The Past and Current State of Mobile Device Recovery

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What is Mobile Data Recovery?

# Mobile Device Recovery History

- ## Early Mobile Recoveries
  - ### Pros
    - Unencrypted
      - Security a somewhat low concern
    - Logical/Physical memory access
    - Low capacities
  - ### Cons
    - Custom cables/chargers
    - Proprietary software
    - Unique memory use

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What Changed?

- Universal interface adoption
    - Lightning-iOS
    - USB-Android
- Standardized operating systems
    - iOS
    - Android
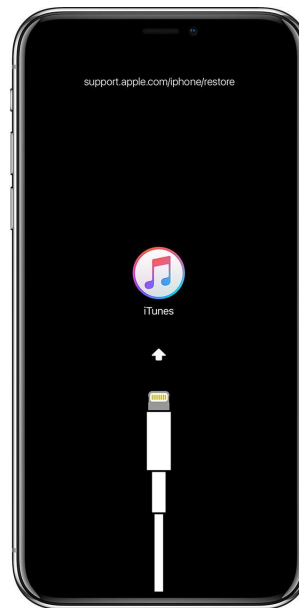- Standardized NAND utilization
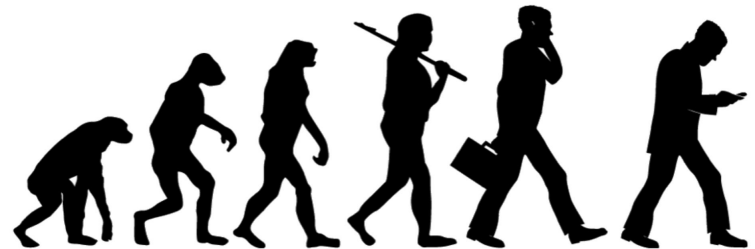
Current Recovery Options-Logical

- **Logical**
  - OS corruption
    - Can be bypassed in some cases
  - Passcode issues
    - Disabled device
    - Forgotten/unknown passcode
  - Deleted Data
    - Individual assets
    - Factory reset
  - Exploits, exploits, exploits!

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Current Recovery Options-Logical

- ## Factory Reset Devices
  - ### iOS factory resets
    - Utilized a crypto-shred type reset
    - No access to unallocated data
  - ### Android
    - Uses File-Based Encryption and Full Disk Encryption
    - Uses similar crypto-shred type reset
    - MicroSD
      - Not the most efficient way to erase removable unless encrypted

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# Current Recovery Options-Physical

- ## Physical
  - ### ISP (In-System Programming)
  - ### Chip-off
    - Removal of eMMC itself and read through adapter
    - Direct NAND access on eMMC
  - ### Full physical memory dump through device interface

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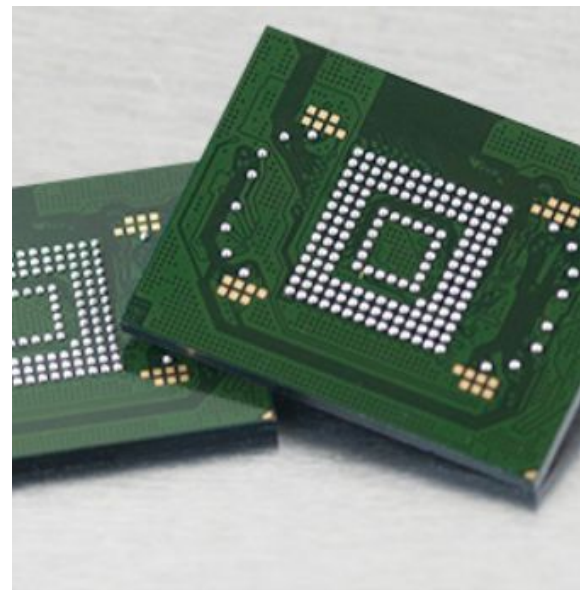
Current Recovery Options-Physical

- ## Physical cont.
  - ### Most cases require a booting phone to acquire data
    - Hardware encryption
    - Ability to enter passcodes/home button verification
  - ### Repair as a path to recovery
    - Devices are not designed with repair in mind

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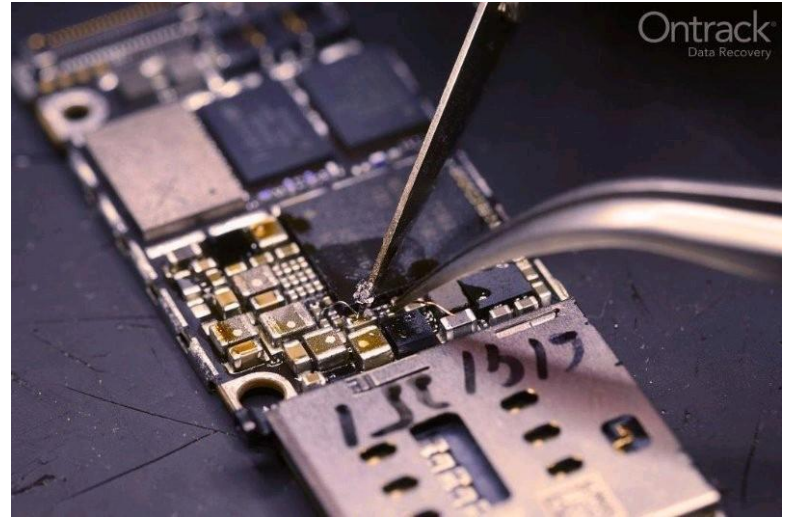
Conclusion

- Mobile device recoveries are still possible
- Physical failures are uncommon for flash memory
- Backup your data!
- If you experience data loss, call an expert

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