Bumps in the Night!!!!

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Tools of the Trade

Basics of the Video File Format

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The month's *Tools of the Trade* article covers the technical aspects on how video files are stored in a digital format, and for the most part, this means a computer file.

First let's cover some basic terms:

FrameRate - Video, in its simplest definition, is a series of still images streamed together one after another, for film the standard is 24 frames per second (fps) and for video it's 30 fps. These framerates are fast enough that your eye/brain blend them into a smooth continuous stream that is pleasing to watch. A camcorder will typically record at 30 fps (actually 29.97 fps) and is generally not changeable, but a DVR system may record anywhere in the range of 1 to 30 fps. The slower the framerate, the 'choppier' the video.

Resolution – Once video is stored in a file, it has a very specific resolution. It may be low resolution like 640x480, or high resolution 1920x1080. Of course high resolution is nice, but makes the files MUCH larger.

Encoding – When video is 'digitized' it can come in many formats which will encode and compress the video stream. The common formats are MJPG, MPEG4, and H.264. The MJPG format is faster and cheaper BUT yields fairly inefficient compression, which yields larger video files. H.264 is preferred and yields much smaller files but generally only available on higher quality (more $$). Keep in mind that there are file formats (e.g. AVI, WMV, M4V, etc.) that combine audio, video, and other streams together.

Codec – "**CO**mpressor/**DEC**ompressor". These are little 'helper applications' used by a computer program to process the audio and/or video streams embedded within a file. Many Audio/Video applications support additional codecs thru the use of a plugin that is simply downloaded and installed.

The common file formats (such as AVI, OGG, WMV, MP4, QuickTime, and RealMedia) are basically just containers of multiple audio and/or video segments stored using various encoding and compression methods. The container file describes the structure of the file contents, and specifies which codec's are being used for the parts contained within.

To find out a bit more about a video file's properties, you can select the file and right-click then select *Properties*. (on a Mac: Select the file and right-click then select *Get Info* and Expand "General" and More Info" for more detail).

The paranormal investigation team should be aware of the various file formats that your different devices use. If some devices store in a non-standard format, it's fairly easy to convert to another format using one of many video conversion or editing software packages out there, but be aware that anytime you change formats, the output may be lower quality than the original. Although having a 'standard' format for video files will make life easier (when gathering and performing data review), it's not the only factor. Size is another consideration as is quality of the material. Pick device settings that work best for your team. Experiment with different settings and formats of your equipment.

Additional references:

http://en.wikipedia.org/wiki/Video_codec

http://dpbestflow.org/Video_Format_Overview

http://windows.microsoft.com/en-us/windows/codecs-frequently-asked-questions#codecs-frequently-asked-questions=windows-8