

InterView For Mac OS X

4/8/02

Contents

- Introduction
- Installation
- Using InterView For Mac OS X
 - The InterView Software and QuickTime
 - The InterView Hardware and USB
 - Video Sources
 - Using InterView Capture
 - Making Portable QuickTime Movies
 - Importing InterView Movies into iMovie
 - Using Final Cut Pro 3.0
- Trouble-shooting
- Contact Information

Introduction

InterView For Mac OS X allows you to use the XLR8 InterView to capture video and take screen shots under Mac OS X. Video can be captured at 352 x 240 at 29.97 frames per second for NTSC video sources, and 352 x 288 at 25 frames per second for PAL/SECAM sources.

Still image capture doubles the horizontal resolution to 704 and uses interpolation to double the vertical resolution to 480 (NTSC) or 576 (PAL).

InterView movies are saved as QuickTime movie files that can be played back on a machine on which InterView is installed, or exported to QuickTime formats such as Sorenson, or Photo JPEG for playback on all machines with QuickTime installed.

InterView movies may also be saved as DV streams allowing them to be exported into Apple's free iMovie multimedia editing package.

Installation

To install InterView For Mac OS X double-click the installer and follow the instructions.

The following components are installed

- 1) /System/Library/Extensions/InterView.kext
-this component prevents the Classic environment from "grabbing" the InterView device when it starts up. It otherwise does nothing
- 2) /Library/QuickTime/InterView.component
-this component is a QuickTime module that presents the InterView device to the system in a way that allows OS X native, QuickTime-savvy applications to use it to capture video.
- 3) /Library/QuickTime/USBvision.component
-this component is a QuickTime module containing the decompressor necessary to play back the video captured by InterView. USBvision is the native format of InterView movie files. References to the "InterView" format, or the "native InterView format" in the remainder of this document are referring to the USBvision format.
- 4) /System Folder/Extensions/USBvision.component
-this component is identical to that described in 3). Installing it in this location allows playback of InterView movies in Classic, or Mac OS 9 environments.
- 5) /XLR8 Folder/InterView/InterView Capture
-this application provides a human interface to the InterView device. Run it to capture video from the InterView device. Read the section "InterView For Mac OS X" for more details.
- 6) /XLR8 Folder/InterView/InterView ReadMe
-this file.

Using InterView For Mac OS X

The InterView Software and QuickTime

The InterView For Mac OS X software presents a standard QuickTime "Video Digitizer" interface to the system. This means that any OS X native QuickTime-savvy application that supports digitizers will allow the InterView digitizer to be selected and will allow video to be captured from it. Video-editing packages as well as web streaming and video-conferencing packages are examples of the kinds of applications that support digitizers.

Any QuickTime-savvy application can play back the movies created with InterView as long as the decompressor is available on the system. Information about how to create movies that will playback on any system, including Windows machines with QuickTime installed, is provided in the section "Making Portable QuickTime Movies".

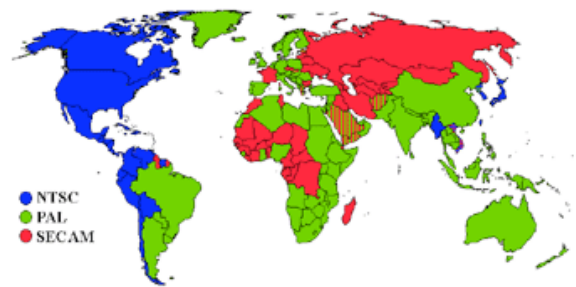
Apple's free iMovie does not support standard digitizers, nor does it support standard QuickTime movies. However, it is still possible to import footage captured with InterView. Information about how to do this is provided in the section "Importing InterView Movies into iMovie".

The InterView Hardware and USB

To begin using InterView, first plug the InterView device in to a powered USB port. Powered USB ports can be found on the computer itself, on some monitors, or on hubs that have an external power supply. Non-powered ports are often found on keyboards. If you are not sure, just plug the InterView in. If the port is not powered a message will come up telling you so.

Video Sources

InterView supports NTSC, PAL or SECAM standard video sources. Generally speaking, NTSC is used in North America, Japan, Central America and Chile. SECAM is used in France, Eastern Europe and central and western Africa. PAL is used almost everywhere else. Standard selection is automatic so just plug the video source in and InterView will determine which to use.



The maximum resolution and frame rate of the captured video depends on the video standard. Video captured from NTSC sources is 352 x 240 at 29.97 frames per seconds. Video captured from PAL/SECAM sources is 352 x 288 at 25 frames per second.

Video sources can be either composite or s-video format. If at all possible try to connect your video device via an s-video cable (the black connector on InterView). The quality of s-video is generally higher than composite.

Video devices that can be used include VCRs, cam-corders, DVD Players, video game consoles, etc. -anything that has composite or s-video outputs.

Using InterView Capture

"InterView Capture", located in the /XLR8 Folder/InterView folder is a Mac OS X native, QuickTime-savvy digitizing application. If you do not have any other OS X application that supports digitizers, you can use this application to capture video from the InterView device.

Double-click InterView Capture to run it -a window will appear. If you have attached an InterView device and video source, the window will contain the video from the device.

Instead of video the window may contain one of a number of solid colors. The two most common colors you might see are: red -no InterView device was detected, green: no video source is plugged in and playing. If you see any other color, refer to the trouble-shooting section for details. Note that some VCRs output a bright blue screen when not playing. Do not confuse this screen with a "problem" screen. Check the tape, and hit the play button to make sure the VCR is playing.

Once video is available various adjustments may need to be made before capturing it. All adjustments are made using options in the "Capture" menu.

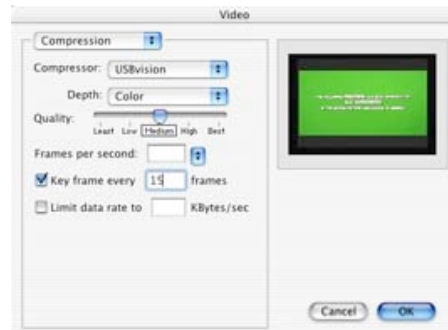
Video Settings...



The Video Settings dialog has 4 panels that can be selected from the popup menu on the top-right. Generally speaking, the only

adjustment that will have to be made is to the key frame rate setting (described below). All other settings will usually remain the same.

Compression Panel



Compressor menu:

Choose the QuickTime format of the captured file here. Warning: for maximum frame rate, always choose "USBvision". Other formats will result in time-consuming on-the-fly conversions from the InterView format and the selected format as the captured movie is saved. This will dramatically reduce the frame rate that it is possible to capture.

Depth menu:

"Color" is the only option available here. InterView always produces the best color depth that it can.

Quality:

One of 5 different settings are available here. If you find that you are unable to capture video at the maximum frame rate, it may be necessary to reduce the quality setting in order to boost the frame rate. The setting in this menu affects the compression rate of the incoming video frames. The lower the quality setting, the higher the compression rate. Lower quality results in smaller file sizes, "noisier" video and higher frame rates. Higher quality results in bigger file sizes, less "noisy" video and lower frame rates. It should be possible to capture full or almost-full frame rates using the "medium" setting on all but the slowest machines (< 300 MHz G3).

Frames per second:

Leave this blank to capture the maximum frame rate possible for your video standard. Web cam operators, and web-conferencers may find it useful to lower the frame rate to reduce the bandwidth required. Anyone posting finished clips to the web may also wish to experiment with lower frame rates to reduce the size of the files involved.

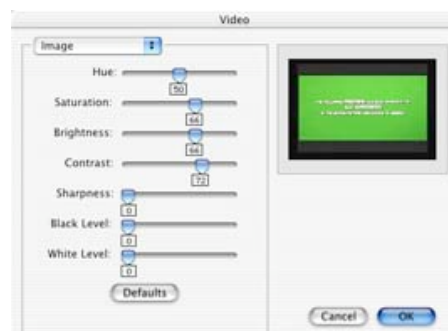
Key frame rate:

It is critically important to set this value before capturing video. Full frame rates cannot be achieved if this is left blank, even at the lowest quality settings. The recommended value is 15 which will create one "key" frame every 16 frames. Key frames contain enough information to display an entire frame. Non-key frames only contain the differences between a given frame and the previous frame. Non-key frames are much smaller than key-frames, thus reducing the overall data size significantly. Web cam operators and web-conferencers may wish to leave this field blank. Some web-cam software handles non-key frames very poorly.

Limit data rate:

This setting is not used. Leave it blank.

Image Panel



The sliders in here control various video parameters including hue, saturation, brightness and contrast. Note that Sharpness, black level and white level are not supported by the InterView device.

Source Panel



Digitizer Menu:

This menu lets you select which digitizer to use. If InterView is not the only digitizer available in your system you may select another digitizer here. If you have more than one digitizer in your system, some applications may prefer those over InterView. Use this menu to switch to InterView. The InterView Capture application will allow you to digitize from any available digitizer, not just InterView. It will however, select the InterView digitizer by default.

Input Menu:

This menu lets you select which input to digitize from: s-video or composite. The InterView software is smart enough to auto-select the input if there is only one device active. However, if you have active devices attached to both the s-video connector and the composite connector, it will be necessary to use this menu to choose between them.

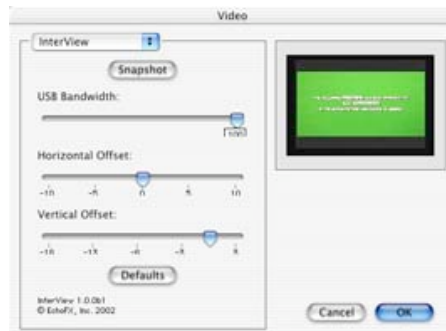
Format Menu:

This menu lets you choose between PAL, SECAM or NTSC video. InterView chooses the standard automatically and you should never need to use this menu. However, when actively switching between the standards, e.g. when switching between both PAL and NTSC video sources, QuickTime may become confused about the video frame size. To update QuickTime's information, open this panel and click the "OK" button.

Filter:

This setting is not used.

InterView Panel



Snapshot:

Click this button to take a 704 x 480 (NTSC) or 704 x 576 (PAL/SECAM) still snapshot of the video stream. Note that the vertical resolution of the resultant image is interpolated. It is usually a good idea to pause the video source if possible since it can be difficult to time when the actual frame is captured.

USB Bandwidth:

Use this slider to reduce the USB bandwidth consumed by the InterView. This may be necessary in order to use another USB device that requires "isochronous" USB bandwidth that is plugged in to the same computer port as InterView. If the device is plugged in to a different port it should not be necessary to lower InterView's bandwidth. Lowering the bandwidth available to InterView will lower the video frame rate.

Horizontal Offset, Vertical Offset:

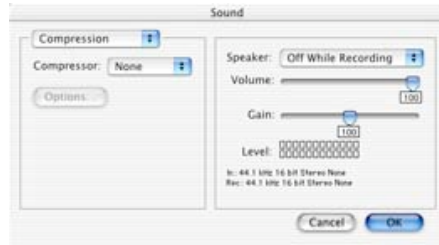
Use these sliders (or the arrow keys) to make adjustments to the horizontal and vertical placement of the video frame. Watch the preview on the left to see how far the image has moved.

Sound Settings...



The Sound Settings dialog has 3 panels that can be selected from the popup menu on the top-right. Generally speaking, the only adjustment that will have to be made is to the gain level (described below). All other settings will usually remain the same.

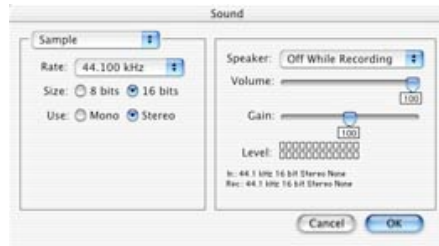
Compression Panel



Compressor menu:

Choose the QuickTime format for the captured sound here. Choosing "None" will result in the best sound quality and will put the least strain on the CPU. If data size is critical you may wish to experiment with some of the other compressors.

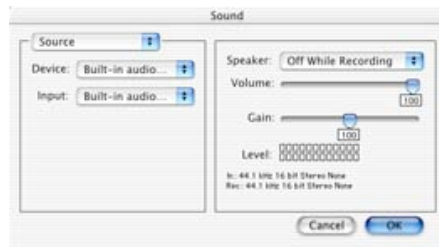
Sample Panel



Rate menu, Size, Use:

Choose 44.1 kHz, 16 bits and Stereo for general use. If data size is critical, lower quality settings can be used

Source Panel



Device menu:

Choose the device from which sound is to be captured.

Input menu:

Choose the input associated with a specific device from which sound is to be captured.

In addition to the three panels described above, the following sound settings are always available on the right hand side of the Sound Settings dialog:

Speaker menu:

Controls when sound is played. The recommended choice is "Off While Recording". Sound will still be captured during recording, it just won't be played during capture in order to reduce the strain on the CPU.

Volume:

Controls the speaker volume any time sound is being played.

Gain:

It is a good idea to check this setting before capturing. It should be set to 100, and once set that way, it will usually stay there. Unfortunately the OS will occasionally reset it to 150 causing obvious distortions in captured sound.

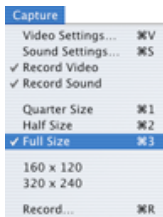
Record video Record sound



When "Record Video" is checked, video will be captured during recording. If you only wish to capture sound, uncheck this item.

When "Record Sound" is checked, sound will be captured during recording. Video capture frame rate can be improved by not capturing sound. However, if there is sound associated with the video source, it will usually be much easier to capture it simultaneously with the video. In order to capture sound, it must be connected to the computer from the source (usually the video source has sound outputs as well), to the computer, via the computer's built-in microphone jack, a USB sound input device, or some other device. The device from which sound is to be captured must be selected in the Sound Settings dialog described above.

Quarter Size Half Size Full Size



Select the size of the video to be captured. A fraction of the video's "natural" frame size will be used. The natural frame size for NTSC is 352 x 240. The natural frame size for PAL/SECAM is 352 x 288.

160 x 120
320 x 240

Check one of these sizes to capture a more traditional QuickTime frame size. These sizes offer slightly reduced data rates.

Record...



Once all the settings have been selected, select "Record" to actually record a QuickTime movie. A dialog will be presented asking where the movie is to be saved. The movie will then be captured until the mouse button is clicked or the hard drive becomes full.

Note that a common problem when attempting to replace an existing movie occurs when the movie is selected in the Finder. The Finder displays a preview of the selected movie and marks the file as "in use". No other application can delete or replace the file until the Finder is no longer using it. Thus "InterView Capture" will be unable to replace a file until it is physically deselected in the Finder.

The files captured by InterView Capture can be imported into any QuickTime savvy video-editing package. Once certain video-editing applications become OS X compatible, they should be able to use the InterView device directly, at which point it will be

unnecessary to use the InterView Capture application.

Making Portable QuickTime Movies

The files captured by InterView Capture are saved in QuickTime format. However, they are decoded using a proprietary decoder that is only installed with the InterView software. People that do not have the InterView decoder will not be able to play back your movies. Also, the decoder does not perform well on slower machines (< 450 MHz). Playback will not be at 30 frames per second, even if the movie is recorded at 30 frames per second.

To allow captured movies to play back at the frame rate at which they were captured, on all machines, including Windows machines, QuickTime Player must be used to "Export" the movie to a portable format. To export movies using QuickTime Player, QuickTime Pro is required. InterView customers are provided with a QuickTime Pro key. Refer to your InterView documentation for instructions on how to upgrade to QuickTime Pro if you have not done so yet.

To export an InterView movie, open it in the application "QuickTime Player" which can be found in the Applications folder. Select Export... from the File menu. Choose a location for the exported movie and select "Movie to QuickTime Movie" from the Export pop-up menu. Click the "Options" button. In the Video section click the "Settings" button. Select a compressor to use from the "Compressor" menu. All the compressors in this list are supported by recent versions of QuickTime. However, the best choices are going to be "Sorenson Video" or "Photo - JPEG". These produce very high-quality, very small files. Note that the compressor "Video" is supported even in the very oldest versions of QuickTime but the quality leaves a great deal to be desired. Use this only as a last resort.

As you can see there are many other settings available when exporting an InterView movie, however the compressor choice is the most important. Once the compressor has been selected, click OK, and then click the "Save" button.

If you do not have QuickTime Pro, and you wish to view InterView movies on a different platform, it is possible and permissible to copy the decompressor to the target machine. The file USBvision.component can be copied to /Library/QuickTime/ under Mac OS X or to /System Folder/Extensions under Mac OS 9 to enable playback of InterView movies on the target machine.

Importing InterView Movies into iMovie

iMovie does not support standard QuickTime file formats. In order to import any QuickTime movie (not just InterView), it is necessary to use QuickTime Pro to export the movie as a "DV Stream" -the same format produced by FireWire cameras.

Open the movie to be exported in QuickTime Player. Choose a location for the exported movie and select "Movie to DV Stream" from the Export pop-up menu. Click the "Save" button. The movie will be expanded to full screen and can be imported using "Import File..." in iMovie's File menu. However, it is much quicker to drop the exported movie into an iMovie project Media folder.

Note that iMovie requires fairly high-end equipment for good performance. It may be necessary to use a different video-editing package such as Strata VideoShop on older equipment for better performance. InterView movies can be imported to QuickTime-savvy applications running in the Classic environment.

Using Final Cut Pro 3.0

Final Cut Pro 3.0 supports standard QuickTime file formats and has the ability to capture movies directly from the InterView device. Unfortunately, conflicts between the InterView software and Final Cut Pro 3.0 make it necessary to follow a rigid set of steps to enable digitizing. Be sure to follow these steps carefully. If you get any part wrong, you will have to start again.

- 1) Launch Final Cut Pro 3.0 (OS X version).
- 2) Select the menu item "Audio/Video Settings..." from the "Final Cut Pro" menu - a dialog will appear.
- 3) Select the tab "Capture Presets".
- 4) Select the list item "Generic Capture Template".
- 5) Click the "Duplicate..." button -a dialog for editing the preset will appear.
- 6) Name the preset "InterView".
- 7) Delete the description, and provide a new one. Just type in "InterView" if you are in a hurry.
- 8) Select "Custom" from the "Aspect Ratio" menu.
- 9) Change the "Width" to 352 and the "Height" to 240.
- 10) Select "InterView" from the "Digitizer" menu. Ignore the warning that comes up.
- 11) Click the video "Advanced..." button -a video settings dialog will appear.
- 12) Change the Key Frame Rate to 15.
- 13) If you wish to change any other setting, you must do it now. It will not be possible to return to this dialog after the preset is saved.
- 14) Dismiss the video settings dialog (from step 11). Ignore the warning that comes up.
- 15) Select the audio device you would like to use from the "Device" menu.
- 16) Select the audio device input, if applicable, from the "Input" menu.
- 17) Click the audio "Advanced..." button -an audio settings dialog will appear.
- 18) Make sure that the gain is set to a reasonable number, e.g. 100.
- 19) If you wish to change any other setting, you must do it now. It will not be possible to return to this dialog after the preset is saved.
- 20) Dismiss the audio settings dialog (from step 18).
- 21) Click the "OK" button to dismiss the preset editing dialog (from step 5). Ignore the warning that comes up.
- 22) Click to the left of the list item "InterView" to make it the default digitizer.
- 23) Note that if you try to edit the "InterView" preset, you will find that you will not be able to. This is why it is important to get all of the preceding steps right. If you did not get the steps right, select "InterView" in the list, click the "Delete" button and return to step 2.
- 24) Click the "OK" button to dismiss the Audio/Video Settings dialog (from step 2).

To capture a movie in Final Cut Pro 3.0 using InterView, follow these steps:






- 1) Select the menu item "Log and Capture..." from the "File" menu.
- 2) If you made InterView the default digitizer, proceed to step 5.
- 3) If you did not make InterView the default digitizer, select the tab "Capture Settings".
- 4) Select "InterView" from the "Capture/Input" menu.
- 5) click the "Now" button to capture video from InterView.

The conflicts between InterView and Final Cut Pro 3.0 are being investigated. In the mean time, it may be easier to capture video using "InterView Capture". The captured movies can then be opened in Final Cut.

Trouble-shooting

Capture window shows a solid color instead of video

Interpret the color as follows:

-  Red: no InterView
 - make sure an InterView device is plugged in.
-  Yellow: low-power
 - InterView needs a USB powered port in order to operate.
-  Green: no video
 - plug a video source into the InterView and make sure it is playing.
-  Blue: firmware update required
 - InterView requires a firmware update to use OS X. Downloading the software alone is insufficient. The firmware can be purchased through XLR8 at www.xlr8.com.
-  Purple: USB state corrupted
 - this occurs when the InterView device is unplugged while a capture application is open. It is the result of a bug in the operating system. See the trouble-shooting entry "Unplugging the InterView device freezes the capture application!" for more information.

Note that some VCRs output a bright blue screen when not playing. Do not confuse this screen with a "problem" screen. Check the tape, and hit the play button to make sure the VCR is playing.

I can't capture at 29.97 frames per second (25 fps for PAL/SECAM)

Even the slowest CPUs can capture near the maximum frames per second. This is probably a settings issue. The most important thing to remember is to set the key frame rate to 15 in the Video Settings dialog in the "Compression" panel. You can also try reducing the quality of the captured data, quitting unnecessary applications, running the monitor in "millions of colors", disabling the sound capture, reducing the captured size to 320 x 240, etc. Also be sure that the selected compressor is "USBvision" in the Video Settings dialog in the "Compression" panel.

Also, be aware that the frame rate displayed by QuickTime Player includes lag times at the start of a capture, and rarely shows a completely accurate frame rate, even if the vast majority of the movie is captured without any frame loss. QuickTime Player will usually under-report the frame rate by 0.1 or 0.2 frames per second.

Captured sound sounds bad

Check the gain setting in the Sound Settings dialog. It should be set to 100 or less.

Video playback is jerky

The InterView decompressor requires a powerful processor for optimal performance. If there is not enough CPU power available, and a frame is dropped, then all frames will be dropped until the next key-frame arrives. If the key-frame rate is set to 15 this means that video will appear to stop and start at half second intervals in movies recorded at 30 frames per second. Although the decompressor is limited by the CPU, there are things that can be done to improve its performance. The most important thing is to quit unnecessary applications. In particular "InterView Capture" which is extremely CPU intensive, even in the background.

If you have QuickTime Pro you can export the video to an alternative format for faster playback performance.

A faster version of the decompressor is in the works.

Taking a snapshot slightly darkens or lightens the video

Unfortunately the video decoder state changes in a non-recoverable way when a snapshot is taken. The only way to restore the video to its original state is to quit the capture application and restart it. This resets the decoder to its original state. Consider taking snapshots independently of capturing video, i.e. don't mix the two actions unless small variations in brightness do not matter. This issue remains under investigation and may only affect older devices.

Unplugging the InterView device freezes the capture application!

Additionally, InterView will no longer work and the preview window will be filled with a solid purple color.

Do not unplug the InterView device while it is in use by any digitizing application. It is perfectly safe to unplug it at any other time. If you do accidentally encounter this situation, take these steps to recover: force-quit the application using command-option-escape and

then restart the machine. If the screen does not go black during restart, restart the machine one more time. This problem is being investigated by Apple.

Can I capture video in Classic?

No. You must reboot into OS 9 and use the software that came with InterView to capture in Classic.

Contact Information

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