Outline

• About Black Hat USA
• Featured Research
  – Vehicle Security
  – IoT Security
• Conclusions
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About Black Hat USA

- The world's most famous security conference in Las Vegas every August
  - This conference will be held from July 30 - August 4 in this year
  - Briefings of cutting-edge security research
  - Abstracts have been published

- About 20 sessions into the Internet of Things & Hardware/Embedded in this conference
  - There are 25/50 minute briefings

- In this report, we introduce some hot research
Featured Research

• Vehicle Security
  – CANSPY: A Platform For Auditing CAN Devices
  – Advanced CAN Injection Techniques For Vehicle Networks

• IoT Security
  – Into The Core – In-Depth Exploration of Windows 10 IoT Core
  – GATTAttacking Bluetooth Smart Devices – Introducing A New BLE Proxy Tool
  – GreatFET: Making GoodFET Great Again
Vehicle Security (1)

• CANSPY: A Platform For Auditing CAN Devices
  – Arnaud Lebrun, Jonathan-Christofer Demay (Airbus Defence and Space)
  – Rewrite and block CAN messages on the fly
    • Like the Burp (security testing for web app)

• Advanced CAN Injection Techniques For Vehicle Networks
  – Charlie Miller, Chris Valasek (Uber ATC)
  – There are various restrictions on vehicle hijacking by CAN message injection
  – Meter hijack is easy, but steering and brake hijack is hard
  – This presentation will introduce bypass technique for brake, steering and acceleration hijacking
Vehicle Security (2)

Keyword is “CAN”
- CAN has no security
- Many people have concerned about security
  - Easy to send/receive CAN message
  - Various device are connected on CAN bus

Attention to vehicle hijack condition and strategy
- Abstract indicate has some conditions(car speed, etc.,) for vehicle hijacking
  - It is possible to control brake and steering by CAN message injection when the vehicle is slower
- Parking assist system will be abused for bypassing the restriction
- Related study
  - ADAS (emergency brake) was disabled by CAN messages injection from the research group of the Ritsumeikan University, Japan
IoT Security (1)

- Into The Core – In-Depth Exploration of Windows 10 IoT Core
  - Paul Sabanal (IBM Security X-Force)
  - This presentation introduces Windows10 IoT Core as an important new generation IoT Platform
    - Attack vector and malware attack
    - Announces security assessment technique by static/dynamic analysis and fuzzing

- GATTAttacking Bluetooth Smart Devices – Introducing A New BLE Proxy Tool
  - Slawomir Jasek (SecuRing)
  - Disguised BLE device connects the victim device without consent of the mobile apps or devices
  - The BLE device intercepts BLE communication as proxy
  - This presentation interprets expected attack and announces BLE MITM proxy for debug and inspection
IoT Security (2)

• GreatFET: Making GoodFET Great Again
  - Michael Ossmann (Great Scott Gadgets)
  - In this presentation, announce about GoodFET for the open source JTAG adapter

Hardware knowledge is required for IoT security
• It is need to access to bus and I/O interface for IoT device assessment
  • General IoT devices have RJ45 Ethernet port for internet connection
  • The edge hardware (device as well as IC and LSI) are connect by bus (UART, SPI and I2C)
  • The open source hardware become help security engineer
    • GoodFET, Hardsploit, etc.,
A threat analysis of new platform

- The FFRI Researcher have presented threat analysis of Win10 IoT Core in CODE BLUE 2015
- That presentation call was attention about non-attestation FTP and that abuse Malware
- We look forward to that research is announced

Bluetooth (BLE) is used for many IoT device

- We think BLE will be target of attack
- Related research
  - Smart Wars: Attacking SmartLocks with a Smart Phone
  - Research of smartlocks vulnerability at CanSecWest Vancouver 2016 (Jan. 2016)
  - Technique for intervene to pairing
    - Use to DoS attack
Conclusions

• We have attention to vehicle security
  – The CAN requires additional security

• IoT security needs is increased in the continue
  – We have to get more hardware/embedded of knowledge

• Hardware hacking will become easy
  – Many open hardware hacking tools were released
    • GoodFET, Hardsploit and etc.

• The other conferences are also checked July and August, enjoy:)
  – Shakacon VIII, Bsides Las Vegas, DEFCON 24, USENIX ‘16, etc.,..
References

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- Threat Analysis of Windows 10 IoT Core and Recommended Security Measures