DIGITAL PROJECTION FROM COMPUTER
FOR YOUR FILM FESTIVAL

Last Updated 2/18/2013
Courtesy of the Faux Film Festival (www.fauxfilm.com)
Please do not distribute this document – instead link to **www.fauxfilm.com/tips**

Table of Contents

I. OVERVIEW

DO I REALLY WANT TO DO THIS?

PROS:
1. Don't have to juggle DVDs live during the festival.
2. One click plays an entire film block.
3. No time loss between films – the next film plays automatically.
4. No bad DVDs crashing at the fest with no way of showing the film.
5. Computer DVD drives are much better than home DVD players at reading flakey home-made disks.
6. It doesn't matter if DVDs are NTSC or PAL.
7. You can show HD video at near-HD quality without HD equipment.
8. Most videos automatically play in the correct aspect ratio.
9. Before the festival, you can test run the whole film program in your home theater exactly as it will be seen (except for the different projectors).
10. After the festival, you can use the computer as a media center in your home theater!

CONS:
1. Requires a fast computer.
2. It is best to have a dedicated computer, not one you use for other things. This can be an expensive extra item.
3. The computer or software could crash, perhaps irrecoverably (unlikely if you have set things up properly).

ASPECT RATIO ISSUES

First off, **never display a film in the wrong aspect ratio**. It is **not** ok to leave the equipment in widescreen and show standard films "stretched". It makes all the actors look fat and can ruin the film. This holds true even if you don't project from computer. It is also **not** ok to crop off part of the image!

Aspect ratio discussions can be very lengthy, so I will try to summarize the important stuff here. Computers use square pixels. Standard and widescreen DV video actually use the same number of pixels – they are just shaped differently. Standard DV video uses slightly off square pixels of .9 ratio and widescreen uses rectangular pixels of 1.2 ratio (the width of a single pixel is 1.2 times wider than it is tall). By changing the shape of the pixel, widescreen films can be shown without needing more digital data than standard films.

Pixel aspect ratio is separate from image aspect ratio. Standard TV image aspect ratio is 4:3 (if the image was 4 inches wide, it would be 3 inches tall) while HD TV is 16:9. Your computer displays at a particular resolution, for example 1600x1200 square pixels. If you do the math (divide 4 by 3 and divide 1600 by 1200 to get the same result of 1.3333…) you will see that standard computer image aspect ratio is 4:3, the same as TV.

Software you use to play video will interpolate your video to display at your computer's resolution and it does an excellent job with no noticeable loss in quality. In fact since the output is digital, any quality loss caused by pixel interpolation is still better than signal loss caused by analog outputs from your DVD player. Basically an image composed of wide pixels is re-mapped to fit to square pixels without noticeably distorting the image.

Here is the important thing to know about your projector: Is the native resolution truly wide (more horizontal pixels) or stretched wide (changes the aspect ratio to widescreen by stretching the pixels horizontally)? To figure this out, find the out the Native Resolution (sometimes listed as Maximum Resolution) of the projector. Divide the width by the height. If it comes out to 1.6 or higher, you have a true widescreen projector. If it comes out to 1.333 or smaller, you have a standard projector.

Once you know this, you can make a decision:

1. The best option is to use a projector capable of displaying a widescreen computer image (made of more horizontal square pixels, not stretched pixels). Player software will adjust automatically and your image height, size, and focus will not need to be adjusted after the first setup. This is the best solution if you have the equipment for it, but most older projectors do not support widescreen computer resolutions and indie theaters with older digital projectors are slow to replace them. If you are in the market to purchase a large-format digital projector (or one for your home theater for that matter), this feature is key and is standard on any true HD (720p or 1080p) projectors. One caveat of using a true wide projector is that some film makers encode their wide films as standard films with letterboxing. You will need to get them to send you a properly encoded disc or wide format data file.

2. Use the standard projector in standard mode (do not stretch the pixels). This will leave the far left and right of the screen unused. When you display a widescreen image, it will take up the same standard width and leave some space above and below, thus the image will appear smaller than the standard aspect films. This is the simplest and most common way films are displayed from computer at a theater using an older projector, but it does leave widescreen films looking small. However, a surprisingly large percentage of widescreen films are improperly coded by film makers as standard aspect letterboxed DVDs anyway!

3. Separate your widescreen and standard films and manually change projector magnification partway through the program. This is not always convenient as you may want to build your program order based on what makes sense for the festival, not based on what happens to be shot in a particular aspect ratio. It is,

however, the best way to maximize the screening of all films without having a true HD projector available. This is the most common setup (other than the first 2 options, which don't require extra work), so I will go over this in detail later. Another benefit of doing things this way is that it doesn't matter if a film maker has encoded their widescreen film as standard with letterbox – it still shows as widescreen since the projector image is enlarged to cut off the black bars by displaying them beyond the top and bottom of the screen. Note that I have a "transition video" posted at www.fauxfilm.com/tips/ that you can play while adjusting the monitor to get the adjustment correct and give the audience a small laugh in the process.

4. You could also adjust the projector as needed for each film, but that's even more tedious and usually isn't quick either, even if your projector supports presets.
5. You could put the standard projector in wide (stretched) mode and program your player to adjust for this by squeezing the films. This is open to a number of complications and is not recommended.
6. Instead of projecting from computer, you could output all your video to DVCAM in widescreen mode. Recompress all standard resolution video to widescreen with black bars on the sides (most editing packages can do this). You lose a bit of horizontal resolution since you are using fewer pixels widthwise and leaving black bars on the far right and left of standard aspect films, but it actually still looks good. A lot of extra work though and if you need to change anything, you have to redo the output tape! Also, finicky editing software may have trouble exporting many different originating file formats. Plus you have to down-convert HD or use HD decks. This may be a more appealing option for festivals that run multiple small theaters already equipped with DVCAM or HD decks.

Remember, you still have to deal with aspect ratio when playing films without a computer, so don't let this scare you.

II. HARDWARE

First you need a digital projector in the theater. This document assumes your theater already has a projector. If you are planning to setup digital projection in a theater not currently equipped for it, you will need projector info not provided here. **www.projectorcentral.com** has tons of info on home theater projectors, but keep in mind you need a large-format projector made for movie theaters, not home theaters. Also assumed is you will have computer input to that projector and either analog or digital audio inputs to the theater's sound system. The keys here are:

1. Make sure you know what the **native** (maximum) resolution of the projector's digital input is. You will want to set your computer to **exactly** match that resolution.
2. Know what audio inputs the theater's sound system has. You will need to match both the type of input (analog or digital) and the type of connector.

A visit to the theater is in order to verify the connections. You may want to download the projector's instruction manual from the manufacturer's web site for easy reference.

Computer requirements:

1. Stability/reliability.
2. Speed! The faster the better, but don't "overclock" it (see #1). Intel Core 2 Duo or Quad CPU or better recommended. Intel I7 and I5 CPUs are the latest thing.
3. A video card capable of supporting two monitors (in this case a projector and monitor).
4. The video card must support the native resolution of your projector exactly. Computers are usually way ahead, so this isn't usually a problem.
5. A festival hard drive that is separate from your boot hard drive. Programs should always be run from a different drive than video data. I also use a removable drive bay for the festival hard drive since I build the festival on a different computer from the one I show it on. This also allows easy swapping of drives should the festival drive fail. It is better still to make sure the hard drive interface is SATA II (or III) and that the computer supports SATA II (or III) drives. You can view stats on computer hard drives here:
   http://www.tomshardware.com/charts/hard-disks/workstation-i-o-benchmark-pattern,674.html
   Optional is using a RAID-grade hard drive, also known as an enterprise-class drive. They are made to be more rugged for servers that will constantly read/write. While you will not be using them quite so rigorously, the more reliable the hard drive the better. Consumer-grade drives have a higher failure rate. The cost difference is not huge, maybe $50, depending on the drive brand and size.
6. Small LCD monitor recommended. Having a monitor separate from the projector will allow you to do things on the computer without the audience seeing them projected. Don't forget a monitor cable! It's handy (optional) to have a monitor that exactly matches the resolution of the theater's projector so when you are testing things out at your home or office you will know exactly how things will fill the space available on the screen.
7. If you are purchasing a new computer now, note that USB 2 is being phased out for USB 3 – some new computers have USB 3 and some don't. Same with SATA III. While neither is required, no one wants to be out of date in two months.

There are primarily two brands of video card chipsets used – ATI and NVIDIA. You will see one of these two logos on most cards. Which is best? Hard to say. NVIDIA -based drivers tend to be more stable. Your mileage may vary and cards change about every six months. Check the current selection and opt for a fast card that runs cool – you'll be running it non-stop for a couple hours at a time. One advantage of newer NVIDIA cards is CUDA – the NVIDIA card shares in graphics processing. Not all software takes advantage of CUDA, but the CoreAVC codec does.

Note that your hard drive MUST be formatted as NTFS, not FAT or FAT32! FAT (which is actually FAT16) and FAT32 are limited to 4GB max file size and some videos will be larger than that. NTFS is usually the default, but check to be sure.

What about a laptop?

That would certainly be the most convenient – just plug your laptop into the projector. No need to lug a separate computer, monitor, and keyboard. Basically you want a laptop with a fast CPU, fast graphics chipset, and fast hard drive. Things to think about if considering a laptop:

1. Be sure the laptop comes with a fast CPU. Laptops tend to lag behind desktops in adopting the latest and greatest. They tend to be more concerned about conserving battery power than providing raw speed. An Intel Core 2 Duo or Quad, 2GHz or faster CPU is recommended. Do not get a Core Duo without the "2" or you get an older model!
2. Be sure the hard drive speed is at least 7200 RPM. Most laptop hard drives are only 5400 RPM but most manufacturers have a faster hard drive as an option. Get the largest hard drive you can that meets the previous criteria. You can compare laptop hard drive statistics here: http://www.tomshardware.com/charts/hard-disks/workstation-i-o-benchmark-pattern,693.html
3. Laptops only have one hard drive. It is always best to run your video off a different hard drive from your operating system. If you do get a laptop, you may want to create a separate partition for your videos so you can defragment the volumes separately. Laptops of today may be fast enough that this isn't an issue. As always, test.
4. Laptops tend to have slower graphics than can be installed in a desktop computer. This is very important for video. They also tend to share the computer memory between the CPU and graphics processor (GPU). Look for one that comes with a faster graphics chipset (they will use this as an advertising point). Generally laptops that come with an Nvidia or ATI graphics chipset on board are faster than those with generic graphic chipsets, but chipset models vary so do your research. If you get a laptop that is "built for gaming", you will likely be ok.
5. If you intend to transfer MiniDV tapes, make sure you have the needed port, often a FireWire (ieee 1394) port. However, this was the first year I had no MiniDV, so that may be an issue of the past.
6. As an option, you may choose to put the films on an external hard drive. You will want one that plugs into either the Firewire port or the USB 2.0 or 3.0 port. Be sure to test this setup thoroughly.
7. Many PC laptops now come with a DisplayPort instead of a DVI or SVGA port. These may require a special adapter known as an "active DisplayPort adapter". Again, test…

Be aware of security. Laptops are easily stolen!

What about a Video Appliance?

More hardware devices are coming out that will play video from flash memory. They are cheap and self contained – just add flash memory with your films. With 64GB flash memory commonly available now, you could easily fit an entire evening or more of films, in HD, on a single flash memory stick.

1. Be sure it has a digital output – don't get a unit with only RCA or S-Video out.
2. Be sure it has the correct output – one that can be adapted for your projector, preferably in the projector's native resolution.
3. You may need to convert some of your files. Video Appliances usually have limited codecs.
4. Be sure you have the latest firmware update as these can often include additional codecs.
5. To keep costs down, some Video Appliances may not be able to play video encoded at a high bit rate. You may need to recode some video at a lower bit rate.
6. Experiment with the device before you commit to using it for the festival.
7. You will not have two monitor connections, thus you will need a video switcher to allow you to setup the show without the audience seeing what you're doing.

Eventually Video Appliances will be good enough for large format HD projection, but I am not convinced we are there yet. Read reviews online and look for negative comments. Many talk about formats that won't play. Whatever you do, don't get a device that can't play 1080p (most still can't). Here is an overview of some devices from B&H Photo:

http://www.bhphotovideo.com/c/find/newsLetter/TV-PC-Literate.jsp

However the one that looks like the best candidate is not listed there. More expensive and made in Korea is the TViX (http://www.tvix.co.kr/ENG/). It has the benefit of being able to select your videos on an Android phone and therefore not seeing a menu on the big screen. This solves the lack of dual monitor support with these units and I have heard of at least one film festival using them. It also means you can sit in the front row instead of the projection booth to control the show – if you have cell service or WiFi in the theater.

Hey, I'm a Mac, you're a PC!

You might be tempted to run the whole festival on a MacBook. Macs tend to like stuff built on a Mac and are not known for supporting a large array of codecs. Good luck playing and editing even something as basic as MPG2 files. There are also fewer options for troubleshooting and fixing problems. If you do use a Mac, get an "Active DisplayPort Adapter" for connecting to the projector. Google it if you don't know what it is.

YOUR COMPLETE FESTIVAL KIT:

1. The festival computer with hard drive of films, as stated above.
2. The proper cable to connect your video card to the projector. Digital connection (DVI or HDMI) is always better than analog (15 pin D-shaped, known as HD15). Don't depend on the cable you saw in the theater. Someone might take it with them before your fest!
3. Monitor and proper cable to connect your video card to the monitor (if not using a laptop).
4. Video cable adapters, just in case you guessed wrong. Even though you won't need them all, best to be safe with gender changers for both DVI and HD15 cables, and in both Male to Male and Female to Female formats. Also a DVI to HD15 adapter. It's always best to bring the correct cables, though! If the theater has a newer projector, you may need a DVI to HDMI adapter.
5. A backup hard drive that is a duplicate of the festival drive. Always have a backup! Another option is to use a large USB flash memory drive. You should be able to fit a whole night's program on a 32GB flash drive. Be sure the flash drive is formatted for NTFS (they usually are FAT32 by default, which won't support files larger than 4GB). Also, be sure to get one reviewed to be a high-speed flash drive. Don't trust the manufacturers' claims.
6. (optional) A converter that allows your backup hard drive to run from a USB2 port.
7. (optional) A backup computer. It should be setup and ready to go and stored in a different place from the festival computer (don't leave both computers in the theater overnight).
8. A ground loop isolator for audio. This prevents a buzzing sound in the speakers resulting from a conflict between the computer ground and the sound system ground. The only way to know if you need it is to plug the computer in to the theater's sound system and listen for a low pitched buzzing. You can purchase a cheap ground loop isolator from Radio Shack that works just fine: http://www.radioshack.com/product/index.jsp?productId=2062214. You will need to also purchase an adapter to plug it into the computer as well as possibly an adapter to plug the other end into the theater sound system. You can also find ground loop isolators manufactured by PAC that are made specifically for computers and ipods and thus don't require an adapter to plug into the computer. There are dozens of folks selling them on ebay. You may still need an adapter for the theater sound system.
9. Instruction manual for the theater's projector. At least have a PDF of it on the computer. You can usually download this from the manufacturer's web site.
10. Surge suppressor/extension cord.

I recommend labeling all your cables with your festival name so you know which cables belong to the festival.

USING A SEPARATE MONITOR

It can be considered tacky to let the audience see you mucking around in the operating system, so it's a good idea to use a separate monitor for this. It's also difficult to look through the little window in the projection booth while using a mouse. If you have a laptop then you're already set for option 1. If not, there are a few options:

1. The best option is to use a video card capable of supporting two monitors. Then you leave both projector and monitor plugged in, no switching. In the windows desktop settings, you will have your separate monitor (or laptop monitor) setup as monitor one and the projector setup as monitor two. For monitor two, you will check the box in the computer's display settings that says "extend my Windows desktop onto this monitor". Some laptops have pre-configured settings for doing this, but you will want to check the settings to make sure they are set for the native resolution of the projector in the Monitor Two settings.
2. Use a video splitter – a "Y-cable" that lets you plug two monitors into one output. Since both screens show the same content at the same time, you will need to hit the "shutter" button on the projector to block the screen while you are mucking about in the operating system and then remember to unshutter the projector before starting the show! Or you could opt to put the lens cap on, but that looks tacky as the audience sees this shadow move into place. Do not turn the projector or lamp off if you are about to start a show! It takes too long to warm up again and the audience may see a shutoff message on the screen.
3. You can get by without dual monitor support, though it does require some finesse. Unplug the projector and plug in the monitor, muck around in the operating system and setup your next set, then unplug/plug again to switch back. Be sure the monitor supports the same resolution as the projector (though for the monitor it does not need to be the "native" resolution). Also, you must boot the computer when attached to the projector first (the operating system adjusts for the projector), and then switch to the monitor after the operating system is finished loading or the projector display could be hokey.
4. Another option is to use a video switcher that allows you to switch between the projector and monitor with the push of a button. Everything else in option 3 still applies, but at least you don't have to manually unplug and plug each time.

III.   SOFTWARE

OPERATING SYSTEM

Windows 7 or later is best. XP will work but is less reliable and requires more external codecs. Make sure you have installed the latest updates (run Windows Update) before your final test run and do not install anything after your final test run! Note that Windows 7 has been optimized with more recent video codecs, so you will have less 3rd party software to install with Windows 7 than with XP. It's also more reliable for video than Vista and XP. Here are some recommended tweaks for all Windows versions:

- Disable any desktop search programs. This comes installed by default with Vista. Search the web for "disable windows desktop search" to learn how to disable it. Note that Google Desktop Search is very CPU-intensive. Disable it.
- Disable any anti-virus programs.
- Important: disable any automatic updating. These programs can cause a movie to skip while it attempts to check for updates, even with no Internet connection. Symantec's auto-update will definitely cause this. Turn it off. You can sometimes see icons for auto-updaters in the system tray (lower right).
- It is especially important to disable the automatic updating of Windows. By default it is set to update automatically unless you set it otherwise. This could actually cause a reboot in the middle of your festival! Do a search for "disable windows automatic update" and your Windows version on the web and you'll find instructions for that.
- In Windows Vista and Windows 7, you will want to disable visual effects that slow the system down. Go to Control Panel/Performance/Adjust Visual Effects and select "Adjust for Best Performance" or manually select the checkboxes to your liking.
- If you have Windows XP, be sure to install Windows Media Player 11, even if you don't plan to use it! Some player software will use pieces of whatever version of Windows Media Player is installed on the system and versions prior to 11 have memory leaks and could crash during your fest!
- Select a background image of your festival logo or poster that does NOT fill the whole screen. The projector and monitor won't be the same resolution, so you need some space around your logo so you can see the whole thing on both. It should be centered (or tiled if you prefer) and have a background that looks good with the image. These settings are tweaked by right-clicking on the desktop and selecting Preferences (XP) or Personalize (Vista, Win7).
- Never connect to the Internet during a show! If you have wireless, turn it off.
- To optimize your video files for best playback to avoid skipping, run a defrag program on your festival hard drive once you have finished setting it up with all the video files. The defrag program that came with your operating system should be adequate. Do this **before** you run your final test.

APPLICATION SOFTWARE

All software mentioned in this document can be found at the **Video Help** web site at **www.videohelp.com**. To go directly to the software list, go to **www.videohelp.com/tools** or click on the **Tools** link under **Lists** on the main page. I try to use free software unless otherwise specified. You may opt to use different programs than I use. These are personal choices based on needs, features, and ease of use. Free software programs do not have free support from the manufacturer, however, there is plenty of online support available in the Video Help user forums. There is also detailed info on over 600 video tools as well as many how-to articles. Check the site each year as new software and updates of old software come out all the time.

Note that always using the latest version of software is sometimes, but not always, a good idea. Newer versions are likely to support more file formats and fix old bugs. However, new sofware can come with new bugs, so always test everything by running through the **whole final film program** before the festival from start to finish. Always save the previous year's software programs in case you need to revert to an older version of something.

Generally speaking, it is best to use as little software as needed to do the job. Every new software package, codec, filter, etc, adds more variables, more bugs, more CPU cycles, more GPU cycles, and more chances of something not working properly.

PLAYER SOFTWARE

You will need a program to play the videos. Since the software is doing pixel interpolation to force the video to display at a different resolution and pixel aspect ratio than originally recorded, some programs do a better job than others. If you do some freeze frames of video side by side in different players, you will notice some quality differences. Each player has its quirks so it's best to try out several and use the one you like best. Do not test these out on your festival machine. Test players on another computer and only install the players you intend to use on your festival machine. I also like to have a backup player installed in case my main player won't play something properly and I didn't catch it in testing. See end of this doc for a partial list.

Be sure you have the following settings in your player software's preferences, if available:

• Set the player to display either black or your fest logo after playing ends (many default to holding on the first or last frame of the film).
• Set the player to high priority. This will prevent skips.
• Some players have an "on screen display" that shows messages for everything you tell the software to do. Turn this off.
• Set the player to start in full screen.
• Set the player to remain in full screen mode when done playing. Some default to leaving fullscreen mode when play ends.
• Set player to hide the controls when in fullscreen mode.
• Set "lock back buffer" or equivalent setting to avoid strobing.
• Set the player to remember where it was located on the screen. That way when it starts in full screen, it will always start on the projector and not the monitor. Make sure it is on the projector, not the monitor, when you exit!

Recommending specific players is a bit difficult because "your mileage may vary". File types, UI preferences, and projector setup may contribute to your decision. I ended up using **Media Player Classic** for seven years, long after the developer stopped working on it. Windows 7 didn't even exist when it was last coded. But for the most part, the darn thing just works. It does have its quirks, though. There is an update by a different developer called **Media Player Classic Home Cinema**, however I still find videos that

don't play properly on it that play just fine with the original. One that's been getting highest ratings lately is **PotPlayer**, written by the same developer as **KM Player** (which is no longer updated). Unfortunately, I found some issues playing certain files that played fine on other players, so test thoroughly if you use PotPlayer. **VideoLAN**, aka **VLC**, just released a major update that may make it my new standard. The UI is a little funky but once you learn the controls that won't be an issue. **GOM Player** is another good choice.

CONTAINERS VS CODECS

Video files consist of several parts combined into one file (the container). They contain at least one video stream and one audio stream, but sometimes multiple video and/or audio streams. The streams inside the container can be encoded many different ways even in the same type of container. For example, an AVI file could contain a video stream encoded with the DV codec, the Xvid codec, the Divx codec, or a number of other codecs. AVI refers to the container type, not the encoding.

So what does all this mean to you? Don't trust that you know what's in a file just because of its file extension. A tool you use may be able to read one file and not another of the same extension because it doesn't support either the video or audio encoding in the file.

To find out what's inside a container, you need a *video identifier*. **Gspot** and **MediaInfo** are popular video identifiers and they each have their quirks so it is best to have both. Containers like AVI and MOV can contain just about anything. Containers like MPG and MPG4 are more limited. An MP4 container will contain an MP4 encoded file, though there are several standards for encoding those files, such as H.264.

CODECS

If you use the GOM Player, KM Player, Cyberlink, or VideoLAN and all your files play fine, you can skip this section. Windows 7 also comes with some updated codecs by default.

Video files can contain many different types of encoded video, so to decode different types of video you need different codecs. Files transferred from DVD all use the MPG2 codec. For files transferred from MiniDV, you will need a DV codec. MPEG4 requires another codec. Many editing packages automatically install some codecs, but unless you plan to install your editing package on your festival machine, you may need to install some codecs yourself. Player software may also install codecs. **Important: Do not install a be-all codec package that includes every codec known to man!** These generally include buggy codecs that cause players to fail. Don't do it! **Only install the codecs you need.** Always choose and install your player software first and then only install the codecs not already installed by the player software that are required by your video files. If a file won't play, **G-Spot** and **MediaInfo** will tell you what codec you need. Codecs can be found on the **Video Help** web site in the **Tools** section under **Codecs**.

You may notice that some of your transferred videos play without sound. Don't worry. This just means you don't have an AC3 filter on your festival machine yet. This is an audio codec and can be found in the same place as video codecs mentioned above. I use the one listed simply as **AC3 Filter**. Note that if you are playing only VOB files and using a player made specifically for DVD decoding, such as **Cyberlink**, it may install its own AC3 filter. Do not install more than one AC3 filter or there will be trouble!

Note again that if you use a player that has built-in video and audio codecs, you may not need to add any codecs.

DVD VIDEO

Of course to project from computer you must somehow get the video onto the computer in the first place. DVDs store video in MPEG2 format in files with a .VOB extension. From home-made DVDs, transferring can be done by copying the .VOB files from the VIDEO_TS folder on the DVD. No special software is needed to do this. However, commercial DVDs may come encrypted and you will not be able to do this. Also, someone may have created a DVD with a commentary track and you may need to strip this from the file as it is transferred, otherwise your software may play the commentary by default. It's easiest just to use one program to do everything. **DVD Decrypter** is free. However, it hasn't been updated for several years and won't be ever again. A better option is **TMPGenc Editor**. It takes a few extra keystrokes but has the added bonus of correcting sync problems that can occur when ripping from some homemade DVDs. If I hear a commentary track when I play the file (rare, but I've had a couple) I copy the file again but I deactivate the commentary track in the transfer software. Sure, you can tell the player software to play a different track, but you don't want to change player settings during the festival. Not all players will play the same track by default. You will want to select your player before transferring files for accurate testing.

Be careful not to use transfer programs that shrink the video as they also reduce the quality. You will be playing the VOB files – the same files on the DVD, just played off the hard drive, thus no quality loss. Note that your computer does not care if the DVDs are NTSC or PAL. Also, be sure to transfer the VOB files as one large file, not broken into chunks. For **DVD Decrypter**, go to settings/IFO/FileSplitting and set it to NONE. When transferring, set MODE to IFO.

Some players will not handle some VOB files well. You may have better results converting VOB to MPG2. Be sure to do it without re-encoding (sometimes called "direct stream copy"). I have found, for example, that several players will not accurately display the total length of some VOB files but they have no trouble with the same file converted to MPG2. Likewise you might have a sync issue with a VOB file that goes away when converted to MPG2. You can use **Womble Video Wizard** or a more automated conversion program if this is an issue. Just make sure the program is doing a *direct stream copy* and not re-encoding! Note that if you use **TMPenc Editor** this problem disappears since it reads direct from the DVD and writes an MPG2 file. While merely

changing the file suffix from .VOB to .MPG may work in some cases, it is not recommended as it will not work perfectly for all files.

You may want to accept higher-quality formats to give the films their best possible screening. This takes some extra work from both film maker and festival, but it's worth it. The raw image recorded by digital camcorders is significantly higher quality than the MPG2 compressed files from DVD. Also, some film makers may not take your festival seriously if you are not willing to project higher-quality formats. HD is becoming more common all the time. Note that there are programs now for transferring Blu-Ray that can also be found on the Video Help web site.

MiniDV VIDEO

Some film makers will want to display the original quality of MiniDV (or better) rather than the reduced quality of DVD. No problem. You can transfer the MiniDV to your hard drive. You can use your editing package on a separate computer, but this sometimes forces you to create a project, which is a wasted step. Use **WinDV** to transfer from a MiniDV camcorder. It's very basic but does the job and it's free. **Be sure you redo transfers that have even a single dropped video frame.** Also be sure to avoid color bars or excess black video. Note that MiniDV camcorders and older decks are NTSC **or** PAL, not both. Also, if the theater has a DVCAM/MiniDV combo deck, those decks usually can't play LP mode MiniDVs, which is often how you will get features since SP mode MiniDV can't store a two hour film. Tell them to send you a DVCAM tape or you'll have to play the VOB file from the DVD. Do not list MiniDV as a supported format for the Feature category in your festival listing unless you know you have a deck capable of LP mode or you intend to store the feature on the hard drive. Attaching a MiniDV camcorder to the projector is not recommended as you will need to use the S-Video output instead of digital output and you will lose part of the image (the safety margin) as well as reducing its quality. Projectors cannot take direct digital input from most camcorders. Note that features from MiniDV or DVCAM can take 15 to 20 gigs of space (depending on length, format, and compression) so you may want to play them from tape if you have many features on MiniDV (or better). Or you can use **WinFF** to shrink them without noticeable loss of quality if the "super high quality" setting is used.

HDV, HD, or DVCAM VIDEO

Some theaters will have the ability to play some of these formats from tape, in which case you may want to play from tape for features on tape, though that won't be practical for shorts. You may be able to arrange a trade for advertising with a local equipment rental company if you need a deck that you don't have. Note that older DVCAM decks are NTSC **or** PAL, not both.

Want to accept HD, HDV, or DVCAM for the projection format and play from computer but you have no way to transfer it? No problem! Have the film maker burn a digital file to a DVD**ROM** and then just copy the file from the DVDROM to your computer.

In some cases you may be given a file compiled on a $5000 Macintosh that "runs fine on their computer" but may stutter on yours. You may need to compress the film rather than showing it in its raw format. Use Gspot or Media Info to check the bitrate of the file. If it's over 20mbps, use **WinFF** in "super high quality" mode to transfer the film to MPG4 H.264 format with no noticeable quality loss.

MPG4 is the best HD option for both Mac and PC. There are many flavors of MPG4, however. For MPG4, tell film makers to use the H.264 standard for best reliability in most players. Depending on your player, you may need to install a codec for H.264 (such as **CoreAVC**). Note that Windows 7 already has an H.264 codec, but it is slower to load films than **CoreAVC**. Another popular option is **ffdshow** which will play most file formats without installing multiple codecs, however, test thoroughly. I have had files play fine with **CoreAVC** that will not play with **ffdshow**, so I prefer to stick with separate codecs. They are always updating and your mileage may vary.

DEALING WITH APPLE FORMATS

Macintosh film makers will often supply films in Apple Quicktime format (file extension MOV). MOV does not play well on the PC with HD video. **Never use the PC version of Quicktime Player to play films.** The Windows version of Quicktime Player hogs the CPU to an extent that simply doesn't work for HD on a PC. Test the file thoroughly when you get it while running the Windows CPU monitor (press control-alt-delete, run the Task Manager, and click on Performance). It is best if CPU usage stays under 30% while the film is playing. Go ahead and play a similar HD file with Apple's Quicktime Player and you will see it hit 100%, which means the film will stutter. You may have luck with a codec for the PC called **Quicktime Alternative** that will allow MOV files to play in any of the players, but MOV files do not play well for HD.

Another problem with Apple files is that if you ask the film maker to reformat a video in MP4 format, they can, but it will likely look like crap. The defaults for MP4 in both Final Cut and QuicktimePro assume you are formatting the file for youtube and the settings are crap. In fact, neither product has high quality presets for MP4. You have to manually set everything to get decent output and most film makers don't know how. Low contrast is the generally the biggest problem with these files. You'll notice you lose people's faces in dark scenes even though they looked fine on the DVD version of the film.

Yet another problem with Apple files is more and more folks are using Apple ProRes format. It looks nice for editing but it's really not a good format for playback. I have found no cheap or free product on the PC that can convert Apple ProRes. WinFF can't load it. Even QuicktimePro for the PC can't handle it! So unless you have a fancy editor that can handle it, you'll need to ask them to output in a different format. But not MP4 if you've read the above paragraph.

I have found that if you tell the film maker to output in Quicktime (MOV) format but using the H.264 codec, the presets for that are much better than the presets for MP4 and you can convert the file to MP4 with no noticeable quality loss in WinFF. If you're confused

about why an MOV file (the container format) encoded as H.264 (the video compression) is so much different from an H.264 encoded file in an MP4 container, blame Apple for assuming you must want crap if you specify MP4. They only included high quality presets for their own proprietary format because they are Apple and want their format to look better, the consumer be damned. The two files can look the same if you manually tweak the settings.

I do intend to add more details on handling Apple formats in the future, including specific output settings beyond the presets, so stay tuned for updates.

DVDROM

Most shorts recorded on MiniDV tape or DVCAM can also be saved to DVDROM. This will allow film makers to output from their editor to either AVI or MOV format and copy onto a cheap DVDROM rather than an expensive (relatively) MiniDV. It also makes your job easier as you don't have to transfer from tape and it completely avoids the NTSC or PAL issue. It does require some knowledge on the other end, though, as the film maker needs to know how to export a file from their editor in the same format as their raw footage. They usually know this, unless it's their first film. 100mbps HD takes four times the space, so that will place more limits on HD files. You can have them send you a reduced resolution version since your projector cannot display full HD anyway (unless it can!). You will likely need them to send you HD files in compressed WMV or MPG4 format (see HD section above). Anyone familiar with editing HD should know how to create a compressed HD file you can play that still looks better than SD. While raw HDV files take up no more space than standard DV, most players cannot play HDV. HDV uses interpreted frames and thus is not a viable playback format. They will need to output their HDV file in full frames as a WMV or MPG4 file.

Note that AVI, MOV, and to an extent MPG are container formats. They tell the computer how to read the file but not how to decode the video. If someone sends you an AVI, MOV, or MPG file that uses significant video compression, they are defeating the purpose of sending you a file on DVDROM. Indeed I did receive files from a couple folks that were lower quality than their submission DVDs! The file size is an obvious red flag – if the file they send on DVDROM is smaller than the VOB file from the DVD, then it is not the format as recorded by the camera but some other compressed format. While some compressed formats can create smaller files and still be of better quality than DVD, such as some versions of MPG4, these generally require additional video codecs and standards are iffy, so they can be problematic (H.264 is best for MPG4). The only way to know what's really inside a file is to run a program that tells you what is in the file. I use **G-Spot** to tell me this info.

A special note about AVI files created from MiniDV – there are two types, known as Type 1 and Type 2. The older file format plays much slower. Any newer software has used the newer format for several years, so it is unlikely you will encounter the old file type. If you do, some players will popup a warning and some won't. Or you can just ignore this note unless your player gives you an error or the video on a particular AVI

file is jumpy. If you do get a type 1 file, use **Canopus DV File Converter** to convert to type 2. It's quick and painless and faster than asking your film maker to fix it and send you a new one. It's also free and can be found in – guess where? – videohelp.com/tools.

DEALING WITH SUBTITLES

In most cases film makers will follow the guidelines of the festival and hardcode subtitles if they are a requirement of the fest. However, some film makers instead will provide a DVD with one copy of the film and the option to select different subtitles. If you rip the VOB file from the DVD and play it through the player, you won't see subtitles. There are two ways to rip the subtitles from the DVD. One is to rip the subtitles into image files with IDX and SUB extensions. This works best in most cases. You can also rip the subtitles to a text file with a SUP extension, but that requires OCR – translating the images into text, which can be an arduous process that is prone to error. The only reason you would want to do that is if you need to edit the subtitles.

To rip the subtitles as image files, you can use a subtitle image ripper like **VSRip**. Just rip the VOB and IFO files with **DVD Decrypter** like you do for any DVD and then run **VSRip**. You'll end up with matching.IDX, .SUB, and .CHUNKS files. You don't need the chunks file but you'll need the other two. The .SUB file contains the images and the .IDX file contains the instructions for displaying them. As long as they all have the same name before the period, most players will overlay the subtitles automatically, requiring no special processing, even if you convert the video to another format (as long as the filename before the period still matches).

If you need to cut the beginning from the VOB file (color bars, for example), that's another story. The timing of the subtitles will be off. You will need to edit the .IDX file in a text editor such as **Notepad** to adjust the timing accordingly. It's best to tell all your film makers to send films without color bars or excessive black, but they don't always read everything or want to do something special for one festival when they are sending out copies to multiple festivals.

Some players require you to turn subtitles on for them to play. In some cases subtitles may turn themselves off if you pause or skip ahead. To really avoid any issues, you'll want to superimpose the subtitles on top of the video and save a file with the subtitles permanently overlaid. This will also allow you to edit the file to remove black or color bars without messing up the subtitles. The only downfall of doing this is you have to recompress the video, which could reduce quality if you're not careful.

Rather than going through multiple steps to extract the subs in one program, convert them in another, and superimpose them in yet another, it's best to use a program that can do everything. One of those programs is **Handbrake**. **Handbrake** can also handle most of your general conversions but it doesn't have easy presets like **WinFF** – you have to tweak the quality settings in **Handbrake**. Converting a DVD with subtitles is easy, though.

- Click "Source" and select your DVD drive. After a few seconds of processing, the file information will appear.
- Click the "Subtitles" tab and the "Track" dropdown, then select the "English" option.
- If the only option you see on the dropdown menu is "Foreign Audio Search", then Handbrake is not seeing the subtitles.
- Check "Burned In" and click "Add".
- If you are converting a feature, click the "Large file size" check box – otherwise it will be limited in size to 4GB.
- On the Video tab, move the quality bar to 12 (the lower the number the higher the bitrate – the default of 20 is terrible).
- Click Start.

REFORMATTING VIDEO

You may find it's easier to reformat a video yourself rather than trying to get the film maker to send it to you in a format you can play. For example, they may send you an HD MOV file that plays dandy on their $5000 Macintosh but stutters on your PC. You can easily convert this to an HD MP4 file that plays smoothly. An "industry standard" program for this is **TMPGEnc XPress**. It's not free, but some consider it an essential tool. The only problem with the program is that it's not terribly automatic – you will need to experiment and tweak the settings. The default settings of most conversion programs are geared towards small file size, not high quality. A good free option that also requires tweaking settings is **Handbrake**. It defaults to "level 20", which is a low bitrate file. Moving the slider to the right lowers the number but increases the bitrate. The 12 to 15 level I found to be the sweet spot. I code SD files at 15 and HD files at 12, though admittedly level 20 is likely fine for SD. Handbrake has gotten very good over the years and is not my converter of choice.

Of the more automated programs, the best I have found so far is **WinFF**. It has a "super high quality" preset that works quite well and handles most file types. As a general rule I use "super high quality" for HD and "very high quality" for DV. "High quality" has noticeable loss of contrast and should not be used. I have also experimented with **H.264 Encoder.** It's simple and has no extra features (no trimming or volume adjustment), but all you have to do is select "High Quality" and it will convert the file to H.264 and preserve the original resolution and aspect ratio. It's also free. Unfortunately, clicking "High Quality" doesn't work with every file so try clicking the option with the correct aspect ratio instead and it may come out better. **WinFF** maintains contrast a bit better than **H.264 Encoder**.

Always maintain the resolution, aspect ratio, and frame rate of the original file.

Ok, so for the not-so-automatic file conversion programs, what compression do you use? That depends a lot on your source compression. **G-Spot** will tell you the compression of your source. It will also tell you if it's CBR or VBR – Constant or Variable bitrate. If you use variable bitrate, be careful not to set your maximum too high or you could get stuttering during "busy" scenes. You can use CBR to avoid surprises,

though it could cause busier scenes to show artifacts. In any case, setting the new bitrate to higher than the original bitrate is pointless as you can't make the video look better than the original. In any case, you usually reformat to avoid stuttering, so you'll be lowering the bitrate. Look up this subject on the Internet and you may not find even two sites that agree on how to determine the new bitrate. I have come up with a formula for MP4 H.264 files, as follows:

HRes * VRes * 5 = **minimum** bps.

For example, take a 720x480 DV file. That's 720*480*5 = 1,728,000 bits per second (1.728 megabits per second). MPG2 and DV are old and inefficient formats, thus MP4 can display the same quality at a lower bitrate. Here's an HD example for a 1080p file: 1920*1080*5 = 10,368,000 bps (10.368 megabits per second). I usually set it at 12 mbps since I use constant bit rate to avoid surprises. If you really want to be sure, you can use 36Mbps for 1080p files – that's the typical bitrate of Bluray disks. Feel free to test your system by encoding files at various bitrates and watching the Windows performance monitor as they play. If you're under 30% CPU usage while the film plays busy scenes, you're good to go. Note that there is no need to upconvert to higher resolution. Some conversion software can perhaps interpolate the "inbetween" pixels and slightly improve the results for upconversion, but the software player already does this while playing. Will the improvements of pre-processing be noticeable to the naked eye? Maybe. If you're looking for it. Enough to be worth your time? Not likely.

SOUND VOLUME

Not all films are recorded at the same volume level. You will either have to manually adjust the sound during the fest (usually there are only a few films that are "off" from the standard) or you can re-encode the file with a lower or higher volume level (much better than sitting at the volume control during the fest). Many programs are available that will do this, including your own editor, but your editor may not handle VOB or MPG2 files well. Be careful to use a program that copies the video from the original file without re-encoding the video. The new file size should be fairly close to the old. For changing sound volume of VOB or MPG files, I use **Mpeg Video Wizard**. See the next section for more info on that program.

COLOR BARS AND BLACK

Some film makers will put color bars and/or black video at the beginning and/or end of their film. This can be annoying during a shorts block. Color bars should never be seen by the audience and excess black video causes an uncomfortable silence in the theater. It's a personal choice, but I remove color bars and I reduce black video to no more than two seconds if it is longer than 3 seconds. The only reason I don't remove black video entirely is to avoid cutting off a fade-in or fade-out too early. Of course you have to watch out for sound that begins or ends on black. If there is no black video, I do not add any. If I am transferring from tape I have control of when the transfer starts and stops, so I just skip the color bars and black video. Any films you receive that were once in the

48-Hour Film Project and have not been re-edited to exclude the color bars and 5 to 10 seconds of black will still have these on the DVD. Removing these from VOB files is trickier since you have to edit them. Some fests may not want to go to the trouble, but I do. I use **Mpeg Video Wizard** which does an excellent job of editing MPG2 and VOB files. It copies directly from the original without recompression (unless you tell it otherwise) so it's quick and easy to lop off color bars or excess black without affecting quality. The program is not free, but I also use it for creating a media sampler that I send to TV and print media, so it's worth having. Major editing packages are not nearly as quick and easy for editing MPG2 files. **TMPGenc MPEG Editor** is another option. It's a little more cumbersome for editing files quickly. A third option is **VideoRedo**, but it's the least powerful of the three. All of these are listed in the references at the end of this document and all three programs have trial versions.

WRONG ASPECT RATIO

Sometimes after ripping a file from DVD or capturing a file from tape you end up with the video in the wrong aspect ratio. This is most common with DV and MPG2 since the difference between wide and standard display aspect ratios is the shape of the pixel, not the number of pixels. Thus the video is fine but has wrong information in the file header.

To fix this problem in MPG2 files you only need to run **DVD Patcher**. It's an old program and very simple, but not automated and can damage the file if you enter any wrong information. It makes changes to the original file, so make a backup first. After running the program and selecting your file, make sure you match all the settings to the information the program reads from the original header except for the aspect ratio. Choose the option to patch the entire file, not just the first header. After clicking "Patch Now", the program will give you the opportunity to verify you want to make the change before doing it, so when prompted make absolutely certain that all fields match except for Aspect Ratio.

To fix this problem in DV AVI files, it's a little more complicated. Some players don't read aspect ratio info in DV AVI files properly. Converting a DV AVI to MPG H.264 using **WinFF** in "Super High Quality" mode may correct the aspect ratio without noticeable quality loss. Be sure to force the aspect ratio by entering 16:9 under Aspect Ratio on the Video tab. Otherwise it will default to reading the source as square pixels, which is incorrect for DV.

IV.   SETUP

HARD DRIVE SETUP

I generally put each block of films into a separate folder. I also have videos that play in every block that I keep in the root folder. For example, a folder listing might look like this:

ROOT folder might contain:

Fest_Bumper.MPG (plays at the start of each block)
Fest_Logo.MPG (one-second video that plays after each film)
Fest_QA.MPG (video that tells the audience to stick around for Q&A)
Fest_Next.MPG (video that tells folks to stick around for the next film block)
Fast_Party.MPG (video that reminds folks to go to the bar and buy you beer after the show)

Folder SUNDAY_7PM might contain:

First_Film_Title.VOB
Second_Film_Title.MPG
Third_Film_Title.MP4
Fourth_Film_Title.AVI

PLAYLISTS

To make your whole block of films play automatically in order, you'll need to create a playlist for each block. The simplest playlist is just a text file that lists all the films in order. You can create one manually in Notepad or you can use the various players to create one. It's pretty simple to create one manually, but can be more time consuming:

- Run Notepad (it's on the Programs/Accessories menu from the Start button)
- Type in the FULL PATH of each file you want to play, in order. You can copy and paste the folder info and then only have to type the file name.
- You can put comments in the file by starting the line with the pound sign (#).
- Save the file with the extension .M3U.

Here's what a playlist file might look like:

Playlist for Sunday at 7pm
D:\Fest_Bumper.MPG
D:\SUNDAY_7PM \First_Film_Title.VOB
D:\Fest_Logo.MPG
D:\SUNDAY_7PM \Second_Film_Title.MPG
D:\Fest_Logo.MPG
D:\SUNDAY_7PM \Third_Film_Title.MP4
D:\Fest_Logo.MPG
D:\SUNDAY_7PM \Fourth_Film_Title.AVI
D:\Fest_QA.MPG
D:\Fest_Next.MPG

If you do use software to create the playlist, choose the M3U format. It is the most widely used and you can edit it in Notepad in a pinch. If you want to know what

capabilities other formats give you (and you're a techie), check out this survey of playlist formats: http://gonze.com/playlists/playlist-format-survey.html

Be sure the file extension .M3U is set to automatically run the player software you have selected. Most player software will have an option in the preferences to select this. Test it by clicking on the M3U file you created. Does the correct program run? Do all the videos play? In most browsers you can hit a key (often Page-Down) to skip to the next file to test this quickly.

To start the film program with the player I chose, I hit space bar to pause and then left arrow to go back to the beginning since the player starts playing automatically (has to or you'd have to manually start each film). Then all the projectionist has to do is hit the space bar to start the program. This may vary depending on the player selected.

SPONSORSHIP LOOP & WORKFLOW

You may opt to have some form of sponsorship advertising run between presentations. Generally you'll have multiple sponsors, so you'll want to string all their advertisements together in a slide show and have it repeat itself until it's time to start the next block of films. How to present that slide show is a matter of personal choice. Some options include:

• A slide show of images on the computer.
• A video loop created from still images and played on the computer
• A video loop saved to DVD and played on a DVD player

As usual, each has its quirks. I will cover the workflow for these below, assuming you've opted for a dual monitor system. If not, you'll have to follow instructions under "Using a Separate Monitor" above for either using a Y-adapter or switching monitors.

A slide show requires software. Resist temptation to use the slideshow built into the screensaver. Although you can trigger the screensaver manually, any vibration could abort it. There are hundreds of programs that will give you slideshows. You just need one that will display the images in order and in a loop. Windows PowerPoint is the most common, but it's not free. To avoid complaints from your sponsors, you should resize the images to roughly the same size or request them in a specific size. If your software automatically resizes the images to fit the screen, make sure they all look good when projected and that none of them take too long to load.

For a video loop, you want to end up with a video of your advertisements strung together. Create it in whatever editor you're used to and export in any file type your player can play. Make each ad the same length, five seconds each should do - your choice. Here's the workflow, using your player software for both the loop and the film program:

Start Loop – (timepasses) – double-click playlist (and pause) – Introduce Films – Press SpaceBar – (films play) – Stop Player – Do Q&A - repeat

There is a slight problem doing this with your video player, though. You need the advertising loop to loop! The easiest way to do this is to create one video file of the full loop and then list it many times in its own playlist. The playlist file might look like this:

Film fest advertising loop
D:\Fest_Loop.MPG
D:\Fest_Loop.MPG
D:\Fest_Loop.MPG
D:\Fest_Loop.MPG
D:\Fest_Loop.MPG
(etc)

It should repeat enough to cover any gap in your program. A half-hour works for me. When it's time to start, just double-click on your film program playlist and pause it. There are some other options:

- Create a really long advertising loop by repeating the same ads over and over in a single video, but that will take some time and a lot more disk space. If you have to make any changes, you must redo all the repetitions as well.
- Set your player software to loop before you start playing the ad loop and then set it to not loop before you start playing the next film block. That might work for you, but at some point you may forget and you'll have it loop when it shouldn't or vice versa.
- Use a different player program for your loop and set that program to loop. There is still risk of error – playing the wrong thing, loading it into the wrong program, etc.
- With some players you can define looping per playlist, so you can set your advertising playlist to loop and your film program playlist to not loop.
- Make a DVD of the advertising loop. You can set the DVD to repeat itself in your DVD creation software. This requires a DVD player in the theater, but if they have a digital projector, they most assuredly have a DVD player. If they don't, you can buy one cheap. Press play on the DVD player and leave it running all day. Press buttons on the projector to switch between the DVD player and the computer. Of course this has some risk as well. You could end up in the wrong mode on the projector. Also, you will not be able to size the ads to fill the screen because you need to leave the projector at the correct magnification for the computer. That could be considered a plus since people can't see them well while folks are taking their seats if they fill the screen. The only other issue is that when the DVD loops at the end, there is a slight delay, which means your last slide may be visible slightly longer than the others. This delay will vary between DVD players. If the delay is too long you can compensate by making the last slide shorter when you create the DVD or just put your biggest sponsor at the end.

ADJUSTING THE PROJECTOR

With true widescreen projectors (more pixels, not just stretched pixels) you are showing the film on the wide screen and the player software is displaying the film to best fit the screen area. This is automatic and you only have to set your size, height, and focus once and the theater may already have it set properly. If you have a standard projector or one that does stretched pixels for widescreen, you may decide to change projector settings partway through to get the best viewing on both standard and wide aspect films. This is relatively easy, though it varies based on the projector. With some projectors, you can preset your screen size, location, and focus. Then you just press a button at the right time to adjust the projector between the two presets. Without that feature, you need to manually make these adjustments during each block. It's generally best to start with standard aspect films and then switch to wide by following these steps:

- In your playlist, include a video that lets the audience know what you are doing, such as "pardon us while we adjust the screen". It should be long enough to cover the rest of the steps and it should be in widescreen format with a colored background. I have a video posted on www.fauxfilm.com/tips/ that you are welcome to use.
- Zoom and change the height of the projector so that the widescreen adjustment message properly fills the screen.
- Refocus.

You are still showing the films in standard aspect ratio, but the projector is now placing the black bars above and below the screen. It doesn't matter if film makers encoded their films as wide or letterboxed because they are both shown the same on a standard aspect projector. Don't forget to re-adjust for standard aspect films before the next block! There is an optional step of adjusting the side curtains in and out, or you can leave them adjusted for wide the whole time.

This process will take more effort on your part, but your widescreen film makers will greatly appreciate their image filling the screen, rather than showing in reduced size with screen whitespace on all four sides like many festival shorts blocks do.

One caveat is that some foreign films that appear to be widescreen encoded in standard format may have subtitles displayed in the black area. Check scenes where the subtitles are several lines long to see if this is the case. If it is, the film needs to be shown as standard, with the black bars visible on the screen.

TESTING YOUR FILM PROGRAM

So you have your festival computer all ready to go and your playlist files complete. Print out a copy of the schedule – the same one you made for the audience. Get ready to check things off as you go through the program. Now click on the playlist file.

Did it start to play your intro? If not, you may need to associate the file extension of the playlist file with the player you have chosen.

Did it start playing on the second monitor (projector)? If not, you need to make sure the settings of the player are set to remember the location of the window between uses. Test this by dragging the player window to the second monitor, exiting, then clicking on the playlist again.

Did it start playing full screen? If not, check the player settings and make sure playing fullscreen is selected.

Ok, so now that the player and playlist are working, here is what else you need to look for.

1. As each film plays correctly, check it off the list.
2. Make sure your "in-between" logo indeed plays after every film except the last and that your ending videos (stick around for Q&A, etc) play at the end.
3. Make sure all the standard aspect ratio films play before the transition video and all the widescreen aspect ratio films play after (if you have opted to do things this way because the theater lacks a true widescreen projector).
4. Make sure films play in the correct order, as listed in your program guide.

Additional things to note on your list next to each film name:

1. Volume change up or down needed.
2. Aspect ratio correction needed.
3. Stutter correction needed.
4. Sync correction needed.
5. Poor video image (they provided an overly compressed file).

When you have corrected all the issues, run the test again! It is best to run each screening from start to finish, but if you have already verified each film plays from start to finish without trouble and need to skip through testing, most players have a "next" button, such as PageDown, that will allow you to skip ahead through your program.

BACKUPS

Always have contingency plans in case of disaster! Here are a few options for backup:

1. Have an entire backup computer that duplicates the festival computer. If that is too expensive, at least have a backup USB2 hard drive or high speed flash memory drive (Class 6 or faster) that is a duplicate of the festival hard drive. Also include all the software programs you use (at least your video player and codecs) in case you need to install them on another computer. Keep this backup with you.
2. Store VOB or MPG2 versions of all the higher-quality files on the hard drive just in case something goes wrong with the HD files since there are so many ways to create those files that are not always standard. Also store VOB or MPG2 files for

features that you intend to play off DVCAM or other tape just in case something goes wrong with the tape deck.

3. Bring all the original DVDs to the theater just in case something goes wrong with the computer. This really is not terribly practical since the whole idea of projecting from computer is to get away from using DVDs. It helps if you only accept DVDs for submission preview and if the theater can play both PAL and NTSC. This may not be a viable option if you accept submissions via FTP and cannot duplicate your computer show using DVDs. You may want a multi format (NTSC, PAL, SECAM) DVD player in your backup kit if the theater doesn't have one.

IF DISASTER STRIKES

Ok, so you have configured everything correctly, you ran through your tests, and things start ok. Then suddenly something goes wrong during the fest. Don't panic! Most things can be remedied without drama. If you aren't going to sit in the projection booth, sit near it. You don't want to have to cross the auditorium in a mad dash to fix something.

If your program crashes partway through, no problem. Make a copy of the playlist file, open the copy, and delete the part of the playlist that already played, then save it. Click on the copy and continue from where you left off. I have had a player crash between films during a fest before and had a delay of only a minute to get running again. Since the crash is only visible on the monitor in the projection booth, the audience will only experience an unusual delay of blackness on the big screen. Watch for unusual delays if you are not sitting in the projection booth.

Crashes during a film are much more rare and I have never experienced one. Generally if the film loads, it will play fine. However, in case a crash during a film does happen, be familiar with the "skip forward" button in your player so you don't have to play the entire film over again or have the audience see your mouse appear on the screen to click on the progress bar. Here are commands to be familiar with and the standards that work in some players:

Skip forward/backward 5 seconds: Ctrl-Arrow (Left for backward, Right for forward)
Skip forward/backward 20 seconds: Alt-Arrow
Skip forward/backward one film: PageDown or PageUp
Enter or exit fullscreen mode: Alt-Enter (toggles)
Pause the current film: Spacebar

Note that by having a quick "inbetween" video with your festival logo that plays before each film you can easily restart a film by hitting PAGEUP on most players. That will cause the player to play the previous film (the fest logo) and then the current film will start again.

TROUBLESHOOTING THE CONNECTION

So everything worked fine at home but you can't get an image to appear on the screen! I have seen this happen multiple times at presentations and film screenings. In most cases they simply didn't bring the right cable or adapter. Don't let this happen to you! Build your adapter kit. Find out what connection you will be using on the projector. Slightly old projectors usually use DVI, or SVGA for older projectors. Newer projectors may have HDMI, DisplayPort, or something even newer. If the projector has a DVI port, note if any of the holes are missing, which will prevent you from using some cables and adapters. Contents of your adapter kit:

- Cable from your computer connection to the projector connection. If you are planning for all contingencies, plan for DVI, SVGA, and HDMI on the projector end. Ports on both the computer and projector will be female, so you need Male to Male cables.
- Adapter from the standard cable typically plugged into the projector connection to the computer connection (such as DisplayPort on your computer to DVI on the projector). This is especially important for setups where the projector is unreachable so you must use their cable. Remember now that the cable has a male end, so you will need an adapter with male on the computer end and female on the projector end.
- An "Active Adapter" if you are using a DisplayPort from your computer to a DVI port on the projector. It may or may not be necessary, so it's best to have both types.
- Gender changers, just in case.

Important: DVI connections have several types. Make sure you know what the projector has – usually DVI-I (integrated). This includes both DVI-D (digital) and DVI-A (analog) in the same connector. Sometimes the projector may think there is a DVI-A signal when there isn't, so you may want to use a DVI-D cable when connecting from a DVI port on the computer to a DVI port on a projector. Also, some projectors may have a DVI-D port with no holes for the analog pins, thus a DVI-I cable may not plug in. You will not find a DVI-A port on a computer or projector - it's always either DVI-D or DVI-I (or SVGA for analog). If you are going from SVGA on the computer to DVI-I on the projector, then an SVGA to DVI-A cable is used.
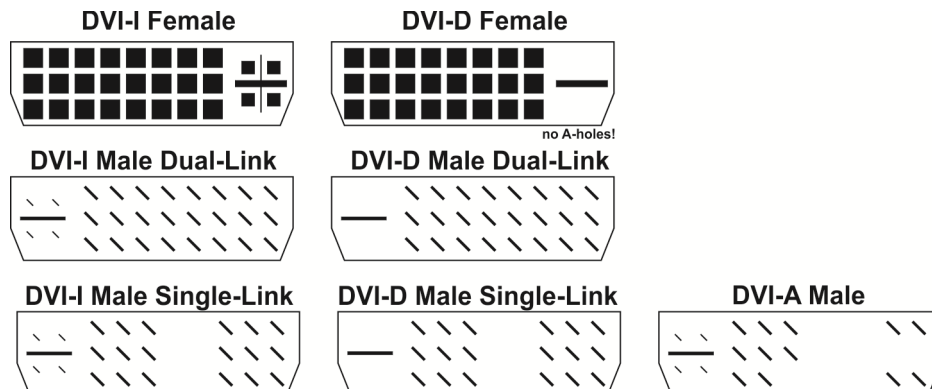
Confused? It gets worse. Some cables and adapters can have pins or holes that are not attached to wires! Thus what looks like a dual-link DVI-I could be something else! So label your cables and adapters when you get them. If you want to keep it simple, just make sure the projector has DVI-I and get a DVI-I cable. Ignore single-link vs dual-link - that is not relevant up to 1920 x 1080, the max of most projectors (or just get dual-link to cover all bases, if there are no holes missing on the projector). If your theater has a "2k" or "4k" projector, you must use a dual-link DVI-D cable. When in doubt, get the model number of the projector and download the PDF instruction manual online. Note that 2k and 4k projectors may be digital only, which means an SVGA port on the computer won't work.

HDMI can be problematic, so test thoroughly. Use the shortest cable length possible and make sure you know what connector sizes you are using (HDMI also has mini and micro versions).

I recommend www.pchcables.com for a good selection of reasonably priced good quality cables and adapters.

IN CLOSING

While it may sound like there is a lot to worry about with computer projection, this far outweighs juggling DVDs live at a festival and avoids a large number of problems with DVDs and tapes. Plus you can stick that box o' DVDs in storage and still have easy access to the whole festival. No searching for disks. Buy a new hard drive each year or archive each year in its own folder on a larger drive. You can store the whole festival on a thumb drive!

Questions or comments? Use the **Contact** form at **www.fauxfilm.com**
Courtesy of the Faux Film Festival (www.fauxfilm.com).
Please do not distribute this document – instead link to **www.fauxfilm.com/tips**

Titles between asterisks are considered essential

SOFTWARE REFERENCE	
Software	**Web Site**
Video Help – Tools Complete list of available digital video tools	www.videohelp.com/tools
MediaInfo Video identifier similar to Gspot. Use both – they may support different formats. Free.	http://mediainfo.sourceforge.net/en
EDIT AND CONVERT	
Handbrake Handbrake is beta but continues to improve. Handbrake can convert a DVD to MP4 and hardcode subtitles in one step. WinFF is easier to use, but if you play with the quality setting you can get better output from Handbrake. Free.	http://handbrake.fr/
DVDPatcher Use to correct wrong header information on MPG2 files (from DVD), such as aspect ratio. Use carefully! Make sure all other settings match. Free.	http://download.videohelp.com/download/DVDPatcher_v106.zip
WinFF Converts files to MP4 H.264 and others without having to adjust a lot of settings. Use the "Super High Quality" preset. Free.	http://winff.org/
Womble Video Wizard For editing VOB and MPG files without re-encoding. Great for changing volume or cutting out color bars.	www.womble.com/
TMPGEnc MPEG Editor 3 For editing MPG files without re-encoding. Also supports HDV. Can read directly from DVDs and automatically correct sync issues that can occur when manually copying VOB files from DVDs.	http://tmpgenc.pegasys-inc.com/en/product/tme3.html
AVI Demux Lossless trimmer. Free. Likely the most popular cutter and has a 64 bit version. Be sure to change output format to MP4 – it defaults to AVI.	http://fixounet.free.fr/avidemux/download.html
Free Video Dub Lossless trimmer. A bit kludgy to use, but does the job. Free. WATCH OUT FOR "EXTRAS" DURING INSTALLATION.	http://www.dvdvideosoft.com/products/dvd/Free-Video-Dub.htm
MPEG Streamclip Lossless trimmer. A bit kludgy to use, but does the job. Free.	http://www.squared5.com/svideo/mpeg-streamclip-win.html
Smart Cutter Lossless trimmer. Easiest to use of the lossless cutters, but costs $50. The trial will stamp "demo" on your video.	http://www.fame-ring.com/smart_cutter.html
VideoReDo For simple editing of MPG files without re-encoding. Not as powerful as Womble, but cheaper.	www.videoredo.com
TMPGEnc Express	http://tmpgenc.pegasys-

For re-encoding anything to anything! Not good at keeping aspect ratio correct (set manually), so test settings.	inc.com/en/product/te4xp.html
H.264 Encoder Converts most formats into MPG4 H.264. Decent quality output in "High Quality" mode but contrast not as good as WinFF or Handbrake. Free.	http://www.h264encoder.com/
VSRip For exporting non-hardcoded subtitle image files from DVD files.	http://sourceforge.net/projects/guliverkli/files/VSRip/

<table>
<tr><td colspan="2" align="center"><h1>CODECS</h1>Note: may not be necessary with newer operating systems or player apps.</td></tr>
<tr><td>ffdshow
This will allow Windows Media Player and Media Player Classic to play just about anything without adding any other codecs and it has its own AC3 filter. Free. May be the only codec you need to install. Test thoroughly – some files may not play.</td><td align="center">www.ffdshow.info/</td></tr>
<tr><td>InstalledCodec
Lists and allows disabling of codecs. Helpful for troubleshooting faulty codecs. Not necessary if careful not to "over-install" codecs.</td><td align="center">http://www.nirsoft.net/utils/installed_codec.html</td></tr>
<tr><td>AC3 Filter
Audio codec needed to play many file types. May not be needed if you have installed some versions of Cyberlink. Only install if files play with static or no audio. Free.</td><td align="center">http://ac3filter.net/</td></tr>
<tr><td>CoreAVC MPG4 H.264 Codec
Decodes variations of AVCHD and MPG4 files. May not need for some players but may be faster, especially with newer nvidia video cards.</td><td align="center">www.coreavc.com/</td></tr>
<tr><td>Elecard MPG2 Plugin
Codec for decoding MPG2 files. Also a player and more. Not needed for Windows 7.</td><td align="center">www.elecard.com/products/products-pc/</td></tr>
</table>

<table>
<tr><td colspan="3" align="center">**PLAYER SOFTWARE**
(check www.videohelp.com/tools for others)</td></tr>
<tr><td align="center">**PLAYER**</td><td align="center">**PROS**</td><td align="center">**CONS**</td></tr>
<tr><td>***VideoLAN VLC Player***</td><td>Free, stable, built-in codecs. Version 2 is a major update and makes this an excellent choice.</td><td>UI not standard.</td></tr>
<tr><td>***Media Player Classic 6.4.9.1***</td><td>Free, simple, high quality image.</td><td>May require external codecs. No longer updated. Still a good option.</td></tr>
<tr><td>**Media Player Classic Home Cinema**
This is a different version of Media Player Classic by a different programmer based on the original code.</td><td>It has been enhanced and even has a 64 bit version and is kept updated.</td><td>Unfortunately, new bugs were introduced. Use with caution and test thoroughly. Check for stuttering and sync issues. Or just use the old tried and true version above.</td></tr>
<tr><td>**GOM Player**</td><td>Free, built-in codecs, nice UI.</td><td>Plays most formats with built-in codecs. Updated regularly.</td></tr>
<tr><td>**PotPlayer**</td><td>Free. Powerful.</td><td>Plays most formats with built-in codecs. Same issues as KM Player. Also, had issues with some files that played fine on other players.</td></tr>
<tr><td>**KM Player**
Replaced by PotPlayer.</td><td>Free, built-in codecs, lots of controls for geeks</td><td>Too many options for non-geeks, UI not standard.</td></tr>
<tr><td>**BS Player**</td><td>Configurable aspect ratios</td><td>Not free, not the best UI.</td></tr>
<tr><td>**Windows Media Player 12**</td><td>Free</td><td>Comes with Windows 7. May require some external codecs.</td></tr>
<tr><td>**Cyberlink PowerDVD**</td><td>Comes free with some DVD drives. Later versions support more formats.</td><td>May need to upgrade to paid version for some features or format support. Note that version 10 has a known bug where it won't play at all on some multi-monitor systems, so beware and test.</td></tr>
</table>

Remember that software is always being updated. In some cases significant improvements are made. In others new bugs are introduced.