

A yellow biplane is parked on a grassy field. In the background, there are rolling hills or mountains under a cloudy sky. The text is overlaid on the image.

A Hacker Walks Into A Flight School And Says Ouch: Common Online Security Fails In Pilot Training

Tarah Wheeler
Aviation Village at DEFCON
08/09/19
Las Vegas, Nevada

Hi!

- @tarah
- github.com/tarahmarie
- Why I'm flying

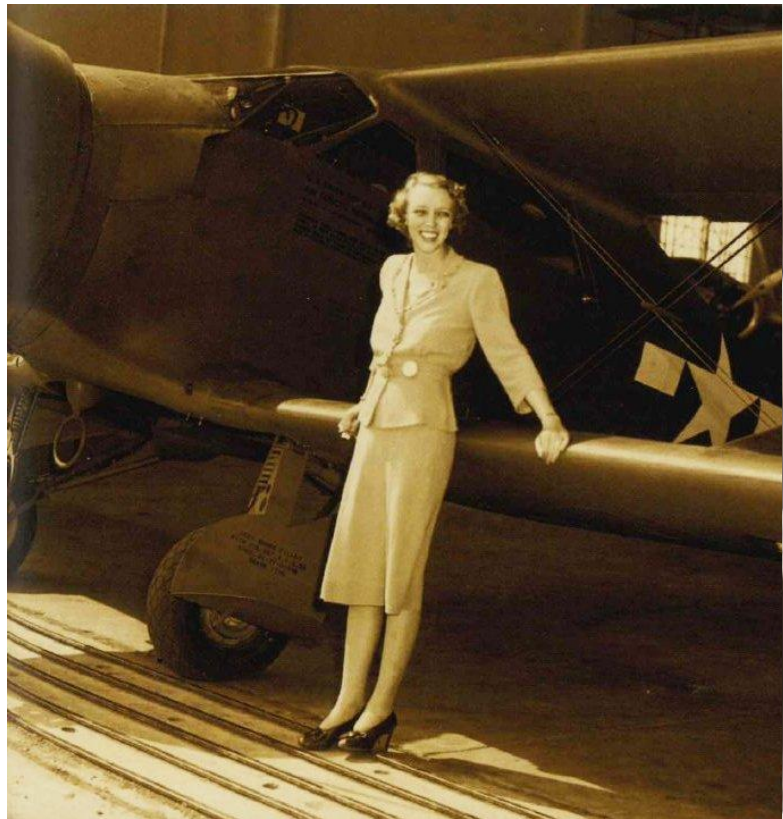
Why we fly



Flying is not as hard as you might think to achieve

- Many flight schools will have a “Discovery Flight” or similar
- You can rent and do part time flight school
- Heroines of aviation history
 - Olive Ann Beech
 - Amelia Earhart
 - Amy Johnson
 - Andrea Lewis

Olive Ann Beech



Andrea Lewis



Lt. Andrea Lewis is following in the footsteps of both of her parents – a military pilot and a commercial flight attendant.

Talk your way into cockpits with a Student Pilot Cert



Yes, You Can! Costs of getting your Private Pilot Certificate

- Can be as low as \$4500
- Probably under \$7-8000
- Scholarships are available!
- <https://www.wai.org/education/scholarships/2019/aopa-student-pilot-scholarship>
- Find a friend and sit co-pilot to gain hours and experience
- Don't spend \$thousands on ground school: Jeppesen is only \$220 for at-home self-paced internet study and it's what I am doing.
- Biggest expense other than the lessons: a headset. Buy it used on Ebay for under \$100.

Caveats

- Must be reasonably healthy and be able to get an Airman Third Class medical certificate
- Can't be blind or deaf, but can have other conditions so long as under supervision
- You can have correctable vision; your AMA Examiner will specify that you have to have your glasses with you

Plane Scary

- **Your personal data**
- Your plane and aviation software
- Your FAA license

14 CFR § 91.17 - Alcohol or drugs.

[CFR](#)

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§ 91.17 Alcohol or drugs.

(a) No [person](#) may act or attempt to act as a [crewmember](#) of a [civil aircraft](#) -

- (1) Within 8 hours after the consumption of any alcoholic beverage;
- (2) While under the influence of alcohol;
- (3) While using any drug that affects the [person](#)'s faculties in any way contrary to safety;
or
- (4) While having an alcohol concentration of 0.04 or greater in a blood or breath specimen. Alcohol concentration means grams of alcohol per deciliter of blood or grams of alcohol per 210 liters of breath.

(b) Except in an emergency, no pilot of a [civil aircraft](#) may allow a [person](#) who appears to be intoxicated or who demonstrates by manner or physical indications that the individual is under the influence of drugs (except a medical patient under proper care) to be carried in that [aircraft](#).

This is less about security, and more about privacy

- Pilots don't get privacy
- Government licensing websites are...problematic

Federal Aviation Administration

* Last Name:

First Name: (may be partial or include middle name)

Date of Birth: Day: Year: (e.g. 1974)

City:

State:

- OR - Country:

Certificate Number:

* ☐ Requires last name

Search Results

☒ Horizontal
 ☐ Vertical

Total names found is 1 based on the search criteria provided above.

TARAH MARIE WHEELER

Personal Information

TARAH MARIE WHEELER

Airman opted-out of releasing address

Medical Information:

Medical Class: Third **Medical Date:** 1/2019

MUST HAVE AVAILABLE GLASSES FOR NEAR VISION.

BasicMed Course Date: None **BasicMed CMEC Date:** None

Certificates

STUDENT PILOT

Certificates Description

Certificate: STUDENT PILOT

Date of Issue: 1/16/2019

Limits:

CARRYING PASSENGERS IS PROHIBITED.

Search Results

Horizontal Vertical



Total names found is 1 based on the search criteria provided above.

Personal Information



County:

Country: USA

Medical Information:

Medical Class: First Medical Date:

MUST HAVE AVAILABLE GLASSES FOR NEAR VISION.

BasicMed Course Date: None BasicMed CMEC Date: None

Certificates

AIRLINE TRANSPORT
PILOT

FLIGHT ENGINEER

Certificates Description

Certificate: AIRLINE TRANSPORT PILOT

Date of Issue:

Ratings:

AIRLINE TRANSPORT PILOT
AIRPLANE MULTIENGINE LAND

Type Ratings:

A/B-737 A/B-757 A/B-767 A/N-265

Limits:

ENGLISH PROFICIENT.
ATP CIRC. APCH. - VMC ONLY.
B-757 B-767 B-737 CIRC. APCH. - VMC ONLY.

KENNETH DAVID HOKE

Personal Information



KENNETH DAVID HOKE

Airman opted-out of releasing address

Medical Information:

Medical Class: First **Medical Date:** 7/2019

MUST WEAR CORRECTIVE LENSES.

BasicMed Course Date: None **BasicMed CMEC Date:** None

Certificates

AIRLINE TRANSPORT
PILOT

FLIGHT INSTRUCTOR

FLIGHT ENGINEER

Certificates Description

Certificate: AIRLINE TRANSPORT PILOT

Date of Issue: 2/19/2010

Ratings:

AIRLINE TRANSPORT PILOT

AIRPLANE MULTIENGINE LAND

COMMERCIAL PRIVILEGES

AIRPLANE SINGLE ENGINE LAND

Type Ratings:

A/B-757 A/B-767 A/BA-3100 A/DC-8

Limits:

ENGLISH PROFICIENT.

B-757 B-767 DC-8 CIRC. APCH. - VMC ONLY.

Plane Scary

- Your personal data
- **Your plane and aviation software**
- Your FAA license

FAA and IACRA are compliant, but not secure



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2. Any communications or information transiting or stored on this information system may be disclosed or used for any lawful government purpose.

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I agree to the Terms of Service & select:

Accept TOS as --> APPLICANT

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enable popups



Readers & Viewers



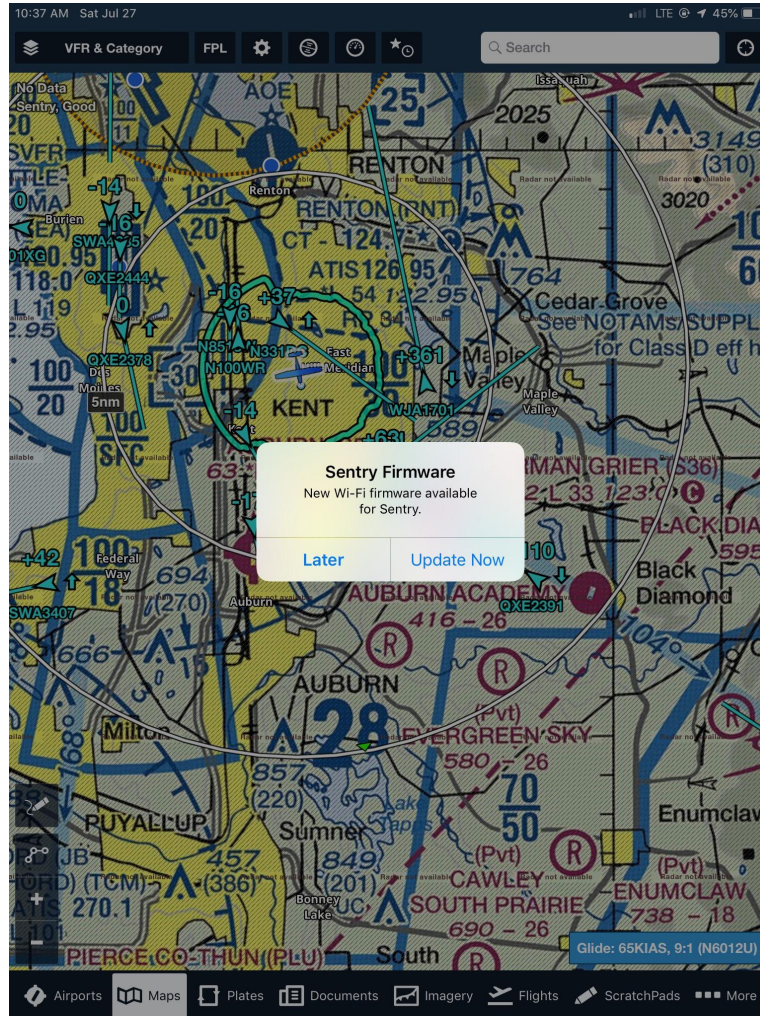
Web Policies

Web Policies & Notices
Privacy Policy

Government Sites

DOT.gov
USA.gov
Recovery.gov
Regulations.gov
Data.gov

Pilot aid software often must pass through
FAA certification which delays updates and
security measures



Plane Scary

- Your personal data
- Your plane and aviation software
- **Your FAA license**

Your FAA license can be doxxed

hotline.faa.gov

Country, if outside of

US:

Contact Phone

* Email Address

International Phone

What are You Reporting

Please complete the information below about the event or activity for which you are filing this report. This will help us better assess your report.

Event Date:

[Date Picker keyboard shortcuts](#)

Event Time

Event Location

Event City

Event State

Airline or Aviation

Company

Flight Number

Departure Location

Arrival Location

Aircraft Registration

For low flying aircraft, an Aircraft Registration Number (N-number) is required. If an aircraft registration number (N-number) is unknown, please contact your local [Flight Standards Office](#).

Who Are You Reporting

NOTE: The information requested in this section is about the person, company or organization responsible or involved for the activity or event you are reporting.

First Name

Last Name

Email



See there how I have obscured the tail number?

- You can pseudonymously report someone via tail number to the FAA to trigger an automatic investigation
- If a pilot has been DoSed yet, no public information is available on it, but investigations of reports of unsafe flying trigger a mandatory inquiry.

Here's a flight plan that anyone can follow online

- And given this flight plan, you can report the tail number. That's sufficient to DOS an FAA license

Back

KRNT - KBFI

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Given these three points, why am I sharing this?

- I believe that systems of systems are inherently related.
- The Internet isn't "different" than aviation.
- Someone's going to perform these attacks on pilots, and it's best to understand that they're a vector of attack.

Best protection for pilots

- Be cautious about how you reveal your home, and attempt to shield that.
YMMV
- Do not share your tail numbers in public fora or on social media
- Obfuscate your data
- Spread the word about the ease of this vector of attack to flight schools, your CFI, and your FAA checkride instructor.
- Lobby to have the FAA database behind a reasonable username/password for students, pilots, instructors, and anyone who's requested a user account.

Thanks

Reach out to me at any time.

Wish me luck.

Try flying!

See my pix of me learning (and tell me if I missed a tail number in my obfuscations) at [instagram.com/tarahwheeler](https://www.instagram.com/tarahwheeler)

Talk to me on Twitter @tarah