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Connect to Protect

SESSION ID: HTA-T09

Collision Investigator: Aftermath of the Auto Hacks

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#RSAC

Traditionally Hackable

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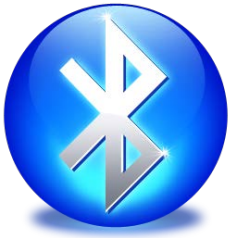

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What makes vehicles a good target?

1) Accessibility
2) Fun
3) History of Tinkering
4) High shock value

What makes vehicles an unlikely target?

1) Covers many specialties
2) “Hard”

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Traditionally Secure

- Encrypting All the Things
- Firewalls and IDS
- PKI Lockouts and Control

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Demo Disclaimer

CAN Bus Packet Layout

```
Interface   ID    DLC
     can0   666   [8]  01 02 03 04 05 06 07 08
                                 Data
```

```
can0  7DF   [4]  03 22 F1 A1
can0  7E8   [8]  10 0E 62 F1 A1 41 41 41
can0  7DF   [3]  30 00 00
can0  7E8   [8]  21 41 41 41 41 41 41 41
can0  7E8   [8]  22 41 AA AA AA AA AA AA
```

7DF = Our Packets

7E8 = Response from ECU

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```
can0  7DF   [4]  03 22 F1 A1
can0  7E8   [8]  10 0E 62 F1 A1 41 41 41
can0  7DF   [3]  30 00 00
can0  7E8   [8]  21 41 41 41 41 41 41 41
can0  7E8   [8]  22 41 AA AA AA AA AA AA
```

0x22 = ReadById
0xF1 0xA1 = ID to read from Memory
0x62 = Positive Response

```
can0  7DF   [3]  02 27 01
can0  7E8   [8]  06 67 01 FA 91 A4 68 00
can0  7DF   [7]  06 27 02 01 02 03 04
can0  7E8   [8]  03 7F 27 35 00 00 00 00
```

0x27 = SecurityAccess
   0x01 = GetKey
   0x02 = SendResponse
Key in this case = 0xFA91A468
0x7F in a response is an Error

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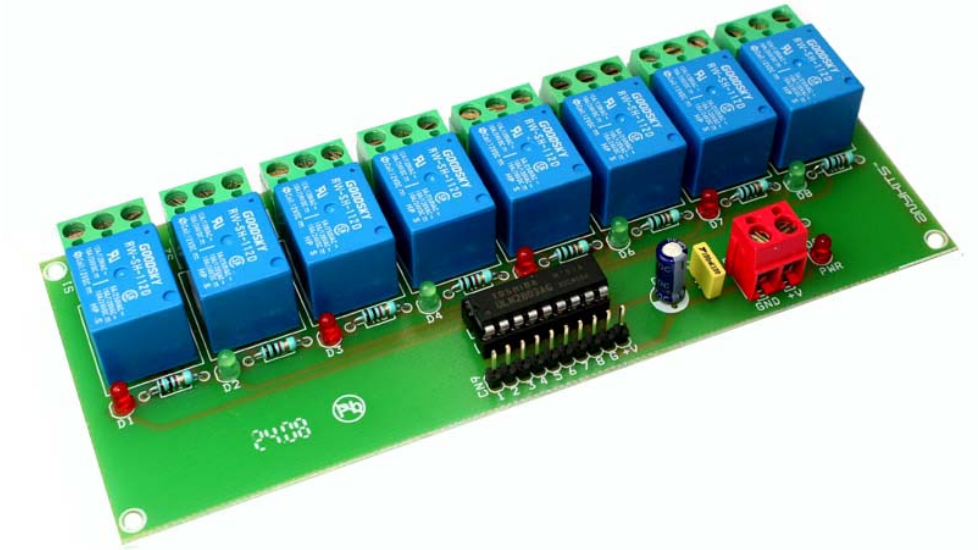
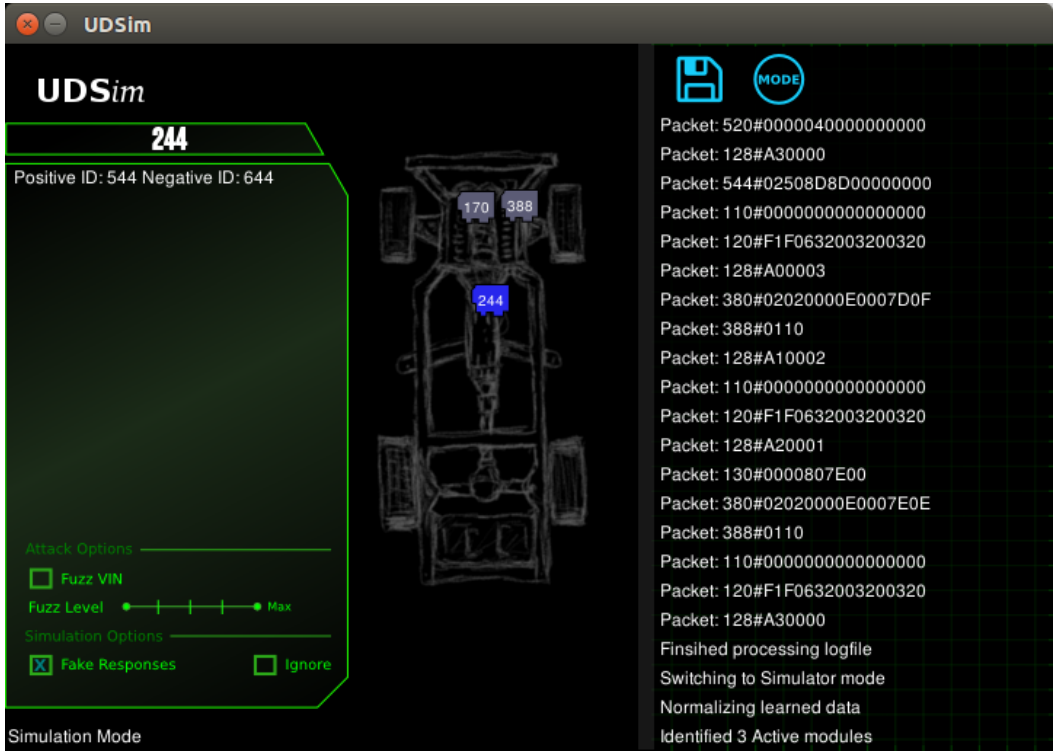
Issues with this method

- Small Keyspace
- Inefficient Lockouts
- Memory Leakage





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Allow unsigned updates

Use physical verification

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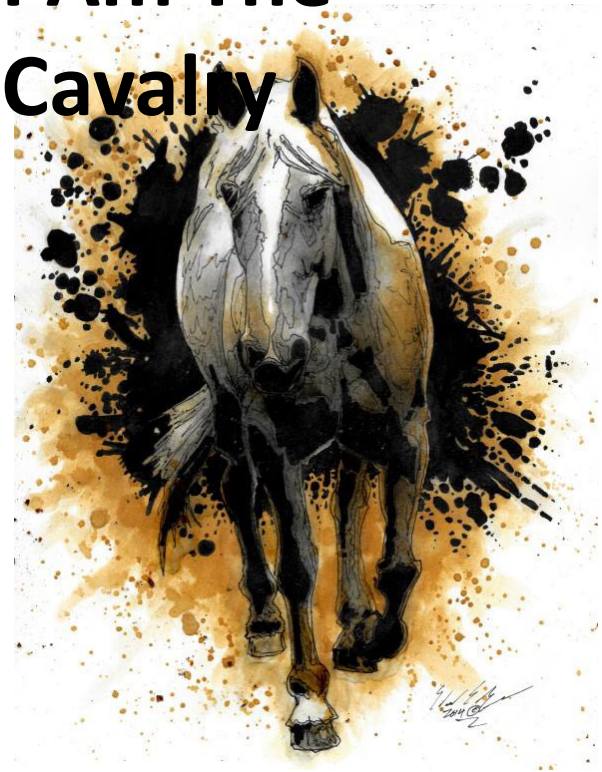

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- Safety By Design
- Third Party Collaboration
- Evidence Capture
- Security Updates
- Segmentation and Isolation

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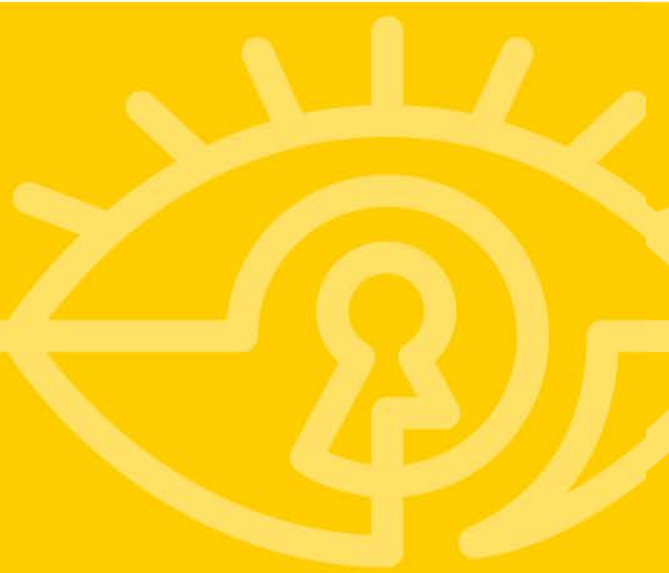
“Apply” Slide

- Next week you should:
  - Look at what you are doing and compare them to the 5 stars
- In the next three months:
  - Identify products for an immediate Threat Model review
  - Have a published method for researchers to submit findings
- Within six months you should:
  - Performed a threat model on all of your products
  - Determine what it will take to implement an Over-The-Air (OTA) patching system for your product



Subhead if needed