

EvidenceWorks®

Evidential Interview Recording System A Product Overview Paper



Introduction

The **EvidenceWorks® Interview Recording System (IRS)** is the UK market leading solution in the field of Evidential Interview Recording for Police and other agencies. The solution has been purpose designed and developed to specifically to meet the requirements of law enforcement agencies.

EvidenceWorks® IRS is currently used by law enforcement agencies with some 50,000 officers combined, and approximately 1000 purpose designed Interview units are now deployed in both dedicated interview rooms, specialist suites for sensitive and vulnerable victim/witness interviews and portable equipment used in a variety of locations.

It is estimated that the solution has recorded and managed in the region of one million evidential interviews since first introduced.

Contents

| | |
|--|----|
| Introduction | 2 |
| EvidenceWorks® IRS - Key Business & Operational Benefits | 3 |
| EvidenceWorks® Overview | 4 |
| EvidenceWorks® IRS Recording Unit – Key Features | 6 |
| EvidenceWorks® Portable Interview Recording Unit – Key features..... | 14 |
| EvidenceWorks® DEM – a Networked Interview Solution..... | 15 |
| The UK Market Leading Solution – Major Police Users | 18 |
| Product Roadmap | 19 |
| Further Information | 19 |

EvidenceWorks® IRS - Key Business & Operational Benefits

Removal of physical DVD media provided by standalone and legacy recording equipment helps support business improvement and efficiency by enabling:

- Reduced officer time handling DVDs;
- Reduced risk of data loss and consequential impact;
- Removed media transportation costs;
- Removed media procurement costs;
- Removed need for media library management and storage of physical media for new interviews, plus issues associated with media degradation over time.

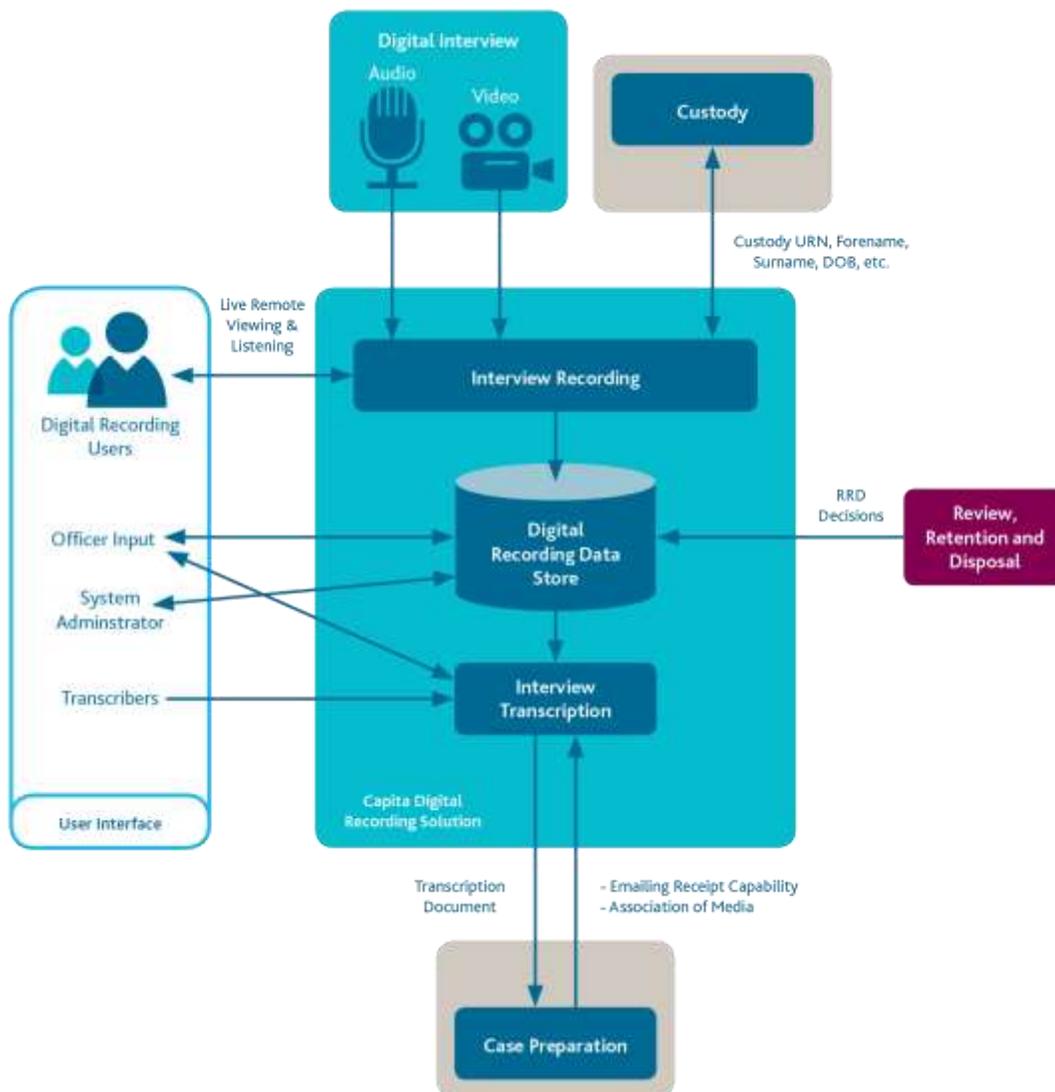
Key operational benefits include:

- Support for creation of evidential extracts (stills or clips) to support the wider criminal justice process – maintaining master copy integrity and digital signatures throughout to support robust evidence handling procedures from ‘capture to court’;
- Remote monitoring of live interviews anywhere on the network such that critical cases can be monitored by senior/supervising officers without the need to travel – saved time, cost and improved decision making in serious cases;
- Facilitates playback of interviews at the desktop for officers and investigation teams without having to retrieve or copy media – saving officer time;
- Enterprise security model to manage access across the force and Full audit trail of access to interviews – supporting robust governance and security standards;
- Integrated with Force Records Management System – including Niche RMS – for reduced rekeying of information and improved data quality;
- Streamlined, software supported, management of interviews for RRD – review, retention or deletion – decisions – ensuring material is either kept or disposed of in line with policy and legislation;
- Streamlined workflow support – no transportation lag for urgent interview review or transcription;
- Transcription support for case file production including auto-populated data from interview metadata – reduced time for transcription workers.

EvidenceWorks® Overview

EvidenceWorks® is a secure, open and scalable solution for the capture and management of Digital Evidence for law-enforcement agencies. The solution can be deployed in a modular fashion to support just the capture and management of evidential interviews – or extended over time to support wider forms of digital evidential material from multiple sources – including for example, CCTV and Body Worn Video.

This overview focuses specifically on the Interview Recording Solution (IRS).



Simplified Conceptual Overview

The **EvidenceWorks® IRS** solution consists of purpose designed fixed and portable interview recording hardware units that can operate either in standalone mode (recording both Audio and Video data to

DVD media) or as part of DVD-free networked environment used in conjunction with **EvidenceWorks® DEM** software, described below. The solution has been purpose designed for all environments where evidential interviews are recorded, whether audio only or audio and video, in fixed interview rooms or as a portable solution. The fixed solution operates in both suspect interview/custody rooms as well as in more discrete vulnerable witness and victim interviewing suites potentially controlled from outside the room.

The interview recording units are sophisticated devices, being robust, resilient and feature rich. Details of the key features of the recording units are provided later in this document.

Within a networked environment, **EvidenceWorks® IRS** supports:

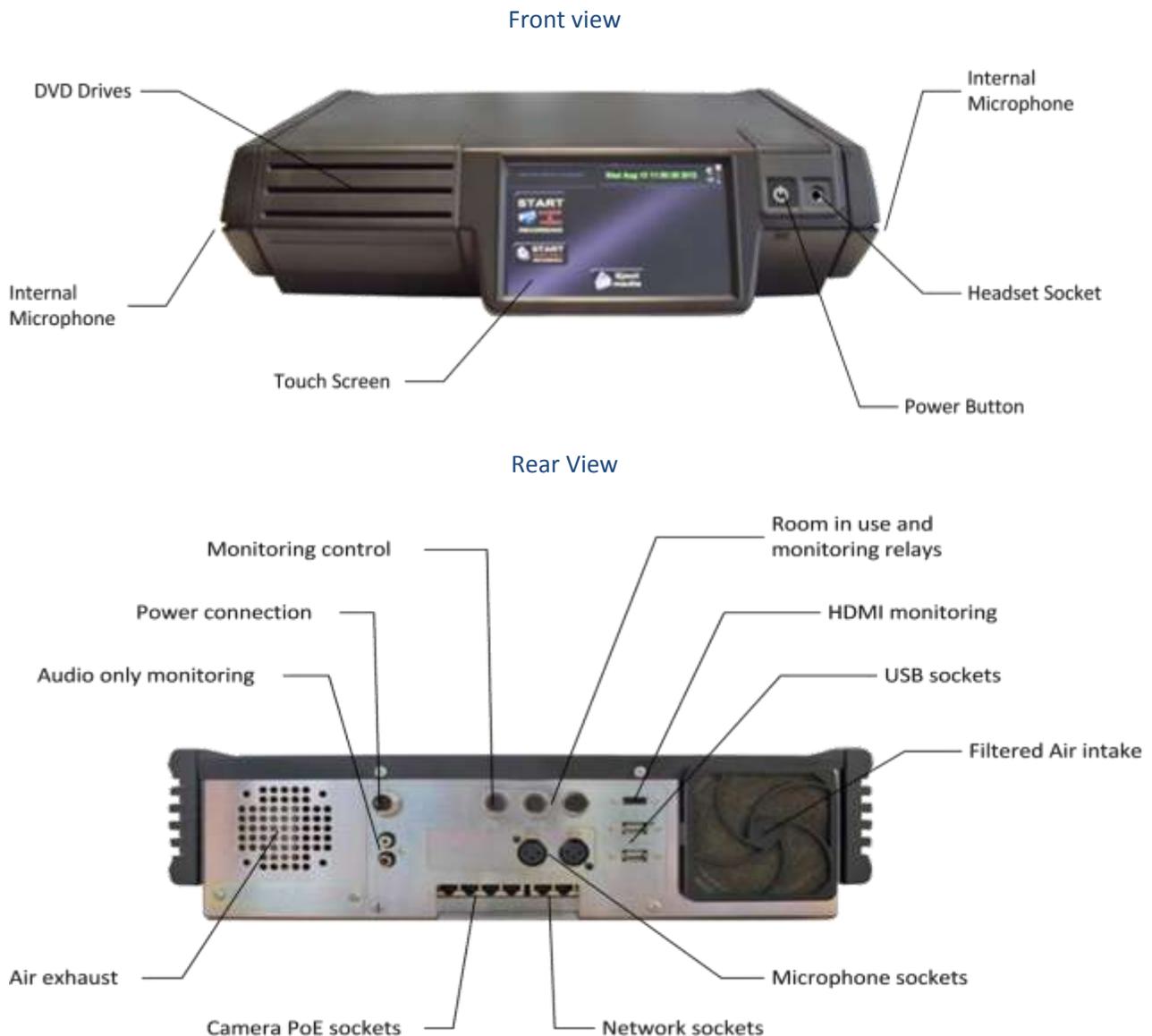
- Managed upload of interviews from the recording unit over potentially unreliable, occasionally connected or bandwidth constrained networks;
- Integration with leading Police Records Management Systems – including Niche RMS – to both validate and/or auto populate interview related meta-data entered at interview commencement;
- Support real-time monitoring of in-flight interviews across the network when used in conjunction with **EvidenceWorks® DEM** software;
- Managed and Supportable: Auto-software deployment and upgrade to the recording devices; Network Time Protocol enabled for consistent time stamping; SNMP Alarms.

The **EvidenceWorks® DEM** is a central server based application providing management of and controlled access to interview media files. It has the following key features:

- Consistent and Purpose Built: Central searchable repository for consistent management of all digital evidence types including interviews, providing features which include audio/video replay, creation and management of evidential extracts (clips), interview workflow, interview transcription support, review, retention and disposal (RRD) decision support, maintenance of evidential integrity via digital signatures;
- Secure: Supports a fine-grained and role based enterprise wide security and access model (including LDAP integration) including full audit recording and reporting;
- Multi-Agency: Can support multiple collaborating police agencies sharing a common system in a shared deployment.

EvidenceWorks® IRS Recording Unit – Key Features

EvidenceWorks® IRS is a purpose designed recording system designed for a custodial interviewing scenario where the device needs to be functional, resilient and able to stand up to the requirements of a potentially hostile environment. The IRS can also be used to provide recording requirements in Victim/Witness suites, where the cameras and microphones need to be located remotely from the recorder.



The IRS is equipped with the following features.

- Power button – the unit's power button includes an indication of whether the unit is powered and whether it is running. Operation of the button will allow the

unit to be turned on however the ability to turn the unit off is disabled whilst recording.

- 7 inch touchscreen – the angled reflection-free touchscreen is utilised for user interaction allowing for the control of the unit, entry of configurable interview metadata, user feedback and interview progress indications.
- Headset socket – the headset socket is utilised for recording monitoring where the recorder is located in an adjacent room.
- Internal microphones – the unit is equipped with two internal microphones which can be utilised instead of external microphones if required.
- DVD Drives – the units can be equipped with zero to three DVD drives, allowing for the simultaneous burning of three DVDs or a DVD-free networked based solution. For DVD based solutions, interviews are burnt to DVD's as the interview progresses, to reduce the time taken at interview conclusion to finalise media burning.
- 2 or 4 channel audio support from external microphones with sophisticated internal mixer.
- Support for multiple IP camera streams with Picture-In-Picture (PiP) support and Pan-Tilt-Zoom camera support.



- Internal Battery UPS – allows interviews to be finalised in the event of a power failure.
- Internal RAID-1 Mirrored Hard Disk Drives – used to store interviews in-flight and as part of a managed upload over a networked solution.
- HDMI output for adjacent room monitoring.
- USB support for external keyboard and mouse if required.
- Can be securely attached to a desk to prevent use as a weapon, with cable cage cover and secure cable attachments to prevent tampering.
- Internal disks can be externally accessed and removed where offsite unit maintenance/repair is required.

- Remote wireless key-fob to enable both covert and overt bookmarking of interviews during the interview. See image below:



The hardware unit is controlled and operated via purpose designed IRS software, usually controlled via the 7 inch touchscreen. For data input an integral keyboard is displayed on the touchscreen:



The interview metadata collected using the keyboard is stored in a non-editable text file. The file is digitally signed using the machines identity to prevent editing after the interview has been completed. The interview metadata is configurable to meet the needs of the agency using the equipment with both static and dynamic data fields specified by the system administrator. The configurable static data includes items such as Station ID, Interview Room, and Recorder ID. This is automatically applied for each interview. The software also produces automatic metadata such as the date and time of the interview, duration, and a unique interview ID applying to all media files associated with a given interview.

Before commencement of an interview the user is prompted to insert the correct number of DVDs (when used) prior to entry of the metadata. When the DVDs have been inserted and validated by the IRS as blank valid media the Start interview buttons will become enabled. The user will then be allowed to start the Audio Only or Audio/Video recording process.

On completion of the metadata entry, the recording can be commenced. During recording a number of functions are available depending on the system configuration:

- Video stream selection – the two video stream selection buttons allow for viewing of video stream 1 or 2 both on the recorder and via HDMI monitoring.
- Microphone setup – the microphone setup button allows entry in to the microphone configuration screen to adjust recording levels. This would normally be disabled but is appropriate for the interview of vulnerable persons where speech levels may be reduced.
- Camera setup – the camera setup button allows entry in to the camera configuration screen to adjust the pan, tilt and zoom (PTZ) of cameras, where PTZ cameras are fitted. This function can be disabled.
- Media setup - the media setup button allows for the adjustment of the picture in picture functionality and the location of the interview reference, time and date within the video streams. The media setup button is also used where additional cameras, up to 4, are used. This function can be disabled.
- Video Off – the video off button allows for the recording of the video streams on the IRS to be temporarily disabled. This function can be disabled.
- Hide – the hide button allows for non-essential detail to be blanked on the IRS screen to prevent it being a distraction to the interviewee. Whilst hidden, touching the screen anywhere returns the display. This function can be disabled.
- Pause – the pause button allows for the interview to be paused. A further touch of the pause key will recommence recording. This function can be disabled.
- Stop – the stop button allows for the interview to be stopped. When the interview is stopped the final part of the recording will be burnt to the DVDs (where used). The system will then present a recording confirmation and the SHA256 keys to prove interview authenticity. Upon completion of the interview the DVDs (where used) will be automatically ejected.

The Video Off, Pause and Stop keys can be configured to only activate when they are touched for a certain period of time. This is to ensure they are not inadvertently or maliciously activated.

The IRS records two video streams that can be configured with a Picture in Picture (PiP) view of the two video cameras. This will allow for example an interviewee head and torso view to be recorded with an inset room view.

Whilst recordings are in-progress three monitoring solutions are available:

- Local Audio only – either a headset or amplified speakers can be connected to the IRS to provide audio only monitoring.
- Audio/Video – the IRS' HDMI output can be connected to an appropriate HDMI display either locally or via HDMI extension equipment to allow audio/video monitoring.

- Network – using the **EvidenceWorks® Manager** client application users can view interviews in progress. Viewing can be completed live or historically. Normal video controls (RW, FF, Pause and Play) along with adjustable speed replay between 50% and 200% can be completed.

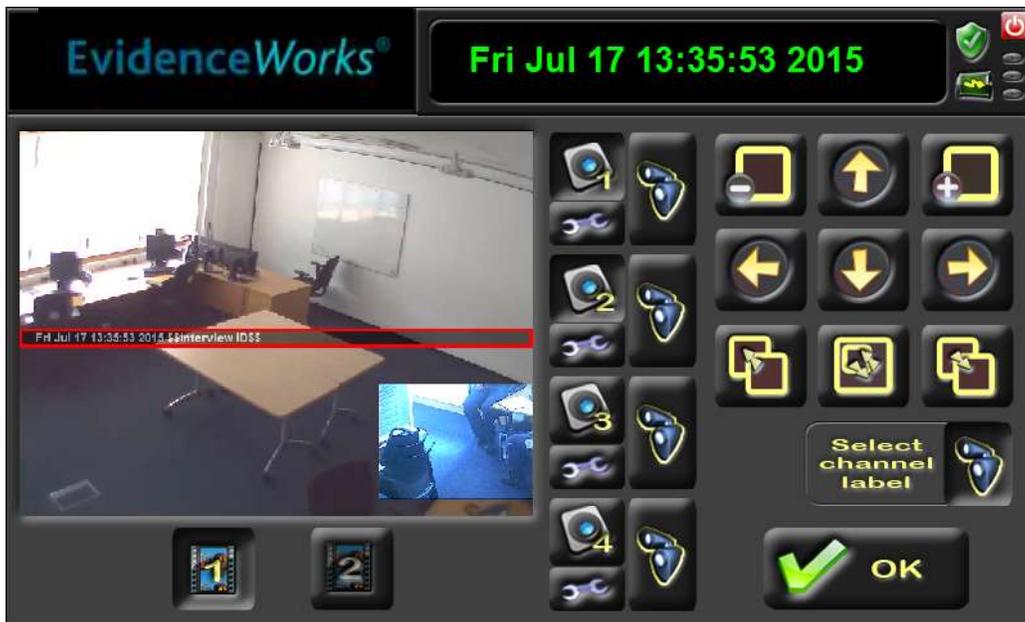
Whilst any of the above monitoring functions are being undertaken the IRS unit displays an on-screen monitoring indication as well as providing an external monitoring output to activate a monitoring in progress notice.

Prior to the recording process the preview screen shows the images from the cameras to ensure that both cameras are working and adjusted to the correct view. Both the recording screen and preview screen allow the user to select either video stream for viewing. The preview screen additionally shows the audio levels for the left and right channels.



Preview Screen

Each video stream has a channel label showing the current date and time along with an interview reference displayed. The position of the channel label can be positioned vertically on the screen by the system administrator. The image below shows the channel label selected for relocation and positioned in the middle of the screen.



Media adjustment screen

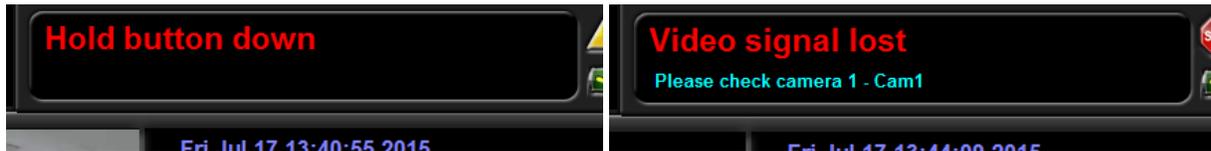
During the recording process the recording screen shows a range of information and displays. The image below shows the recording screen.



Recording screen

- Recording duration – The recording duration is shown as an Hours, Minutes and Seconds Display

- Audio Levels – the recording audio levels are shown for the left and right channels as three indicators showing a frequency response, average level and rolling level.
- Message area – the message area shows that an interview is in progress. Other messages indicate faults and user prompts as shown in the two clips below.



Example fault and prompt

- Recording – 'RECORDING' is clearly shown on the screen at all times during an interview.
- Video Image – during the interview the recording screen also shows the images from the cameras.

At the end of the interview process the DVD/s will be finalised with the interview being burnt to the DVD/s or queued for managed upload where network attached. The image below shows the finalisation process with the DVD burning indicator at the top right of the screen showing a red indication.



Finalising interview screen

During the interview recording process the IRS will show the current process state via on-screen prompts or messages.

The **EvidenceWorks® IRS** stores full audit information within any DVD/s produced during an interview, DVD/s burnt by an administrator and as a separate audit log on the IRS and recorded centrally within the networked solution. The audit logs can be exported from the IRS unit to DVD by the administrator. The Audits include details as listed below.

- Interview dates and times
- Interview duration
- Interviewer details – Collar number, rank and name
- Interviewee details – Custody reference (where applicable), Name, Date of Birth, Primary offence (where applicable)
- Other party details
- Interview file names for the audio and video files
- User functions – video off, pause, hide etc.
- User errors – e.g. where the Stop button has not been held for the correct period to stop the recording
- System faults
- SHA256 checksum

Note that in the above images, the 'EvidenceWorks' logo is typically replaced with an agency specific name, force crest/badge or other image.

EvidenceWorks® Portable Interview Recording Unit – Key features

The **EvidenceWorks® IRS** is available in a portable form factor – either supplied by us or customer-supplied hardware (meeting the required specification) - We typically propose the supply of a Consumer off the Shelf (COTS) laptop for Portable Recording requirements.

The software based portable solution uses the same user interface as the fixed recording units described above, and in that manner gives a consistent approach for officers working in the field or in fixed locations, reducing training needs.

An example of hardware used, the rugged Getac B300-G5 shown below. Many customers opt for non-rugged devices, with the Dell Precision M6800 currently being the recommended non-rugged model.

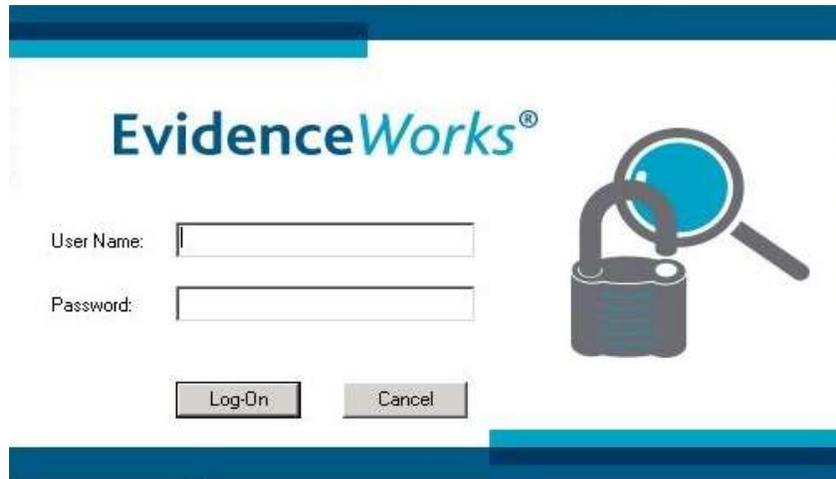


Along with the rugged laptop the required number of cameras and microphones are supplied. A typical camera is the Microsoft Lifecam studio supplied with a full-size standard ¼" Whitworth standard fitting tripod. A typical Microphone is the Philips LFH9172.

To ensure protection of data (at rest) stored within this laptop, we also recommend the use of CAPS grade encryption – for instance, BeCrypt DiskProtect Enhanced.

The Portable Digital Recorder supports at least one external microphone. Connectivity is offered by means of a 3.5mm stereo jack, providing a common connection interface for various microphone technologies. The recommended boundary layer microphone uses a non-directional 360 degree pickup design, enabling clarity for near and mid field audio. The microphones are capable of 'daisy-chaining' to provide a wider field of use, utilising two or three microphones on each channel therefore providing a possible total of six microphones altogether.

EvidenceWorks® DEM – a Networked Interview Solution



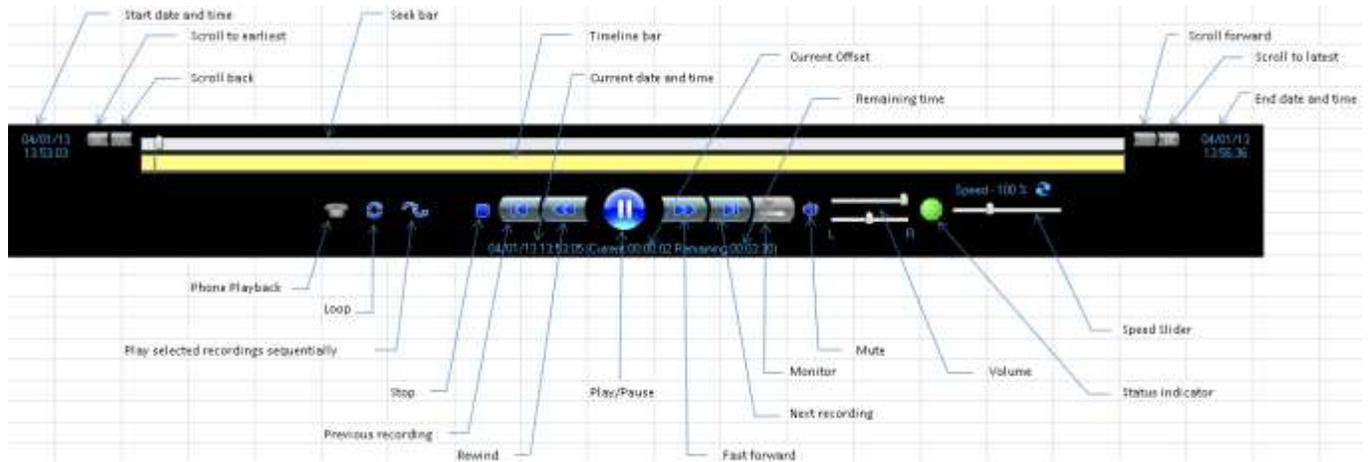
EvidenceWorks® DEM (Digital Evidence Management) software allows organisations to load, store and manage evidence from a variety of different sources including:

- **EvidenceWorks® IRS** interview fixed and portable units
- Body Worn Video Camera Evidence
- CCTV Evidence
- Public Provided Evidence, and
- Crime Scenes Investigation (CSI) Evidence

When deployed as a fully networked solution using **EvidenceWorks® DEM**, the IRS solution offers a range of extended features that can truly release process efficiencies.

- Digital Evidence Repository; a secure BS10008 (Evidential weight and legal admissibility of electronic information) compliant data store for centralized storage of Interview Recordings.
- Functional access control through Users and User Groups and fine grained Data access control and organisation through Users, User Groups and Folder structures. Auditing of User and System activity.
- Management of interview uploads, and automatic cataloguing and organization of uploaded Interview Recordings.
- Access controlled Interview audio & video replay via built-in media player including the ability to jump to bookmarks added during the interview and

sophisticated variable speed constant-pitch replay technology to allow interviews to be replayed at faster than normal speed but removing the usual impact of 'mickey-mouse' voices this would cause. Using a built in player ensures that all actions are fully audited – something not possible when using a generic/external media player.



In-Built Media Player controls

- Allows digitally signed audio and video clips to be extracted and still images of video files to be produced to prepare evidence for the wider Criminal Justice system – at all times a master digitally signed copy is maintained.
- Supports remote interview monitoring across the network of in-flight interviews or interviews not yet uploaded from a recording device. Allows senior officers to review interviewing performance or engage in serious case interviews without the need to travel or attend an interview in person.
- Filters and Quick Search facilities - extensive search and retrieval capability that can be run at end-user level with specific pre-defined searches cascaded down from administrators within the operational hierarchy of a police force.
- Transcription workflow allows interviews to be 'passed' from one team to another for processing and is integrated with Microsoft Word for transcription purposes - with further transcription support including replay hotkeys, auto-populated transcription forms and USB foot-pedal support .
- Interview retention management - Default retention periods are assigned to evidence type and **EvidenceWorks®** allows staff to review, retain and dispose of evidence items in line with organizational policies.
- Integration
 - Web Service integration with customer systems including Niche RMS and other common police systems

- Integration with a customer's Active Directory/LDAP
- Integration with customer storage solutions
- Interoperability through open standard interfaces
- Security including secure interview transmission/upload and HTTPS controlled remote access.
- Management reporting

Non-functional features include:

- Compatible with clustered server and virtualisation allowing resilient high availability storage and processing. Disaster Recovery (DR) can be provided through **EvidenceWorks®** support for asynchronous or synchronous backup of repository data.
- Open standard architecture; open standard file formats and codecs for Interview Recordings, secure WebDAV for the transfer of Interview Recording, SOAP/XML Web Services for integration with external systems, and LDAP compliance for authentication against directory services.
- Integration with on-premise or (private) cloud storage models; proven deployment using tiered storage environments.

The UK Market Leading Solution – Major Police Users

EvidenceWorks® Interview Recording Systems are supplied to 14 UK law enforcement agencies – approaching 50,000 officers combined - in addition to a number of other specialist agencies including specialist fraud investigation teams and the International Courts of Justice in The Hague, Netherlands. Since its first introduction, it is estimated that close to 1 million interviews have been captured and managed by the solution.

The major law enforcement agencies include:

| Customer | Summary |
|--------------------------------------|--|
| East Midlands Regional Collaboration | A collaboration of four police agencies in the East Midlands area of UK with over 8000 officers. Having initially deployed some 200 standalone (DVD based) interview recording systems (portable and fixed) during 2011-12, the collaborating agencies upgraded in 2015 to the full network connected EvidenceWorks® IRS solution, sharing one system and removing the need to produce and manage physical DVD media. The solution supports dedicated interview rooms; sensitive suites designed for vulnerable victims and witnesses as well as occasionally connected portable equipment. It allows for collaboration across force boundaries, with officers from one force able to interview in another force and manage their interviews from their home force desktop. |
| Large country-wide police force | Country-wide police agency with over 7000 officers. The force have a force wide deployment of the full networked EvidenceWorks® Interview Recording Management System with 80+ networked recording rooms in addition to 25+ portable (occasionally connected) recording units. |
| Avon and Somerset Police | A police agency with over 3000 officers. Avon and Somerset have used the full EvidenceWorks® IRS System since 2014, and have recently upgraded the solution to the latest release which also manages digital evidence from Body Worn Video cameras, CCTV and digital material provided by the public, all within the same EvidenceWorks® management platform used for specialist interview recording equipment. |
| Police Service of Scotland - PSoS | Scottish country-wide police agency with over 17,000 officers and more than 150 interview recording facilities spread across the country including remote islands. PSoS were the first customer to use the system, commencing in 2010, and have recently extended the solution to cover the remaining Strathclyde/Glasgow region. |
| Multiple large police forces | Seven other large law enforcement agencies, with over 10,000 officers combined and some 370 interview recording rooms and portable systems deployed. Five of these agencies run standalone (DVD based) equipment, and two use the full networked EvidenceWorks® IRS solution. |

Product Roadmap

The solution has recently been enhanced during 2015 to support:

- Integration with leading Police Records Management Systems (RMS) including Niche RMS, to allow exchange of information including meta data from the RMS Custody/Jail management system for use with the recorded interview, and for the interview to be used as part of building a prosecution Case File. Features to support interview transcription are provided by the **EvidenceWorks®** IRMS as part of building the Case File.
- Upload and management of evidential material from third party Body Worn Video cameras, video material from CCTV systems and other material, for example provided by the general public.
- Integration with specialist authentication and security software.

Beyond those immediate commitments, we are also working with customers to investigate and, where appropriate, develop plans to extend the IRS system in a number of possible areas including:

- Addition of speech to text processing, combined with text analytics, to allow intelligence and investigative searching and analysis across a large number of either related or apparently unrelated interview audio files.
- Addition of redaction capability during video content editing as part of Case File preparation.
- Addition of functionality to allow a hidden video watermark to be embedded within an image at point of publication. The intention here is to allow tracing of video evidence that is produced and published (to a restricted audience) for a defined purpose but subsequently 'leaked' to News Agencies, YouTube etc. Such a solution would utilize third party technology used in the broadcast and movie industry for protecting pre-release material and prevention of pirated movies.

Further Information

Please contact Neil Chivers, **EvidenceWorks®** Business Development Manager at: Neil.chivers@capita.co.uk or Telephone +44 (0)7736 490278

Methuen Park, Bath Road, Chippenham, SN14 0TW, UK

www.evidence-works.com