

Frequently Asked Questions (FAQs)

Q: What's the difference between a drone, a UAV and UAS?

A: They are all referring to the same thing – basically, an unmanned aircraft (UA).

UAS: Unmanned Aerial System (this is the terminology that the industry is moving towards to rebrand “drones”, and refers to both the machine in the sky and the ground station used to operate it)

UAV: Unmanned Aerial Vehicle (often used interchangeably with “UAS” – the distinction is that a UAV is just the drone in the sky and not the ground station used to operate the system)

Drone: Common vernacular for UAS or UAV strongly rooted in the military history of these flight platforms. The industry is working diligently to recast commercial operations away from the term “drone” given the negative connotation it seems to hold with the general public. That said, it's a lot easier to speak about “drones” since most people better understand what you're talking about, as opposed to UAS or UAV.

Q: Are drones only rotorcraft?

A: There are actually two types (classes) of flight platforms: rotorcraft (those that you see with multiple helicopter looking blades on top) and fixed wing aircraft (varying from a traditional miniature airplane to a delta wing design similar to the stealth aircraft).

Q: I see stories on the news all the time about drones - what's all the fuss about?

A: Industry analysis concludes that UAS integration into the national airspace is likely to result in tremendous wealth creation. Conservative estimates suggest that in the first three years of integration, economic benefit will exceed **\$13.6 billion**, and more than **70,000 jobs** will be created with an average **annual salary of over \$100,000**. This benefit is projected to grow through 2025 with more than 100,000 jobs created and 10-year economic impact of **\$82 billion**. Source: AUVSI, March 2013 ([full report here](#)).

Q: Is it legal to operate drones?

A: Yes and No.

The short answer: Yes, if you are a hobbyist and fly below 400 feet AGL; No, for commercial usage unless you have obtained FAA authorization via a Section 333 Waiver of Exemption or Airworthiness Certificate for experimental aircraft.

A bit more background: The FAA is responsible for managing the National Airspace System (NAS) and its commercial usage; since drones are defined as unmanned aircraft, they fall under the regulations set forth for manned aircraft. Based on a directive from President Obama (FAA Modernization and Reform Act of 2012), the FAA is diligently working on a plan to integrate the commercial usage of small UAS (sUAS are less than 55 pounds) into the national airspace, but it's not easy given the complexity this entails. Until that rule is promulgated (made into law), anyone wishing to operate sUAS for purposes other than hobby/recreational use must obtain a grant of exemption issued under Section 333 or type and airworthiness certificate. The FAA is explicit to state that *“this applies [to commercial operators] even if you are only flying to supplement or aide your business and not charging fees for doing so.”*

Q: How long does it take to get a 333 Waiver of Exemption?

A: Per the FAA, 120 days; in reality, we are seeing the process move more quickly for common requests (such as photo/videography, mapping, etc.) now that the FAA is using an expedited approval process called “summary grant of exemption”.

Q: What are the main requirements to operate an unmanned aircraft or drone for commercial gain?

- Section 333 Waiver of Exemption,
- Certificate of Authorization (COA),
- Aircraft registered with the FAA,
- A pilot with a FAA airman certificate operating as part of a 2-person team;

Q: I get the concept of aerial photography/videography (who doesn't want a nice picture from 100 feet in the air), but what other ways are businesses using UAS?

A: The list is nearly limitless, and we hear a new approach almost every day.

Examples include (for a list of over 100 uses, please reach out to Nathan@uaspi.com):

- **Precision Agriculture – “Window into the Future”:** a UAS takes pictures of farmland using a Near Infrared Camera (NIR) and is able to detect plant chlorophyll levels. While all of the cropland looks green and healthy to the naked eye, a picture is created that will show areas with thriving growth versus areas struggling and on the verge of dying off. Armed with this information, farmers can take soil samples and intervene before they lose acres of produce.
- **Wildfire Detection – “X-ray Vision”:** a UAV flies over the top of a smoke-covered wildfire that spans hundreds of acres; with a thermal imaging camera, operators on the ground can see through the smoke and pinpoint where the actual line of fire is advancing. This can be used to pinpoint where to make water drops, as well as to warn firefighters of sudden and unpredictable shifts that could put them in an even more dangerous position.
- **Hazardous Materials Situations – “Keeping the Public Safe”:** a UAS armed with a specialized sensor array can fly into a hazmat situation and take air quality readings registering everything from Sarin gas to toxic fumes. In 2014, UAS were used in Fukushima, Japan after a nuclear power plant was affected by an earthquake to obtain real time radiation readings for scientists and civilians about the nuclear levels in the area.
- **Wildlife Monitoring – “Keeping Endangered Species Safe”:** Kenya is set to deploy UAS to all of their national parks in order to monitor wildlife, as well as to spot poachers before they have the ability to kill.
- **Search and Rescue Operations – “Johnny-on-the-Spot”:** a sheriff in Auburn, Maine uses a drone to locate two boys stranded in the middle of a fast-moving river. He then delivered a life vest with his drone to one of the boys trapped on a rock in the middle of the river. The boys were rescued safely.

UAS Professionals provides drone training, small business startup support, and mission operations. For more information, please contact nathan@uaspi.com or call 720-330-8320, Ext 6.

