Mobile Forensics: A Path Forward

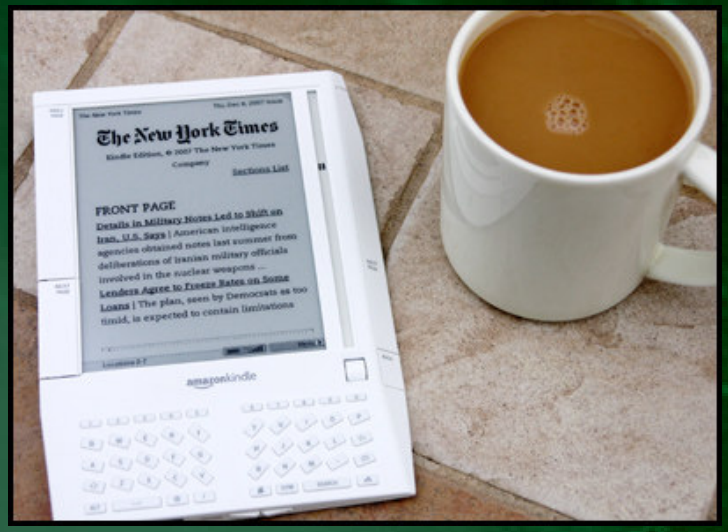
May 28, 2009

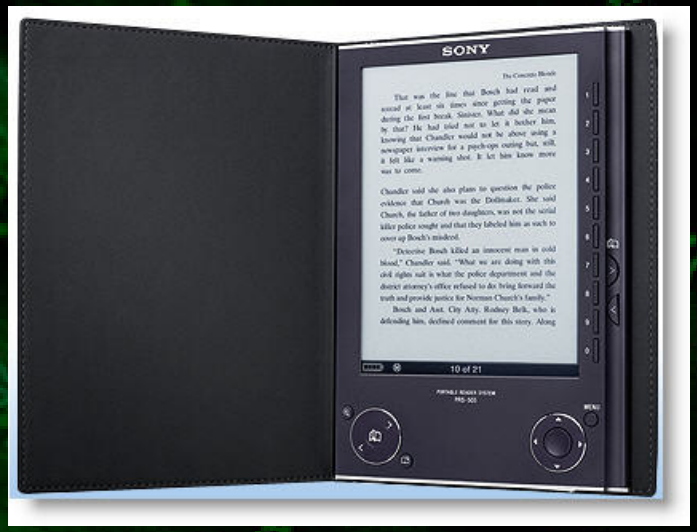
Unclassified/FOUO

Outline

- Trends & challenges in mobile forensics
- Developments in digital evidence that will change mobile forensics
- Responses & suggestions for moving forward
- Questions & comments

A Plethora of Devices





Dozens of Tools

Demand for Services Is Up

Storage Capacity is Increasing

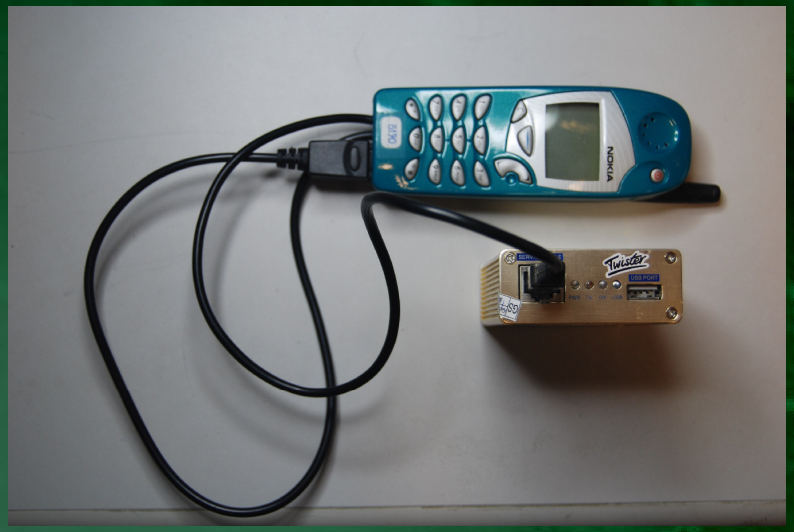
Increased Security

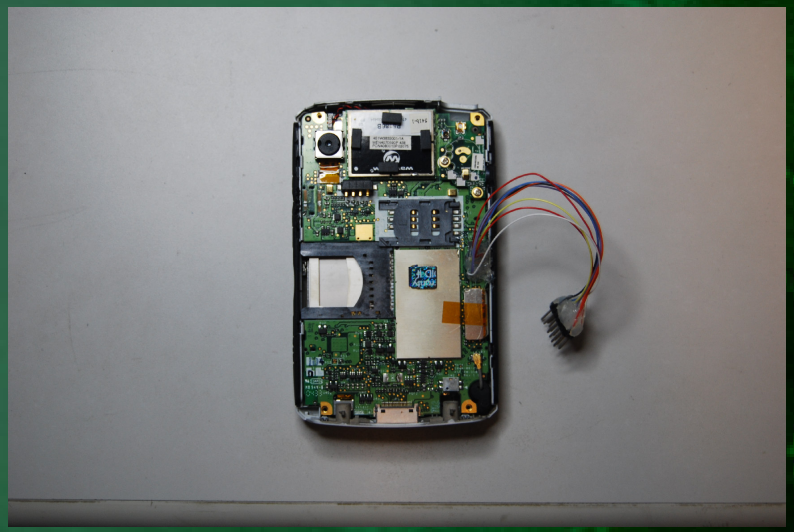
+ More data stored as plain text

- Increases in computing power and memory

- Easier to implement good security

Traditional Access Methods Becoming More Difficult



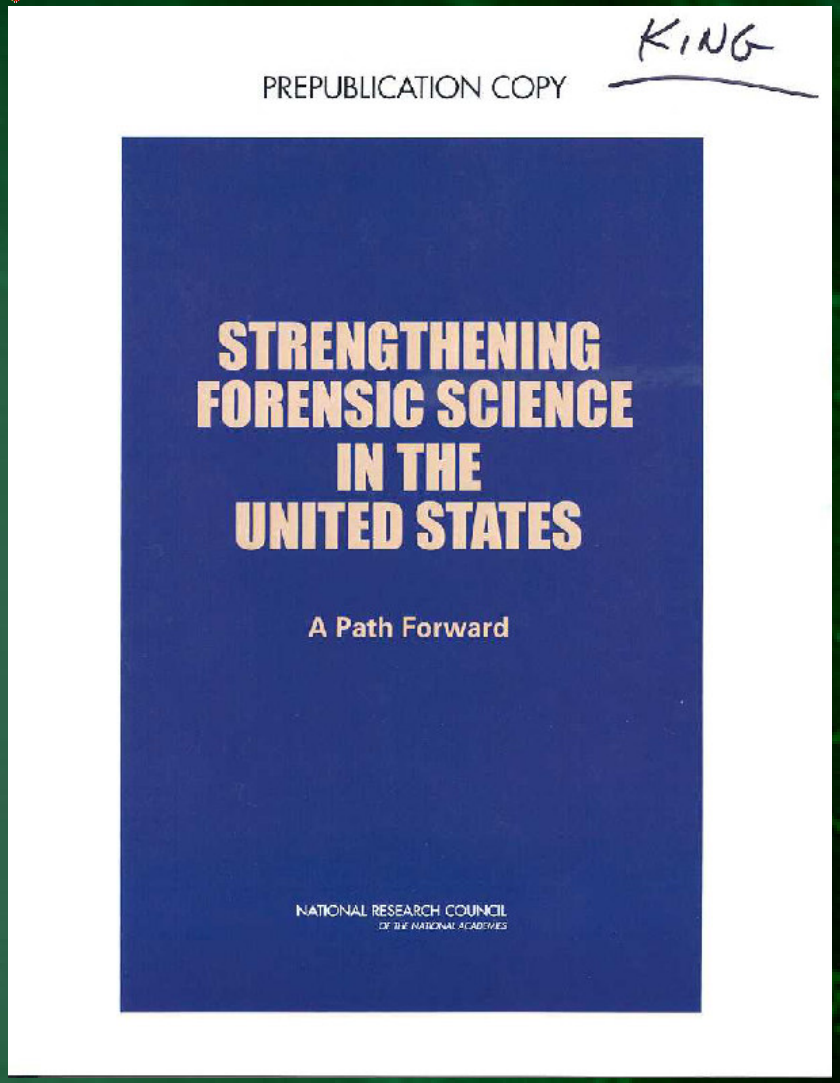


- **Bootloaders**
  - Manufacturers implementing security in boot ROM
- **JTAG Ports**
  - Manufacturers not connecting JTAG pins to accessible test pads
- **Chip Removal**
  - Increased use of custom/proprietary IC processor and memory chips

Significant Developments in Digital Evidence

- **Investigative Based Model**
  - Non-forensic
  - Non-examiner
  - Timely/rapid
  - On-scene
  - Live capture
  - Preview/triage
  - Low cost/COTS
  - Further the investigation
- **Laboratory Based Model**
  - Forensic
  - Highly skilled
  - Methodical
  - Comprehensive
  - Static
  - Robust QA Program
  - High cost
  - Fair, impartial & scientific

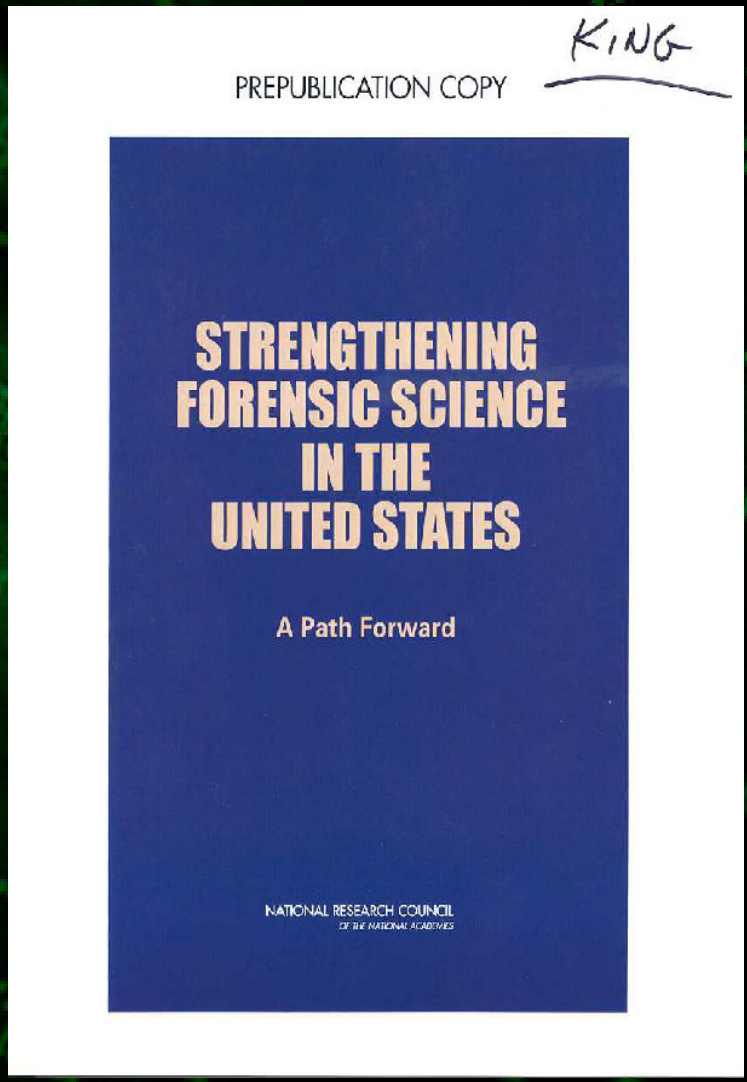
Significant Developments in Digital Evidence



- The Perfect Storm
  - DNA becomes new standard
  - West Virginia State Police Crime Lab
  - Houston Crime Lab
  - Baltimore County Circuit Court Judge rules against latent prints
  - FBI Madrid Train Bombing
  - The Innocence Project

Significant Developments in Digital Evidence

- **13 Recommendations, including:**
  - **NIFS**
  - **Remove control from law enforcement**
  - **Mandatory accreditation**
  - **Mandatory certification**
    - **Licensing??**
  - **Mandatory QA**
  - **National Code of Ethics**



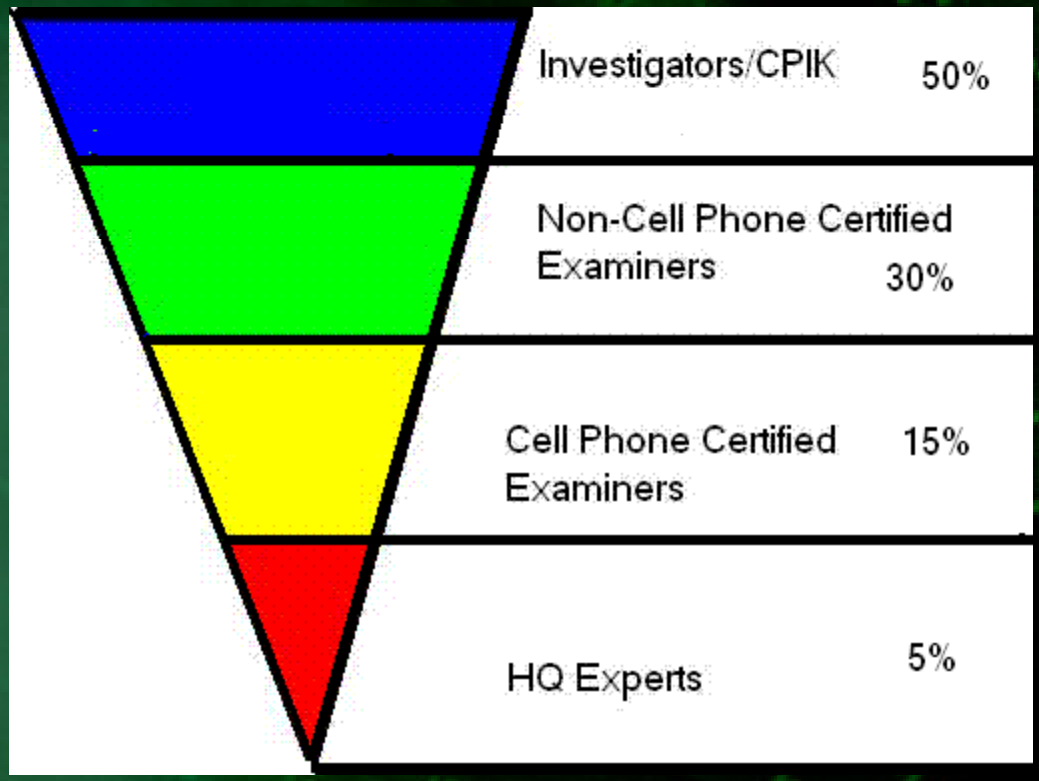
A Path Forward…

- Minimum Quality Assurance Standards
- Leveraging off of Non-Examiners
- Aggressive use of preview
- More robust tools
- Increased sharing of resources
- Increased standardization for mobile devices
- Increased participation

Minimum Quality Assurance Standards?

- Write protection OR copy
- Chain of custody
- Known tools
- Peer review
- Contemporaneous notes
- Written report
- ???

Leverage off of Non-examiners



Example: CPIK

- Making available two easy to use cell phone tools to special agents and investigators for previewing at least a portion of data.
- Cell Phone Investigative Kiosks are being set up at FBI Field Offices and Regional Computer Forensic

Aggressive Use of Previews

- New Zealand Police Model
  - 80 percent reduction in submitted matters
  - 100 percent of resources on 20 percent of cases

More Robust Tools

- Results are always different for different Manufacturers
- Each product does well in some areas and not so well in other areas
- Don’t focus on low hanging fruit

Product	Contacts	Call Logs	Calendar	Message	Photos	Audio
A	Yes	Partial	Yes	No	Yes	Yes
B	Yes	Partial	No	No	Yes	No
C	Yes	Partial	No	No	Yes	No
D	Partial	Partial	No	No	No	No

Example: Increased Sharing of Resources

- Scientific Working Group on Digital Evidence (SWGDE)
- Sceintific Working Group on Imaging Technology (SWGIT)
- American Academy of Forensic Sciences
- High Tech Crime Investigators Association (HTCIA)
- International Association of Computer Investigative Specialists (IACIS)
- International Association of Chiefs of Police, Sub-committees on Public Private Liaison and Cyber Crime-Digital Evidence
- Others...

Example: Increased Sharing of Resources

- www.cftt.nist.gov/mobile_devices.htm

Increased Standardization of Devices

- Open Mobile Terminal Platform (OMTP)
  - September 2007 announced Micro USB is future common connector
  - BONDI Initiative addressing the Mobile Platform Fragmentation Problem

Increased Participation

- Get involved in the policy side not just the technical side.
  - Take a position on the NAS Report and its recommendations.
  - Take a position on PI licenses for forensic examiners.
  - Write letters, e-mails, and articles.
  - E.g. Forensic Magazine; International Journal of Digital Evidence, etc.

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Thank You…

Questions & Comments