



## Capturing Video with the Liberty Recorder

### Introduction

The Liberty Recorder optionally allows users to capture the video of a proceeding. The video is saved into the same file as the audio and is available for review through the standard Liberty Player application. This page documents the hardware requirements and the recommended Liberty configuration for capturing video.

### Computer Requirements

Users should be alerted that the recording and playback of video files consumes considerable process resources. If the user is going to record video, they should obtain and use a PC with a recent processor. We recommend that the processor run at least 3Ghz or faster.

### Analog Camera Requirements

Any video camera may be used to record a proceeding. The camera could be a 10 year old consumer camera or a current professional grade surveillance camera. In any case, the camera must output the video signal to either an S-Video or Composite (RCA) style connector. In such cases, the video feed must be sent to a device that will convert the analog signal into a digital signal for the PC. These converters are available from a number of companies and come in a number of configurations. The devices commonly accept both S-Video and Composite (RCA) video inputs. The devices may be actual PCI boards that insert into the PC, or they may be USB devices that connect to the PC with a USB V2 connection.

### Recommended Digital Converters

High Criteria has tested two different converters for use with the Liberty system. One device is the *Video Advantage USB from Turtle Beach* ([www.turtlebeach.com](http://www.turtlebeach.com)). The Video Advantage device is a USB device that supports both S-Video and Composite inputs. **Note:** when using the Video Advantage USB device, you will be required to go into the Advanced Video options and select a Pixel Depth and Compression other than the default. The default setting is RGB 24 and you should reset this to I420 or one of the other possible selections.

Another recommended device is the **PX-AV100U from Plextor** ([www.plextor.com](http://www.plextor.com)). The PX-AV100U is also a USB device that supports both S-Video and composite inputs.

The Instant VideoXpress from ADS Tech is another USB device that has been successfully tested by a number of Liberty dealers.

Please note that when installing any of these converter devices, you only need to install the drivers for the device, you do not need to install any of the third-party software that commonly comes with such devices.

You should not use Dazzle devices from Pinnacle Systems. Pinnacle has tied their hardware so that it will only work with the software that they provide. The Pinnacle device will probably not work with the Liberty Recorder

### Recommended Analog Cameras

Almost any recent camera can be used to record the video for the Liberty system. The only requirement is that the camera output the video to either an S-Video or Composite (RCA) output. This output feed may then be routed to a Digital Converter as described elsewhere on this page.

One professional grade surveillance camera that has been tested by a number of dealers is the **Sony SSC-E453**. You will need to purchase appropriate mounting brackets and a lens to go with this camera. You may source this camera at ([www.spytown.com](http://www.spytown.com)).

## Mixing Multiple Camera Signals

Using a Video Mixer, more than one camera input may be mixed and then input into the Digital Converter. A device such as the **Bosch LTC 2377-60 Quad Mixer** will accept up to four analog camera inputs and will mix these inputs into four quadrants on one output. The single output (S-Video or Composite) is then output to the Digital Converter device. You may source this quad mixer at ([www.spytown.com](http://www.spytown.com)).

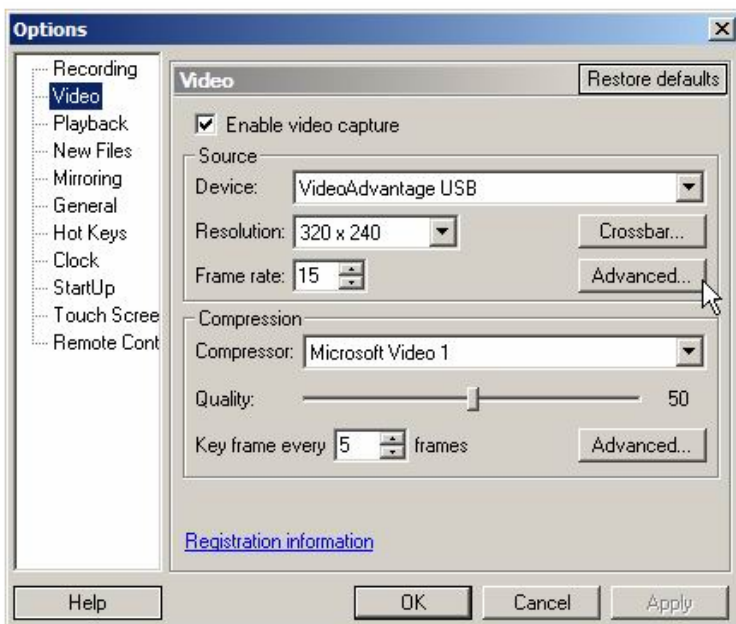
## Digital Cameras

A digital camera can provide a direct digital feed of video to the PC. This feed would come across either a USB cable or a Firewire cable. In each case, the video is digitalized by the camera and the digital data is sent to the PC through the connecting cable.

The Webcam NX Ultra from Creative Labs is a USB webcam that has been tested with the Liberty Recorder. Details on the NX Ultra may be found at the Creative Labs web site or by doing a standard Internet search on "Webcam NX Ultra". For those users who require a higher quality picture than may be obtained from a webcam, a number of cameras in the Canon Optura line of cameras support a feature Canon calls "DV Messenger". Any Canon camera that supports the DV Messenger feature will yield a high-quality video recording when used with the Liberty Recorder. Details on Canon cameras may be found on the Canon web site.

## Liberty Video Configuration

Recording video in real-time requires significant processor resources. Many of the video compression algorithms are processor intensive and are not appropriate for recording video in real-time. Please review this section carefully to make sure you configure the Liberty options properly.



## Standard Video Options

The options at left show the configuration for using a Video Advantage USB device from Turtle Beach. The setup configuration should be similar for other digital converters.

**Resolution** we recommend a resolution of 320 x 240. Higher resolutions run the risk of overloading the processor.

**Frame Rate** we recommend a frame rate no greater than 15 frames per second. Higher frame rates run the risk of overloading the processor.

**Compressor** we recommend the Intel Indeo(R) Video R3.2 CODEC. It has been found to be a very fast standard compression CODEC. It is important to use

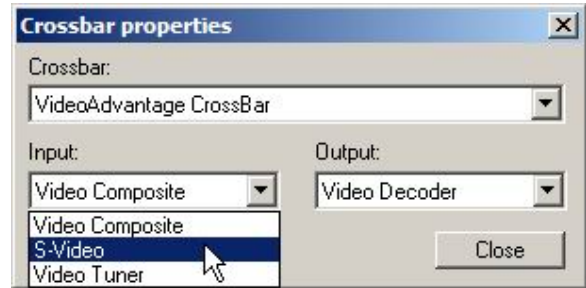
a fast CODEC when recording in real-time. Another fast CODEC is the Microsoft Video 1 CODEC.

**Key Frame** we recommend a frame rate no less than 5.

A file using these settings and recording 4 channel audio with MS ADPCM 8 kHz 4 bit mono will require about 200MB per hour.

### Crossbar Properties

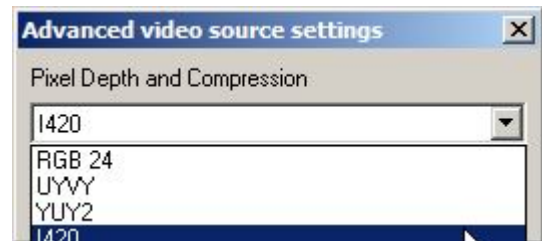
The Window at right shows the available Crossbar settings. The Crossbar settings tell the application on which input the video signal will be found. Generally the user will chose between the S-Video or Video Composite inputs.



### Advanced Video Source Settings

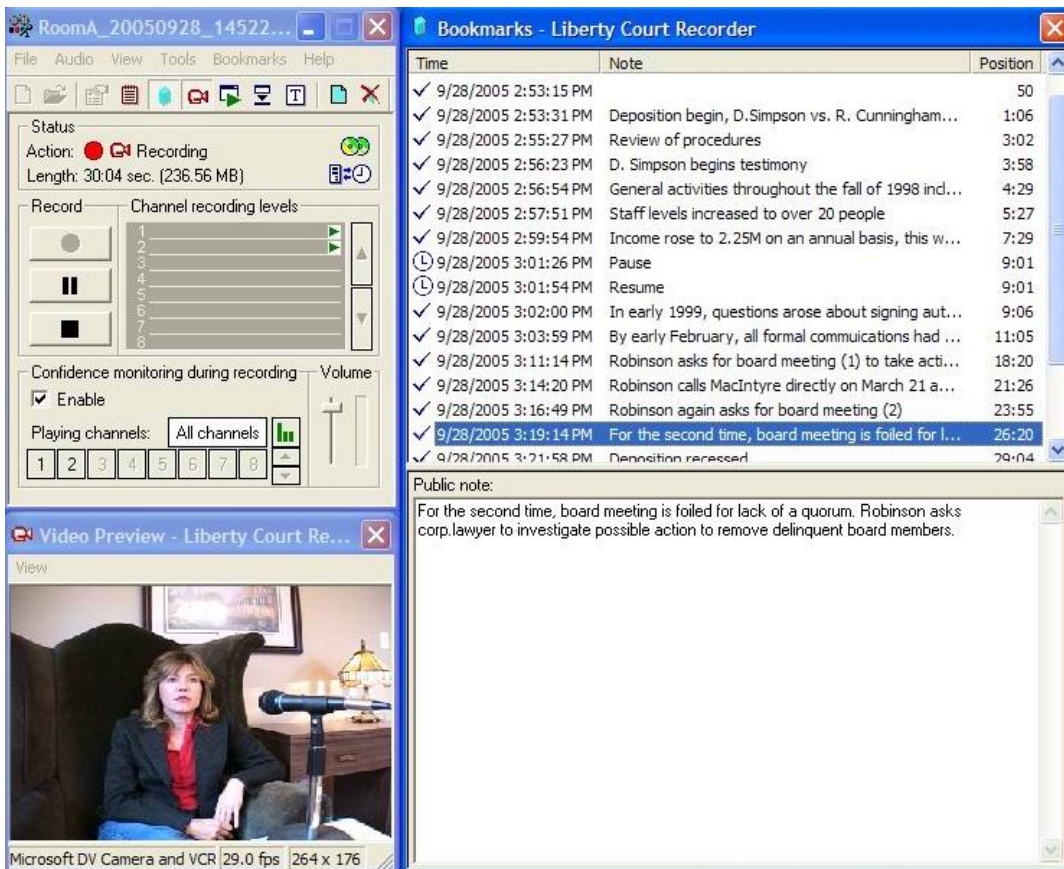
The Window at right shows the Advanced Video Source Settings. The default setting is RGB 24.

**Note:** the Turtle Beach Video Advantage USB device cannot use the default setting. Please change this setting to I420.



### Liberty Video Recording Preview

During recording, the Liberty application may provide a video preview Window as seen below:



Users should select the hardware that is appropriate for their requirements. Please contact JCG Technologies, prior to purchase, with any further questions regarding video capture with the Liberty Recorder.