Admissibility of Digital Photographs in Criminal Trials

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What we will discuss

- Digital photos captured by law enforcement.
  - If seized, use your digital forensics folks.
- Focus on smaller departments.
- Legal requirements to admit digital photos.
  - And how officers meet them.
- How the defense attacks our digital photos.
  - And how we meet that challenge.
- Handling digital photos from scene to court.
- Altered and enhanced digital photos.
Digital Cameras – The Bad

- Resolution not quite as good as film.
  - But good enough in most cases.
- New equipment and training costs.
- Judges and prosecutors not digitally literate.
- Mistrust due to the alteration fairy.
Digital Cameras – The Good

- Cheaper than equivalent film cameras.
- Can see results immediately.
- Faster and cheaper to share photos.
- Reduced printing and processing costs.
  - “Film” is free.
- Usually easier to use.
Are Digital Photos Admissible?

- **Yes.** No court has held a digital photo is inadmissible just because it is digital.

- “We are aware of no authority, and appellant cites none, for the proposition that the procedure for admitting pictures should be any different when they were taken by a digital camera.” *Almond v. State*, 274 Ga. 348 (Ga. 2001)

- “… we do not agree that this court should impose a higher burden of proof for the admissibility of digital photographs merely because digital images are easier to manipulate.” *Owens v. State*, 363 Ark. 413, 421 (Ark. 2005)
“When, as here, the .... photograph is generated as a digital image .... the judge must determine whether the image fairly and accurately presents what it purports to be, whether it is relevant, and whether its probative value outweighs any prejudice to the other party.” Renzi v. Paredes, 452 Mass. 38, 52 (Mass. 2008)
Requirements to Admit Digital Photo

- Like ALL evidence.
  - Relevant (tends to prove something)
    - And probative value does not substantially outweigh prejudicial effect.
  - Authentic (a foundation)
- Meets Best Evidence requirements
Authentication = Foundation

- FRE 901(a).
- The requirement of authentication or identification as a condition precedent to admissibility is satisfied by evidence sufficient to support a finding that the matter in question is what its proponent claims.
- “This is photo is a fair and accurate portrayal of X.”
Elements of a Foundation

1. The witness is familiar with the object or scene.
2. The witness can explain his/her familiarity.
3. The witness recognizes what is depicted.
4. The photo is a fair – accurate – true – good - depiction of the scene.
5. (No alterations or deletions.)
6. (Enhancements documented.)

(Imwinkelried, *Evidentiary Foundations*)
The Foundation Issue

- Claims the photo has been altered.
  - The *alteration fairy* defense.
- Digital photos ....
  - Can be easily altered (accidentally or on purpose).
  - Can be deleted (accidentally or on purpose).
  - The above can be hard to detect.
- Whether realistic unimportant ....
  - Judges and juries believe it so.
Claims of Alteration

- Party must offer some evidence of alteration.

- “…. we further disagree …. that expert testimony of no alteration was required when there was no indication that the still photographs had been enhanced …. or altered in any way.”
  
  \(Owens \ v. \ State, 363 \ Ark. \ 413, \ 421 \ (Ark. \ 2005)\)

- “The fact that it is possible to alter data contained in a computer is plainly insufficient to establish untrustworthiness. The mere possibility that the logs may have been altered goes only to the weight of the evidence not its admissibility.”
  
  \(United \ States \ v. \ Bonallo, 858 \ F.2d \ 1427, \ 1436 \ (9th \ Cir. \ Or. \ 1988)\)
“Weight, and not admissibility”

- Possibility of alteration – with no supporting evidence – doesn’t go to admissibility.

- It can go to “weight”.
  - That is, the jury can buy into the alteration fairy.

- Solution: good foundation testimony.
  - I did not alter, and no one else did.
  - “Fair and accurate representation.”
“.... a mere claim that photographs may be altered should not bar their admission. The proponent is not required to prove a negative.” United States v. Harris, 55 M.J. 433, 440 (C.A.A.F. 2001)
Is this altered? (Expert required)
Missing Patch - Unsharp Mask
Defeating the Defense

- **Reduce opportunities** for alteration or deletion (accidental or intentional).

- Establish a **SIMPLE procedure** to handle digital photos.
  - And follow it.
Opportunities to Alter or Delete

- Staged scene before photo taken.
- When photo taken (cropping, lighting, angle, etc.)
- Right after photo taken
  - Deletion from camera media.
  - Alteration of original media in a camera or computer.
- While transferring images from camera media to other media.
- While photo is in later possession of law enforcement
  - Evidence room.
  - On a computer (and LAN).
  - In officer’s possession.
Handling Overview

- **GOAL**: Move images to stable, unalterable media ASAP, by:
  - Limiting access to the flash media.
  - Not deleting or altering images.
  - Keeping media away from electronic devices.
  - Burning all images to CD-R/DVD-R.
  - Confirming burn.
  - Documentation.
**Recommendation 1**

One photographer handles the camera.
(or at least, keep media cards separate)

- So, the witness can testify:
  - “I had the camera, and I never altered or deleted any photos.”
Recommendation 2

Do not delete, alter, or print photos at any time before duplication.

(Rotating photo in camera can be an alteration)

- So, the witness can testify:
  - “All the pictures I took, good and bad, are right here.”
  - “I did not delete or alter any photos.”
Recommendation 3

Keep media away from devices that can alter it (until duplication is finished.)
Recommendation 4

Immediately burn to quality CD-R / DVD-R directly from media using a write blocker.

- Putting on hard drive first creates alteration opportunities.
- Write blocker prevents alteration.
- Finalized CD-R / DVD-R can’t be altered.
Card read with built in Write-Block

Card read with no Write-Block
Recommendation 5

Before reformatting media card, confirm burn.
(Visual plus CRC or hash)

- Not recommended:
  - Encryption software.
  - Watermarking software.

- See SWGIT guidelines: www.theiai.org
Recommendation 6

Make working copies *now* from either media card or the CD / DVD.

(Burn and confirm).
Recommendation 7

Label the CD / DVD and document what you did.

• Don’t use ball point.
• Use “Sharpie” type of soft tip, permanent marker.
• Mark in spindle area.
“Digital Evidence Custodians”

- Not all are computer literate.
- Designate “digital evidence custodian.” (DEC)
  - Bag and tag flash media for DEC.
  - DEC makes the CD / DVD.
  - Simple chain of custody.
- Not a full time job.
Current Issues

- Are CDs and DVDs suitable for archiving?
  - Use secure, RAID servers instead?
- CDs and DVDs can be damaged.
- Why not an automated process?
Best Evidence Rule (FRE 1001)

• Bad name – it doesn’t mean what it says.
  • *Original* recording / writing rule.
  • *Original* photo rule.
  • *Original* data rule.

• To prove the contents of a writing, recording, photo or data, we must have the “*original*.”
  • Some exceptions.
What is an “original”

- Legal definition is not always the same as the technical.
- **Photo**: the negative or print there from.
- **Data**: “any printout or other output readable by sight shown to reflect the data accurately.”
- **Prints** are “originals.”
  - But think of data as the negative.
  - So, preserve the data (CD or DVD).
Duplicate = Original

- Duplicate = original, unless:
  - Genuine question as to the original, or
  - “Unfair.”

- Properly made copies of data equivalent to an original.
  - That produced by mechanical or electronic re-recording, or by chemical reproduction, or other equivalent techniques which accurately reproduces the original.
Alteration versus Enhancement

- **Alteration**: When the content of the photo is changed.
  - We don’t alter.

- **Enhancement**: 
  - No alteration.
  - What is in the image is made easier to see.
  - Still a “fair and accurate portrayal.”
  - Traditional versus non-traditional enhancements.
Enhancements

- Image enhancement is any process intended to improve the visual appearance of an image. This includes processes that have a direct counterpart in the conventional silver-based photographic laboratory and those that can be accomplished only by using a computer.

- *SWGIT Guidelines, Recommendations and Guidelines for the Use of Digital Image Processing in the Criminal Justice System.*
“Traditional Enhancements”

Traditional enhancement techniques have direct counterparts in traditional darkrooms. They include:

- brightness and contrast adjustment,
- color balancing,
- cropping, and dodging and burning.

These traditional and acceptable forensic techniques are used to achieve an accurate recording of an event or object.

- SWGIT Guidelines, Recommendations and Guidelines for the Use of Digital Image Processing in the Criminal Justice System
Enhanced Images in Court

- Always have unenhanced image available.
- Be prepared to replicate the enhancement process.
- When possible, use software that records the enhancement process.

Non-Traditional Enhancements
(Experts only !!)

- Removing noise or clutter.
- Other filtering.
  - Sharpening, edge enhancement, etc.
- Certain color balancing.
- Need to be able to replicate the enhancement.
  - SWGIT (FBI Scientific Working Group on Imaging Technology.) www.theiai.org
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