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Section 8

General Guidelines for Capturing Latent Impressions Using a Digital Camera

Introduction

The purpose of this document is to describe the proper documentation of latent print evidence by qualified personnel when using a digital camera.

The procedures described in this document are made in accordance with current SWGFAST guidance, see SWGFAST document "*Standard for Friction Ridge Digital Imaging (Latent/Tenprint)*"¹, as well as National Institute of Standards and Technology (NIST) standard, "*NIST Special Publication 500-271 ANSI/NIST-ITL-2007*"², both documents specify 1000 pixels per inch (ppi) at 1:1 as the minimum nominal resolution for latent print evidence.

Equipment

It is recommended that a professional digital camera kit consist of, at a minimum, the following items:

- Professional digital single lens reflex (SLR) camera
- Fixed focal length macro lenses
- Lens filters
- Dedicated electronic flash capable of off-camera operation
- Remote shutter release
- Sturdy tripod capable of various angles and positions
- Variety of light sources (e.g. flood lights, flashlights, Alternate Light Source [ALS])
- Digital storage media (format the media in the camera prior to each use)
- Graduated scaling devices (e.g. millimeters)
- Photographic log/notes

¹ www.swgfast.org

² <http://fingerprint.nist.gov/standard>

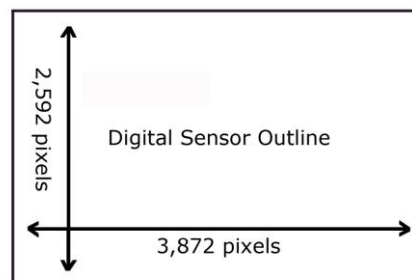
Optional Equipment

- Portable computer with appropriate software for downloading and viewing images at the scene
- Appropriate cables and connections (e.g. USB, Firewire)
- Card readers (e.g. Secured Digital [SD], Compact Flash [CF])
- Independent portable storage devices

Procedure

Step 1: Prior to Initial Use

- 1) Determine the maximum field of view in which a minimum of 1000 ppi may be achieved.
 - a. Refer to the effective pixel dimensions of the camera's sensor as stated by the manufacturer (e.g. 3872x2592 pixels).
 - b. Divide each dimension by 1000 ppi which, in this example equals 3.872 inches x 2.592 inches. This makes the maximum field of view approximately 3¾ inches x 2½ inches. To convert inches to millimeters, multiply inches by 25.4. To achieve maximum detail, it is best practice to fill the frame with the impression.
 - c. Not all camera viewfinders cover 100% of the capture area. Take a test image of scales across the vertical and horizontal axis to determine coverage of viewfinder.

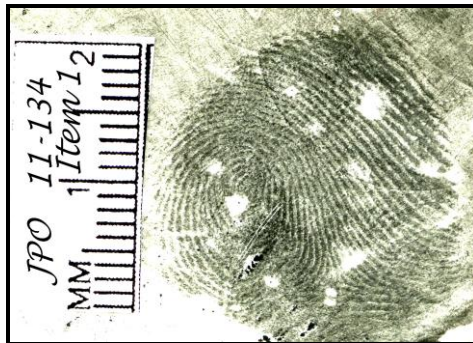


- 2) Review Standard Operating Procedures (SOPs) detailing how the equipment is to be used.

Step 2: Camera Set Up and Use

- 1) Verify camera settings that include but are not limited to time/date stamps, image file format and image size. It is recommended to capture using no compression or lossless compression (e.g. RAW or TIFF). Refer to SWGIT document Section 19, "*Issues Relating to Digital Image Compression and File Formats*".

- 2) Prepare photographic log or worksheet per agency policy.
- 3) When appropriate (e.g. crime scene), capture overall view of impression area without a scale using proper lighting.
- 4) Capture overall view of impression area with a scale, using proper lighting.
- 5) Mount camera on tripod or copy stand with camera at a 90-degree angle to the impression. Caution should be taken when using a magnetic level. Avoid contact or proximity of magnetic fields with storage media and camera because these fields may erase stored images and data and interfere with image capture.
- 6) Light impression appropriately.
- 7) Place scale on the same plane and as close as possible to impression without obscuring detail. Do not exceed the maximum field of view established in *Step 1*. The scale may contain the following information based on agency procedures:
 - a) Case number or unique identifier
 - b) Date
 - c) Initials
 - d) Source
 - e) Process used
 - f) Location/orientation



- 8) Select appropriate camera settings based on the previous equipment testing.
Note: Manual mode or aperture priority is recommended.
- 9) Capture impression for optimum quality, evaluate image and then bracket exposures as needed.
- 10) If images are unacceptable, re-photograph.
- 11) Repeat steps 8 through 11 for each lighting position used for each impression.
- 12) After the evidence is processed for impressions, follow steps 3 through 11 as appropriate for all latent prints developed.

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- 13) Images from separate incidents should be clearly delineated by a change of storage media or by proper documentation.
- 14) As soon as practical, media should be downloaded to an approved storage medium. Refer to SWGIT document Section 13, "*Best Practices for Maintaining the Integrity of Digital Images and Digital Video*".

Step 3: Use of Portable Computers/Storage Devices (Optional)

- 1) Connect camera or removable media to the device according to manufacturer's specifications.
- 2) When using a computer, create and name a file folder on the computer's hard drive to receive original image files. The camera or software may require unique file folder names for each download. Care should be taken not to overwrite existing image files from previously downloaded media. Some cameras reset their file counters whenever media is changed.
- 3) Prepare subdirectories for receiving downloaded images from camera or media. Create and name a subdirectory, using unique naming convention, in sequential order.
- 4) Copy all original files to appropriate subdirectory.
- 5) Verify that all images have been copied into the correct subdirectory.
- 6) Take necessary precautions and steps to preclude accidental deletion of files.
- 7) Removable media should not be erased in the field; however, if it becomes necessary redundant copies should be made and Agency SOP's should be followed.