

Cinepak® Toolkit™ with Cinepak®Pro™

User's Guide



Compression Technologies, Inc.
Oakland, California USA

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Introduction

Cinepak® Toolkit™ is an easy-to-use compression tool that delivers consistently high-quality compressed digital movies for the Web, CD-ROM, DVD-ROM, Kiosk, intranet and game environments. Cinepak Toolkit has been optimized to work with the NEW Cinepak®Pro™ compressor, achieving precise data rate control for flawless playback.

Cinepak Toolkit can prepare any QuickTime™-compatible files for compression, including QuickTime movies, QuickTime composites, or multiple PICT files. Use any QuickTime-compatible video capture, editing, or special effects software to capture and edit your QuickTime movies, and then use Cinepak Toolkit to optimize these movies for playback on your target platform.

Cinepak Toolkit provides a monitor window for each stage of the processing. This feature allows you to view the effects of your settings and make adjustments, if necessary, before starting the final processing. Cross-platform support, audio interleaving, and the ability to combine multiple source files into a single output file are additional features that you can select.

CinepakPro is compatible! Movies compressed with CinepakPro can be played back on any existing Cinepak decoder including Macintosh, MacOS, Windows 3.x, Windows 95, Windows 98, Windows NT, NeXT, Silicon Graphics, Sun Java Media Tools, 3DO, Sega Saturn, and XWindows with XAnim.

System Requirements

Cinepak Toolkit requires a Mac™OS-compatible PowerPC based computer. Cinepak Toolkit requires System 7.5 or later and QuickTime 2.5 or later.

Cinepak Toolkit has been optimized to take maximum advantage of the new CinepakPro compressor. However, Cinepak Toolkit can control image processing and compression using any QuickTime-compatible compression method (codec).

Chapter 1

Installing Cinepak Toolkit

Follow these instructions to install Cinepak Toolkit and CinepakPro on your startup disk:

1. If you have anti-virus software installed on your system, make sure you disable it before you begin the installation.
2. Double-click the *Install CinepakPro & Toolkit* file icon. The license agreement and late breaking information about Cinepak Toolkit and CinepakPro are shown. If you agree with the license agreement, click OK to continue.
3. The Easy Install dialog box appears. If the name of your startup disk does not appear in this dialog box, click the Switch Disk button until it does.
4. You may choose the name of the folder into which Cinepak Toolkit is installed using the Select Folder button. *Note:* The CinepakPro compressor will be installed on the currently selected startup disk.
5. Click Install.
6. When prompted, click Restart to restart your system and enable the system extensions included with Cinepak Toolkit.
7. Restore any anti-virus software you disabled prior to the installation.
8. The first time you run Cinepak Toolkit you will be prompted for a serial number to enable the Cinepak Toolkit and the CinepakPro compressor. Use the serial number that was e-mailed to you when you purchased Cinepak Toolkit with CinepakPro.

Cinepak Toolkit and CinepakPro are now ready to use.

Chapter 2

Using Cinepak Toolkit

Choosing a Source and Output File

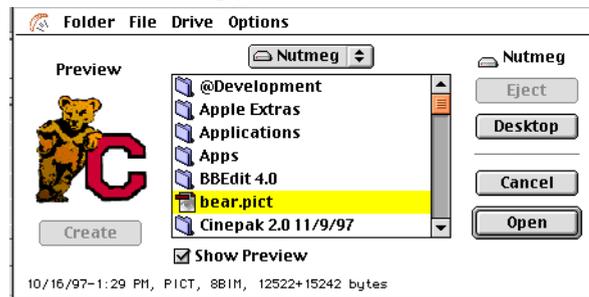
This procedure describes how to choose a single movie or PICT file to be processed and compressed, and how to specify the output file. For instructions on how to set up batch processing of multiple movies or PICTS, see page 14.

To define source and output files:

1. Open Cinepak Toolkit.
2. Click Set Source (or choose Set Source from the File menu).



A standard file search dialog box appears. Choose the movie you wish to compress. You can use the Show Preview and Create buttons to look at the poster frames for movies to help you determine which movie to compress.



Choose the file you want to compress. This is your video source file. You can choose a QuickTime movie or a PICT file. Cinepak Toolkit automatically enters the video source file name into the Compressed File text box, and appends the suffix “.MOV.”

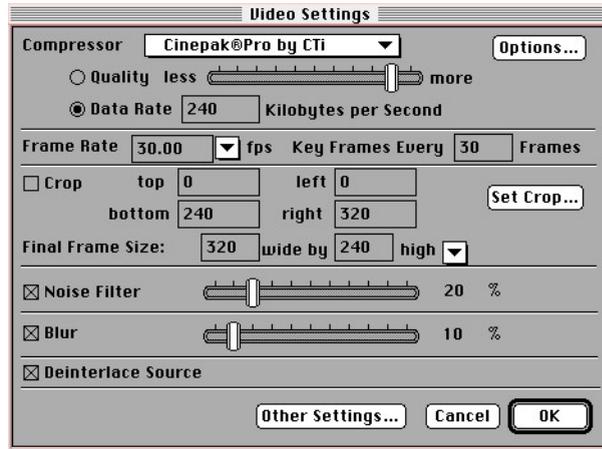
3. To save the output to a different file name, enter the new name in the Compressed File text box. To save the output to a different folder, click Set Output and open the folder where you want the compressed file to be saved.

Note: If your final video will be played back on the Windows platform, make sure the Compressed File name is no greater than 8 characters, plus a three-character suffix.

You are now ready to change or confirm the Video Settings that define the way your video source file is processed.

Choosing Video Settings

1. From the Edit menu, choose Video Settings. The following dialog box appears:



2. **Compressor:** From the Compressor menu, choose CinepakPro by CTi. The CinepakPro Options button will appear to the right of the Compressor menu. To “Fine-Tune” CinepakPro’s internal options, see “CinepakPro Options” on page 19.

Cinepak®Pro by CTi

3. **Data Rate/Quality:** Enter the desired data rate for the video track, in kilobytes per second (kbps). The default setting is a data rate of 240 kbps, which is a high-quality setting for a Macintosh with a double-speed CD-ROM drive. If you are more familiar with using settings on the standard QuickTime Quality slider, click the Quality button and use the slider to select a Quality setting.

Data Rate 240

The optimum data rate/Quality setting depends on the content of your video, and the capabilities of the platform on which the finished video will be shown. A good range to try is 190 to 240 kbps; 190 kbps for video to be shown on the Windows platform, up to 240 kbps for the fastest Macintosh/Power Macintosh models.

For Web, inter- or intranet delivery, a good range is 24 to 56 kbps with video frame sizes (see #8 below) of 160 by 120 or smaller.

Frame Rate 30.00 ▼ fps

- 4. Frame Rate:** The default output Frame Rate shown in the Video Settings dialog box will be the same as the frame rate of your video source. To specify a different frame rate for the final, compressed video, enter a new rate in the text box, or choose a rate from the pull-down menu.

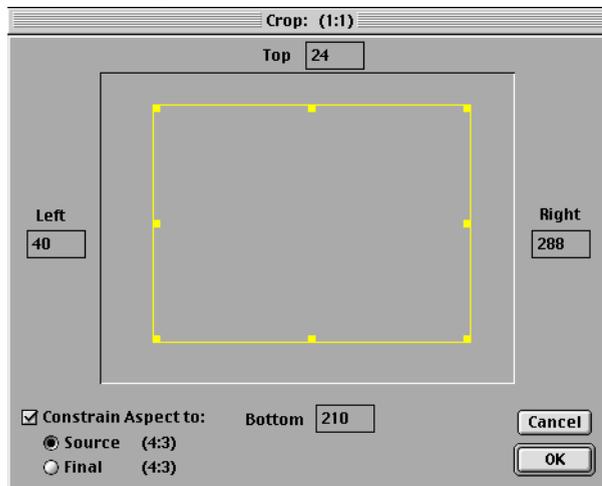
Key Frames Every 30

- 5. Key Frame Insertion:** Determine the frequency of inserting “forced” key frames. You may need to experiment to get the best key frame rate: too many key frames may lower the overall quality of the compressed movie. If the change in the content of the video image differs significantly from frame to frame, CinepakPro will insert additional “natural” key frames, as needed, to compress your video.

If you need the ability to skip to certain times or indices within the movie for you particular application, set this value so that key frames are at or near these time values. For example, if you need to seek to time values near half seconds, and the final frame rate (#4 above) is 30 frames/second, use a setting of 15.

For Web, inter- or intranet delivery where data rate minimization is critical, set the key frame rate to 0 or a very large number. This will allow CinepakPro to determine where key frames are most efficient and only those will be inserted. This keeps the data rate as low as possible while maximizing video quality.

- 6. Cropping:** To crop your video, check Crop, then click the Crop tool button. The Crop dialog box appears.



A rectangle defines the image area. Drag the handle(s) on the rectangle to crop your image. There are eight handles; one at each corner of the rectangle, and one at the midpoint of each side.

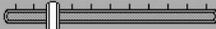
Use the constrain aspect controls to preserve either the source (original) or final aspect ratio of the crop box while you adjust it.

To see how your cropping is applied to each frame of your video, drag the slider at the bottom of the image area.

Or use the control buttons for starting and stopping video playback, and for adjusting the sound level.

Final Frame Size: wide by high

- 7. Frame Size:** The default output frame size is the same as the frame size of your video source. To resize the video before compression, enter a new frame size in the text box, or choose a size from the pull-down menu.
- 8. Noise Filtering:** If your video has noise (such as light spots on dark areas) check Noise Filter and adjust the slider.

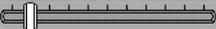
Noise Filter  20 %

If the noise is concentrated at the top or bottom of each frame (“head noise” is a common cause), it is better to crop the area rather than to apply a noise filter to the entire image.



Crop noise at top and bottom of image rather than using the noise filter

- 9. Blurring:** To soften jagged edges, check Blur, and then adjust the Blur slider. If your images have a lot of high-contrast areas, you should apply a slight blur (10% - 20%) to soften the transitions. This helps the CinepakPro codec process the video more efficiently.

Blur  10 %

Deinterlace Source

- 10. Deinterlacing:** Check the Deinterlace Source check box to enable deinterlacing of full-sized source video frames. Cinepak Toolkit will eliminate and reconstruct the appropriate field based on your setting of field dominance in the Other Settings (see below) and the desired output frame rate. Cinepak Toolkit uses the field that is closest to the sampled instant of time from the original video. If the source video is not full-sized, no deinterlacing will be done.
- 11.** Click the Other Settings button to choose additional settings for your video output.

Choosing Other Settings

The “Other Settings” dialog box provides options for making a file that can be played on either the Macintosh or Windows platform, for interleaving audio and video, and for selecting field dominance when compressing NTSC or PAL movies. It will also direct the output of multiple source files to each generate a separate QuickTime movie, or concatenate them into a contiguous QuickTime movie by appending them to a single movie file.

To select these other settings:

- 1.** To combine the resource and data forks used in the standard Macintosh file format into a single fork file that can be read on both the Macintosh and Windows platforms, make sure the Make Cross-Platform option is checked.
- 2.** To interleave a movie’s audio and video files, select the Interleave Audio option. This is required if you want the finished compressed file to be readable on both the Windows platform and the Macintosh platform. Even if the output is intended only for the Macintosh, interleaving the audio can produce smoother playback on the slower Macintosh models. Different platforms play movies best with specific interleaving settings. Cinepak Toolkit allows you to specify the interleave ratio by frame or by second.
- 3.** If you are processing multiple files, and you want the output to be combined into a single movie file, click Append. If the output movie exists, the newly compressed output will be added to the end of the output movie when this check box is checked.
- 4.** Click OK to activate your settings and close the dialog box.
- 5.** Choose Save from the File menu to save your control file.

Checking Your Video Settings —Monitor Windows

Cinepak Toolkit provides a series of monitor windows that allow you to view the frames of video as they go through successive stages of processing. The windows update as processing occurs, so you can compare the effect of each video setting you chose with the output that results.

- The **Selected Frame** window shows the frame that is about to be processed. The image in this window remains unchanged while the frame is processed, to allow you to compare the unprocessed frame to the results produced by cropping, resizing, filtering, and compressing the image. If you specified an output frame rate that is lower than your input frame rate, this window (and all other status windows) show only the frames that will appear in the final output.
- The **Deinterlaced** window shows the effects of the deinterlacing filter when active.
- The **Cropped** window shows the effects of any cropping you have applied.
- The **Noise** window shows the effects of any cropping and noise filtering that has been applied to the frame.
- The **Resized** window shows the combined effects of cropping, noise filtering, and frame resizing. (Resizing occurs only if you have specified an output frame size that is different from the input frame size.)
- The **Blurred** window shows the combined effects of cropping, noise filtering, frame resizing, and Blur that you have applied to the input video.
- The **Compressed** window shows how the final processed, compressed frame will appear.

Opening and Closing Status Windows

To open a status window, choose Show <Window Name> from the Window menu. The menu selection changes to Hide <Window Name>. You also can open and close the status windows by pressing the following key combinations:

Show/Hide Selected Frame	Command-I
Show/Hide Deinterlaced Frame	Command-2
Show/Hide Cropped Video	Command-3
Show/Hide Noise Filtered Video	Command-4
Show/Hide Resized Video	Command-5
Show/Hide Blur Results	Command-6
Show/Hide Compression Results	Command-7

Viewing the Processing

The status windows are useful only when processing is taking place. To view the progress of the Cinepak Toolkit processing:

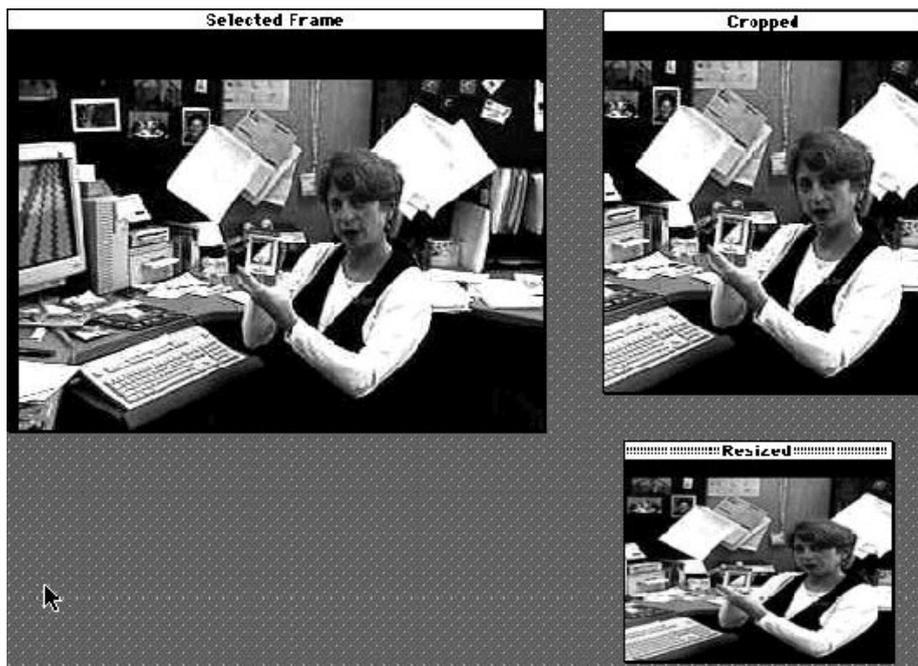
1. Open the status windows you want to view. If you are resizing the video, but not cropping it or applying the Noise or Blur filter, for example, you may want to open only the Selected Frame, Resized, and Compression windows.
2. In the main window, click the Step or Start button. The Step button processes one frame each time you click it. This may be the best option when you have just begun to experiment with the video settings.

The Start button initiates continuous processing. To pause processing, press the Start button again. To discontinue processing, press the Stop button.

3. When you are satisfied with your settings, close the status windows (optional) and then press Start. The entire Source file will be processed.

The following example shows three status windows from a frame that was cropped

and resized:



Conforming Your Source Movies

Cinepak Toolkit conforms its output movies, making each frame occur regularly, and of a consistent duration. When compressing unconformed movies, (including movies recorded with VideoVision Studio or Telecast) this process may shorten the length of the video track, while leaving the audio track unchanged. To avoid cutting off the last few audio samples, Cinepak Toolkit will insert extra video frames. These appear as white frames at the end of the movie.

To prevent this, you should conform your source movies before you process them with Cinepak Toolkit. Radius Edit conforms movies automatically, by matching the video track to the audio track. Because the audio track is sampled regularly and consistently, the frames of the video track also become regular and consistent.

If you use Adobe Premiere, you must conform the movie manually. Be aware that Adobe Premiere adjusts both the video and audio tracks to a new, calculated time-base. Refer to the user's manual included with Adobe Premiere (or any other QuickTime application you are using) for the procedure for conforming movies.

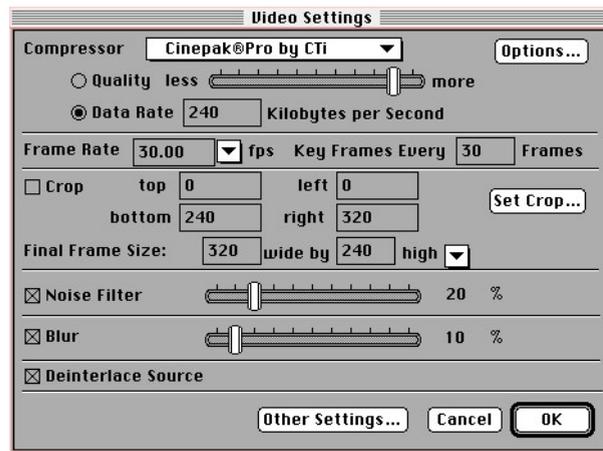
For other ways to prepare your movies for Cinepak Toolkit processing, see “Tips for Success” on page 39.

Chapter 3

CinepakPro Options

Cinepak Toolkit includes CinepakPro by CTi, a NEW version of the Cinepak compressor. This compressor has several new options for customizing the video output.

1. To adjust these options, choose Video Settings from the Edit menu. The Video Settings dialog box appears:



2. From the Compressor menu, choose CinepakPro by CTi. An Options button appears to the right of the Compressor menu.

3. Click Options. The CinepakPro options dialog box appears:



This appendix describes these options.

Natural Keyframe Insertion Threshold

In the Video Setting dialog box, you specified the interval you want CinepakPro to insert a keyframe. This is the *forced* keyframe rate. At times, for efficiency, CinepakPro will insert keyframes between these forced keyframes (for example, if a cut occurs during an interval between forced keyframes). The keyframes that automatically are inserted by CinepakPro are the *natural* keyframes.

The Natural Keyframe Insertion Threshold controls the sensitivity of CinepakPro to changes in the data. When you set the slider closer to the left, for a lower number, CinepakPro will look for smaller changes in data between frames before inserting a keyframe. When you set the slider toward the right and larger numbers, CinepakPro will less readily insert natural keyframes between the forced keyframes. That is, CinepakPro will require greater changes in the images before inserting a keyframe.

The best setting depends on your content. Because the data rate is fixed, when more keyframes are inserted, less data is available for the interframes. This may result in *keyframe pulsing*, where the keyframes are of noticeably better quality than the interframes. When the threshold is set too far toward the left end of the scale, compression is less efficient, and keyframes may be of noticeably poorer quality than the interframes.

You may have to experiment to find the best threshold for your movie. The numeric value for this threshold allows you to accurately reproduce your chosen setting.

Initial Keyframe to Interframe Size Ratio

CinepakPro inserts natural keyframes based on its experience with the data in your movie. The Initial Keyframe to Interframe Size Ratio controls the insertion of natural keyframes for the interval before CinepakPro has adapted to the data patterns in your movie. If the first keyframe in your movie looks significantly better than the first interframe, reduce the Initial Keyframe to Interframe Size Ratio. If the first keyframe looks significantly worse, increase the Size Ratio. The numeric value in the box next to this slider allows you to accurately reproduce your setting.

Leave Use Adaptive K/I Ratio unchecked. This option works well only in very specialized cases. With this option unchecked, CinepakPro will use the Initial Keyframe to Interframe Size Ratio to control the relative sizes of key- and inter-frames throughout the session.

Using CinepakPro in Applications other than Cinepak Toolkit

Cinepak Toolkit is necessary for CinepakPro to run. However, for your convenience, you can use CinepakPro in other applications. To do so, simply leave Cinepak Toolkit running while you use other QuickTime applications.

Chapter 4

Using Control Files

About Cinepak Toolkit Control Files

Cinepak Toolkit provides the most common operations you need to prepare your movies for Cinepak compression and playback. All the settings you choose for these operations are stored in a single, integrated control file, which can then be used to process your movies in unattended batch mode.

The control file can even monitor a folder on a network, and process all material deposited into this folder automatically. Network users can send new material to the designated source folder, and retrieve processed material from an output folder. Users also can send updated movies to the folder (without changing the movie names), and to have the updates processed without further action on their parts.

Creating and Saving Control Files

When you have set all the options you wish, simply choose Save from the File menu to save all the current settings into a control file. All the settings including the source and output file names and locations will be saved.

Stationery Control Files

You can create default control setting files that have all the processing settings but none of the file names (however, the locations of the files are saved). This can be handy when creating a set of basic defaults that will be used as a basis for later customization.

To create a stationery control file, switch to the Finder and choose Get Info... from the File menu when a control file is selected. Check the stationery check box. This will delete the references to any specific files, but leave all the other settings intact. When you later open this stationery file, it will open as untitled.

Setting Defaults

The preset defaults in Cinepak Toolkit work well for delivery of movies on CD-ROM. However, you may wish to change these defaults for your particular application. To do this, create a control file with the settings you wish to use, convert it to a stationery file as described above, then place the stationery file the Preferences folder inside the System Folder of your Startup Disk. The settings in this stationery control file will now be used as defaults when creating any new control files.

Chapter 5

Batch Processing

Setting Up Batch Processing

Cinepak Toolkit was designed especially for the unattended batch processing of multiple QuickTime movies and for processing and combining individual PICT files to create CinepakPro-compressed QuickTime movies.

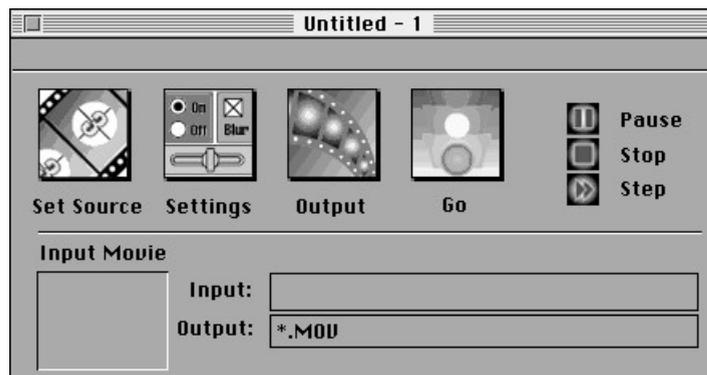
There are three ways to batch process files:

- Drop Folder Method — Create a drop folder that processes any QuickTime movie or PICT files that are placed in this folder into individual CinepakPro-compressed output files. This method uses a single control file.
- Concatenation Method — Place individual PICT files into a folder, then use the Append feature (page 13) in the control file to process the files into a single QuickTime movie, under the direction of a single control file. You can also use this method to process individual QuickTime movies into a single cuts-only movie, or to mix PICT files and QuickTime movies.

Drop Folder Method

To process a folder of Source files into individual Output files:

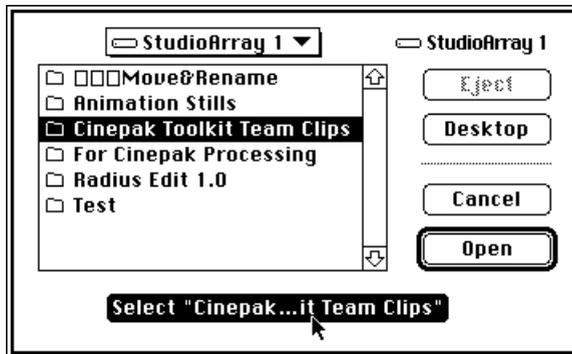
1. Double-click the Cinepak Toolkit icon to launch the application. A new, untitled window appears:



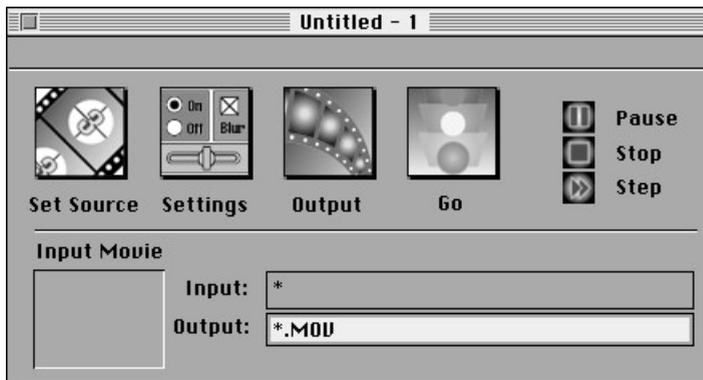
2. Hold down the Option key and click Set Source. A file search dialog box appears. (If you don't hold down the Option key, you can select a source file only.)

You also can open this dialog box by choosing Set Source from the File menu, then dragging to select Folder.

3. Choose the folder that contains the QuickTime movies and/or PICT files you want to process, then click the Select "<folder name>" button:



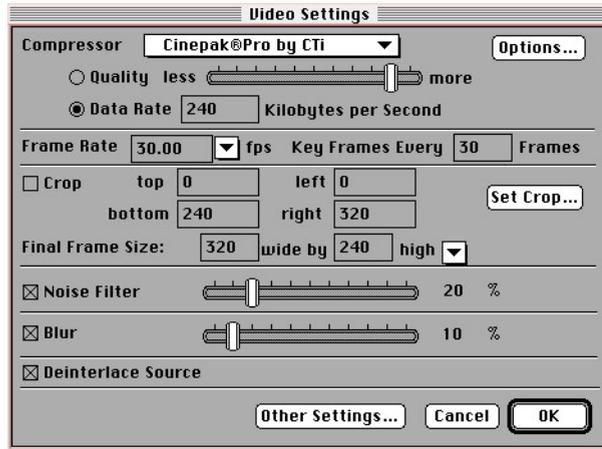
Cinepak Toolkit enters an asterisk in the Input text box, indicating that all files in the folder are selected for processing. The Output text box shows the entry *.MOV, indicating that output files will be named with the corresponding Source filename, appended with the extension “.MOV.”



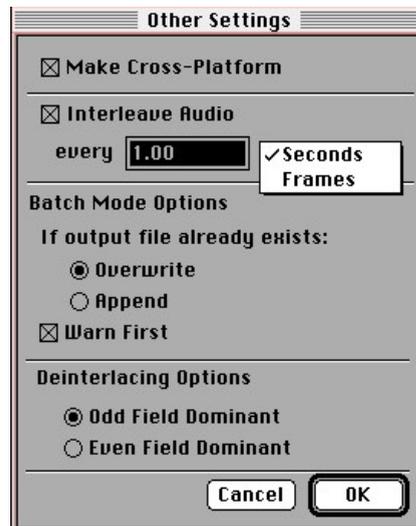
If you only want to process a select group of files in the folder, enter additional characters in the source name to more narrowly define the input, by matching those additional characters. For example, “Ad*” will direct Cinepak Toolkit to

process only those files whose filenames begin with “Ad,” like “AdClip43 comp”, “Ad Client Approved.mov”, and “AdTest1.MOV” would all be processed, whereas “Final Ad for Client.mov” would not be processed.

4. Click the Settings button, or choose Video Settings from the Edit menu. The Video Settings dialog box appears:



5. Select your preferred settings. These settings will be used to process all the files in your source folder. (See Chapter 2 for complete instructions.)
6. Click the Other Settings button. The Other Settings dialog box appears:



7. Under Batch Mode Options, make sure Overwrite is selected, then click OK to return to the Video Settings dialog box.
8. Set the location to receive the compressed movies using the Output button.
9. Click OK to return to the main window., then click the Go button to begin processing.

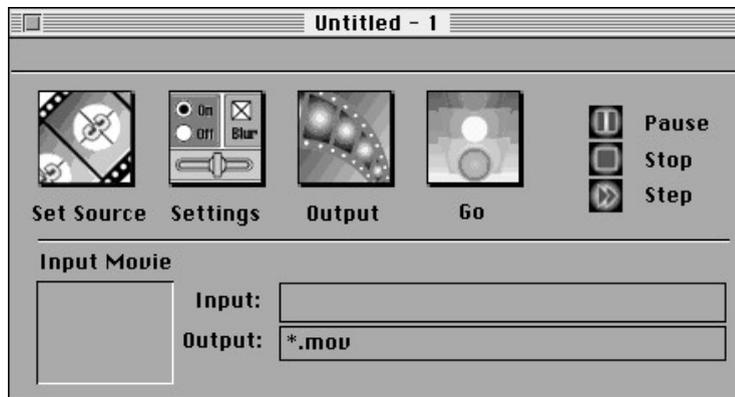
While this file is running, Cinepak Toolkit will continually monitor the folder and process all files placed in this folder that meet the Input name criteria.

Tip: You can use multiple computers running Cinepak Toolkit in batch mode, all monitoring the same source folder, but with different settings and output folders to quickly create different samples of movies at a variety of resolutions, frame rates, data rates, etc.

Append Method

To process a folder of Source files into a single QuickTime movie:

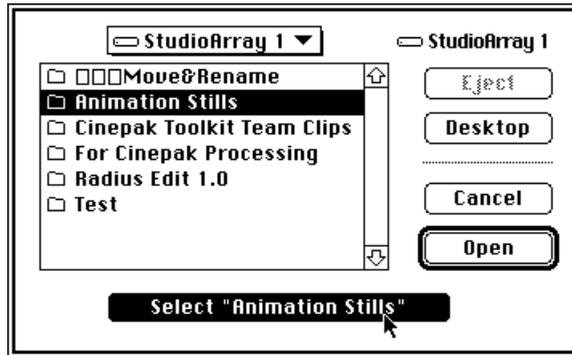
1. Double-click the Cinepak Toolkit icon to launch the application. A new, untitled window appears:



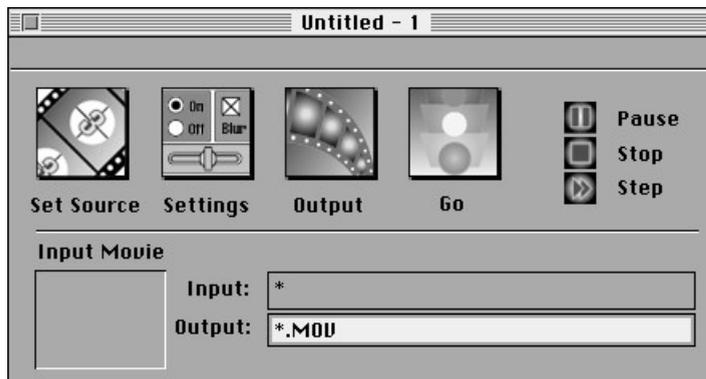
2. Hold down the Option key and click Set Source. A file search dialog box appears. (If you don't hold down the Option key, you can select a source file only.)

You also can open this dialog box by choosing Set Source from the File menu, then dragging to select Folder.

3. Choose the folder that contains the QuickTime movies and/or PICT files you want to process, then click the Select “folder name” button:

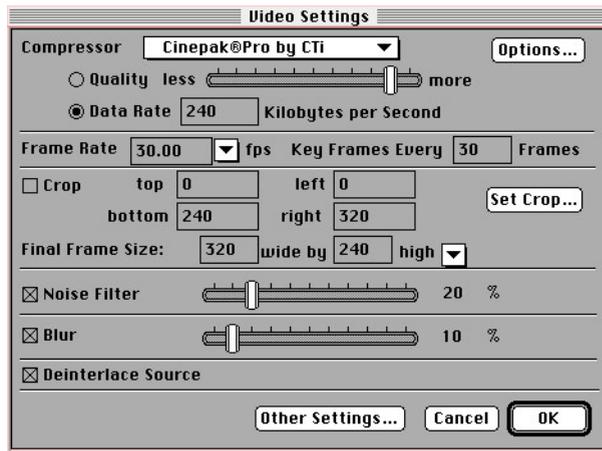


Cinepak Toolkit enters an asterisk in the Input text box, indicating that all files in the folder are selected for processing. The Output text box shows the entry *.MOV, indicating that output files will be named with the corresponding Source filename, appended with the extension “.MOV.”

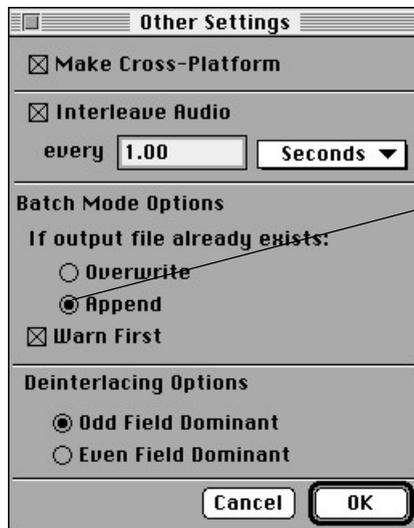


If you only want to process a select group of files in the folder, enter additional characters in the source name to more narrowly define the input by matching characters in the files you wish to process. For example, “Final*” will direct Cinepak Toolkit to process only those files whose filenames begin with “Final.” That is, the movies “Final Ad - approved” and “FinalSub.MOV” will be processed, while “Ad Final” will not.

4. Click the Settings button, or choose Video Settings from the Edit menu. The Video Settings dialog box appears:



5. Select your preferred settings. These settings will be used to process all files in your source folder. (See Chapter 2 for complete instructions.)
6. Click the Other Settings button. The Other Settings dialog box appears.
7. Under Batch Mode Options, choose Append.



Click Append to combine Source movies into one Output movie.

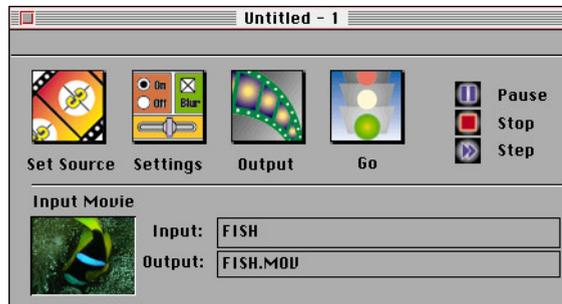
8. Click OK to return to the main window, then click the Go button to begin processing. Cinepak Toolkit will process the files in alphanumeric order and will stop after processing the last name on the list.

If you add a file to the folder after processing begins, the new file will be processed only if Cinepak Toolkit has not yet reached the position in the alphabetical list that corresponds to the filename of the late addition.

Chapter 6

Process Control

The main window of each control document has buttons for controlling Cinepak Toolkit processing:



- **Go** initiates processing of the selected Source. When processing begins, the Start button changes to a Pause button:
- **Pause** temporarily stops the processing after the current frame is completed. When pressed, this button changes to a Start button. When you press the Start button again, processing resumes at the point at which it stopped when the Pause button was pressed.
- **Stop** terminates processing. If you press the Start button, processing will start over at the beginning of the file.
- **Step** starts the processing of the next frame only. To process additional frames, you must press the Step button for each frame.

The main window provides indicators that let you monitor the progress of Cinepak Toolkit processing:

An activity indicator shows when Cinepak Toolkit is processing the file. The center display shows the time until completion in the format H:MM:SS, where H is hours, MM is minutes and SS is seconds.

Frame-by-Frame Editing

You can use the Step button to apply different video settings to successive frames in the same input file. For example, if you have a “talking head” video where the subject moves from side to side, you can crop each frame individually to place the speaker in the center of the frame.

To do this:

1. Choose your Video Settings.
2. Press the Step button to begin processing of the first frame. Processing will stop after the first frame is compressed.
3. Go to the Video Settings dialog box and select the settings for the next frame to be processed.
4. Press the Save button in this dialog box.
5. Press the Step button to begin processing the next frame.
6. Repeat Steps 3 through 5 to process additional frames.

You also can press the Start button when Cinepak Toolkit is not processing a frame to automatically begin processing the rest of the input file, using the current settings. (Check the activity indicator to see when processing has stopped.) You can press the Pause button, then press the Step button, to resume frame-by-frame editing.