

Go NULL yourself

How I Learned to Start Worrying
While Getting Fined for Other's Auto
Infractions



Introduction

- whoami
 - I'm called droogie.
 - I'm a degenerate.
 - I hack things for IOActive.



Introduction

- Why this talk?
 - Discussions of old “famous” hacker tales
 - Fake stories, lulz
 - Victims of computer bugs
 - Real situations from unexpected data
 - Are these scenarios realistic in today's tech environment?
 - Could someone exploit one of these scenarios for profit/lulz?



Observations



License Plate Cameras



License Plate Cameras

- “SQL Injection”
 - Inject via query in license plate
- Skepticism
 - Clearly a joke/wouldn't work
 - Brings up some good points though



License Plate Cameras

- Palantir
 - Big Data Analytics
 - Surveillance Network

Internal Manual

https://www.vice.com/en_us/article/9kx4z8/revealed-this-is-palantirs-top-secret-user-manual-for-cops

Different CA privacy laws

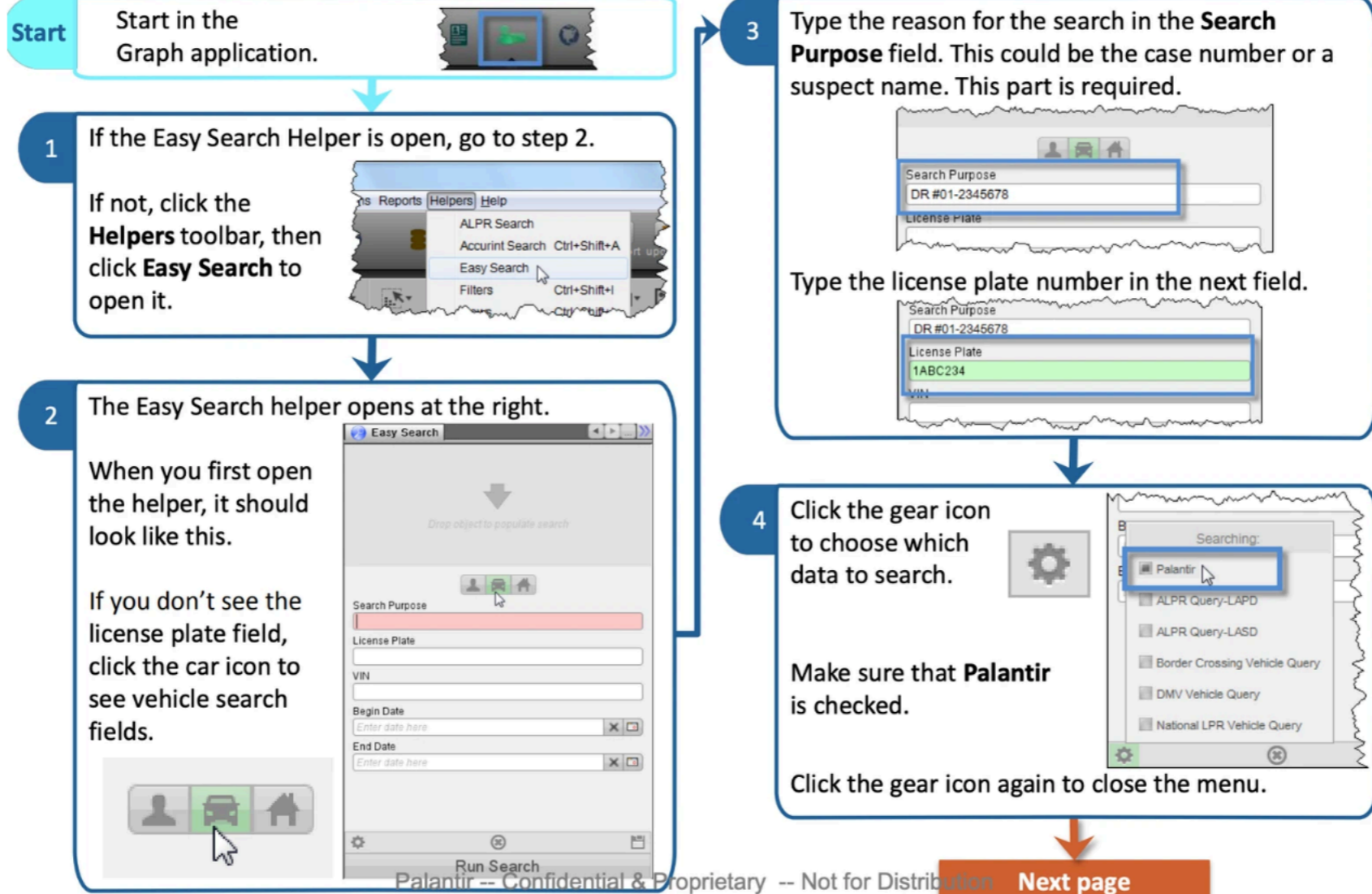
<https://www.eff.org/pages/california-automated-license-plate-reader-policies>



License Plate Cameras

Finding Persons Related to a Vehicle

11



AN INSTRUCTIONAL FLOWCHART SHOWING HOW TO SEARCH FOR PEOPLE TIED TO A SPECIFIC VEHICLE OR LICENSE PLATE.



FOIA

- Freedom of Information Act
 - Provides the public the right to request access to records from any federal agency
 - There are a nine exemptions which could block you from obtaining data
 - They will not give you something they don't already have
 - Ask for electronic delivery...
 - \$0.10 per page, \$1 per CD rom
- <https://www.foia.gov/>



License Plate Cameras

- Seattle PD ALPR Database
 - Contains all captured plate data for Seattle area
 - OCR/Images/Location Details
- Interesting Data/Anomalies
 - Some sensitive info scrubbed, but not all ;)



License Plate Cameras



Mr. NULL

- Null surname breaking computer systems
 - Trouble purchasing plane tickets
- Skepticism?
 - Is this a one-off issue in a specific scenario or a global issue?
- Would something like this cause a bug today?
 - How did this even cause an issue?
 - NULL != "NULL", Business logic issues?

<http://www.bbc.com/future/story/20160325-the-names-that-break-computer-systems>



My crime is that of curiosity



My prediction

- I believe Mr. Null
 - Edge cases likely still exist
 - Data validation is a major issues
- Are there systems where we can provide similar data?
 - Would it trigger a bug?
 - Interesting outcome?
 - Profitable outcome?



Vanity License Plates

- US allows personalized license plates
 - Can't be vulgar, sexual, negative, etc
 - Can't misrepresent law enforcement
 - A-Z, 1-9, some symbols



Let's register a plate!

'NULL' appears to be available

- Registration went through fine, no bugs or anything
- Surprised, don't have high expectations regarding DMV site





Uh... profit?

- Is it possible to be 'invisible' to citations?
- What happens when a police officer does a search for my plate 'NULL'
 - would it not return any data? possibly error?
 - If they file a citation, would it cause an issue?

Time will tell...



Unforeseen Consequences



Vehicle Registration Renewal

- Time to renew registration
- Let's use CA DMV site
 - Enter last five of VIN
 - Enter license plate





Online Registration Renewal

Invalid Information

The license number and Vehicle Identification Number (or vessel CF number and Vehicle Identification Number) you have entered are invalid. Please recheck the information and resubmit. If this problem persists, to avoid late fees, mail the bottom portion of the billing notice with the fees and requested items in the envelope provided prior to the expiration date.

PLEASE NOTE: If a Renewal Identification Number (RIN) was not provided in the registration renewal billing notice you received for your vehicle, you are not eligible to renew your vehicle registration online.

Reminder

As a reminder, late fees will be assessed if renewal fees are not paid by the date(s) noted on the registration renewal notice.

[DMV Home Page](#)

[Try Again](#)



Got a citation...

- Parking ticket
 - Info documented on the citation
 - Looked up citation number in the citation processing company
 - Paid my citation like a sucker...

I guess my predictions were wrong...



You've got mail!

- Grip of envelopes in mailbox... wtf?
- Citations...
- Wait, they're addressed to me but they're not for my car?

My prediction was very wrong...



Citation Processing Center

- A Private Company
 - .GOV contracts... they're appear to be collection
 - Their site allows for citation look up via Plate / State...

Query:

Plate: NULL

State: California



<u>18125814</u>	NULL	CA	\$37.00
<u>18125813</u>	NULL	CA	\$37.00
<u>17129283</u>	NULL	CA	\$74.00
<u>17129309</u>	NULL	CA	\$74.00
<u>12127575</u>	NULL	CA	\$37.00
<u>11128431</u>	NULL	CA	\$37.00
<u>12127632</u>	NULL	CA	\$37.00
<u>12127660</u>	NULL	CA	\$37.00
<u>12127772</u>	NULL	CA	\$37.00
<u>19129664</u>	NULL	CA	\$37.00

Total Due:

\$12049.00



Citation Processing Center

- Contact
 - Their request:
 - Mail in all of the citations I received
 - show copies of my current vehicle registration.
 - Show a complete history of all of my vehicle registrations
 - My response:
 - Uhm, fuck off.



Citation Processing Center

Did they have malicious intent?

After our discussion...



Citation #	Date & Time Issued	Description of Violation	Location	Amount
RCPP14869	08/28/2016 10:23 AM	RC10.52.070(A), PARKING ON PRIVATE PROPERTY	4900 ETIWANDA AVE	\$60.00

(If paid, return copy (Front & Back) of canceled check, money order, or receipt)
 Please return this portion with your payment -- Use the enclosed envelope (2010-1)

Notice Date	Notice Number	Plate/VIN	State	Make
03/22/18	TW131860760	NULL	CA	HOND
TOTAL DUE NOW				\$60.00

Citation Information

Citation	Amount Owing this Citation	Issuing Agency	Status	Number	Date	Time
RCPP14869	\$60.00	Rancho Cucamonga	OPEN Noticed	63 of 70	08/28/16	10:23 AM

Vehicle Information

State	Plate	VIN	Make
CA	NULL	JNKCP11A52T506641	INFI

Violation Information

Code	Description	Amount
RC10.52.070(A)	PARKING ON PRIVATE PROPERTY	\$60.00
Total:		\$60.00



Any lawyers?

- Do I have a legal footing?
 - They modified the data to make me look guilty
 - At this point I consider their entire database questionable...
 - Is this data synced with DMV? PD?
 - Do I have bench warrants for my arrest?
 - Will my license get suspended?



Potential for Misconduct

- Employees have write access
 - Disgruntled ex?
 - Can they be socially engineered to point citations at others?
 - Convinced citation was “off-by-one” / typo?



Poor Solutions

- LAPD
 - I don't know
 - Change your plate
- DMV
 - We don't deal with citations, only suspensions if requested
 - Change your plate
- CPC
 - Prove to us without a doubt that these hundreds of citations aren't yours
 - Change your plate





droogie @droogie1xp · Mar 26

I have over \$12,000 in fines and hundreds of citations hanging over my head due to a computer glitch. No one has a solid solution or knows who to talk to about it. Good work CA DMV/PD... 😊🔫



CA DMV ✓

@CA_DMV

Follow

Replying to @droogie1xp

We would like to assist you. Please email your contact info to CPDCCSSM@dmv.ca.gov Include reference number 39121 in the subject line of your email.

7:37 AM - 27 Mar 2018



Poor Solutions

- Surprisingly enough they responded to my tweet...
- Somehow reached out to CPC and got them to void out a bunch of citations
- This lowered my total amount due, but didn't actually solve anything



Future Possibilities



CPC - Equivalent Issues

- Lack of data entry standards
- Other potential entries?
 - MISSING
 - NONE
 - NO TAGS
 - NO PLATE

<https://www.latimes.com/archives/la-xpm-1986-06-23-vw-20054-story.html>

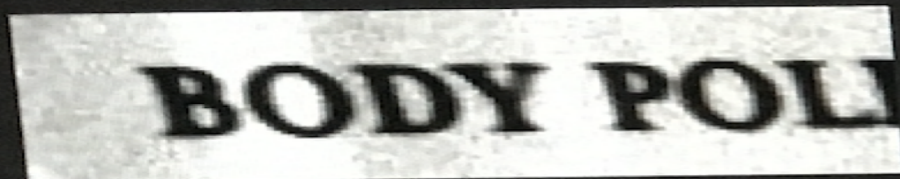
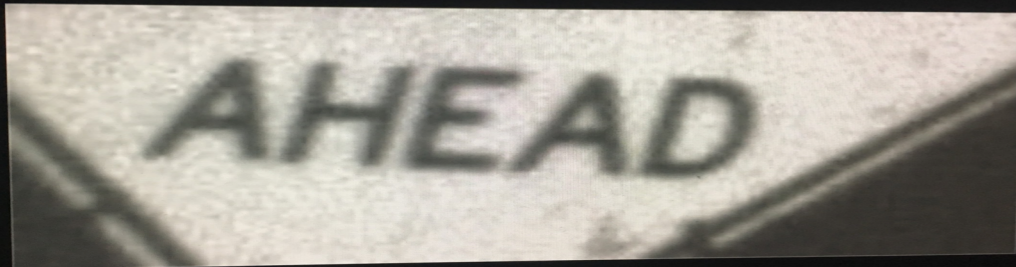


Seattle PD ALPR Database

OCR will read all sorts of things

Sides of vehicles, buildings...

Road signs...



AHR3713

AIP17

AKV5906

NISSAN

ADJ8075

AF

Seattle PD ALPR Database

readSourceID	plateOrPrimaryIdentifier	unitStateID
1	POL1C	A48FC24A-4283-49
1	POL1C	446666A3-0D36-40
1	POL1CE	017A1F9E-790D-41
1	POL1G	C761CC70-E14B-40
1	POL1G	7DD362BB-8CF8-40
1	POL10	BBF67724-8CA1-45
1	POLIC	BBE2B9EF-DD4C-4
1	POLICE	BD271DEE-A470-4E



Summary / Questions / Similar Story?

- Still periodically receive tickets in the mail...
- Still have NULL plate...
- Total currently due at: \$6,262.00...

@droogie1xp

droogie @ irc.2600.net, freenode, efnet

