Image Conscious

Darlene Batista Alvar from Amped Software looks at the growing world of digital multimedia evidence and the challenges investigators face in gathering the evidence.

Everywhere we go, we see people taking photos or recording videos on their mobile phones. There is an increased use of surveillance cameras by governments, businesses and private house owners. The use of drones and satellite video is expanding. There is also an increase in the number of officers wearing body-worn cameras. Car manufacturers are also participating in this digital multimedia world by installing video cameras in vehicles.

The positive effects of this is that there is a high probability that someone caught a crime on camera so investigators have a lot of evidence to work with. The bad thing is that many times that evidence cannot immediately be analyzed and used. Keeping aside the privacy and social issues that evidence coming from these devices may cause, there are often several technical issues that do not permit investigators to use the photo or video evidence immediately.

Proprietary Video Formats
One of the most common issues investigators run into when wanting to look at a video is they do not have the player to view it. Videos generated by video surveillance systems are often not saved in a standard format such as AVI or MPEG, but in different proprietary formats that are specific to each camera manufacturer. And far too often the video player given by the system producer is full of bugs, unusable, incompatible with modern versions of Windows and videos can't be properly exported.

So what happens if you don't have the proper player? Maybe you need to find a better decoder, a better player for the video, or a way to export it properly.
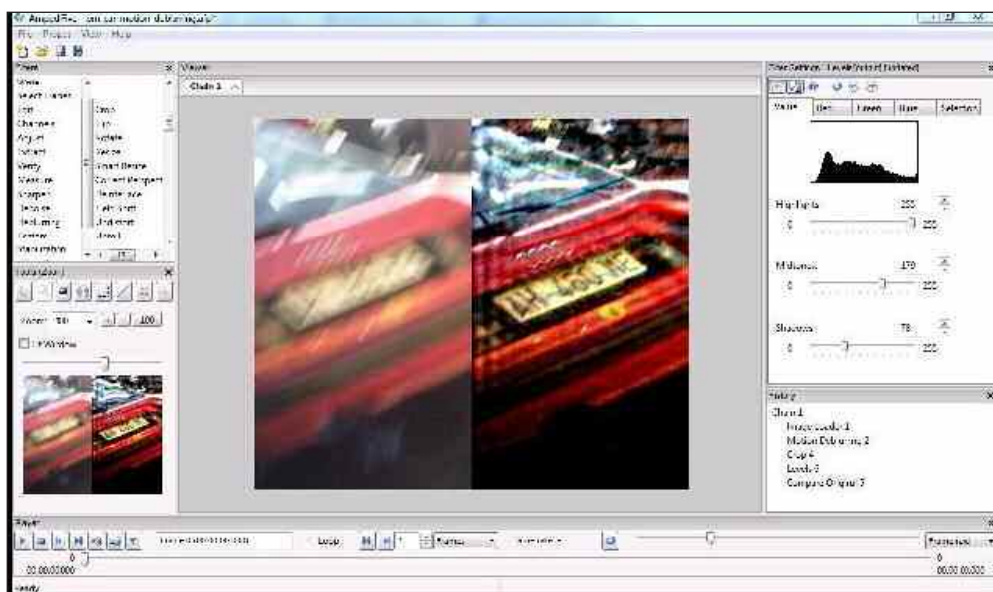
details can be processed and viewed better with video and image enhancement tools such as Amped FIVE.

Tools like this allow investigators to improve the image in a fast, precise and scientifically accurate way. This kind of software can improve the most common problems, such as the presence of a blur or light that is too dark or too bright, but can also correct the perspective of objects, such as a license plate, and even calculate the height of a person or an object in the crime scene.

New tools such as Amped FIVE, developed by the company Amped Software, that specializes in forensic technology for the analysis of images and video, provides integrated support and conversion for more than two hundred of the most popular formats of proprietary DVR/CCTV videos. This forensic image and video enhancement software integrates all video frameworks available on Windows such as DirectShow, Video for Windows, QuickTime, FFMS and FFMPEG.

Amped FIVE is also integrated with high end video surveillance servers which means users can process live stream, archived video or exported files in native format without any conversion or quality loss. And for those unsupported proprietary DVR formats? Tools like Amped FIVE can capture the screen without any loss of quality, which means investigators have many options now to watch videos that were once not viewable.

Enhancing Multimedia Evidence
So, now investigators can view the video. What they need to do next is find the right images and frames of interest. Several technologies exist today to help with video content analysis and face recognition, but many times the quality is simply too low to get any useful information from a video or photo. You see a car, but you are not able to read the license plate. You see a face, but you don't see enough detail for a reliable identification. Many of these not so clear

The popularity of forensic crime television shows such as CSI: Crime Scene Investigation, gives rise to many misconceptions about the nature of forensic science and investigation procedures. The exaggerated techniques in these shows have created high expectations for the capabilities of forensic technology.

These shows make society and some investigators believe that it is possible at any time and from any image, to refocus a subject, zoom endlessly and sometimes even recover what has been cut out of the image. Although these expectations are often excessive, in certain situations it is possible, with the right tools, to obtain exceptional results.

Documenting the Processed Evidence
But the important thing about getting these exceptional results is that the evidence is not altered in any way. Processing digital evidence is not a simple task and requires appropriate technical knowledge and use of the right tools in order to deal with the evidence in an appropriate manner, consistent with the investigative and judicial framework.

Using a clear workflow that properly

Before **After**

documents the processed evidence is extremely valuable and now mandatory in many courts of law. Amped FIVE provides an automatically generated report that contains the scientific methodology of all the processing steps, including scientific references for each filter used, the settings, and specifics to that particular frame or image.

This makes it possible to simply illustrate the steps used to read a number on a license plate from an image that was previously completely blurred.

This reporting allows investigators to present evidence that withstands the scrutiny of any courtroom.

Presenting Authenticated Evidence
It is essential that today's investigators provide scientifically documented processed evidence, but it is also essential that the digital evidence presented is authenticated. The number of times people are asked to provide some insight on the authenticity of digital media is increasing at a drastic rate.

The courts and savvy defense attorneys and prosecutors have begun to understand how easy it is to manipulate photos and videos and many investigators struggle to prove that the evidence they are holding is authenticate.

It is not easy to know if a photo is an original

or if someone tampered with it using readily available editing software, which means that many times that photo may not be accepted as valid evidence.

Forensic technology is innovating and investigators today have a wide choice of tools to assist them in their work, including new tools for authenticating multimedia. Amped Authenticate is a new technology that allows investigators to discover tampering on an image.

This software offers a variety of analysis techniques to inspect a digital image from many different points of view: digital format, compression artifacts, image noise and cloned parts of the image.

It can also verify if a digital photo has been generated by a specific device - and not just the make or model used to take the photo. Courts today have set high standards to ensure the integrity of evidence and are putting the burden of authenticating digital evidence on investigators and those introducing the evidence.

Multimedia evidence is key to today's investigations, so it is important that investigators know how to properly use and handle that evidence. A picture is worth a thousand words, but only if proven innocent.

www.ampedsoftware.com