

UTM Key Site



Operational Evaluation

Presented to: FAA UAS Safety Symposium

Date: August 2023



**Federal Aviation
Administration**

UAS Traffic Management

Overview

UAS Traffic Management (UTM) is a community-based, cooperative ecosystem that is separate from, but complementary to, the FAA's Air Traffic Management (ATM) system

- Enables multiple drone operations conducted beyond visual line-of-sight (BVLOS) and below 400 ft AGL, where air traffic services are not provided
- Leverages industry's ability to supply services under FAA's regulatory authority where these services do not currently exist
- Uses a distributed information network and data exchange to support safe operations – operator to operator, vehicle to vehicle, and operator to the FAA



Scope

- Services will be provided by multiple USSs and used by multiple UAS operators to carry out BVLOS operations
- USS network and UTM services will provide a means for operators to manage UA-to-UA conflict and to collaboratively deconflict
- Predictable and consistent routine BVLOS operations will be enabled
- UTM Key Site Operational Evaluation is a critical path item to inform BVLOS rulemaking
- Ability to utilize Supplemental Data Service Provider(s) (SDSP)



Scope



- UTM Key Site Operational Evaluation will leverage a federated network, industry-proposed standards in support of operations beyond visual line of sight (BVLOS), and performance requirements in order to inform policy and rulemaking
 - Collaborate with industry to validate content, formats, and messaging
 - Define performance metrics
 - Develop guidance material to support implementation of the standard(s)
 - Manage conflicting operations in accordance with relevant UTM standard(s) and business rule development
- Develop partnerships with operators and UAS Service Suppliers (USSs) at a key site
 - FAA will support participants in attaining the necessary exemptions to operate BVLOS using UTM services (i.e., strategic conflict detection and conformance monitoring)

UTM Key Site Goals



Leverage Public-Private Partnership for UTM Implementation



Show UTM is Safe and Effective



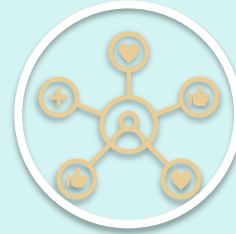
Build Public Acceptance for UTM-Enabled BVLOS



Advance UAS Integration Efforts



Catalyze a Durable and Enduring Ecosystem



Influence Future Policy through Data and Findings



Criteria for Operators



- Must be one of the following:
 - Certified under 14 CFR Part 135
 - Active applicant for 44807 exemption for §91.113 or §107.31 (BVLOS)
- Must have the ability to obtain, maintain, and adhere to a BVLOS exemption
- Must be able to utilize UTM services to manage UA-to-UA conflicts
- Must be able to connect, transmit, and receive data via a Data Exchange provided by the USS, operators must share data such as:
 1. **Operational Intent** – Volume-based representation of a UAS flight, defines airspace and time bounds intended to contain the flight
 2. **Off-Nominal Operating Information** – Information that may result in Nonconforming or Contingent states of operational intent
 3. **Position Data** – Vehicle telemetry such as Latitude, Longitude, Altitude, and Velocity

Criteria for USSs

UAS Service Supplier (USS)

- Must validate compliance with “Standard Specification for UAS Traffic Management (UTM) USS Interoperability” (ASTM F3548-21)
- Should have ability to interface with operator(s) and exchange information between USS, UAS operators, and FAA to provide services:
 - Strategic Conflict Detection
 - Conformance Monitoring
 - Ingestion and dissemination of FAA Constraints (e.g., Temporary Flight Restriction [TFR], NOTAM)
- Must have the ability to obtain, maintain, and adhere Near-Term Approval Process (NTAP) third-party service recognition
- Must address cybersecurity using features such as Tokens (identity and access), Message signatures, Encryption, and Certificates



Criteria for SDSPs

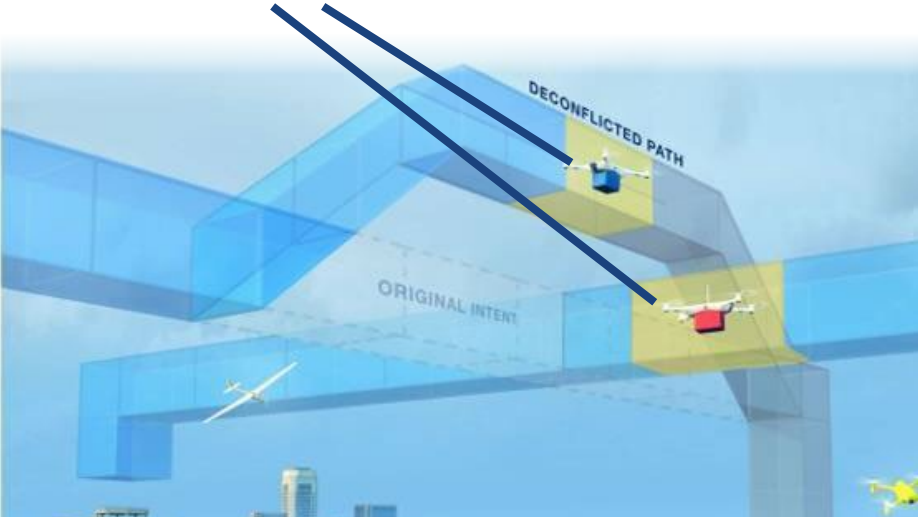


Supplemental Data Service Providers (SDSP)

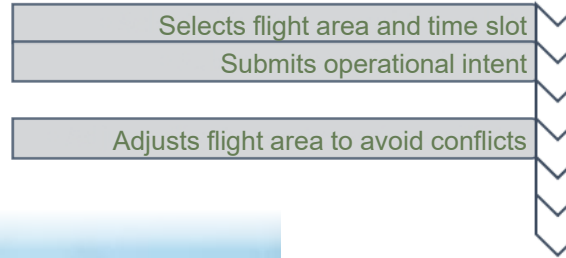
- Must have ability to interface with operator(s) and/or UAS Service Suppliers (USS) in order to share supplemental data in accordance with the requirements of an applicable industry standard
- Must have the ability to obtain, maintain, and adhere Near-Term Approval Process (NTAP) SDSP service recognition

UTM UA-to-UA Deconfliction

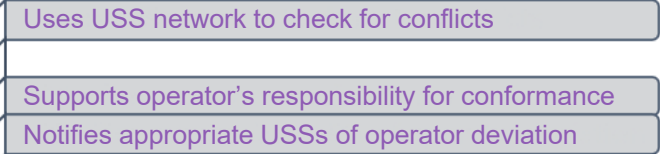
Operators may use different UAS Service Suppliers (USSs)



Operator



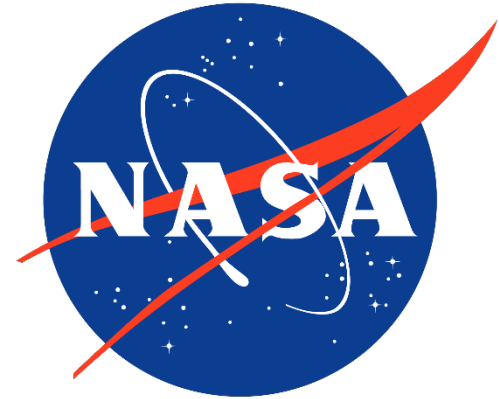
UAS Service Supplier



- Multiple operators coexist in one area, each using a different UAS Service Supplier to share flight intent
- A common framework/capability is needed

NASA Role

- Ensure Discovery and Synchronization Server (DSS) is in place
- Ensure Authorization Server (oAuth) is in place
- Deploy and Manage API(s) for Data Collection
 - Analyze the technical data and recommend changes / updates / enhancements
 - Monitor Network Health (Resiliency) and Network Security (Cybersecurity)
- Develop tech transfer strategy



Data Collection



Data Exchanges as Data Sources

- UAS Operator - USS
- USS - USS
- USS - FAA

ASTM UTM USS Interoperability API

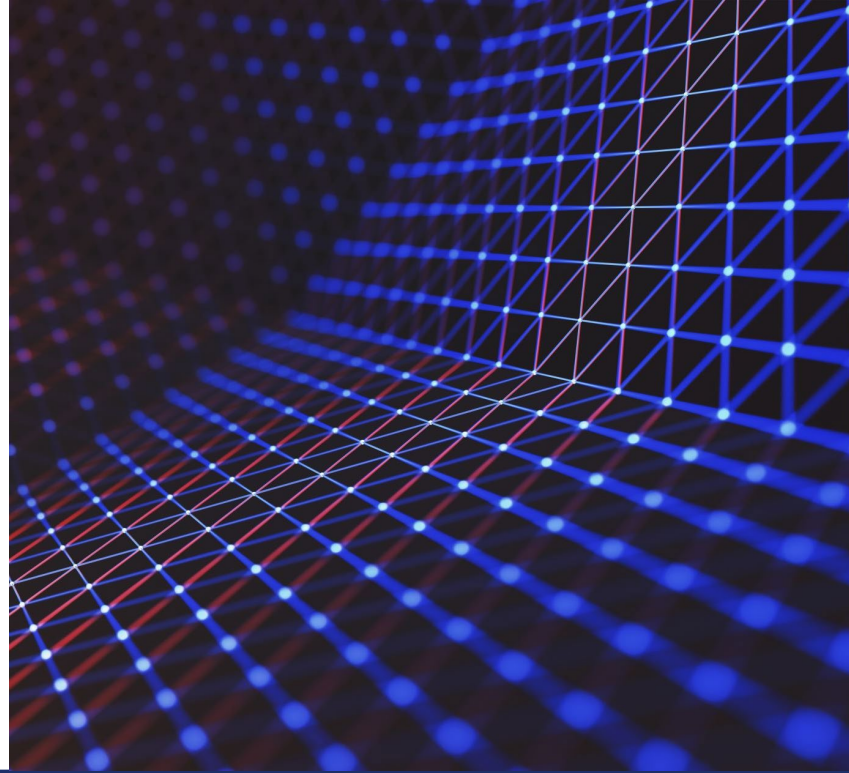
- The API that supports the ASTM USS Interoperability Standard is used to collect data that is exchanged within the USS Network. Data to be captured from the API includes:
 - Operational Intent
 - Constraints
 - Vehicle Telemetry (if requested during off-nominal state)

Conflict Resolution Data

- Negotiation information associated with adherence to business rules for conflict resolution

Next Steps

- Identify key policy areas
- Evaluate demand signals
- Establish key site and participants
- Enable routine BVLOS operations



Participation

Send your interest and intent to participate to:

FAAUTM@faa.gov

More information coming soon on the FAA website