image into three equal parts both horizontally and vertically. The *rule of thirds* suggests that the center of camera's attention should be in the middle third of the shot. The important action takes place within the middle third of the screen with the following exceptions:

- When someone is talking and he/she is not directly facing the camera, extra space called *talking room* is left in front of them as if space was being left to insert a dialogue box.
- If a person is in motion in the shot, extra space or *walking room* is left in front of them to provide space from them to walk into.



Placing people in the shot. Pay special attention to the way people are arranged in a shot. Except for close up shots, people do not face the camera directly. Usually, the position their bodies is at a 30-45 degree angle to the camera. When attempting to make two people appear adversarial, they are seated so that they face each other directly. If three or more people are in a shot, their heads are never at the same height.

Whew. That is a lot of do's and don'ts. After you have studied the camera techniques of a couple programs to note how they were following the principles of good camera technique, watch them again and note how many lapses in good technique these professionals have made. You are not a professional and no one is going to hold you to the standards of professional broadcasting. Good technique is something to try for, but telling the story is most important.

### Capturing the Video

After you have shot all of the raw video footage needed for your project, you must get it into a condition to be edited into the final product. The actual video capture process is very straight forward. To accomplish the process, you will need your video camera to play back the raw video footage, an IEEE 1394 (Firewire) card in your computer, a cable to connect the video camera to the firewire card, a program to perform the actual capture, and huge amounts of disk space.

As we said earlier, almost all video editing programs have a "capture" function integrated into them. When the camera is connected up to the computer, most of these programs will control the camera (play, rewind, fast forward, etc.) directly through the digital interface. Unfortunately, some of these "full-featured" video editing packages suffer from one or more of the following problems:

They are unable to directly control the camera. For some reason known only to the creator of the program, specific cameras are not compatible with specific video editing products. And do not try to use logic to reason your way through this issue. Here are a couple of examples for a single make and model of camera—a Sony CDR-TRV30: Pinnacle Systems has several video editing

products. Pinnacle Studio (\$99 MSRP) will work with the camera. Pinnacle Studio Deluxe (\$799 MSRP) will not. Adobe Premiere (\$699 MSRP) version 6 will not work with the camera, but version 7 of Adobe Premiere will. Matrox RT.X100 Xtreme includes version 7 of Adobe Premiere, but is not compatible with this camera. The only way to find out about camera compatibility is to research the product on the vendor's site.

But there is another problem that affects many products that is a lot more annoying: Frame slippage during capture. You capture all of the video. The capture program does not complain about any problems during the capture process. But when the captured video is played back, the synchronization between the audio and video is slightly off, and it gets worse as the clip plays on. Most vendors refuse to accept any responsibility for this problem, blaming it on the camera, capture card, or computer running the capture program.

Fortunately, there is a solution to the compatibility and the frame slippage problems. If the software that you paid good money for will not do the job, download something for free that will. You could also buy a dedicated capture program, but free is better—and it works. One of the free capture programs that gives good results is an application written by Petr Mourek of the Czech Republic. The program, WinDV, can be downloaded from his web site, <http://windv.mourek.cz/>. For those people who insist on paying for things that could be had for free, you can spend \$39 for a product called Scenalyzer. According to the commentaries on various listserv's, the batch capture function is compatible with all known cameras and has no frame slippage problems.

And finally, one last issue to be aware of: Captured video takes up a lot of disk space on the computer hard drive. An hour of raw video on disk will require about fourteen gigabytes of space on the hard drive.

### Editing the video into the final product

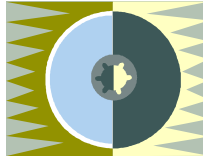
Editing is the stage in the process where you assemble the pieces of your video project into a cohesive, understandable product. This is the place to trim away things that do not need to be



there and add some things that would improve it. In general, video editors give you the ability to do the following:

- Assemble all the shots and scenes in the order they should appear in the final product.
- Remove irrelevant action or dialogue. If it does not need to be present, get rid of it.
- Trim long pauses in dialogue or action. Keep the video moving.
- Add titles, charts and/or graphs. Help the viewer to understand the video.
- Add transitions between shots/scenes to make a more watchable video.
- If needed, add voiceover narration, background sounds/music.
- For DVD creation, menus can be added to improve navigation through the video.

Some video editors include an array of tools to correct problems with the audio or video in the raw footage. Experienced professionals will use these correction tools very sparingly and only as a last resort. In the mind of the professional, every correction applied to the sound or video is an admission of failure during the recording process. If you shoot it right, you will not have to fix it.



DVD-R. This is an important consideration if you plan on distributing your video on DVD to other organizations.

Streaming video. Why not use the Internet or Intranet for distribution? Most video editors can output to one or more of the common streaming video formats (RealMedia, Windows Media, or QuickTime). When creating streaming video, you can create video streams that are optimized for a multitude of user connection speeds. While individuals who dial up to the Internet are limited to a maximum bandwidth of 53,000 bps, some offices have DSL connections that go up to 7,000,000 bps. While quality of streaming video at 53kbps or slower would be degraded (small picture, low fidelity sound), the quality of the audio and video becomes quite good at connection speeds between 256kbps and 384kbps.

VCD. Video CDs could be thought of as streaming video on a CD-ROM. The video quality is less than DVD-- more like streaming video, but it fits on a CD. When you consider how many computers have CD-ROM drives on them and how many DVD players that are capable of handling VCDs, distributing your video in this format makes a lot of sense. Most video editors that can create DVDs will create VCDs.

### Sharing your video

Once you have edited your video, it is time to share it with others. You have several choices:

Videotape. Almost every legal services office has at least one VCR. You could output your video production to a VHS tape. It is easy to do if your video camera has an AV (Analog Video) Out port on it. The camera is connected to the computer via the firewire cable, and the VCR is connected to the camera via the AV Out port. The camera acts as a format converter.

DVD. Now that the prices on DVD burners have come down substantially, it can be cost-effective to burn your video onto a DVD. If you are creating DVDs to be used in a DVD player, burn your video onto a DVD-R. While many of the newest DVD players can handle DVD+R, DVD+RW, and/or DVD-RW, most older DVD players can only handle

### In conclusion...

We have taken you through the process, start to finish. We have tried to point out the important issues along the way. Will the information in this article make you an expert? Not at all. But if you have an interest in video, there is enough information here to get you started.

Many people get discouraged in their initial attempts at video because they get their priorities mixed up. Instead of prioritizing informational content, they get caught up in the technical areas of production. The end-result is a technically perfect video—that viewers will learn nothing from. Make sure that there is a story to tell or information to impart. Do not feel discouraged that your initial efforts are not perfect. Your skills will improve as you gain experience.



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