CCTV Systems

NATIONAL BUSINESS CRIME CENTRE

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The Science Inside

This document offers guidance to potential owners and operators of CCTV systems, where the video is intended to be used by the police. For recordings to be effective in detecting and investigating crime they must be fit for purpose and easily accessible by police investigators.

There are four main areas that must be considered:

By ensuring that your CCTV system is capable of meeting a few simple requirements, the potential evidential value of the video can be greatly increased and the time taken by the police to access and process them greatly reduced. Supporting notes are provided throughout this document to clarify the requirements.

Quality

What resolution? What compression? How many pictures per second?

Specify your requirement– decide what you want to see and where, and select a system that will do it.

View the recorded video, not the live screen, to assess the system performance.

The system clock should be set correctly and maintained (taking account of GMT and BST).

Video quality should not be reduced to fit the available storage capacity of the system.

Regular maintenance should be conducted on all aspects of the system.

Is the video good enough?

Before installing a CCTV system, you should have a clear idea of what you want the system to do and how it should perform. This should include exactly what you want to see and where, e.g. recognise someone's face, read a vehicle registration number or record a particular type of activity, such as an exchange of money or an assault. There are no definitive performance criteria for video to be admissible. It is for the court to decide whether the video is acceptable, and is done on the grounds of relevance, reliability of the evidence, etc.

The appropriate resolution, level of compression and number of pictures per second will be determined by what you wish to see in the video recording. If you can't see it, then it's not fit for purpose. It should not be expected that enhancement features, such as digital zoom controls, will provide extra detail.

A good way to ensure that the system is capable of achieving the requirement is to do a subjective test. Set-up a camera and get a volunteer to walk through the door or park a car in the place of interest and record the event. This should be done under the conditions that the system is intended to be used, performance of the system may be different when there are a number of cameras being recorded.

The quality of the video may differ from the live display.Generally the recorded video and stills transmitted to a mobile phone are of poorer quality.

Time and date information is critical to an investigation. If it is incorrect this can drain police time and resources. The quality of the video should not be compromised to allow the system to record for longer. There are several different ways of achieving this, dependent on the nature of the installation and the type of video recordings being made. Guidance should be sought from your local police force.

To ensure continued video quality it is essential that regular maintenance of all aspects of the system be conducted - especially camera focus, cleaning of lenses, housings, etc.

Storage

What should I keep? How should I keep it? How long should I keep it?

The system should be operated and the recorded video retained in a secure environment.

The system should store good quality video throughout the retention period.

Electronic access controls, such as passwords or encryption, should not prevent authorised access to the system or video recordings.

The system should be capable of securing relevant video for review or export at a later date.
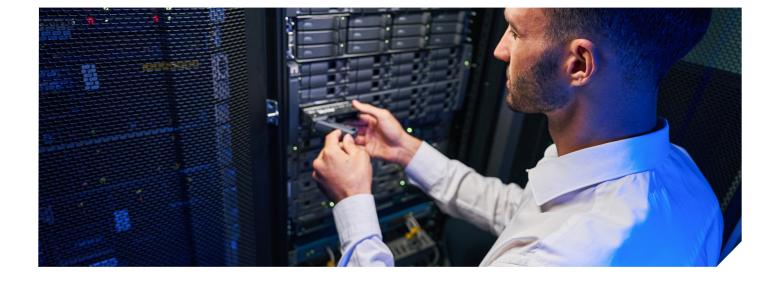
Is the video stored appropriately?

Access to the system and video recordings should be controlled to prevent tampering or unauthorized viewing. A record should be kept of who has accessed the system and when.

Further information on this can be found on the Information Commissioner's website or from your local Crime Prevention Officer.

Electronic protection methods that require proprietary software or hardware will hinder an investigation if they prevent the video from being provided to authorized third parties – police, CPS, etc. Physical methods of access control, e.g. system in a locked room, can be just as effective.

It is important that video recordings cover a sufficiently long period to assist in investigations. Retention beyond 31 days may be useful in some circumstances but should not affect the quality of the more recent recordings. Due regard must also be given to guidance from the Information Commissioner's Office and the Biometrics and Surveillance Camera Commissioner.

It should be possible to protect specific video recordings, identified as relevant to an investigation, to prevent overwriting before an investigator can view or extract them.

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Export

How much video should the system export and in what format?

A system operator should be available to replay and export recordings.

The operator should know the retention period of the system and export time for various amounts of video.

Export should include any software needed to view or replay the video.

MP4 Video should be exported in the native file format at the same quality as stored on the system.

A simple system operator's manual should be available locally to assist with replay and export.

The system should be able to quickly export video to a removable storage medium, with time and date integral to the relevant picture.

The system should have an export method proportionate to the storage capacity.

Can the video be easily exported from the system?

It is unlikely that the investigator will be familiar with the operation of your system to facilitate replay and export. A trained operator and simple user guide should be available locally.

Export of medium and large volumes of video can take a substantial period of time. The operator should know the retention period of the system and approximate times to export short (e.g. 15 minutes), medium (e.g. 24 hours), and large (up to all of the system) amounts of video.

If the software needed to replay the video is not included at export, viewing by authorized third-parties can be hindered. Export of a system event log or audit trail, and any system settings will assist with establishing the integrity of the pictures and system.

The amount of video that an investigator will need to export will be dependent on the nature of the investigation. For example a shop robbery may only require a few stills or a short video clip, however a more serious incident such as a murder or terrorist related enquiry may require all the video on the system to be exported.

It is essential that the system is capable of doing this quickly and to an appropriate medium. This could be a physical storage device or the capability to transfer files electronically to a suitable recipient. It is essential this initial export is in the native format of the recording system.

The system should not apply any further compression to the video when it is exported from the system as this can reduce the usefulness of the content. In addition, the video should not undergo any format conversion that affects the content or its quality.

Playback

Can the pictures be easily viewed? The playback software should:

Have variable speed control including frame by frame, forward and reverse viewing.

Permit the video from each camera to be searched by time and date; allow printing and/or saving of still images with time and date.

Display single and multiple cameras and maintain aspect ratio i.e. the same relative height and width.

The time and date associated with each picture should legible.

Display a single camera at full resolution.

It should be possible to replay exported video with no loss of quality.

Can the video be easily viewed by third parties?

The replay software must allow the investigator to search the video effectively and see all the information contained and associated with it. It should be possible to replay exported video with no loss of quality.