Chapter 13 - Tips and Suggestions

For more Tips and Suggestions stop by our Web site at http://www.Terran-Int.com

How to optimize your system for compressing movies

- Turn off Virtual Memory.   If you work with multimedia, this should be off anyway.

Don't use programs like RAM Doubler.
- Make sure that there is at least 1 Mb of free memory that isn't being used by the

system or by Movie Cleaner (QuickTime often needs more memory than the system

has available).   Unlike other applications (such as Premiere) more memory than

the minimum does not speed Movie Cleaner up.
- Make sure your hard-drive is defragmented.
- Watch the chart underneath the output movie to see where your time is being spent

- you may want to avoid filters if your results are acceptable without them.
- Make sure you have the latest version of QuickTime.
- If you are using a PowerMac, make sure the QuickTime PowerPlug is installed in

your extensions folder.   If you are on a 68K machine, make sure it's
not in your

extensions folder.

To futher speed up processing, you can select Minimize Preview in the Preferences (in the Edit menu).   This changes the movie's image to a thumbnail, reducing screen draw times, and also deactivates the Before/After slider and the screen dither.

WWW Movies
If you are producing QuickTime movies for distribution on the World Wide Web, there are several things you should be aware of.

Keep your files small!
Most people are connected with modems and have extremely low bandwidth.   A fast modem transfers at roughly 2 kps - that's over 100 times slower than the 300 kps you get

from a double-speed CD-ROM!   Because the transfer rate is so low, people have to download your movie, and then play it back later.   They cannot play your QuickTime movie in real-time off the Web.

Your goal when producing a movie for the WWW is to keep it as small as possible to minimize your viewer's download time.   A good rule of thumb is that any file over 1 Mb total is too large.   As a point of reference, with a fast modem, a 1 Mb file will take about 8 - 10 minutes to download. Unlike in CD-ROM production, the data-rate for WWW movies is not the direct concern - the total file size is what you should watch.

Figure out how long your movie is and then figure out what your kps should be to fit your whole file into 1 Mb.   If your movie is about 30 seconds long, a little under 40 kps will be close.   If your movie is significantly longer than 30 seconds, consider breaking it up or creating a short preview so your viewers don't have to wait so long before seeing something. Just remember that your viewers are spending a lot of time to download your movies - try to make their wait as short as possible.

There are several things you can do to keep your files small while maintaining decent image quality.   The biggest one is to keep the image small - 160x120 is usually a good size. Lower your frame rate - 10 or 12 kps usually works well. Use IMA audio compression to keep your audio as small as possible.   Use an aggressive blur and/or adaptive noise reduction to make the image compress well at low data-rates.   Finally, set your data-rate low - 40 kps is a good range for a 30 second movie.

Make your movies cross-platform
People viewing your WWW movies will be using all sorts of machines, so you must make your movies cross-platform.   Make sure the "flatten and cross-platform" box is checked in the Movie section of the Advanced Settings.   Since your movies will be viewed on PC monitors as well as Macintosh monitors, you may want to compensate for the fact that PC monitors are darker - setting the Gamma to 1.2 - 1.5 in the Video section should work. Finally, remember to keep your names 8 (or fewer) characters long followed by a period and then "mov" for PC users.   For example, the movie "Presentation" should be renamed something like "present.mov".

Copyright violations galore!
Finally, a word of caution - anything really cool that you put out on the WWW may get distributed everywhere. People will violate your copyright and use your movies in ways they are not supposed to, regardless of what kinds of notices you post.   Assume that any supporting files will be lost, so people will only see the movie and not necessarily your README file.   Finally, if your movie is for promotional purposes, make sure that your contact information is in the actual video track (often a single end frame with text works well).

8-Bit Cinepak

Everyone seems to be excited about 8-bit Cinepak.   Most of the excitement seems to be based on the misconception that each frame in an 8-bit movie will be significantly smaller than the same frame in a 24-bit movie.   Therefore (the reasoning goes), you can create lower data rate 8-bit movies that look almost as good as 24-bit movies or similar data rate 8-bit movies that look better than a comparable 24-bit movies.

Sadly, this is often not the case for a couple of reasons.   First, 8-bit images do not compress

nearly as well as 24-bit images because the dithering information must be stored.   The compressor doesn't have as much flexibility on how it can compress the image, since every pixel must stay the same to preserve the dither.   To illustrate this, try downloading a GIF (which is an 8-bit format) and a JPEG (a 24-bit "lossy compression" format) from the Net. Even when the file sizes are the same, the JPEG will generally look much better because it compresses much tighter.   This is true with movies as well.

The other reason people are excited about 8-bit movies is that the built in dither in QuickTime is very "quick and dirty" and doesn't always do as good a job as is possible. People assume that 8-bit Cinepak will do a better job than the default dither, but this often isn't true.   8-bit movies often look significantly worse than 24-bit movies with a custom palette attached.   The jury's out on why this is the case.

So why use 8-bit Cinepak?   In general you shouldn't.   For movies that are not "live" video, such as animation, cartoons, etc., 8-bit Cinepak may give good results.   But always test before using it.   Also, if your target audience has 16 or 24-bit monitors, they'll dislike having to watch 8-bit movies.   Since it doesn't really give you better quality, or save room, there's not much reason to hassle with it.   If you do decide to use 8-bit Cinepak, make sure to use a custom palette.

Palette Issues

To make sure your movies look their best, you should normally attach a custom palette. When they are viewed on a 16 or 24-bit monitor, they will look normal.   When they are viewed on a 256-color monitor, QuickTime will use the attached palette to display them.

If you don't attach a custom palette, your movie will probably be displayed in the system palette when viewed on a 256-color monitor.   While this is a good general-purpose palette, you can almost always do better for an individual movie.

To create a custom palette for a Movie with Movie Cleaner Lite, you must first create a PICT file of the image that the palette will be based on.   To do this, you can simply open your movie with Apple's MoviePlayer and export a representative frame with the Export command in the File menu (make sure to specify "Movie to Image").   You can also just copy a frame with command C and then paste it into your favorite image editing application.

Once you've create the PICT file, go to the Movie Section of the Advanced Settings window in Movie Cleaner Pro and press the "Set Palette" button and indicate the frame you exported. Movie Cleaner Pro will check to see if there is an existing palette attached to the PICT file.   If there isn't, it will create a new palette for your movie.

If there is a palette attached to the PICT file, it will use that palette instead of generating a new one.   This allows you a convenient way to create a series of movies that all have the same palette.   Also, some programs, such as Equilibrium's Debabelizer™, have stronger palette generation capabilities than Movie Cleaner Pro, so they may be a better route to finer control of your palette.

Palettes and Director

If you are creating movies that will be played back from within another program such as Director, you will have to deal with palette flashes as you switch between movies that have

different palettes.   Also, your surrounding graphics (if any) may flash or become oddly colored if you do not keep a common palette with the graphics and the movies.   For this sort of application, it is often better to create one "super-palette" for all the graphics and movies, rather than unique palettes for each item.   While this super-palette approach isn't as "fine-tuned" as a custom palette for each movie, it significantly reduces problems associated with switching palettes on the fly and makes production much simpler.

Cool things to do with the Talking Heads filter

The Talking Heads filter was originally designed to handle "talking heads" video in which there is a stationary subject (such as a newscaster) in front of a static background.   You can specify zones that should not be updated by creating a mask PICT - any area that is black in the mask will remain the same as the first frame throughout the movie.   While this is a great way to eliminate video noise in static backgrounds, it actually lets you do many other things.

One of the neat tricks you can do with the Talking Heads mask is create video within a picture.   The actual video can be any shape.   This is great for applications where video plays within a larger picture, such as a car game in which the video plays in the windshield and the rest of the screen is the dashboard, instruments, etc.

To accomplish this effect, simply copy the picture that makes up the frame of the video and paste it into the first frame of your uncompressed movie.   You can do this with Apple's MoviePlayer.   Next, create a mask in your favorite image editing program that is white where you want the video to play, and black everywhere else.   In our example, you'd make the windshield white and the dashboard black.   Set this PICT as your mask for the Talking Heads filter in the Video Section of the Advanced Settings Window, then compress your movie.   Strip the first frame off of the final compressed movie and you're done!

You can also create ghost images using a similar technique.   Paste the still frame that you want your ghosts to be superimposed on into the beginning of the movie that has the actual ghosts.   For example, if you wanted a person to walk around a room, you would paste a still of the room without the person at the beginning of the movie that has the person walking around in the same room.   Or you could just use video in which the actor was off screen during the beginning. Set your mask image to a solid gray PICT - the lighter the gray, the more substantial your ghosts will be.   You can even create a vertical gradient mask that goes from white to black so that people "fade-out" before they touch the floor, or a horizontal gradient so that your actors "dissolve" as they move across the screen.   Make sure to use a blur in your final video settings (mild is usually enough) so that you don't get any pixelation from the mask image.

There are many other neat uses for this filter - experiment!

Indeo vs. Cinepak

A common question is which codec to use for a project.   Generally speaking, most CD-ROM based products use either Cinepak or Indeo.   Both have their own strengths and weaknesses.

Cinepak is the "safer" bet for most titles in the sense that it runs consistently well on lower end machines than Indeo.   The image quality is usually not quite as good as Indeo, but this

depends on the subject matter and other factors.   At lower data-rates, or on lower end machines ('030's, or 386's, or single speed drives), it tends to give better results than Indeo.

Indeo is generally a "higher-end" solution.   The results it gives, especially with talking head type video, are usually superior, but it requires a higher end machine (fast '040 or Power Mac, or fast 486 or Pentium) to play well.   Indeo doesn't like certain kinds of video content (lots of overall motion, for example) and does not give as good results at lower data rates.

To sum it up, if you are going for a lower common denominator in your target platforms we normally recommend Cinepak.   If your target platform is higher end machines we recommend that you test Indeo to see if its results are better than Cinepak.   If you do decide to use Indeo, be sure to include the Indeo extension with any product you ship - it must be installed in the playback machine in order to play properly (don't forget to mention this in the README).

Making movies for Director

Director is vital to multimedia production.   It does, however, have some weaknesses that Movie Cleaner Pro is designed to address.   Most importantly, Director has a hard time starting video smoothly.   It tends to "jerk" at the beginning of movies, and not play movies well for the first second or so.

Movie Cleaner Pro lets you set a First Frame Hold, which changes the duration of the first frame to the specified time (it is actually changing just the frame's time, not adding more frames, so it doesn't take any more room).   By setting this frame hold to one second, you create movies that start playing "paused".   After a second, the motion starts.   This allows Director to "come up to speed" before it tries to start playing your movies, so they don't jerk or skip.

Another trick that works well with Director is to create movies that have High Quality First and/or Last Frames.   This option (set in the Video section of the Advanced Settings Window) forces the first / last frame of your movie to have a higher data-rate than normal, so it looks better than normal.   Some people used to paste uncompressed stills at the beginning and end of their movies to do this.   Since the first frame is already on the screen when the movie starts to play, this higher data rate does not affect the movies' playback.   This trick is especially important if you are designing video that stays up on the screen before or after it is played.

The last little trick that Movie Cleaner Pro can help you with is creating movies within irregularly shaped frames, such as when video is played within a graphic.   This subject is addressed above in the section that talks about other uses for the Talking Heads filter.

Data Rates for CD-ROM's

One of the most frequently asked questions is "what data-rate should I use for my project?"   The Movie Expert can help you make this decision based on several factors.   It is often best to go through an interview and then switch to Advanced Settings to see the actual data-rate the Movie Expert has suggested.

However, here are some brief guidelines: For a cross-platform or Windows-only product on a 2x CD-ROM,   a total data-rate (including sound) of 170-200 kps is usually safe.   For a

Macintosh-only product on a 2x CD-ROM, 220-250 kps is usually safe.

Obviously, Windows machines are not ideal multimedia platforms.

Windows compatibility issues

If you are making a Windows or cross-platform product, make sure to check to see if the Movie Expert says your settings will work for all your target machines.

QuickTime movies that will be played on a Windows machine must be flattened and made cross-platform (which means their resource fork is stripped off), as well as have the proper audio sample rates.   The Movie Expert automatically handles this during the interview process, and will indicate on what machines your settings will work in the Advanced Settings window.