UAS Operations

(Unmanned Aircraft Systems, as defined by the FAA)
Oh, I’m sorry. Did you want coffee, too?

STARBUCKS DRONE DELIVERY
What is it? How could it benefit our agency?

• Costs
• FAA Regulations
• Usefulness
• ...and on and on
Know Before You Fly

**DO:**
- Fly your unmanned aircraft below 400 feet
- Fly with local clubs
- Inspect your aircraft before you fly

**DON'T:**
- Fly near airports or any manned aircraft
- Fly near people or stadiums
- Be careless or reckless. You could be fined if you endanger people or other aircraft
- Fly anything that weighs more than 55 lbs.
- Fly for payment or commercial purposes unless specifically authorized by the FAA

Federal Aviation Administration
www.faa.gov/uas  www.knowbeforeyoufly.org

Small UAV Coalition: A Partnership for Safety & Innovation
AMA
AUVSI
Welcome to the Federal Aviation Administration (FAA) drone registration support site. The FAA requires all drone owners to register each drone that is purchased weighing between 0.55lbs to 55lbs. If you meet the criteria to register an unmanned aircraft and do not register, you will be subject to civil and criminal penalties defined in the U.S. Government drone regulation terms.

Fill out the online Drone Registration application in less than five (5) minutes. Our agents will review your application for omissions and errors. Once completed, our experts will start your registration process and a registration certificate will be emailed to you shortly after. At that stage, you will receive a registration number to mark on each drone. Throughout this process, we will communicate any further registration requirements directly with you. We are always here to help with any questions that you may have.

Quickly and easily complete your registration today.

START RECREATIONAL REGISTRATION

I will solely be flying my drone for recreational purposes, for personal interests or enjoyment.

By clicking the button, I agree to the Terms of Service and Privacy Policy.

START COMMERCIAL REGISTRATION

I will be flying my drone for commercial, government or non-hobby purposes (including non-profits) under FAA Part 107 rules.
Unless... “wherever you go” is above the USA.? The purpose of your flight is also important. Are you flying for Recreation or Business?
Fly under the Small UAS Rule

To fly under the FAA's Small UAS Rule (14 CFR part 107), you must:

- Get a Remote Pilot Certificate from the FAA
- Register your UAS as a "non-modeler"
- Follow all part 107 rules
Becoming a Pilot

Remote Pilot Knowledge Test Prep

Suggested Study Materials
- Airmen Certification Standards (PDF)
- Knowledge Test Instructions (PDF)
- Knowledge Test Study Guide (PDF)
- Knowledge Test Sample Questions (PDF)
- Part 107 Advisory Circular (PDF)
- Pilot’s Handbook of Aeronautical Knowledge

Quick Links
- Part 107 Course on FAA Safety Team website
- FAA Integrated Airmen Certificate and/or Rating Application System (IACRA)

Requirements and Process for Becoming a Pilot

- Instructions for first-time remote pilots
- Instructions for part 107 pilot certificate holders

First-Time Pilots

To become a pilot you must
- Be at least 16 years old
- Be able to read, speak, write, and understand English (exceptions may be made if the person is unable to meet one of these requirements for a medical reason, such as hearing impairment)
- Be in a physical and mental condition to safely operate a small UAS
- Pass the initial aeronautical knowledge exam at an FAA-approved knowledge testing center

Top Tasks

- Getting started with your UAS
  Register your Drone/Request a Waiver
- Become a Drone Pilot
  Learn Where to Fly
  Read Drone Safety Tips

Pilot certificate requirements
- Must be orally accessible to the remote pilot during all UAS operations
- Valid for 2 years, certificate holders must pass a recurrent knowledge test every two years

Application Process
- Schedule an appointment with a Knowledge Testing Center (KTC), which will administer oral and written FAA knowledge tests
  a. View the list of Knowledge Testing Centers (KTCs) and ensure you choose a KTC that is located near you
  b. Applicants must bring government-issued photo ID to their test
- Pass the initial aeronautical knowledge test - initial knowledge test areas include:
  a. Application regulations relating to small unmanned aircraft system rating privileges, limitations, and flight operation
  b. Airmanship, classification, and operating requirements, and flight restrictions affecting small unmanned aircraft operations
  c. Aviation weather sources and effects of weather on small unmanned aircraft performance
  d. Small unmanned aircraft loading and performance
  e. Emergency procedures
  f. Operations in visual meteorological conditions
  g. Radio communication procedures
  h. Determining the performance of small unmanned aircraft
  i. Physiological effects of drugs and alcohol
  j. Aeronautical decision-making and judgment
  k. Airport operations
  l. Maintenance and preflight inspection procedures
- Complete FAA Form 8710-13 for a remote pilot certificate (FAA Airman Certificate and/or Rating Application System (IACRA))
  a. Register using the FAA’s AIAA system
  b. Login with username and password
  c. Click on “Start New Application” and 1) Application Type “Pilot,” 2) Certification “Remote Pilot,” 3) Other Field Information, 4) Start Application
  d. Follow application prompts
  e. When prompted, enter the 12-digit knowledge Test Code (2) (KTC): It may take up to 3 hours from the test date for the knowledge test to appear in IACRA
  f. Sign the applicable electronically and submit to the Flight Reviewing Process
  g. A confirmation email will be sent when an applicant has completed the TSA security background check. This email will provide instructions for printing a copy of the temporary remote pilot certificate from IACRA
  h. If the temporary remote pilot certificate is not received within 30 days, the application will be sent to the FAA for processing

* Applicants who do not meet the FAA Form 8710-13 online may choose the paper process. Please note that the processing time will be longer for a paper application to be used once it requires more paperwork and signature by a registered pilot examiner (RPE), an airmen certificate representative (ACR), or an FAA-certified flight instructor (CFI), and must be issued a flight standards station office identification number. Additionally, a temporary remote pilot certificate will not be provided to the applicant.

Instructions for completing the paper application process may be found in Chapter 6, Section 4 of the Part 107 Advisory Circular
Enroll Today for $50 Off Drone Pilot Ground School (Now Through June 30th)

Become an FAA-certified drone pilot with Drone Pilot Ground School, an online test prep and training course for commercial drone pilots looking to pass the FAA Aeronautical Knowledge Test for a Remote Pilot Certificate.

Over 99% of our 10,000+ students have passed the FAA’s exam on their first attempt.

Enroll in Training for $299 $249

Use code ENROLL50 for $50 off and get instant access to our self-paced test prep course.
Airspace Charts, METARs, Airport Radio Operations, Runway Operations...

METAR KGGG 161753Z AUTO 14021G26KT 3/4SM +TSRA BR BKN008 OVC012CB 18/17 A2970 RMK PRESFR
The training wasn’t easy...

“$I’m$ holding on too tight.
$I’ve$ lost the edge.” - Cougar
IACRA is the web-based certification/rating application that guides the user through the FAA’s airman application process. IACRA helps ensure applicants meet regulatory and policy requirements through the use of extensive data validation. It also uses electronic signatures to protect the information’s integrity, eliminates paper forms, and prints temporary certificates.
Several Weeks Later... Congratulations, you’re a Pilot! (At least technically)
Notam = Notice to Airmen
Certificates of Waiver or Authorization (COA)

COA is an authorization issued by the Air Traffic Organization to a public operator for a specific UA activity. After a complete application is submitted, FAA conducts a comprehensive operational and technical review. If necessary, provisions or limitations may be imposed as part of the approval to ensure the UA can operate safely with other airspace users. In most cases, FAA will provide a formal response within 60 days from the time a completed application is submitted.
--- 1 in 4 chance of rejection ---
Look out! We’re flying...
Final rest position of Pedestrian #1

Skid marks made by Vehicle #1

Debris found on the roadway depicted in photo DSC_0004

Debris found on the roadway depicted in photo DSC_0003

Unknown debris on the roadway - Possible area of 1st Impact

Entrance ramp at westbound I-70 from the Truxton Exit

Median cable barrier

Chain-link fence

The tractor-trailer stopped on the eastbound side of I-70
Photogrammetry

“Photogrammetry is the science of making reliable measurements from photographs, especially for recovering the exact positions of surface points.”

The fundamental principle used by photogrammetry is triangulation. By taking photographs from at least two different locations, so-called “lines of sight” can be developed from each camera to points on the object.
Rendering findings back to a wire diagram...
Overlapping,
Steady,
Detailed,
Still Photos...
Tie Points...
Pix4Dmapper Pro → DXF Lines and points → IMS 360 CrashZone AutoCAD...etc

Point Cloud Orthomosaic → 3D PDF → Scale Diagrams

Virtual Crash
Sparse Point Cloud...
Dense Point Cloud...
Triangle Mesh...
Orthomosaic...
Through extensive testing, we’ve determined UAV maps are as accurate as maps made with a GPS rover, when done properly.
What is the goal?

• Reduced on-scene time.

• Capturing potentially missed evidence previously overlooked. (i.e. extended roadway features)

• Generating a picture-like diagram/forensic map easily understood by many.

• Increased safety in unstable terrain or conditions.
Questions?

Please contact the Major Crash Investigation Unit, Team III, and we will assist your agency with the knowledge we have regarding this topic.

Our Office - (417) 753-3369