



## CLEAR IMAGES FROM BAD VIDEO

Until now, the use of video as a forensic tool has been limited to low-quality screen grabs from analogue tapes. Aside from producing poor quality images, the traditional transfer from video into single frames has been slow, inefficient and time consuming.

VideoFOCUS from Saliient Stills - distributed in the UK and Europe by CEDAR Forensic - is the first product to digitise, store and manage surveillance video and then allow you to transform ordinary video into high-quality, high-resolution still images.

What's more, VideoFOCUS not only has the ability to digitise, but can demultiplex video from multiple sources without the need for the original recording equipment.

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*"Without this system, some of these images would have been impossible to produce."*  
- FBI Boston

## Helping security and law enforcement agencies to identify people and events

VideoFOCUS processes sequential video frames to produce a single high-quality image with more detail, greater dynamic range, less noise and higher resolution than the original.

The product automates most of the image creation process, and the use of the system's intuitive software and friendly graphical user interface requires no specialised skills or training.



Both NTSC and PAL video formats can be captured in uncompressed format from analogue tape, or input via digital files, and the image can be output in BMP, TIFF or JPEG formats.

### ■ Improved image quality

VideoFOCUS removes noise and artefacts to create clearer images.

### ■ Concentrate on the relevant video

VideoFOCUS digitises every frame. You choose the right shot from a video sequence to capture the events of interest.

### ■ Demultiplexing

VideoFOCUS's demultiplexing allows users to isolate individual camera views quickly and accurately.

### ■ Speed and simplicity

VideoFOCUS is easy to install and its intuitive graphical interface makes it the most useable video forensic software on the market.

### ■ Keeping the original safe

Once digitised, source tapes can be stored securely, safe from further degradation and harm.

### ■ Video and stills export

Video clips and images can be exported easily for instant sharing.

## See CEDAR at...

CEDAR Forensic carries out numerous presentations to UK and foreign Police Forces, and has recently exhibited at:

- NATIA, USA (July 2004)
- PSE, Belgium (September 2004)
- PSE, The Hague (January 2005)

The company will be exhibiting at the following exhibitions in the coming months:

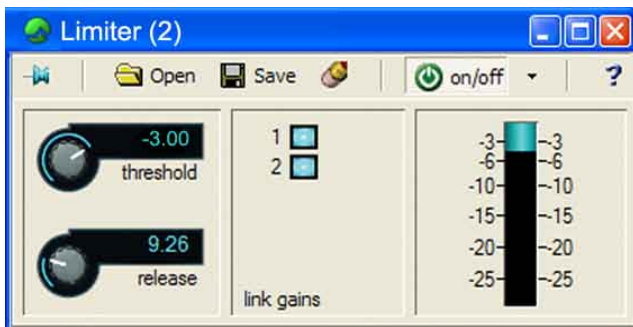
- February 2005 - Home Office Video Conference, UK
- March 2005 - PSDB, UK
- August 2005 - NATIA, USA

**The Association of  
Police and Public  
Security Suppliers**



CEDAR Audio Limited is proud to be a member of The Association of Police and Public Security Suppliers (APPSS).

## Limiters and audio limiting



A limiter prevents a signal from exceeding a predetermined loudness. When set up correctly, it can provide protection for your ears and equipment with minimal or no audible degradation to the perceived audio.

### Protecting your hearing

One of the common problems encountered in surveillance work is caused by the difference in loudness between the observed signal (usually a conversation) and extraneous noises that may also be picked up. Frequently, the observer will be listening using headphones, and will have the gain of the listening equipment turned up high so that there is the best chance of understanding what is being said. However, this means that any loud noise will be at best uncomfortable and - at worst - dangerous to the ears.

A limiter can help eliminate this hazard. It does so by allowing the user to set a 'threshold' - the maximum signal level that can pass

through the audio chain - and then reducing the level of any input signal that exceeds this.

The figure to the left shows the CEDAR Cambridge Limiter module. This has been set up with a limiting

threshold of -3dB, meaning that the maximum audio signal amplitude that can pass - whether a quiet whisper or a gunshot - cannot exceed this value. The benefit of this is that the listener can set the listening level as high as is necessary to hear and understand a quiet conversation, without the risk of being deafened by loud noises.

In theory, setting the threshold to 0dB would eliminate any problems, but we allow a small amount of headroom so that the process can control very loud sounds without distortion.

A second control is provided on the Limiter. This is called the 'release', or Release Time. When set correctly, this minimises the side-effects of processing by controlling the rate at which the limiting amplifier is able to change gain. This minimises audio pumping, a side-effect that can make the processing less transparent, which in turn can result in reduced listenability and intelligibility.

### Eliminating clipping

The second major use of a limiter is to ensure that the signal does not exceed the maximum amplitude that can be handled by the equipment in the signal chain. This overloading - which is commonly referred to as 'clipping' - manifests itself as a loud audio distortion. It is a common problem that blights many surveillance recordings, again reducing listenability and intelligibility.

To eliminate clipping, you can use the same (or similar) limiter settings as those used to protect your hearing. The difference lies in the position in the processing chain at which you place the limiter. When you are protecting the listener, you can place it at the end of the chain, immediately before the headphone amplifier. When you are protecting the audio chain from overloads, you place the limiter at the front of the signal chain to ensure that no excessive signal levels can enter to cause the distortion.

### In Summary...

A limiter is a signal processing module that limits the maximum amplitude of any audio signal passing through it. It is frequently used on surveillance cases, both to protect the hearing of listeners in the field, and to help ensure that recordings are clear and intelligible.

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### STOP PRESS: ACADEMY AWARD® FOR CEDAR AUDIO

CEDAR Audio is pleased to announce that Dave Betts and Dr Christopher Hicks, CEDAR Audio's Engineering Director and Senior Engineer, are to be presented on 12 February 2005 with an ©Academy of Motion Pictures Arts and Sciences® Technical Achievement Award, 2004, for the design and implementation of the CEDAR DNS1000 multi-band digital noise suppressor.

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We welcome your questions, comments and feedback.  
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