Trends in Mobile Device Forensics

Jonathan Rajewski, MS, CCE, CFE, CISSP, ENCE, TJFC

Director - Senator Leahy Center for Digital Investigation
Associate Professor - Digital Forensics | Cyber Security
Digital Forensic Examiner - Vermont Internet Crimes Against Children Task Force

@jtrajewski
rajewski@champlain.edu
Jonathan Rajewski, MS
Director - Senator Leahy Center for Digital Investigation
Associate Professor - Digital Forensics | Cyber Security
Digital Forensic Examiner - Vermont Internet Crimes Against Children Task Force

@ltrajewski
rajewski@champlain.edu

Professional Certifications
CCE, CFE, CISSP, ENCE, TJFC

Professional Associations

Recent Awards/Recognition
2014 US Ignite Application Summit Best Public Safety Application
2014 Honored by FBI director James B. Comey
2013 4 under 40 - Hilbert College

2013 C. Bader Brouilette Alumni Leadership Award - Champlain College
2012 Top Digital Forensic Professor – Digital Forensics - Princeton Review
2012 Best 300 Professors in the United States - Princeton Review
2014 Digital Forensic Examiner of the Year - Forensic 4cast Awards
What is Digital Forensics?

What is Mobile Device Forensics?
Mobile Device Forensics

Do you have legal authority to search the device?

Which types of data is available?

- Behavioral
  Location
  Clicks/swipes
  Activity

- Device
  Photos/Video
  Databases
Trend 1
The Internet of Things is/will be everywhere

Internet of Things
20,000,000,000

Gartner Says 6.4 Billion Connected "Things" Will Be in Use in 2016, Up 30 Percent From 2015

<table>
<thead>
<tr>
<th>Category</th>
<th>2014</th>
<th>2015</th>
<th>2016</th>
<th>2020</th>
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</thead>
<tbody>
<tr>
<td>Consumer</td>
<td>2,277</td>
<td>3,023</td>
<td>4,024</td>
<td>13,509</td>
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<tr>
<td>Business: Cross-Industry</td>
<td>632</td>
<td>815</td>
<td>1,082</td>
<td>4,408</td>
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<tr>
<td>Business: Vertical-Specific</td>
<td>898</td>
<td>1,065</td>
<td>1,276</td>
<td>2,860</td>
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<td>Grand Total</td>
<td>3,907</td>
<td>4,902</td>
<td>6,392</td>
<td>20,797</td>
</tr>
</tbody>
</table>

Source: Gartner (November 2015)
Amazon Echo

- Alexa is always listening
- Amazon keeps track of requests
- Forensics can reveal what was said and possibly the voice of the person speaking

Nest

These devices all work together to help monitor/cool/heat a location
Nest

- Given just the mobile device with the Nest app installed, forensics can prove a LOT of things…

Trend 2

Devices are encrypted
So where is this data?
How can you extract the data?

- There are thousands of phones on the market in the United States.
- Hire a qualified expert that can explain exactly what they will be doing - not just "I'm going to use "X" Tool..."

How can you extract the data?

- Manually review the phone (photos)
- Software Extraction
- Nondestructive Physical Extraction
- Destructive Physical Extraction
Cloud Services

If you’re not paying for it, you are the product
Facebook data?

General Account Settings

- Name: Jonathan Rajewski
- Username: http://www.facebook.com/rajewski
- Contact
- Password
- Networks: No networks.
- Temperature: Fahrenheit

Download a copy of your Facebook data

Did you find what you needed? Yes / No / I didn't need anything specific

Trend 3

Wearables
GPS Tracking

- Google
- blueLink
- Cellular Service Provider
- Internet Service Provider
- Bluetooth
- Android
- Fitbit

South Burlington Running:
- Distance: 10.52 miles
- Elevation Gain: 1,329 ft
- Time: 1:51:23
- Pace: 10:55
- Heart Rate: 142

Map showing South Burlington Running path.
Trend 4

Infotainment Systems
Trend 5
Artifacts are getting better

Wifi Tracking

CHURCH STREET TRACKING OF VISITORS VIA WI-FI RAISES PRIVACY CONCERNS

Enjoy fast Wi-Fi

XFINITY® WIFI
Wi-Fi is a service of the largest wireless provider. You can stay connected at your favorite places. There's a Wi-Fi near you.

Enjoy internet with no monthly costs. Activate your own Wi-Fi service and get connected at thousands of places around the world. Learn more.
Every mobile device with Wifi has a “MAC Address”. This is like a serial number for the wifi connection. This data can be used to profile users and track their movements from access point to access point.
Please connect to our free wifi

Practical Scenario
Thank you!

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