iPhone and 3G Technology









Senior Instructor Technical Operations Division Federal Law Enforcement Training Center

(b)(6)

The Future Is Now

3G or Third Generation Technology has finally arrived

iPhone and AT&T was the first true 3G device with service

All major carriers have advertised true 3G device

Finally something to sink our teeth in!!!!



3G Technology

2nd Generation

3rd Generation

CDMA

SMS, MMS, EDGE, 1x-EVDO

GSM

SMS, MMS, GRPS

ETDMA

Same

*i*DEN

Same

No full use of Broadband



IMT-2000

International Mobile Telecommunications 2000

UMTS

Universal Mobile Telecommunications System

CDMA2000

Code Division Multiple Access 2000

HSPDA

High-Speed Packet Download Access

3G Technology

Although the aforementioned 3G standards are different they all one thing in common – Structure

By its very nature the apps running in this environment need structure

They need defined architecture

No longer only carrier based file structures



Homeland Security

iPhone Technology

iPhone uses core Apple OS X 10.5 (Leopard) as the core of its operating system – often called Core

iPhone 4, 8, & 16GB iPhone 3G 8 & 16GB

iPhone uses GSM as its air interface technology

The iPhones' processor is ARM or advances RISC machine as opposed to Intel

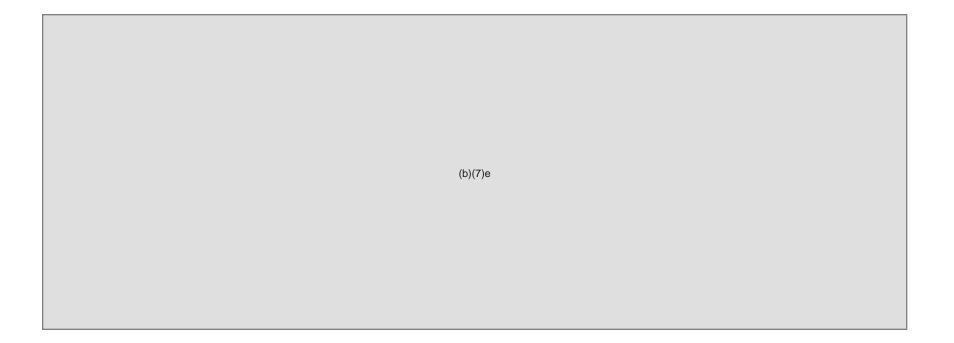
Due to touch screen nature (GUI) the use of accelerometers and proximity sensors are require

Radios including GSM, Wi-Fi and Bluetooth systems exist



iPhone Technology

iPhone employs User Friendly Frameworks (dll) for proprietary hardware sensors multi touch systems



OpenSSH is also used because of ARMs Unix like architecture



Certain data streams are seen with the normal GUI interface

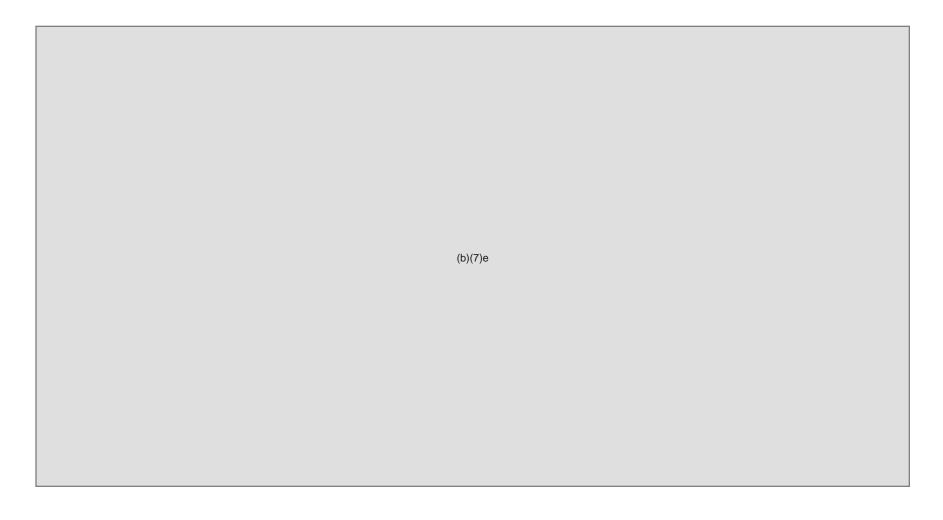


Keyboard Cache

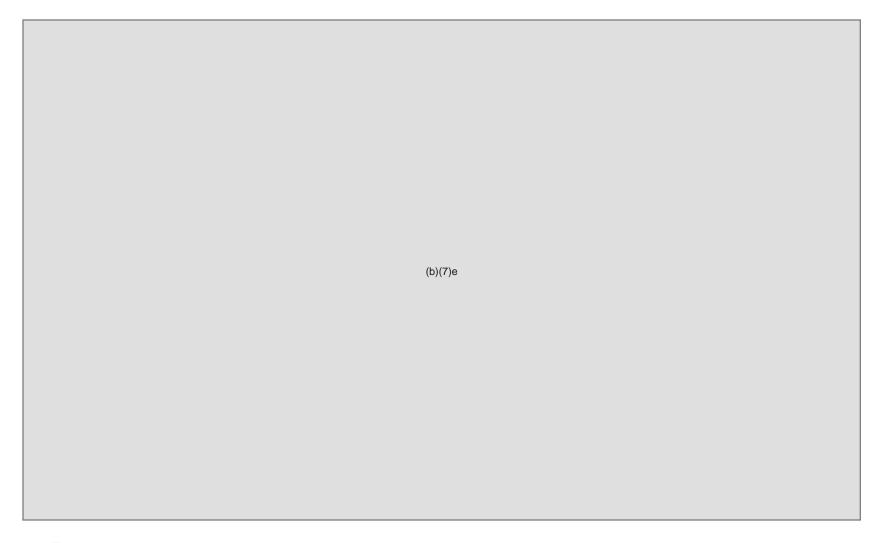
(b)(7)e

Several dozen may exist











System Needs





System Needs

What version do I have?

Look and see – Settings>General About

Won't I change or alter evidence?

The beauty of understanding and controlling iPhone forensics

Once we understand and control where we work we will do no harm

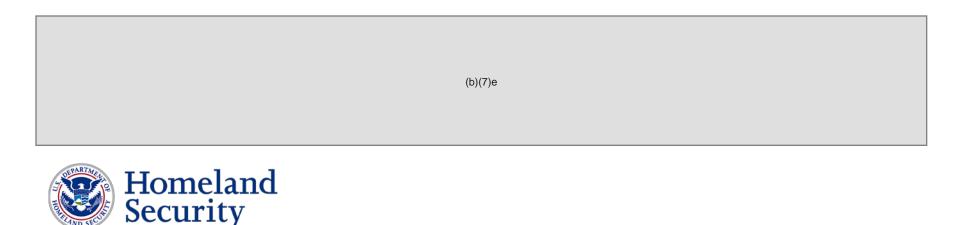


Device Layout

The iPhone uses flash technology, partition tables and a formatted *file system* to store information

1st Partition – root partition is used to storing all the system files and factory preloaded applications. Approximately 300 MB in size

2nd Partition – user or media partition is used to store everything else.



Device Layout

Configuration **Block Devices** Disk **Systems** Media **Raw Devices** Disk System Media

/dev/disk0 /dev/disk0s1

/dev/disk0s2

/dev/rdisk0

/dev/rdisk0s1

/dev/rdisk0s2



Communication

What must we ensure before any examination with a mobile began? Connection

The iPhone can establish connection in three formats

- Serial Port Through Docking Station (Apple File Conn./AFC)
- 802.11 Wi Fi A Secure Broadcast
- Bluetooth A connection technology with limitations
- iTunes is the key communications software used



Communication

iTunes is the key communications software used



iPhone Firmware

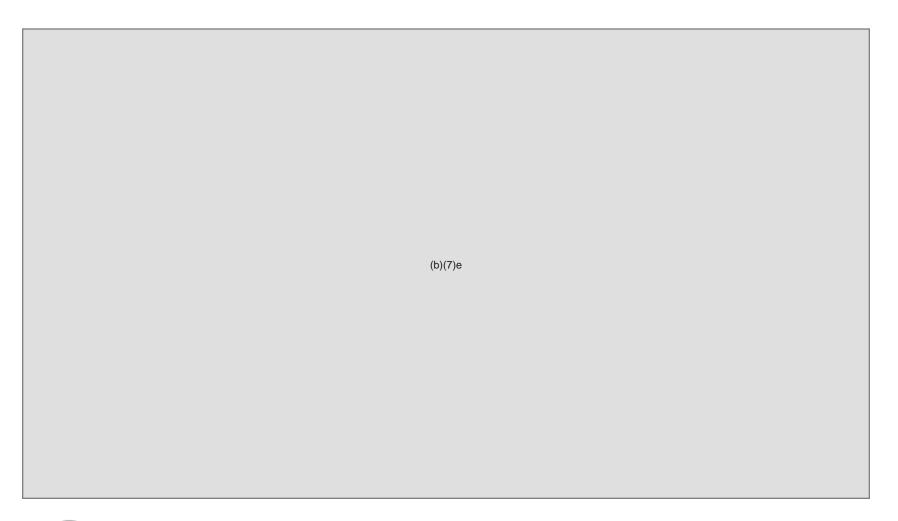
Firmware updates allow functionality

This will allow for use of update system services

Numerous locations available – use tested sites from apple.com



iPhone Recovery Tools







Homeland Security