

Cell Tower Forensics "Cell Site Analysis"

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Cell Phones



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Cell Phone Forensics

- ◆ Address Books
- ◆ Text Messages
 - SMS, EMS, MMS
- ◆ Voice Messages
- ◆ Maps, GPS Info
- ◆ Pictures / Movies
- ◆ Apps / Social Media Data
- ◆ Timeline Analysis / Other



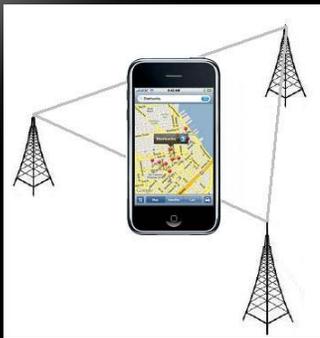
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Cell Phone Forensic Guidelines

- ◆ **NIST- (National Institute of Standards and Technology)**
<http://www.nist.gov/index.html>
- ◆ **Guidelines on Cell Phone Forensics-**
<http://csrc.nist.gov/publications/nistpubs/800-101/SP800-101.pdf>
- ◆ **Cell Phone Forensic Tools**
<http://csrc.nist.gov/publications/nistir/nistir-7250.pdf>

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Cell Phone Tracking



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Cell Site Analysis
is NOT
Triangulation
is NOT
GPS

- ### Cell Phone Tracking Capabilities
- ◆ Single Tower
 - Sector
 - Azimuth
 - **Precision:** multiple blocks to many square miles
 - ◆ Multiple Towers
 - Triangulation
 - **Precision:** ± 100 meters
 - ◆ GPS
 - Synchronized satellite signals
 - **Precision:** 5-10 feet

Cell Site Analysis



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Data Retention Period



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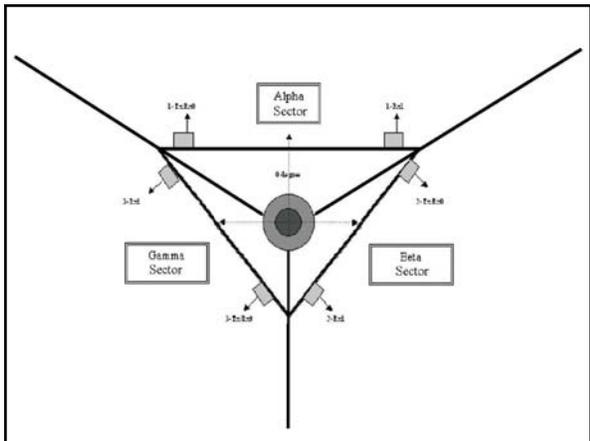
Retention Periods of Major Cellular Service Providers
Prepared by the Computer Crime and Intellectual Property Section, U.S. Department of Justice, (202) 514-1026, and FBI's Cellular Analysis Survey Team

	Verizon	AT&T	Sprint/Nextel**	T-Mobile
Subscriber Information	Post-paid: 3-5 years*	Depends on length of service	Unlimited	5 years
Call detail records	1 year	Pre-paid: varies Post-paid: 5-7 years	18 mo. (approx.)	Pre-paid: 2 years Post-paid: 5 years
Cell towers used by phone for calls	1 year	From July 2008	18 mo. (approx.) for Sprint CDMA devices; 18-24 months for Nextel IDEN devices	6 months
Text message (SMS) records	1 year	Post-paid: 5-7 years	18 mo. (approx.) for Sprint CDMA devices; not available for Nextel IDEN devices	Pre-paid: 2 years Post-paid: 5 years
Text message (SMS) content	3-5 days (never more than 10)	Not retained	Not retained	Not retained
Cell towers used for SMS transmission	Not retained	1 year	Varies	180 days

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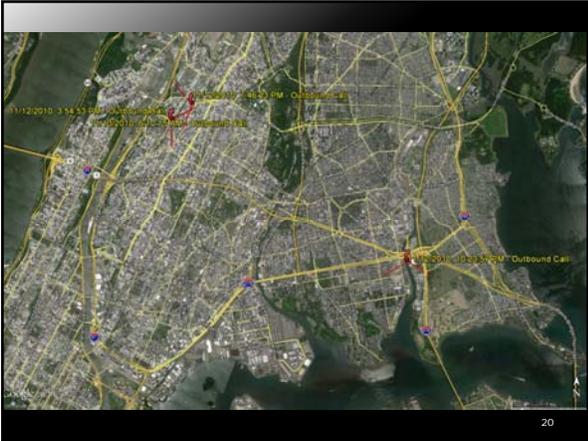


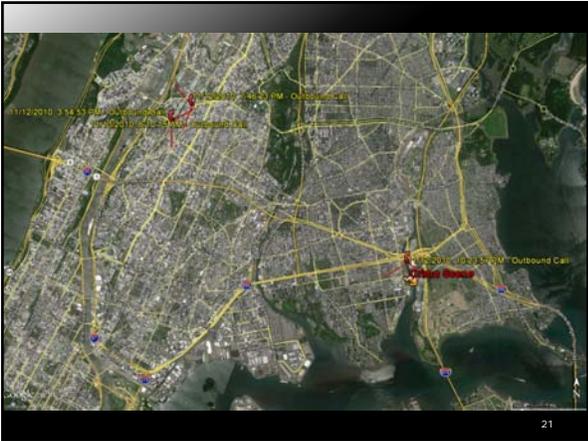
Cell Phone Info/Tools

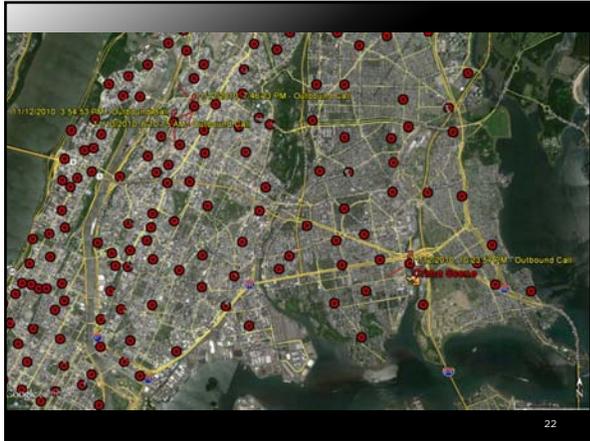
- ◆ **Wikipedia Explanation -**
http://en.wikipedia.org/wiki/Cell_site
- ◆ **Cell Tower Location/Mapping -**
<http://www.cellreception.com/>
<http://www.antennasearch.com/>
- ◆ **FCC Cellular Information -**
http://wireless.fcc.gov/services/index.htm?job=service_home&id=cellular
- ◆ **Cell Phone Provider Lookup -**
<http://www.fonefinder.net>

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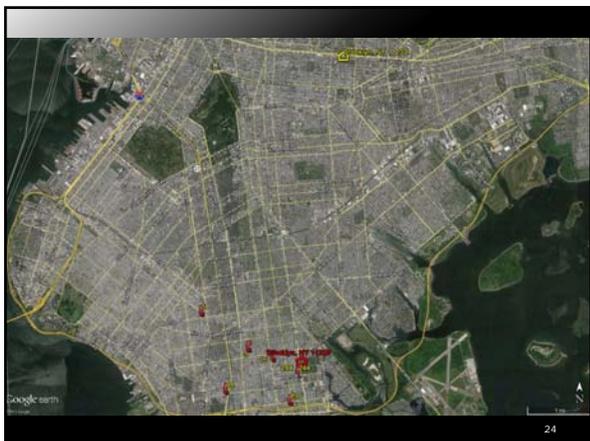
Cell Site Examples













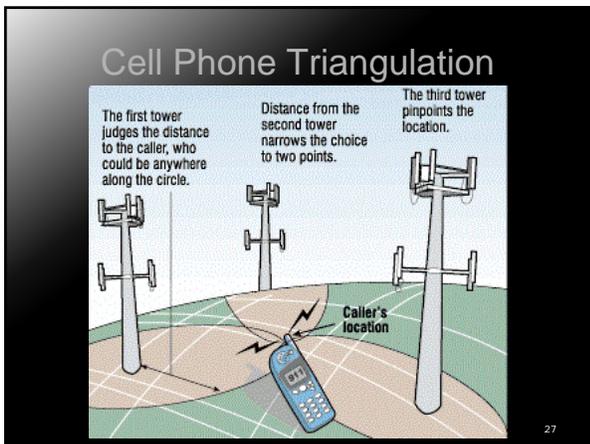
Cell Phone Triangulation

Associated more with
Real-Time Tracking (Warrant)

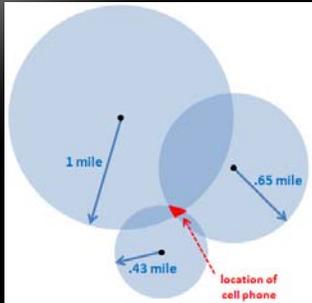
Records are not kept very long
unless a preservation letter is
sent

Controlled calls can be
performed at a future date

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Cell Phone Triangulation



Triangulation - cell phone detected within a certain radius of each of 3 cell towers - the area where each cell tower overlaps the phone is where it is pinpointed.

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GPS

Exact Coordinates from Phone
or other source



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Cell Site Analysis Demo



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Questions

◆ ????????

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YES!
IT'S OVER
AND MY
BRAIN IS
FULL...

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