
MONMOUTH COUNTY
UNIFORM POLICY

**Law Enforcement Digital
Image Guidelines**

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INTRODUCTION

This document is intended to provide a set of guidelines for use by members of the Monmouth County law enforcement community in the area of digital image capture.

OVERVIEW

The accurate photographic and video documentation of a crimes scene, person, vehicle, and/or physical evidence, is an important aspect in many criminal investigations. It provides a permanent visual record for the furtherance of the investigation and eventual presentation in court. The following guidelines are designed to provide direction for Monmouth County law enforcement agencies using digital still and video cameras to record crimes scenes and other important criminal investigation events and to insure that criminal investigations and prosecutions are not jeopardized by the use of digital imagery.

Documentation methods and techniques can and will vary between agencies, however, photographic and video documentation should be accomplished within generally accepted practices. The type and extent of documentation utilized will depend upon the nature, complexity, and circumstances of the case and should be chosen with the end goal of providing the most comprehensive and accurate depiction of the crime scene, person, vehicle, and/or physical evidence.

PROCEDURES

I. Photographic Image Capture

- A. Digital images intended to be submitted for later forensic image analysis, e.g. bloodstain patterns, fingerprints, or any other image generally taken with a ruler/scale, should be captured at the greatest resolution supported by the camera in order to avoid lossey compression. Other, non-critical, images may be

captured as lesser resolution, e.g. mug shots, general scene images, etc. (see Appendix A for a glossary of terms).

- B. Prior to the commencement of a new photographic assignment, the user should ensure that the correct date and time are set on the camera, if that option is available. This should be verified even if the user has not selected to have the date and time imprinted on each image because the date and time is frequently imbedded into the data file which comprises each captured image.
- C. Prior to photographing any assignment, the storage media should be formatted to begin with a “clean slate.”
- D. To preserve the integrity of the photographic process, there should be NO deletion of images during the course of the investigation. Images that were inadvertently taken or are of poor quality should be noted on the photographic log and left intact on the storage media to preserve the continuity of the session.
- E. Once removed from the camera, the removable storage card will NOT be placed in any computer or other viewing device, for the purpose of viewing the images, until archiving of images is completed. Some software is known to have default settings which may impact or override the camera’s image data file creating an artifact.

II. Photographic Image Storage

The following guidelines are intended solely for images that are captured by law enforcement personnel and do not apply to cameras or media storage devices that have been obtained as a result of a search and seizure.

- A. As soon as practicable the original image files should be downloaded directly to an optical storage device, such as a write once CD/DVD for archival storage.
 - 1. The write session should be closed and finalized to prevent addition or changing of the files. Upon successful completion of the write session, the images on the disc will be considered the ORIGINAL archive images for purposes of evidence storage and accountability. The ORIGINAL CD/DVD should only be utilized to create working copies and for courtroom purposes.
 - 2. The ORIGINAL CD/DVD should be labeled with the case file number, date, and photographer's name. Markings shall only be made to the top (matte side) of the CD/DVD. As a best practice, the disc should be labeled using a permanent felt tip pen specifically manufactured for labeling optical media as some "Sharpie" permanent markers use chemicals which can corrupt stored files over time. Adhesive labels should not be affixed to optical media.
 - 3. The volume/serial number imprinted on the disc should be recorded on the photographic log and evidence/property receipt, if applicable.
- B. After the images have been saved to the CD/DVD, they should then also be downloaded directly from the camera storage media to a secure law enforcement hard drive into a dedicated folder bearing the appropriate case number again for archival storage.
- C. Upon verification of a successful download, the camera storage media may be reformatted for future use.

- D. Optical media should be stored vertically in jewel cases in climate controlled area of moderate temperature and humidity.

III. Video Capture

- A. Disconnect or disable sound recording feature and turn off the date/time display.
- B. Zoom feature should not be used with the camera running.
- C. Utilize a new tape for each case and never edit or alter the original media.
- D. Mark each tape as original and protect from any further recording, re-recording altering or editing (i.e. remove recording tab, write protect, etc.)
- E. Treat tape as evidence, mark accordingly and maintain securely through proper evidential chain of custody procedures.

IV. Video Storage

- A. Digital videotape should be stored vertically in a climate controlled area of moderate temperature and humidity.
- B. The tapes should be kept away from heat sources or any devices which emit magnetic fields such as VCRs or television sets that can damage magnetic media.
- C. Adhesive labels may be applied to the videotape cassette and storage box for marking purposes.¹

IMAGE PROCESSING

There are two types of post-capture digital image processing: Image Enhancement and Image Analysis. Either type of processing shall only be attempted by law enforcement agency personnel trained in digital image processing techniques or by civilian experts retained for that

¹ For additional information concerning appropriate storage conditions for optical and other media see, N.J.A.C. 15:3-6 <<http://www.state.nj.us/state/darm/links/storage.html>>.

purpose and shall be restricted to the processing of duplicate images. Primary images shall not be subjected to any type of image processing.

- I. Image Enhancement: standard processing techniques such as cropping, dodging, burning, color balancing, contrast adjustment and unsharp masking that are used to achieve an accurate recording of an event or object. These steps may be performed by qualified personnel, but must be documented in a report.
- II. Image Analysis: non-standard techniques used to increase the visibility of specific details in an image at the expense of other image details. These techniques should only be attempted by trained professionals able to qualify as experts in a court of law. All steps taken in this type of image processing must be documented in a report. The report must be specific enough to enable another digital image editor to achieve the same results based upon the steps taken.

Dissemination/Transmission

Original digital images constitute evidence and shall be treated accordingly. Duplicate digital images documenting crime/accident scenes, person, vehicle, or physical evidence shall be considered confidential, non-public information and treated accordingly. Digital ID and other non-evidential images shall be considered non-public information and treated accordingly. Duplicate images may be transferred via the Internet (email, ftp, etc.) giving regard to the nature of the image(s) being transferred. Whenever possible, images intended for transfer should be encrypted using public key pair encryption (PGP) or another standard encryption method to ensure confidentiality and image integrity. In all cases, care should be given to ensure that the received images accurately reflect the transmitted images.

Equipment Maintenance

Equipment utilized in imaging and archiving should be checked regularly for proper performance and calibration. All equipment should be maintained according to the manufacturers' specifications and recommendations contained in the operating manuals.

When a piece of equipment or a system falls significantly outside the specifications and recommendations, the equipment or system should be taken out of service until such time as it has been corrected.

APPENDIX A

Glossary

Archival Storage - Long-term storage of an image on stable media.

Archive Image - Either the primary or original image stored on media suitable for long-term storage.

Artifact - Any information not present in the primary or original image inadvertently introduced by image processing.

Capture - The process of recording an image.

Capture Device - A device used in the recording of an image.

Compression - The process of reducing the size of a data file.

Digital Image - An image that is stored in numerical form. Includes photos and video.

Digital Image File - A record that includes image data and related data objects.

Duplicate Image - An accurate and complete replica (copy) of an original image, irrespective of media.

Image Analysis - Non-standard techniques used to increase the visibility of specific details in an image at the expense of other image details.

Image Enhancement - Standard techniques intended to improve the visual appearance of an image.

Image Processing - Any activity which transforms an input image into an output image.

Image Processing Log - A record of the steps used in the processing of an image.

Image Transmission - The act of moving images from one location to another.

JPEG (JPG) - Compression method for digital images. The degree of compression is user adjustable, but always results in some data loss. See *Lossy Compression*.

Lossless Compression - Compression in which no image data is lost and the image can be retrieved in its original form.

Lossy Compression - Compression in which image data is lost and the image cannot be retrieved in its original form.

Megapixel - 1,000,000 pixels per frame.

Mini DV - Digital video format.

Native File Format - The file format of the primary image.

Original Image - An accurate and complete replica of the primary image, irrespective of media. For film and analog and digital video, the primary image is the original image.

Primary Image - Refers to the first instance in which an image is recorded onto any media that is a separate, identifiable object or objects. Examples include: a digital image recorded on a flash card or a digital image downloaded from the Internet.

RAW - Raw data as it comes directly off the CCD, no in-camera processing is performed - analogous to a film negative. Lossless.

Storage - The act of preserving an image.

Storage Media - Any object on which an image is preserved.

TIFF - Digital image file format which does not use compression. See *Lossless compression*.

Working Image - Any image subjected to processing