BlackHat 2003
Case Tutorial

Digital Information, User Tokens, Privacy and Forensics Investigations: Windows XP Platform

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MY SLIDES & YOUR SLIDES ARE DIFFERENT
I am an Information Technologist focusing on Digital Evidence. I am on the teaching faculty of the University of Texas Law School and Business School, however, I am not a Practicing Attorney.
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- My skills, background - forensics profession and at trial experience
- This tutorial is **not** legal advice or legal opinion
- Who do I speak for? – **me** – no university or governmental affiliations – in the context of this tutorial

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Notes for Materials

• All materials – slides and case materials and discussion sets are at http://www.eforensics.com
• I will **not** use/discuss each slide in this set. There are numerous slides in this set.
• The slides support a notional case – We will use the case as a discussion-leadership vehicle to explore the intersection of *Digital Information, User Tokens, Privacy and International Forensics Investigations*
A Protocol – for this Tutorial

Please Ask Questions – whenever you need to.
- I reserve the obligation to ask you questions
- Let’s collectively feed our brains.
My Bias

- Digital Forensics is an emerging profession.
- The notion of a profession
  - Body of Knowledge - Competency
  - Tests
- Science, Theory and Peer Review are necessary but not sufficient to supporting the digital forensics profession – we need a community of practice among forensics professionals that is also tested with questions of human rights, privacy and ethics.
Forensics

- What does this term imply?
Ubiquity of Digital Devices in everyday life

- **Characteristics**
  - IT technology everywhere and embedded in everything
  - Global connectivity and always on
  - Physical world joining virtual
    - cyberspace acts can affect real-world processes and vice versa
  - Web pages and portals for everything
    - documents, people, things, places, events, processes
    - pages give access to files, sensors, actuators, controls

- **Enablers**
  - Business performance: more bang for buck in less space
  - Mobility – Knowledge work
  - **Criminal**
  - **Non-Criminal**
  - **Proscribed Activity**
Questions

- Review certain tokens (taggants) inherent in digital forensics
- What is a token?
- What is a taggant?
- Can we derive some terms?
Digital

- Data
- Fragment
- Token
- Information
- Findings
- Evidence
- Knowledge
- Judgment
Some Forensics Theory

- Science and Law Intersection?
An exemplar - Windows XP as a forensics platform

• Some details
  – Organization
  – Present Variant & Builds
  – Installations
  – Supported Computers
  – Physical Media
  – Partitions
  – File Types
  – File Hashing of known good and known suspect
The Windows Client

- Its’ Role
- The Platform
- The Build
- File System
- Registry
- The Forensics Corpus
Forensics Instruments
Privacy and Our Government
Responses

- Privacy Needs
- Shredders
- Anti-Forensics
- Encryption
- Special Methods
The Emerging Tensions
The Generalized Framework

1. Protect seized evidence
2. Recover deleted files
3. Discover (enumerate) files contained in seized materials (notable text, binary, hidden & encrypted)
4. Discover swap, temp/tmp, file slack meta-data and artifacts
5. Explore all unallocated space
6. Conduct searches for key terms, special data – imagery
7. Note any observed versus expected files, folders binaries, www data, emails and file conditions
8. Prepare a written report – archive data, findings
9. Provide expert consultation and testimony, as necessary
Some prevailing frameworks for forensics investigations:

- US Laws
- Federal Guidelines
  - DOJ – FBI
  - DOD
  - NIST
- International Organization on Computer Evidence (IOCE) Guidelines
  [http://www.ioce.org](http://www.ioce.org)
- Some national and EU Privacy Issues – European Commission on Human Rights – UK RIPA
- Patriot Act October 26, 2001
- Data Retention Policies in the Enron Context
- US Sorbane-Oxley – US Corrupt Activities and RICO Statutes

The prevailing model:
- Seizure, forensics (bit copy), examination, report, deposition, testimony, archiving
- Data extracted from both logical and physical media (active and recovered) files, data artifacts, swap space and file – device slack
- Focus is on finding data contained in files
Your Questions
My Appreciation

• Thank you for your time and interest

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