

TealMovie User's Manual



Program Version 1.50
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Description

Thank you for trying TealMovie. TealMovie enables any model Palm handheld to become a player of high-quality video and animation. It supports features previously unavailable, including smooth playback up to 25 frames per second, high-quality full screen color or grayscale imagery, and synchronized sound playback capability. In addition to providing entertainment, TealMovie greatly extends the usefulness of Palm handhelds for sales, marketing, training, service, and maintenance operations for a wide range of industries. TealMovie files can be easily created from any Windows AVI file using the TealMovie Encoder, which runs under Windows 95/98/2000/NT. Sound playback is available on all Palm handheld models above a Palm III.

Contents

This archive contains the following files:

Program files:

TEALMOVI.PRC	The TealDoc player program
MAKEMOVI.EXE	TealMovie Movie Encoder program
SETUP.EXE	Easy installer program (Windows only)

Document files:

MOVIDOC.PDF	This document in Adobe Acrobat (PDF) format
MOVIDOC.HTM	This document in HTML format (sans images)
MOVIDOC.PRC	This document in TealDoc format
ASTRONUT.PDB	Sample movie file
REGISTER.HTM	TealPoint Registration form in HTML format
REGISTER.TXT	TealPoint Registration form in text format

Installing



Use the Palm Install Tool in the Palm Desktop to install the program file **TEALMOVI.PRC**. For it to be useful, you'll also need to install some movie files, available on our web site or most software archive sites like MemoWare.com or PalmGear HQ (<http://www.palmgear.com/>). A sample movie file, **ASTRONUT.PDB**, is included in this package. You can also create your own movie files using the TealMovie Movie Encoder **MAKEMOVI.EXE**. This program runs on the PC, and does not need installation. To run it, simply double-click on its icon.

This manual is provided in this archive as the PalmPilot document **MOVIDOC.PRC**. To read it, install it using the Palm Install Tool and read it with a Palm doc reader program like **TealDoc**.

Instructions on how to use the Palm installer are in the Palm Handbook that came with your Pilot, PalmPilot, or WorkPad. You can find the install tool either as a stand-alone program in your Palm install folder, in the Start Menu with the other Palm programs, or in the Palm Desktop program as an icon along the left-hand side.

On a Windows PC you can also use quick setup installer by double clicking on the **SETUP.EXE** installer program, and following the on screen prompts.

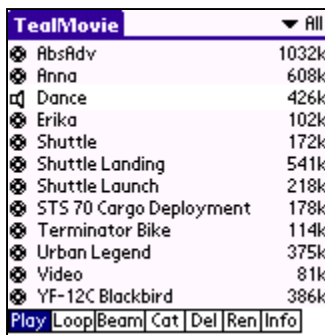
Using the Program

The TealMovie package consists of two basic components that work together to form a full-featured multimedia system. The first component, TealMovie Player, runs on the Palm. It plays TealMovie multimedia files with optional sound. The second component, TealMovie Encoder, runs under Windows 95/98/2000/NT, and is used to create your own TealMovie files from standard AVI files and WAV (wave) files.

TealMovie Player

Run the TealMovie Player by tapping on TealMovie icon in the Palm applications launcher.

Media List Screen



The TealMovie **Media List**, appears when you first run TealMovie. It lists all the currently installed movie and audio files in the current category, along with their size in kilobytes. You can select or edit categories by tapping on the category selection button in the upper right hand corner of the screen. A dot indicator appears next to the file's name if the file has been placed in flash memory in a Visor or using a third-party flash utility like FlashPro.

When you click on a listed movie file, you can either **play** the file, **beam** it to another Palm, change its **category**, **rename** it, or **delete** it permanently from the PalmPilot memory. You can also bring up further **information** about the file, including author information and creation details. To change the action performed when you tap on a name, tap on the **Play**, **Loop**, **Beam**, **Cat**, **Del**, **Ren**, and **Info** action-selection buttons at the bottom of the screen. When playing a movie file with the **Loop** action selected, the movie file with cycle until the screen is tapped, even if the movie's information is not set to "looping."

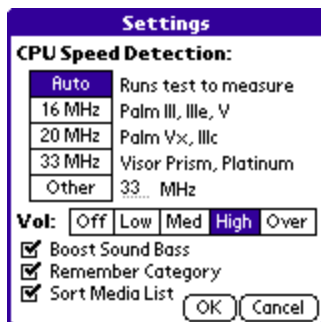
If you choose to display the media list (under settings), you can scroll through a long list of movie files starting in a particular letter by entering the graffiti stroke for that letter.

Information



The **Media Information Screen** shows the creation information and details for a selected movie or audio file. In addition, you can set whether the movie always **loops** when played, whether the player should halt on the last frame, whether it should be **backed up** at the next HotSync after changing options, and whether it should be considered a **private** movie, meaning that it will be hidden from the Media List when the Palm's secret records are set to be hidden in the "Security" app.

Settings



To adjust various settings, choose “**Settings**” from the Options menu available by tapping on the silkscreened menu button on the Palm to the left of the graffiti input area.

The first items on the settings window help TealMovie identify the speed and model of your Palm. This is necessary for correct sound reproduction but not necessary on a base Palm III or earlier models on which sound is not supported. For most devices, “Auto” is the recommended setting. If sounds play back erratically or at the wrong rate, you may wish to explicitly set the CPU speed here for better results. This is particularly true if you are running Afterburner or another turbo utility that alters the default CPU speed. Note, however, that when over-clocking to very high speeds, your actual clock speed may be less than the speed requested in the turbo program due to missed CPU cycles, and that “Auto” may actually give better sound-reproduction.

On supported Palms, there are four basic sound levels, from “Off” to “High”, and one special level “Over” which overdrives the Palm speaker for extra volume. The latter is particularly useful for amplifying quieter movie files. A **bass boost** control amplifies low frequencies to give better sound from the Palm’s small speakers. Next, the **Remember Category** option saves the current viewing category when you quit TealMovie instead of resetting it to “All” each time. Lastly, a “**Sort Media List**” option forces the Media List screen to be sorted alphabetically.

Movie Controls

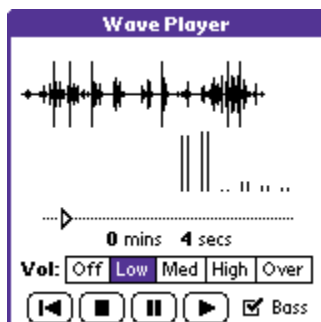
When you play a selected movie file, you can pause the movie at time by pressing one of the Palm’s hardware buttons or briefly holding the pen on the screen.



The Pause Window will appear, showing you the current position in the file along with elapsed time. This position indicator is not drag-able, however, due to nature of the movie compression used. Volume controls appear on all Palms above a Palm III, and contrast controls will appear on all monochrome Palms.

Four playback control buttons at the bottom of the screen, and resemble VCR control buttons. From left-to-right, these respectively restart the movie, continue playing from the last position, single-step forward through the animation, or stop playing and return to the Media List screen. When in single-step mode, the animation will advance one frame every time the page-down scroll button is pressed. Pressing the page-up button instead will return back to the Pause screen.

Wave Controls

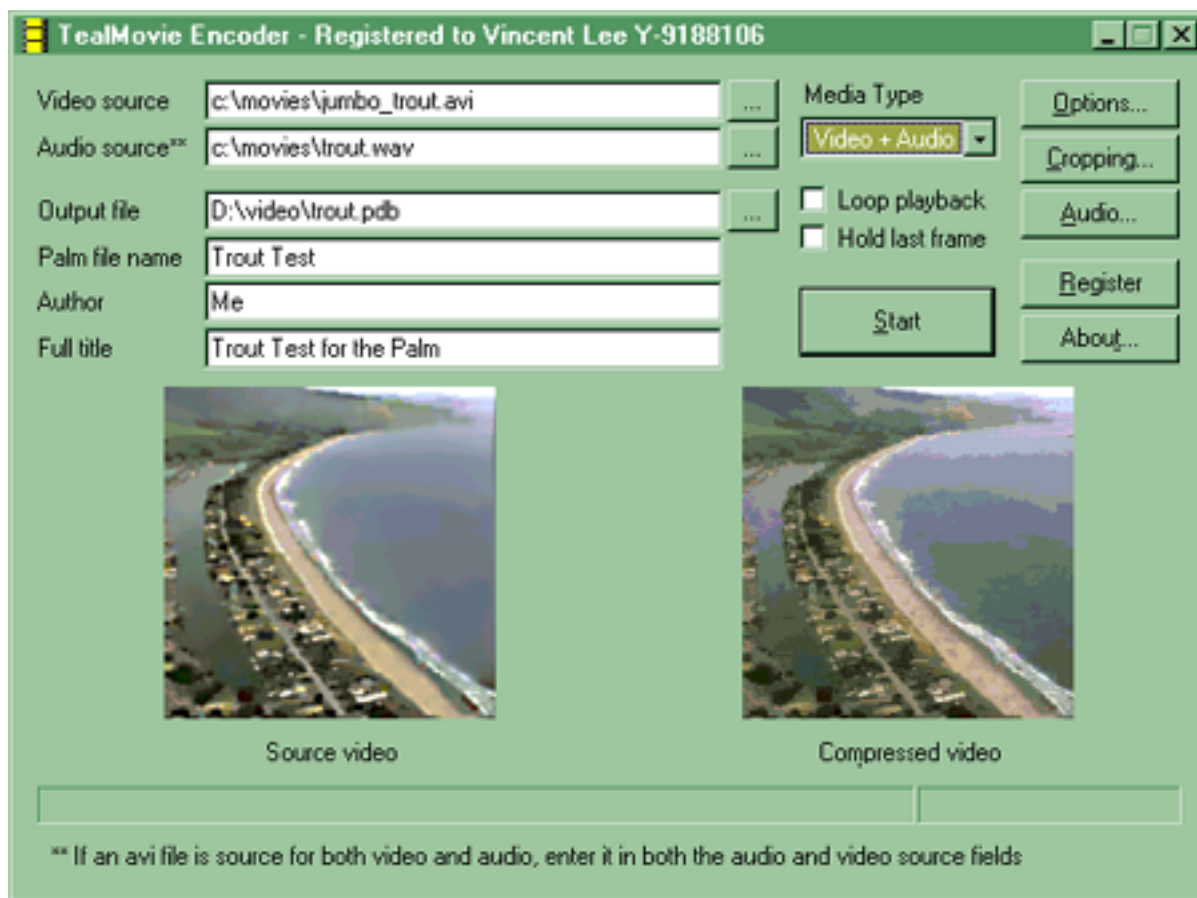


When playing a sound wave file, a control screen appears showing the position and waveform of the file as it plays, as well as volume and play controls. Buttons for restart, stop, pause, and continue appear at the bottom of the control screen.

TealMovie Encoder

Use the TealMovie Encoder to create your own TealMovie files from standard AVI files and WAV files. Most software that comes with video-capture cards, web cameras, and other creators of video files support exporting into AVI format. See references later in this document for converting files from other formats. Run The TealMovie Encoder by double-clicking on the MAKEMOVI icon. The main open window will appear.

Main Window



At the bottom of the window are to preview panes used to show both the source and compressed image of the current frame during compression. To the right are buttons for setting **cropping**, **audio** or general **options** or to start the encoding process. At the top of the main window are text input fields for the following:

Input Fields

Video File

Locates the source video file for the animation to convert. Currently, the TealMovie Encoder supports AVI format files. This field is required unless making an audio-only file.

Audio File

Locates the source audio file to be used as a soundtrack for the video. The source file can be a WAV format sound file, or an AVI video file can be selected, in which case only the audio track will be extracted and used. The AVI file specified here can be the same as the **Video File** specified in the field above. If the soundtrack is longer than the specified video file, the sound file will be truncated. This field may be left blank. If no sound source is specified, the movie will be silent. Audio must be in an uncompressed format.

Output File

Specifies the output TealMovie file to create. It should be given a .PDB file extension (e.g. MyMovie.PDB), which stands for "Palm Database", the standard for all program data files for the Palm.

Palm Name

Specifies the name of the file as it will appear on the Palm and in the TealMovie Media List. This does not necessarily have to match the **Output File**, which is the name as it appears on the desktop. This field is mandatory, and must be 1 to 31 characters long.

Author

Specifies the author's name as shown in the "info" screen for the movie. This field is optional.

Full Title

Specifies the movie's full title as shown in the "info" screen for the movie. This field is optional.

Options

General Options

Media Type

Choose Video+Audio, Video Only, or Audio Only.

Loop Playback

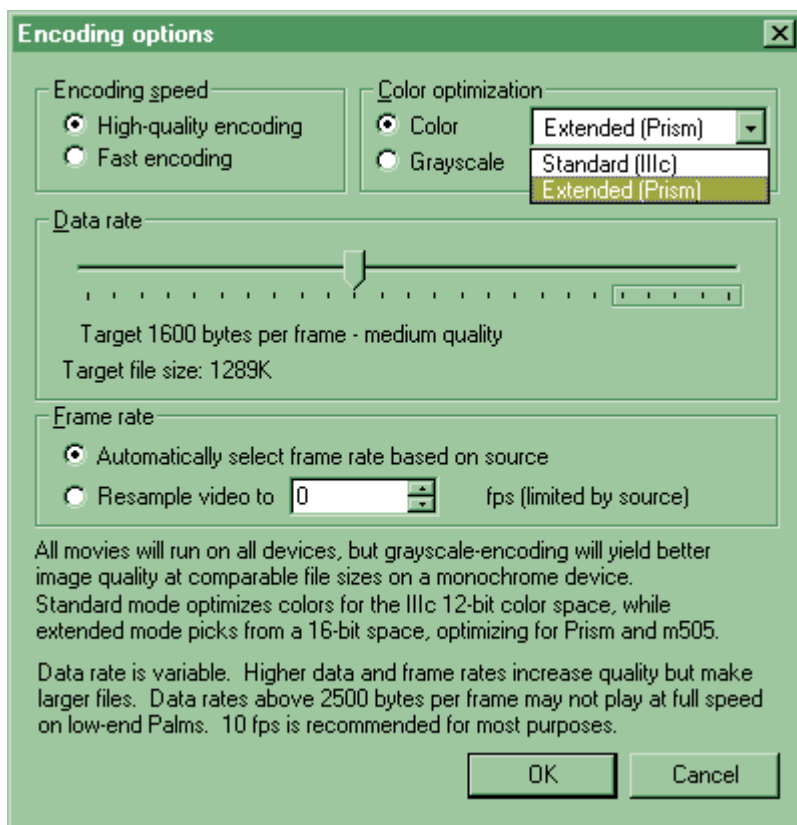
If set, the resulting movie or sound file will loop until the Palm screen is tapped.

Hold Last Frame

If set the resulting movie or sound file will pause at the end until the screen is tapped.

Encoding Options

Before encoding a movie, you should check the current options and make any necessary adjustments.



Encoding Speed

While the encoding process is quite fast anyway, operating almost in real time on a fast machine. Occasionally it might be desirable to encode a movie even faster. When set to "Fast Encoding", instead of "High Quality Encoding", this option sacrifices some image quality for faster encoding by bypassing some time-consuming compression methods.

Color Optimization

All TealMovie files can play on both color or grayscale Palms, so most files should be encoded in color if they are for general distribution. If a movie need only play on monochrome devices, or if playing in grayscale even on a color device is not a problem, then selecting the **grayscale** option can result in better looking movies at comparable file sizes, or smaller file sizes for comparable quality when compared to **color** encoding.

Two color modes are supported: **Standard** and **Extended**. In Standard color mode, colors are optimized to display from the 12-bit color space of the Palm IIIc. While the IIIc can only display 256 different colors (8 bit) at a time, the selected colors are chosen from a larger range of 4096 colors (12-bit) the display hardware is capable of generating. It is this limit which sometimes leads to noticeable color quantization, or "banding" in movies. The Visor Prism and m505 (assumably) are capable of displaying colors from a 15-bit color space, leading to smoother color gradients and less banding. In Standard mode, colors are displayed to best use a 12-bit color space, while in Extended mode they are allowed to take

advantage of a 15-bit color space. In either setting, the effects are not drastically different, but have the effect of improving the appearance of movies on one class of devices compared to the other.

Data Rate

Unlike some video compressors, TealMovie gives you complete control over the compression quality and file size. The two are linked. Normal video encodes at 1600 bytes per frame, but you can adjust this amount upwards to better encode a difficult file or adjust it down to shrink a movie file down to a more manageable size. Note that while the tendency might be to data rate up to its maximum, this might make the movie files too unwieldy, and can affect the playback rate on slower Palm models.

Frame Rate

AVI files grabbed from video typically run 30 (NTSC) or 25 (PAL) frames per second (fps). Film is often 24 fps. Both these speeds are usually faster than necessary for Palm playback and use memory that might instead be used to hold more or longer clips. In fact, due to persistence of the LCD display, increasing the frame rate higher than 10fps isn't noticeable on a monochrome Palm, but will simply use more memory and CPU horsepower.

When set to **Automatically Select** the frame rate, the TealMovie Encoder selects a frame rate from about 10-15 fps that evenly divides into the source frame rate. For finer control, the **Encode up to...** option can be used, which specifies a frame rate to use, but won't encode at a higher rate than the source video, of course.

Cropping Options

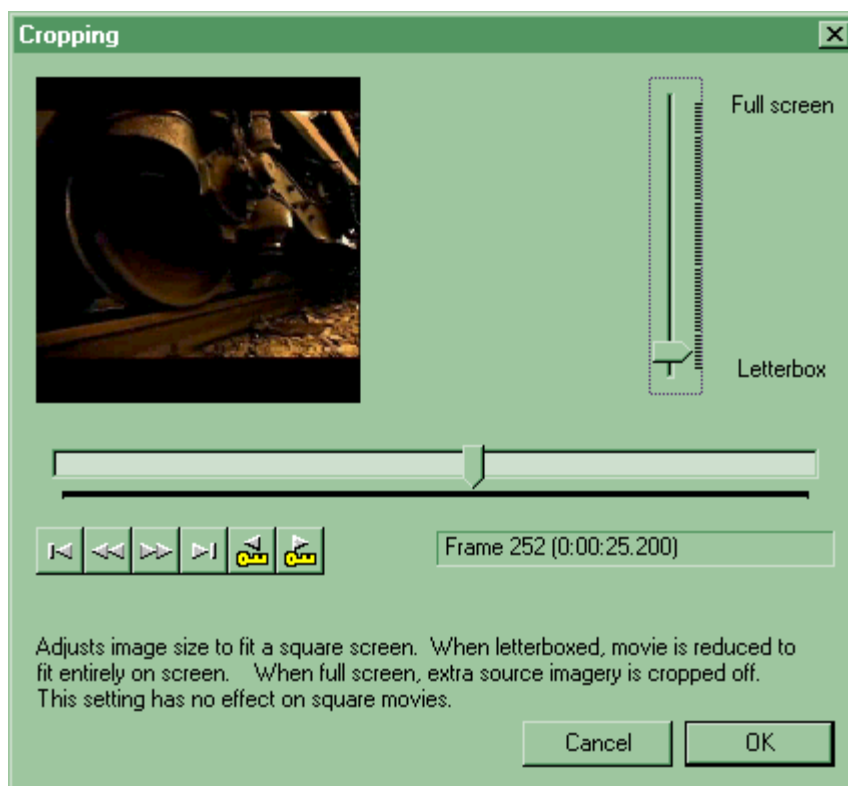
The Palm's display screen is a 160x160-pixel square. This size and shape is unusual for video, so most source video must be sized or cropped to fit the available space.

If an image is square, it is automatically scaled to fit completely on screen. If it's rectangular, however, TealMovie's cropping screen allows you to adjust how the image is scaled to fit on screen. To use the cropping option, valid input AVI files must first be specified on the Main window. Then click on the **Cropping...** button to continue.

At one end of the slider, the **Letterbox** option sizes down the movie so that it fits entirely on screen, with two black bars added to cover up the extra "un-square" bits.

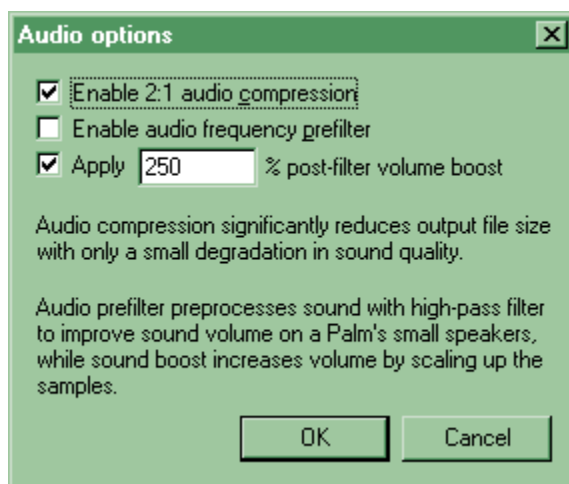
At the other end of the slider, the **Full Screen** option zooms up the movie so that it just fills the entire screen and the two ends along the longer dimension are cropped off.

The cropping option, however gives you full flexibility by letting you choose a size anywhere in between the two end options. To preview your changes, a horizontal frame preview slider lets you see how any frame in the final movie will appear.



Audio Options

Most Palm handheld computers have small speakers which do not reproduce sound well. A notable exception is the TRGpro. To make the best of the limited hardware, a few audio options are available.



Audio Compression reduces file sizes, leading to significantly smaller movie files. The tradeoff is a reduction in sound quality, however.

Audio Pre-filter improves output volume on a Palm's small speakers by using a high-pass filter on the incoming wave data. This feature is often useful, but probably should not be used when the important sounds are low pitched, such as a male narrator on a movie.

Volume Boost boosts the volume of quieter sound files to be better heard on a Palm's small speakers.

Encoding a Movie

To encode a movie file, first obtain an AVI file to convert. Consult Appendix A for resources and hints on capturing, converting, or downloading AVI files. Fill in the input fields on the main window with the source, target, and authorship information. Make sure to set the options properly, and click "**Encode**" to start creating a movie. Encoding takes only a few minutes for even a moderately long movie. You can watch the progress in the preview panes at the bottom of the window.

When done, use the Palm Install tool to install the completed movie file for playback in the TealMovie Player. As some movie files can be large, make sure you have a stable HotSync setup that can sustain the extended connection needed to install the file.

Tricks and tips

Video

The TealMovie Encoder works best with clean, high quality source material. AVI files with noise, blurriness, or compression artifacts can create poor TealMovie files even if the effects in the source AVI seem acceptable.

For best results, use clean source material larger than the final size on the Palm. The source material should have dark darks and light lights to best make use of the Palm's color space. The Palm IIIc can only reproduce a small number of colors in the dark end of the spectrum, so adjusting the gamma level of an AVI in a movie manipulation program can greatly help create better-looking movies, as can a slight sharpening of the image to bring out important details

Audio

Audio is particularly tricky on a Palm, whose small speakers do not reproduce audio well, except on a TRGpro. Until sound hardware improves, have realistic expectations. When deciding on a soundtrack for a Movie, note that music reproduces better than speech, and female voices better than male ones due to the small Palm speakers. It's usually useful to boost the sound on a file when recording to make it intelligible on the Palm. Third party sound manipulation programs like SoundForge XP by Sonic Foundry Inc, can be particularly useful in manipulating WAV files. With any source, make sure that the imported audio is in an uncompressed format, as MakeMovie does not currently support importing compressed audio.

Appendix A – AVI Resources

Capturing movie footage

Most video capture cards and web cameras come with software which is capable of exporting imagery in AVI format. When choosing a web camera, be sure to find one capable of capturing images at a sustained frame rate of 15fps and with software that supports AVI files.

Downloading movie footage

There are many sources for AVI files on the Web that you can view and convert. For most of these, however, you cannot redistribute the files without permission. There are a few sources of free downloadable AVI files that you can legally use and distribute. The term "Public Domain" is used loosely and usually incorrectly on the Web, so don't necessarily trust what a web or ftp site says. Clips from commercial movies and TV shows are almost never usable. Governmental agencies are funded by your taxes, though, so they may be a source of movie files. A number of companies also sell tapes of video footage that has been placed or fallen into the public domain.

Downloading music

When looking for music for a soundtrack to a movie you'd like to distribute, the situation is similar to that of video footage. Most songs are copyrighted, and you can't use them for free, even if you record yourself performing them. Some songs have fallen into the public domain, but almost none are contemporary in nature. Even if you do find a song that you can use, you can't use someone else's recording of a particular performance without permission from and fees for the recording owner and performers. Virtually no recordings are free. Instead, there are many composers who sell recordings of their original music for use with a one-time fee of about \$10-\$30. To find them, search for "royalty free music" on the web.

AVI Information and Links

The AVI Overview by John F. McGowan, Ph.D., is an excellent document describing AVI the file format, tools, and links. Available at <http://www.jmcgowan.com/>

Video Processing/Conversion Software

Many AVI files can benefit from a little preprocessing to achieve better results, such as color correction, saturation adjustment, or levels adjustment. Most videos work best with the truly black blacks, completely white whites, and saturation turned down slightly. To perform such operations, commercial software such as **Adobe Premiere®** is available, which also imports and exports other video formats including MPEG and Quicktime.

For a free solution, try **VirtualDub**, a freely-downloadable (\$30 suggested donation) powerful conversion and effects program at www.virtualdub.org. It also converts files from MPEG format to AVI and performs video capture and simple editing functions, though the interface could be more intuitive at points and support is limited.

The book "How to Digitize Video" by Nels Johnson, ISBN 0-471-01440-0, includes a CD-ROM with the program TRMOOV.EXE, which can convert between AVI and Quicktime files, though the audio does not translate properly from some files. The software author website at <http://www.sfcanyon.com> wasn't reachable at the time of this writing, but copies of the program can be found on various download sites on the web, including the Download Recordings web page at <http://www.downrecs.com>.

AVI files can also be converted from Quicktime files by SmartVid, which can be found on the Intel Corp. Web page at <http://www.intel.com>.

Appendix B – Compatibility

AVI Compression Codecs

The AVI standard supports and extensible plug-in structure of new compression methods. When converting AVI files created by others, make sure you have the appropriate plug-in compression/decompression modules (codecs). The base set of codecs comes with Microsoft Video for Windows. Other codecs are available directly from their manufacturers. If you encounter an error reading or opening a specific AVI file, you may be able to find the appropriate plug-in. Some may be found on Microsoft's web site (<http://www.microsoft.com>). When saving your own AVI files, it's safest in such cases to use an uncompressed AVI file if your software supports this.

Appendix C - Revision History

Version 1.50 – April 15, 2001

- Added support for creating/playing sound-only files
- Added support for m505 video hardware
- Added support for HandERA 330
- Added support for 15-bit color space on Prism and m505
- Added contrast gamma control for monochrome Palms
- Added beaming of movies
- Added option for movies which pause on last frame until screen tapped
- Added frame-by-frame stepping mode
- Added "dot" indicator in media list for files in flash memory
- Added code to temporarily halt audio if necessary to keep in sync with video when running movies encoded at too high a data rate for slower Palms.
- Added Remember Category option to settings screen
- Added SETUP.EXE easy installer
- Fixed crash loading compressed audio files (now shows error instead)
- Fixed bitmap conflict with system contrast control knob

Version 1.01B – December 26, 2000

- Added transparency to icon to support third-party launchers with background color support
- Fixed encoder and player to properly flag and show grayscale video format in info screen

Version 1.01 – December 15, 2000

- Added encoder warning when entering invalid or missing Palm Name
- Added 'Loop' function to main list

Version 1.00 – December 8, 2000

Appendix D - Credits

Manual by Vince Lee and Tex Tennison

Appendix E - Contact Info

TealMovie by TealPoint Software
©1999-2001 All Rights Reserved.

Portions of code from VirtualDub code library by Avery Lee ©1999-2001 All Rights Reserved. Used under license. Audio compression code ©1992 by Stichting Mathematisch Centrum, Amsterdam, The Netherlands.

TealPoint Software
454 Las Gallinas Ave #318
San Rafael, CA 94903-3618
We look forward to hearing from you.

Please visit us at www.tealpoint.com, or email us at contact@tealpoint.com.

Appendix F - Registering

Currently, you may register by snail mail, electronically through our website at www.tealpoint.com with a credit card and a secured server, or through PalmGear HQ at 1-800-741-9070. For the first option, the enclosed registration form is provided for your convenience. You may use this form or simply send the following to the address above.

- Product Name

- E-Mail Address
- HotSync User ID (Pilot Name Required for Passkey generation. It can be found on the main screen of the HotSync application on the Pilot as "Welcome _____" or in the corner on a PalmIII or higher)
- Check (drawn off a US Bank) or Money Order for (\$19.95 US) to TealPoint Software

Appendix G - Products

Visit us online for our complete product line, including:

TEALAGENT

A Palm data converter, installer, and web clipper, TealAgent intelligently formats local, network, and web-resident data for the Palm handhelds, converting them to standard TealDoc, TealMeal, and TealInfo files.

TEALDOC

A Doc format text reader that's nice... without the price! TealDoc reads thousands of free docs and ebooks on the web, and has exclusive support for images, link buttons, protected documents, and more.

TEALECHO

Palm text entry as it always should have been. Real-time preview in digital ink lets you see what you're writing, increasing speed and accuracy

TEALGLANCE

Keep the info you need the most at your fingertips. Shows date, time, upcoming appointments, and to-do items at power up.

TEALINFO

The reference library at your fingertips; TealInfo lets you make or browse from hundreds of free interactive TealInfo Folio files, which are mini information applets with lists, tables, popup windows, and more.

TEALLAUNCH

Lets you quickly launch your favorite apps and useful system and editing functions. Powerful button-programming features map functions and apps to hundreds of keypresses and keypress combos.

TEALLOCK

What the security app should have been: custom text and images, graffiti shortcuts for hide privates, show privates, and lock, and automatic locking when turned off or by time.

TEALMAGNIFY

Never squint at a phone number again. An ever-ready magnifying glass compatible with most any program.

TEALMASTER

A hackmaster-compatible system extensions manager with advanced features such as multiple profiles, hack priorities, delete-protection, and automatic timed reenable after system reset.

TEALMEAL

Answer the day's biggest question... where to go for lunch! A Restaurant chooser and editable database.

TEALMOVIE

Play movies and videos on your Palm with sound! Amazing system supports smooth video, sound playback, and full screen display. Includes windows encoder for making your own movies.

TEALNOTES

Sticky notes for your PalmPilot! Draw freehand notes, maps and doodles directly into your Memos, To-do entries, datebook entries--almost anywhere.

TEALPAINT

The most full-featured paint and sketch program on the Pilot. Includes 16 patterns, 12 brushes, paint bucket, magnified mode, text tool, lasso tool, screen-grabber, color and grayscale support and much more.

TEALPHONE

The better Address book app, with large, easy-to-see numbers, viewing by first, last, or company name, advanced searching, and more!

TEALPRINT

The all-in-one PalmPilot printing solution. Print both text and graphics to Infrared, Serial, and Parallel Printers (with adapter), and even any Windows printer with exclusive 'HotSync' printing!

TEALSCRIPT

Graffiti reinvented; a replacement for the system text recognition system that allows you to tune, modify, and add your own strokes

TEALTOOLS

An invaluable collection of pop-up Palm Desk Accessories, including a pop- up calculator, lock/stopwatch, preferences panel, editing panel, memopad, and a file and backup manager.

Appendix H - Disclaimer

We at TealPoint Software are committed to providing quality, easy-to-use software. However, this product is provided without warranty and the user accepts full responsibility for any damages, consequential or otherwise, resulting from its use.

This archive is freely redistributable, provided it is made available only in its complete, unmodified form with no additional files and for noncommercial purposes only. Any other use must have prior written authorization from TealPoint Software.

Unauthorized commercial use includes, but is not limited to:

- A product for sale.
- Accompanying a product for sale.
- Accompanying a magazine, book or other publication for sale.
- Distribution with "Media", "Copying" or other incidental costs.
- Available for download with access or download fees.

This program may be used on a trial basis for 30 days. The program will continue to function afterwards. However, if after this time you wish to continue using it, please register with us for the nominal fee listed in the program.

Thank you.