

# **DIGITAL FORENSICS IN CHILD PORNOGRAPHY CASES**

Kevin H. Peden  
Carol L. Peden

NOTES

## Digital Forensics in Child Pornography Cases

Presented By:

*Kevin H. Peden (CEO) ~ Carol L. Peden (President)*

kevin@pedenforensics.com

carol@pedenforensics.com

509.230.2980

509.994.9632

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## Digital Forensics in Child Pornography Cases

Peden Digital Forensics...

*~ We have been working in the legal community for a combined 25+ years.  
In that time, we have worked with...*

All branches of the United States Military to include:

- U.S. Air Force
- U.S. Navy
- U.S. Marine Corp
- U.S. Army

# Digital Forensics in Child Pornography Cases

## Peden Digital Forensics...

*~ We have been working in the legal community for a combined 25+ years.  
In that time, we have worked with...*

- Private law firms around the country
- Federal and state public defenders
- School districts

We provide service to both the Prosecution and Defense alike...

# What is Digital Evidence?

*~ Digital Evidence is any data stored on electro-magnetic storage devices.  
Some examples of Digital Evidence would be...*

- Internal / External Hard disks
- Smart Phones / Cellular Phones
- Tablets
- Flash Cards
- Thumb Drives
- Xbox / Play Stations / Wii
- Data stored within the Cloud
- GPS devices
- Compact Disks
- Cameras

## Digital Forensic Acquisition...

- Forensic copy
- Preserve the evidence in unaltered form
- Bit stream image (bit for bit copy of entire device)
- Includes unallocated file space
- Hash value (digital fingerprint)

## Mobile Forensics...

*~ Mobile Forensics is quickly becoming one of the most crucial areas of Digital Forensics...*

There are so many cases where mobile forensics can be vital to your defense.

- 95% of Americans own a cell phone
- 77% of American adults own a smart phone
- 81% of cell phone owners use text messaging
- 72% access the internet

## Mobile Forensic Extraction...

*Smart phones and tablets: Extraction types vary based on phone make/model*

- Physical extraction: includes active content, application databases and potential deleted content (unallocated file space and databases)
- Advanced Logical extraction (iPhone 4S on): includes the active content, application databases and potential deleted content (databases but no unallocated file space)
- File System extraction: includes the file system but not the unallocated file space
- Logical extraction: Does not include unallocated file space

## Common Digital Terminology...

- Temporary internet files
- Browser Cache
- Restore point
- Downloads
- Malware
- Bots
- Thumbcache
- Peer 2 Peer – file sharing programs
- Cloud based storage
- Unallocated file space

## Unallocated File Space ...

### What issues exist with deleted data?

*~ Files recovered from Unallocated File Space, (deleted files), lack all of the following:*

- Dates of creation, modification, access, deletion
- Files names
- Storage paths (locations on the drive)
- Length of time of existence on the computer
- Who put them on the computer
- How they got on the computer
- What profile was used to place them on the computer
- Were they ever visible on the computer to the user

## Unallocated File Space ...

### What issues exist with deleted data?

*~ Files recovered from Unallocated file space are not viewable to the user...*

Files in unallocated file space are not accessible to the computer user without forensic software to locate them. Without this software, it is nearly impossible to prove that the computer user knew what was stored in this area of the computer.

When unallocated data is the only relevant evidence being presented in the government's case, defense attorneys need to be looking to what corroborating evidence the government intends to introduce to establish the knowledge element of the crime. Often the government does not have reliable additional evidence which needs to be challenged.

## Common Terms Associated with CP

### Legitimate

- Child porn
- Preteen
- Kiddy
- # yo (4 yo, 6 yo, etc)
- R@ygold
- Hussyfan
- Underage
- Illegal

### Common but not necessarily accurate

- Lolita, loli, lolicon
- Incest
- Mom and daughter
- Teen
- Sister
- Nudist
- Young

## Common CP Series

- Vicky - *Washington*
- Helen – *United Kingdom*
- Hayley – *United Kingdom*
- Baby J - *Georgia*
- Maria&Ellen - *Norway*
- Hawaiian Purple - *Connecticut*
- Katja - *Germany*
- Tara - *Georgia*
- Marineland - *Washington*
- Jenny - *Michigan*
- Sabban - *Brazil*
- Misty - *Pennsylvania*
- Daphne - *Belgium*
- Sisters - *Pennsylvania*
- Paraguay - *Paraguay*
- Blue Shirt girl - *France*
- Ali - *Washington*
- Novascotiagirl - *Norway*

## The Digital Forensic Analysis...

*~ Data can be located in a variety of areas on a computer...*

Some data is in plain view to the user. This data is easily identified and located.

Some examples of this would be:

- User saved files in organized storage paths
- Undeleted emails
- Saved Chat messages
- Backed up files
- Browser history/cache
- Program files
- Download folders

## The Digital Forensic Analysis...

*~ Data can be located in a variety of areas on a computer...*

Other data can be stored in allocated file space in a hidden manner. This is often an attempt to hide files from prying eyes.

Examples of this would be:

- Non-associated folders
- Header / file extension mismatches
- Files compressed with password protection
- Encrypted files
- Files concealed within other files – (steganography)



# The Digital Forensic Analysis...

~ Data can be located in a variety of areas on a computer...

Lastly data recovered through file carving of the unallocated file space of the device.

- User deleted
- Operating System deleted

# Digital Forensics Can Help Your Case...

## Child Pornography Cases:

- Is it really child porn? - Trier of fact makes the determination, but does it meet the definition?

## Child Pornography Definition:

If the person in the image or movie *appears to be a child*, is the file *pornographic* by definition as stated in Title 18. In order for the file to be pornographic, it must have one of the following...

- sexual intercourse, including genital-genital, oral-genital, anal-genital, or oral-anal, whether between persons of the same or opposite sex;
- bestiality;
- masturbation;
- sadistic or masochistic abuse; or
- lascivious exhibition of the genitals or pubic area of any person;

## Digital Forensics Can Help Your Case...

### Child Pornography Cases:

- Is it really child porn? - Trier of fact makes the determination, but does it meet the definition?

### Lascivious Exhibition of the Genitals as Defined in US v Dost...

In order to apply the DOST standard the person depicted must have their genitals or pubic area visible in the image or video. This is a requirement of 18 USC 2256 (2) and a prerequisite of the application of DOST.

(See *United States v Casey D Roderick*, Appellant No. 05-0195 Crim. App. No. 34977, C.A.A.F. 2008)

## Digital Forensics Can Help Your Case...

### Child Pornography Cases:

- Is it really child porn? - Trier of fact makes the determination, but does it meet the definition?

### Lascivious Exhibition of the Genitals as Defined in US v Dost...

1. Whether the focal point of the visual depiction is on the child's genitalia or pubic area;
2. Whether the setting of the visual depiction is sexually suggestive, i.e. in a place or pose generally associated with sexual activity;
3. Whether the child is depicted in an unnatural pose, or in inappropriate attire, considering the age of the child;
4. Whether the child is fully or partially clothed, or nude;
5. Whether the visual depiction suggests sexual coyness or a willingness to engage in sexual activity;
6. Whether the visual depiction is intended or designed to elicit a sexual response in the viewer.

## Digital Forensics Can Help Your Case...

### Child Pornography Cases:

Where were the identified files located?

- In a purposeful saved location
- In a hidden location
- In deleted file space
- In the thumbcache
- In the browser cache
- In a backup file
- Restore point

## Digital Forensics Can Help Your Case...

### Child Pornography Cases:

Was it accessible?

- Unallocated/Deleted File Space
- Thumbcache
- Active file space
- Downloads folder

How did it get there?

- Internet web page
- Chat rooms/file exchange
- Messaging
- Email
- Peer 2 Peer File Sharing
- Direct transfer from another device

# Digital Forensics Can Help Your Case...

## Child Pornography Cases:

### Was it intentional?

- Internet search terms
- P2P file sharing search terms
- Communications regarding it

### Evidence of user at keyboard?

- Timeline analysis
- Patterns of activity

# Digital Forensics Can Help Your Case...

## Child Pornography Cases:

### Evidence knew it was there?

- Communication regarding it
- Evidence it was viewed
- Date and time stamps
- Registry

### Was it shared with others?

- Communications
- File Sharing – Peer 2 Peer (P2P) / Torrents

## Client Claims ...

- Someone hacked into my computer ...
- Malware ...
- “I don’t know how it got there, I have never looked at those sites”...
- Other people use my computer. It must be theirs...

## Search Warrants ...

Search warrants which are regularly used in cases involving child contraband have become very routine. Often the law enforcement agency is using boiler plate search warrants which use language which can be overly broad or out of date with technology of the day. Often search warrants are not updated due to lack of challenges by the defense community when child pornography is involved.

### Items to review when looking at search warrants:

- Items to be searched... (is there a nexus from one device to the other detailed)  
*one case on point is US v. Nieto – 2017 CAAF case*
- Nexus from investigation to defendant – ( how are they linking the investigation to the defendant)
- Does the warrant allow for the searching of the residence and the devices?
- Is the affiant making assumptions regarding the technology which may mislead the court when the magistrate is applying a lay understanding of technology?

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Please feel free to contact either of us with questions

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