

Maryland State Police Forensic Sciences Division Latent Print/Impressions Unit Digital Imaging Submission Guidelines

All digital image submissions intended to be used for a comparative analysis must meet all current relevant standards/guidelines. Below please find submission guidelines for the capture and submission of latent print, footwear and tire track impression evidence.

The submitting agency is responsible for assuring that personnel performing digital photography of latent print evidence are properly trained and following the relevant standards/guidelines.

See SWGIT (<https://www.swgit.org/documents>) document “*Guidelines and Recommendations for Training in Imaging Technologies in the Criminal Justice System*” and SWGIT/SWGDE document “*Guidelines and Recommendations for Training in Digital and Multimedia Evidence*”.

An orientation photograph recording the position of the latent print should be included. The resolution for orientation purpose only photographs should not be less than 300 ppi.

ONLY images clearly depicting the latent impression(s) to be examined and the associated orientation photograph(s) is/are to be submitted.

Digital images to be used for comparison purposes:

- The original (unaltered, non-compressed) digital file must be submitted
- Should be captured in a lossless format (e.g. RAW, TIF, DNG) with RGB mode-12 to 24 bit
- Should have a minimum resolution of 1000 ppi when calibrated at 1:1 size
- Must include a scale in the original image
 - Manufactured in metal or plastic
 - Reproduced copies of scales are not acceptable (e.g. photocopy, printed on business cards or labels)
 - Positioned adjacent to and on the same plane as the print
 - Scale units and denominations must be visible
- Minimum information included with the image either in the photo or the file metadata:
 - Case number
 - Impression identifier
 - Initials of photographer
 - Date taken
- Minimum additional information to be submitted on, or attached to, the Form 67 for each image:
 - Location and orientation of original impression
 - Provided by description or diagram(s), if information is not clearly depicted in the orientation photograph(s)
 - File name for corresponding orientation or examination image(s)
 - Process method used (e.g. black magnetic powder, ninhydrin, etc.)
 - Name of individual that photographed the impression

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- Submitted on digital media
 - Each case must be submitted separately
 - The media must be marked with the agency name and case number
 - The MSP form 67 shall itemize the type and number of media being submitted and the number of individual files recorded on each.

Digitally Photographed Footwear Impression and Tire Track Evidence

The resolution and format requirements for the digital photography of either footwear impressions and/or tire track impressions differ depending upon whether the impression is being photographed at the scene for the purpose of footwear or tire comparison, or being photographed at the scene for the purpose of footwear/tire brand recognition.

Footwear Impression and/or Tire Track Brand Recognition

The requirements in this instance are to produce a printed image size of approximately 5 inches by 7 inches for footwear impressions and approximately 8 inches by 10 inches for tire track impressions, which depict the impression suitable for entry into a computerized database that searches for corresponding brands and models of footwear or tires.

The physical shape and arrangements of the elements on the shoe sole or tire tread must be depicted with sufficient resolution, clarity and detail.

The image's resolution, clarity and detail must also be sufficient to image any logos, insignia or text that reflects the brand or model of the footwear and/or tire.

The Maryland State Police – Forensic Sciences Division suggests the following requirements of imaging for submission of digital images to be used for footwear/tire brand recognition purposes:

- Use a minimum 10 megapixel camera having a “full frame” sensor.
- The original (non-compressed, unaltered, unprocessed, unconverted) digital file must be submitted
- Should be captured in RGB mode, 16 bit format
 - Submissions in TIF, GIF or DNG format will be accepted
- Capture at the highest resolution possible.
 - Minimum resolution of 250 ppi when calibrated at 1:1 size
- Must include a scale in the original image
 - Calibrated in millimeters
 - Manufactured in metal or plastic
 - Reproduced copies of scales are not acceptable (e.g. photocopy, printed on business cards or labels)
 - Positioned adjacent to and on the same plane as the impression

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- Minimum information included with the image either in the photo or the file metadata:
 - Case number
 - Impression identifier
 - Initials of photographer
 - Date taken
- Minimum additional information to be included on or attached to the form 67 for each image:
 - Description of location of original impression
 - File name for corresponding orientation or examination image(s)
 - Name of individual that performed the digital photography
- Submitted on digital media
 - The media must be marked with the agency name and case number
 - The MSP form 67 shall itemize the type and number of media being submitted and the number of individual files recorded on each.

Be advised that meeting the requirements of photographing the impression for brand recognition purposes WILL NOT SUFFICE for meeting the requirements of photographing for footwear/tire track impressions for comparison purposes. You must take additional images in compliance with the below-listed guidelines when photographing for comparisons to known footwear/tire track.

Footwear/Tire Track Impression Comparison

The requirements in this instance are to produce one-to-one image-sized print-outs (approximately 11 inches by 14 inches) which depict the impression suitable for the comparison of its minute details to known standards of footwear.

In addition to the physical shape and arrangements of its polygonal elements, logo, insignia or text the impression must be also be depicted with sufficient resolution, clarity and detail to permit the analysis, comparison and evaluation of “scratch-sized” features.

The following requirements of imaging for submission of digital images to be used for footwear comparison purposes are suggested:

- Use a minimum 10 megapixel camera having a “full frame” sensor.
- Use the manual control on the camera to set aperture priority.
- Focus on the bottom of the impression while avoiding any ‘zoom’ into the wide-angle portion of the lens. This would cause distortion of the footwear/tire track image.
- Avoid overexposing which would ‘clip’ the data in the image. Underexposing the image will still permit image enhancement.
- The original (unaltered, non-compressed) digital file must be submitted

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- Should be captured in RAW format, RGB mode, to 16 bit
 - Submissions in TIF or DNG format will also be accepted
- Capture at the highest resolution possible.
 - Minimum resolution of 250 ppi when calibrated at 1:1 size.
- Images too large to be captured at 250 ppi
 - Must include a scale in the original image
 - Calibrated in millimeters
 - Manufactured in metal or plastic
 - Reproduced copies of scales are not acceptable (e.g. photocopy, printed on business cards or labels)
 - Positioned adjacent to and on the same plane as the impression
- Minimum information included with the image either in the photo or the file metadata:
 - Case number
 - Impression identifier
 - Initials of photographer
 - Date taken
- Minimum additional information to be submitted on or attached to the form 67 for each image:
 - Description of location of original impression
 - File name for corresponding orientation or examination image(s)
 - Name and title of individual that performed the digital photography
 - Process method used, if applicable (e.g. black magnetic powder, amido black, etc.)
- Submitted on digital media
 - The media must be marked with the agency name and case number
 - The MSP form 67 shall itemize the type and number of media being submitted and the number of individual files recorded on each.