

Law Enforcement Telephone Investigations
Resource Guide
- Cellular, Satellite & VoIP Phone Providers

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LAW ENFORCEMENT TELEPHONE INVESTIGATIONS RESOURCE GUIDE

- Cellular, Satellite & VoIP Phone Providers



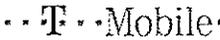
<p>AT&T Mobility (Cingular)</p> 	<p>GSM</p>	<p>MVNO prepaid service as GoPhone</p> <p>Send a Text Message: AT&T Mobility [10-digit phone number]@txt.att.net Example: 2125551212@txt.att.net</p> <p>AT&T optional GPS location service: Family Map https://familymap.wireless.att.com/finder-att-family/welcome.htm</p> 
<p>Cricket Communications</p> 	<p>CDMA</p>	<p>Roaming partner with MetroPCS</p>
<p>EMBARQ</p> 	<p>CDMA</p>	<p>Embarq is the land-line division of Sprint / Nextel.</p>
<p>OnStar</p> 	<p>CDMA</p>	<p>OnStar will need the registered user name, OnStar phone number or VIN. OnStar has an Emergency shut-down feature</p> <p>OnStar is an MVNO partner with Verizon</p>
<p>MetroPCS</p> 	<p>CDMA</p>	<p>Send a Text Message: MetroPCS [10-digit phone number]@metropcs.com Example: 2125551212@metropcs.com</p>



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<p>Qwest Communications</p> 	<p>CDMA</p>	<p>Qwest offers cellular service through a partnership with Verizon. Qwest® One Number Service - a single phone number for a Verizon Wireless phone and Qwest landline phone. Calls will ring both the Qwest landline phone and the Verizon Wireless phone. Unanswered calls to a single voice mail box. In some cases it may be necessary to send a Subpoena or Court Order to both Qwest & Verizon.</p>
<p>Sprint / Nextel Communications</p> 	<p>CDMA</p>	<p>Virgin Mobile MVNO prepaid service – Sprint  Send a Text Message: Virgin Mobile USA [10-digit phone number]@vmobl.com Example: 5551234567@vmobl.com</p> <p>Boost Mobile MVNO prepaid service – Nextel (iDEN) PTT service or CDMA service  Send a Text Message: Boost Mobile [10-digit phone number]@myboostmobile.com Example: 2125551212@myboostmobile.com</p> <p>Kajeet & iWireless – MVNO prepaid service – Sprint  Sprint offers an optional GPS location service: Family Locator http://www.nextel.com/en/services/gps/family_locator.shtml </p>
<p>T-Mobile, USA</p> 	<p>GSM</p>	<p>Send a Text Message: T-Mobile [10-digit phone number]@tmomail.net Example: 4251234567@tmomail.net</p>
<p>TracFone Wireless, Inc.</p> 	<p>MVNO GSM or CDMA options</p>	<p>Also sold as Net10 & SafeLink in some markets  </p>



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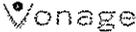
<p>U.S. Cellular</p>  <p>S</p>	<p>CDMA</p>	<p>Send a Text Message: US Cellular [10-digit phone number]@email.uscc.net Example: 4251234567@email.uscc.net</p> <p>Roaming partner with Verizon</p>
<p>Cellco Partnership dba Verizon Wireless</p> 	<p>CDMA</p>	<p>INpulse is Verizon prepaid service Alltel – is also a Verizon company AirTouch – is also a Verizon company JitterBug – is also a Verizon company</p>   <p>Send a Text Message: Verizon [10-digit phone number]@vtext.com Example: 5552223333@vtext.com</p>   <p>Verizon offers an optional GPS location plan: Family Locator http://products.verizonwireless.com/index.aspx?id=fnd_familylocator</p>
<p>Globalstar</p> 	<p>Satellite</p>	<p>Satellite Telephone Service Only</p> <p>Law Enforcement Technical Support:</p>
<p>Iridium Satellite</p> 	<p>Satellite</p>	<p>Satellite Telephone Service Only</p> <p>Law Enforcement Technical Support:</p>
<p>There are numerous VoIP providers – several currently popular VoIP providers are listed below:</p>	<p>VoIP</p>	<p>Additional VoIP providers can be found here: http://www.myvoipprovider.com/Top_100_VoIP_Providers</p>



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<p>Magic Jack http://www.magicjack.com/</p>	<p> </p>	<p>VoIP</p>	<p>The Magic Jack resembles the appearance of a flash drive. You can simply plug it into a USB port of your computer and then plug in any kind of analog or cordless phone on the other end and you would be able to make unlimited local and long distance calls. Features include voice mail, call forwarding, conference calling, call waiting and caller ID.</p>
<p>Vonage http://www.vonage.com/</p> <p>Hours of Operation: 24/7 Phone: 1-866-293-5674 Please state immediately that you are from a LEA with an emergency threat to life situation.</p>	<p></p>	<p>VoIP</p>	<p>You can verify a phone number is a Vonage phone number by calling (732)377-3597. You must add a "1" before the number including the area code and the system will tell you if the number is a Vonage number or not.</p> <p>Emergency (life-threatening situation) Requests must be followed by the proper legal demand within 48 hours. We will verbally provide the information, and once we have received the proper legal demand, we will follow-up with a hard copy.</p> <p>Hours of Operation: 8:30 AM to 5:30 PM (Monday – Friday – ET) Response time for valid subpoena requests: 3-5 days</p> <p>Vonage requires special hardware in order to work - usually an Ethernet router with built-in telephone adapter. Once you sign up for a Vonage account, you can use a Web interface to view your call history and change your account settings.</p>
<p>Skype http://www.skype.com/</p>	<p></p>	<p>VoIP</p>	<p>The Skype application looks and works a lot like an instant messaging (IM) client. As with an IM client, users can change their on-line status, look at their contact list and decide who they want to talk to. In order to use these functions and to make calls, their computer has to be on and connected to the Internet, and their Skype application has to be running. Calls to other Skype users are free.</p> <p>Skype Mobile application can be used with Verizon smart phones with an active data plan. These calls use Verizon's 3G broadband connection.</p>



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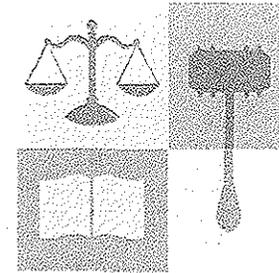
LEGAL FRAMEWORK:

United States Constitution 4th Amendment

Protects citizens against “unreasonable searches and seizures” by the Government.

Hierarchy of Protection

1. Transactional Records (name, number, billing records, etc.)
2. Numbers dialed from or to a phone.
3. Location information.
4. Content of stored communication (e-mail, voice mail, text messages, etc).
5. Content of telephone conversations (wiretap).



18 U.S.C. §§ 2701-2711 — STORED WIRE AND ELECTRONIC COMMUNICATIONS & TRANSACTIONAL RECORDS ACCESS

- **Section 2701:** It is a crime to intentionally access electronic communication without authorization.
- **Section 2702:** A provider of electronic communications may not disclose customer records to the government except as authorized by Section 2703, or if the provider reasonably believes an emergency involving immediate danger of death or serious bodily injury justifies disclosure. Penalties include fines, civil liability and imprisonment for 1 to 10 years.
- **Section 2703(b) (2).** A governmental entity may include in its subpoena or court order a requirement that the service provider to whom the request is directed create a backup copy of the contents of the electronic communications sought in order to preserve those communications. Without notifying the subscriber or customer of such subpoena or court order, such service provider shall create such backup copy as soon as practicable consistent with its regular business practices and shall confirm to the governmental entity that such backup copy has been made. Such backup copy shall be created within two business days after receipt by the service provider of the subpoena or court order.
- **Section 2703(c):** A court order, search warrant or customer consent is required for the release of records of electronic communications (including location information). A subpoena can be used to obtain transactional records, but not for location information.
- **Section 2703(d).** A court order for disclosure under subsection (b) or (c) may be issued by any court that is a court of competent jurisdiction and shall issue only if the governmental entity offers specific and articulable facts showing that there are reasonable grounds to believe that the contents of a wire or electronic communication, or the records or other information sought, are relevant and material to an ongoing criminal investigation.

Refer to the complete United States Code sections for details: http://www.justice.gov/criminal/cybercrime/ECPA2701_2712.htm



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AMBER
ALERT

WEBSITE RESOURCES FOR PHONE RELATED INVESTIGATIONS:



Ask CALEA

Communications for Law Enforcement Act (CALEA). CALEA directs the telecommunications industry to design, develop, and deploy solutions that meet certain assistance capability requirements. As a law enforcement user you can create a free account and access CALEA's resources. Resources include provider contact information, cell tower location details, sample forms, etc.

<https://sw.askcalea.net/>

Find Cell Phone Providers for a particular region by Zip Code

Find and research all the cell phone companies licensed to serve your area. Enter your ZIP code to start your search.

<http://www.wirelessadvisor.com/>

Understanding Cell Phone Providers – Cnet

A comprehensive source of information with details about each of the major providers.

http://reviews.cnet.com/2719-3504_7-389-1.html?tag=page:page



<http://www.spoofercard.com/>

LE Contact: cmazur@teltechcorp.com (732) 838-1909

Locate Cell Towers

Find cell towers and the associated providers in a given area. Helpful when the location and time frame have been narrowed down, but the target's phone number is unknown. A Court Order for a "tower Dump" could provide valuable leads.

<http://www.cellreception.com/towers/>

Glossary of Cellular Phone Terms

A comprehensive list of terminology associated with cellular telephone related technology.

<http://www.wirelessadvisor.com/resources/glossary>

Phone Scoop

A resource with instructions to help navigate through various menus on a particular cell phone model to access address books, recent call history, features, options, accessories, etc.

<http://www.phonescoop.com/>

Internet Service Providers (ISP) Law Enforcement Contact Information

This confidential law enforcement site includes current contact information for ISPs and similar information services, specifically, contacts at the legal departments for law enforcement service of subpoena, court orders, and search warrants.

<http://www.search.org/programs/hightech/isp/> How to trace an IP address: <http://www.wikihow.com/Trace-an-IP-Address>



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Bank Card Services - 24 Hour Law Enforcement Contact Information

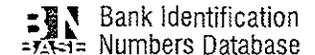
Phone equipment and services are usually paid for with credit or debit cards. The transactional records from these purchases can be very helpful in identifying purchasers and their associates, retail locations (a possible source of surveillance video) and other relevant purchases that may help develop leads in an investigation (e.g. Internet service providers, "Spoof" card purchases, gas stations used, etc.).



Visa
American Express
Diner's Club
Discover
Master Card

Bank Identification Number Database:

<http://www.binbase.com/csv.php?module=search>



GLOSSARY OF TERMS:

CDMA - Code Division Multiple Access

CDMA and GSM are the names of competing cellular phone standards. CDMA phones are activated remotely, by the carrier, using the phone's serial number, known as the ESN. Since each carrier has a database of all the ESNs that are approved for its network, this lets most CDMA carriers refuse to activate phones not originally intended for their network. CDMA phone providers include Verizon, Sprint, US Cellular, MetroPCS and Cricket.

GSM - Global System for Mobile communications

GSM phones are associated with what's called a SIM card, or Subscriber Identity Module. This card, about the size of a fingertip and the thickness of a piece of paperboard, carries an encrypted version of all the information needed to identify the wireless account to the network. On most GSM phones the SIM card is usually under the battery. GSM phone providers include AT&T Mobility (including GoPhone) and T-Mobile. Unlike CDMA phones, GSM phones can be used internationally.

iDEN - Intergraded Digital Enhanced Network (Includes Push-to-Talk "PTT" walkie-talkie feature)

A wireless technology from Motorola combining the capabilities of a digital cellular telephone, two-way radio, alphanumeric pager and data/fax modem in a single network. Nextel is the brand name for Sprint's line of iDEN walkie-talkie enabled phones – this feature is called "Direct Connect". Boost Mobile is a subsidiary of Sprint Nextel, providing an economy prepaid service (MVNO) for the youth market, using the same iDEN technology as Nextel, and using Sprint Nextel's iDEN network. Boost also offers unlimited service using CDMA phones and Sprint Nextel's CDMA network.



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MVNO - Mobile Virtual Network Operator - Secondary seller

An MVNO is a cell phone carrier (such as a prepaid wireless carrier) that typically does not have its own network infrastructure and licensed radio spectrum. Instead, a smaller MVNO has a business relationship with a larger *mobile network operator* (MNO). An MVNO pays wholesale fees for minutes and then sells the minutes at retail prices under its own brand. An MVNO, therefore, is an MNO reseller. An MVNO is actually a customer of an MNO rather than a competitor. An MVNO can typically set its own pricing following agreed-upon rates with its contracted MNO. Boost Mobile, TracPhone, OnStar and JitterBug, for example, are all prepaid wireless MVNOs. AT&T Mobility and Verizon Wireless, for example, are MNOs. It is often beneficial to request records from the MNO verses the MVNO – especially with live tracking and cell tower records.

PCS – Personal Communications Service

Personal Communications Services (PCS) is a wireless phone service very similar to cellular phone service, but with an emphasis on *personal* service and extended mobility. The term "PCS" is often used in place of "digital cellular," but true PCS means that other services like paging, caller ID and e-mail are bundled into the service. While cellular was originally created for use in cars, PCS was designed from the ground up for greater user mobility. PCS has smaller cells and therefore requires a larger number of antennas to cover a geographic area. PCS phones use frequencies between 1.85 and 1.99 GHz (1850 MHz to 1990 MHz). Technically, cellular systems in the United States operate in the 824-MHz to 894-MHz frequency bands; PCS operates in the 1850-MHz to 1990-MHz bands.

SMS - Short Message Service – Text messages

SMS stands for **Short Message Service**. SMS is a method of communication that sends text between cell phones, or from a PC or handheld to a cell phone. The "short" part refers to the maximum size of the text messages: 160 characters (letters, numbers or symbols in the Latin alphabet). SMS is a store-and-forward service, meaning that when you send a text message to a target, the message does not go directly to your target's cell phone. The advantage of this method is that your target's cell phone doesn't have to be active or in range for you to send a message. The message is stored in the SMSC (for days if necessary) until your target turns their cell phone on or moves into range, at which point the message is delivered. The message will remain stored on your target's SIM card (GSM phones) until it is deleted.

SIM Card

GSM cellular phones require a small microchip, called a SIM card - Subscriber Identity Module, to function. Approximately the size of a small postage stamp, the SIM Card is usually placed underneath the battery in the rear of the unit, and (when properly activated) stores the phone's configuration data, and information about the phone itself, such as which calling plan the subscriber is using. When the subscriber removes the SIM Card, it can be re-inserted into another phone that is configured to accept the SIM card and used as normal. Each SIM Card is activated by use of a unique numerical identifier; once activated, the identifier is locked down and the card is permanently locked in to the activating network. For this reason, most retailers refuse to accept the return of activated SIM Cards. Common providers that require SIM cards include: AT&T Mobility, T-Mobile and Nextel.



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IMEI - International Mobile Equipment Identifier

A unique 15-digit number that serves as the serial number of the GSM handset. The IMEI appears on the label located on the back of the phone. The IMEI is automatically transmitted by the phone when the network asks for it. A network operator might request the IMEI to determine if a device is in disrepair, stolen or to gather statistics on fraud or faults.

ESN - Electronic Serial Number

The unique identification number embedded in a wireless phone by the manufacturer. Each time a call is placed, the ESN is automatically transmitted to the base station so the wireless carrier's mobile switching office can check the call's validity. The ESN cannot easily be altered in the field. The ESN differs from the mobile identification number, which is the wireless carrier's identifier for a phone in the network. MINS and ESNs can be electronically checked to help prevent fraud.

Cell Site

The location where the wireless antenna and network communications equipment is placed. A cell site consists of a transmitter/receiver, antenna tower, transmission radios and radio controllers. A cell site is operated by a Wireless Service Provider (WSP).

VoIP – Voice over Internet Protocol

VoIP (voice over IP) is an IP telephony term for a set of facilities used to manage the delivery of voice information over the Internet. VoIP involves sending voice information in digital form in discrete packets rather than by using the traditional circuit-committed protocols of the public switched telephone network. A major advantage of VoIP and Internet telephony is that it avoids the tolls charged by ordinary telephone service. Popular VoIP providers include Vonage, Skype and Magic Jack.

NOTE: The information contained in this guide is law enforcement sensitive and should not be disseminated outside of the criminal justice system. Do not include with investigative reports.



EXAMPLE OF A SIM CARD
FROM A
GSM PHONE

Do not disclose this information in court anymore than is absolutely necessary to make your case.

Never disclose to the media these techniques – especially cell tower tracking. Simply state, “Through further investigation we were able to locate the suspect (or missing person)”.

While every effort has been made to ensure the information contained in this guide is current and accurate, Fox Valley Technical College does not hold itself liable for any consequences, legal or otherwise, arising from the use of this Guide. Consult with your own agency and local prosecutor for legal advice before proceeding.



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SAMPLE CELL PHONE RECORDS PRESERVATION LETTER:

(OFFICIAL DEPARTMENT LETTERHEAD)

March 10, 2010

National Subpoena Compliance Center
 AT&T Mobility
 P.O. Box 24679
 West Palm Beach, Florida 33416-467
 (800) 635-6840 FAX (888) 938-4715

DO NOT DISCLOSE

IMPORTANT:
Always call the provider after the Preservation Letter has been sent to them via fax to confirm that it has been received and will be acted on in a timely manner.

RE: Court Order to Provide Telephone Records JCSO Case 10-1234

URGENT REQUEST FOR ASSISTANCE - CHILD ABDUCTION INVESTIGATION

The Jackson County Sheriff's Office is investigating a child abduction. We will be requesting telephone records which we believe will provide important evidence in our case. The court order, which will follow, will comply with all requirements outlined in United States Code, Title 18, Part I, Chapter 121, § 2703(d). The order will be obtained with a sworn affidavit which will include "specific and articulable facts".

We are sending this notice to request the records be pulled and held before they are lost and cannot be recovered. The court order will follow within 30 days.

Please call me immediately if these records are no longer available or if there are any problems.

SUBSCRIBER TELEPHONE NUMBER: (541) 555-1212 **TIME PERIOD:** 02-15-10 to current

- We will be requesting:
- AT&T Mobility subscriber billing & account information – to include account notes.
 - In-coming and out-going cell tower records.
 - In-coming and out-going call detail records.
 - Cell tower location information.
 - All stored photographic or video images.
 - All stored voice mail messages.
 - In-coming and out-going text messages.

Respectfully,

Detective Joe Friday



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TOOLS FOR PLOTTING CELL TOWER LOCATION DATA:

Microsoft Streets & Trips – Free Trial Download (60 day)

<http://www.microsoft.com/streets/en-us/Trial.aspx>

Using Streets & Trips to Map Cell Towers:

1. Open Streets & Trips
2. Data Tab – select “Import Wizard”
3. Find the appropriate cell tower data file from the provider (Excel or .xls file)
4. Select the file
5. Click on Sheet 1
6. Review the dialog box and make sure the data is match to Latitude & Longitude
7. Click on Finish



Paraben Forensics Point 2 Point– Free Demo Download (Demo has some limitations over the full version – plots on Google Earth)

http://www.paraben.com/catalog/product_info.php?cPath=25&products_id=404

GPS data points can show up in investigations from devices as well as subpoenaed cell phone records. Point 2 Point converts these data points to be read directly into Google Earth so investigators can quickly and easily visualize where these GPS locations are. Paraben's Point 2 Point is a point analysis tool that allows you to import GPS location data from call detail record spreadsheets, Device Seizure, or other GPS data points and export them to PDF or KML format for use with Google Earth. Imagine being able to take raw data from cell phone providers such as call detail records or GPS devices for review in a visual map for easy analysis.

- Import and view data from Tower Location spreadsheets directly from the provider
- Import and view data in Google Earth Map Files (.kml)
- Export all imported data to either .kml files to be viewed with Google Earth or to .pdf files.



On-line Aerial Image Resources

Google Earth: <http://earth.google.com/>

Bing Maps: <http://www.bing.com/maps/>

(Select aerial view)