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|  | **FAA Office of Information Technology (AIT)** |

REST Service Description Document (RSDD)

for

Low Altitude Authorization and Notification Capability (LAANC)

and Third Party Providers

**Version 1.0**

**1/26/2017**

REST Service Description Document

LAANC

Approval Signatures

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| --- | --- | --- | --- |
| Name | Organization | Signature | Date Signed |
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REST Service Description Document

LAANC

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# Scope

This REST Service Description Document (RSDD) provides information to describe and document the LAANC service, which has been designed using the Representational State Transfer (REST) architectural style for services. In this style, requests and responses between clients and servers focus on the transfer of representations of resources. A resource can be any entity identifiable by a Uniform Resource Identifier (URI), about which information can be exchanged. A representation of a resource is typically a document that captures the current or intended state of a resource.

This document provides basic information about the service and its provider, and describes in detail the resources that the service can access and the RESTful Hypertext Transfer Protocol (HTTP) methods that the service supports for each resource.

## Background

The Federal Aviation Administration (FAA) has been tasked with implementing notification and authorization (N&A) processes as defined in the Federal Aviation Regulations, Parts 101 and 107 respectively. These new regulations provide the needed rules to govern the use of both model aircraft and unmanned aircraft system (UAS) flight operations (unmanned aviation activities) throughout the airspace governed by the FAA.

The FAA is in the process of determining its approach and business plan to integrate UAS into the National Airspace System (NAS). As part of that approach, the FAA is dedicated to ensuring safety requirements are met for integration of UAS into the NAS, where UAS are able to operate safely in the same airspace with manned aircraft. To this end, the FAA must ensure that integrated UAS operations meet appropriate performance standards and access requirements (e.g., SC-228, Minimum Operational Performance Standards for Unmanned Aircraft Systems). The FAA seeks to ensure reduced barriers to access and to avoid monopolization of public resources. The FAA challenge is to foster equitable access for all users and providers while ensuring critical air traffic control (ATC) technical and safety requirements are met for NAS operations. In addition, FAA seeks to foster a competitive environment for providers of UAS and related services. As the FAA and industry move toward integration of all types of UAS into the NAS, two rules have recently been introduced governing the requirements for small UAS (sUAS), defined as UAS that weigh less than 55 pounds.

The development of a fully functioning and streamlined, user friendly N&A process is complex and subject to a variety of inputs and coordination points across the UAS community landscape. This document will give stakeholders and leadership the necessary background and contextual information to understand and provide input on the FAA’s LAANC demonstration planned in 2017. It is expected that this document will provide stakeholders an understanding of the FAA’s approach to working with industry to develop streamlined processes for model aircraft and UAS stakeholders to comply with the law and conduct operations safely.

The LAANC Third Party Providers (TPP) will send authorization, notification, re-consideration requests, re-consideration answers, and denial records to the FAA for FAA display. The TPP will manage Part 107 operator secondary requests for authorization once automatic denial has been provided.

# Applicable Documents

The documents or information sources in the following sub-sections are relevant to this document:

* Federal Aviation Administration, Advisory Circular: 107-2, Small Unmanned Aircraft Systems (sUAS), 21 June 2016
* Federal Aviation Administration, *“Integration of Unmanned Aircraft Systems into the National Airspace System, Concept of Operations v2.0”*, September, 2012
* U.S. Government Publishing Office, Code of Federal Regulations, Title 14, Part 107, Small Unmanned Aircraft Systems, Web 29 December 2016
* Airman’s Information Manual (AIM)

## Government Documents

* <SLA document(s) for the Service, when completed>
* FAA-STD-066, Web Service Taxonomies

## Non-Government Standards and Other Publications

* Authentication Protocol: <https://oauth.net/2/>
* Access Protocol: <https://wadl.java.net/>
* Message Queuing Protocol: <https://www.amqp.org/>
* Message Format: <http://www.json.org/>

# Definitions

## Terms and Definitions

| Name | Definition |
| --- | --- |
| REST Service | A RESTful web service (also known as a RESTful web Application Programming Interface (API)) is a service implemented using HTTP and REST principles. |
| Resource | A resource is an individual data entity that is identifiable by a URI. |

## Acronyms

| Name | Full Spelling |
| --- | --- |
| AIT | Office of Information Technology |
| API | Application Programming Interface |
| FAA | Federal Aviation Administration |
| HTTP | Hypertext Transfer Protocol |
| JSON | JavaScript Object Notation |
| REST | Representational State Transfer |
| RSDD | REST Service Description Document |
| SDLC | System Development Lifecycle |
| SLA | Service Level Agreement |
| SOA | Service Oriented Architecture |
| SSA | Service Security Agreement |
| URI | Uniform Resource Identifier |

# Service Properties and Capabilities

## Service Profile

### Service Properties

| Profile Item | Value |
| --- | --- |
| Service Name |  |
| Registered FAA Namespace |  |
| Description |  |
| Version |  |
| Service Category (per FAA-STD-066) |  |
| Lifecycle Stage (per FAA-STD-066) |  |
| Criticality for the Service (per FAA-STD-066) |  |

### Service Provider

|  |  |
| --- | --- |
| Organization Name | FAA ADE-320 |
| Description | FAA, Solution Delivery |
| Web Page URL |  |

#### Service Points of Contact

| POC Function | Name | Org | Phone | Email |
| --- | --- | --- | --- | --- |
| AIT SOA lead | Jill Longenecker | ADE-320 |  | Jill.Longenecker@faa.gov |
| Manager, EIM | Robert Fernandez | ADE-220 | 301.427.5085 | Robert.Fernandez@faa.gov |
| EIM | Wayne Larson | ADE-220 | 202.267.7210 | Wayne.Larson@faa.gov |

### Service Consumers

Specific consumers of this service are managed by the AIT SOA team and its associated infrastructure and governance processes. Contact the AIT SOA team for more information about the current consumers of this service.

### Service Functionality

| Business Function | Practical Effect |
| --- | --- |
| UAS Flight Notification | * FAA receives record of a voluntary notification from TPP (class G airspace) * FAA receives record of a notification from TPP (class C airspace) |
| UAS Flight Authorization | * FAA receives record of a authorization from TPP (class B and below ATC preapproved altitude) |
| UAS Flight Re-Consideration | * FAA receives record from TPP of a reconsideration request that was made from a UAS operator (class B above pre-approved sUAS altitude |
| UAS Flight Re-Consideration response | * FAA receives record from TPP of a reconsideration response given from ATC |
| UAS Flight Denial | * FAA receives denial record from TPP (for all denied flights) |

### Service Security

Application authentication through OAuth-2.0 (<https://oauth.net/2/>)

### API Protocol

APIs shall be REST APIs that support Web Application Description Language (WADL) (https://wadl.java.net/) documentation

### Message Queuing Protocol

APIs shall support the Advanced Message Queuing Protocol (AMQP) (https://www.amqp.org/) message queuing protocol

### Message Format

APIs shall format data as XML (https://www.w3.org/XML/Core/#Publications)

### Qualities of Service

Qualities of Service (QoS) is addressed by Service Level Agreements (SLAs) developed for this service.

## Service Interfaces & Data Model

REST is a style of software architecture that provides a convenient and consistent approach to requesting and modifying data. In the context of FAA REST services, it refers to using HTTP verbs to retrieve and modify representations of data stored by FAA.

In a RESTful system, resources are stored in a data store; a client sends a request that the server perform a particular action (such as creating, retrieving, updating, or deleting a resource), and the server performs the action and sends a response, often in the form of a representation of the specified resource.

In RESTful services, the client specifies an action using an HTTP verb such as POST, GET, PUT, or DELETE. It specifies a resource by a globally-unique URI of the following form:

http://{ServiceHost}.faa.gov/{serviceName}/{serviceVersion}/{resourcePath}?{parameters}

### Resources

A resource is an individual data entity with a unique identifier. A REST service can operate on one or more types of resources based on that service’s data model.

A service data model can be based on groups of resources, called collections.

|  |  |
| --- | --- |
| **Class Name** | **Class Description** |
| Airport | Vendor created table containing all Airport information obtained from FAA. |
| Airspace | Vendor created table   containing all Airspace information   obtained from FAA.  Class B, C, D, E & G Airspace    The TPP planning tool would also depict features relevant to UAS flight such as classes of airspace, any active temporary flight restriction (TFR), obstacles, or other restricted airspace (e.g., public utilities).     Each TPP will use authorized FAA airport, SUA, and locality map data to automatically provide, where feasible, confirmations of notification and authorizations to UAS operators.   Class E Airspace  TFR Airspace  Restricted Airspace |
| Airspace Authorization | Airspace Authorization Association  The Assumption is that an Authorized UAS operation may occur in multiple Airspaces.  Either transitioning from one Airspace to another or operating in overlapping Airspaces. |
| Authorization | Authorizations are the result of data sent from ATC to an operator regarding a specific request received asking permission to operate in a particular airspace. Authorizations in the context of LAANC shall not be confused with ATC permissions provided in-flight via radio between a pilot in command and ATC to enter airspace requiring two-way communication with ATC. |
| Proposed Operation | Flight Specifics of Proposed Operation |
| Proposed Operation Airspace | Proposed Operation Airspace Association  The Assumption is that a proposed UAS operation may occur in multiple Airspaces.  Either transitioning from one Airspace to another or operating in overlapping Airspaces. |
| Reference Request Type | Reference Request Type |
| Reference Timeframe | Reference Timeframe |
| Request | A request is the result of data sent from a UAS operator to ATC providing key parameters about an operation which must be approved or denied.   A Request may also be for Notification purposes only where no authorization is required. |
| UAS Operator Class | UAS Operator Class |
| UAS Operator Type | UAS Operator Type |

### Methods

The following table lists the HTTP methods that are generally applicable to the LAANC RESTful services.

| Method | Description | REST HTTP Mappings |
| --- | --- | --- |
| Get | Gets a specific resource or lists a specified set of resources | GET on resource URI |
| Put | Updates a specific resource | PUT on resource URI, where you pass in data for the updated resource |
| Post | Creates a resource |  |
| Delete | At present, there is no intent to delete in this system |  |

Of the candidate methods in the table above, the following table indicates which HTTP methods are supported for each resource.

| Resource Name | Supported Methods | | | |
| --- | --- | --- | --- | --- |
|  | Get | Post | Put | Delete |
| Airport | Yes | Yes | Yes | No |
| Airspace | Yes | Yes | Yes | No |
| Airspace Authorization | Yes | Yes | Yes | No |
| Authorization | Yes | Yes | Yes | No |
| Proposed Operation | Yes | Yes | Yes | No |
| Proposed Operation Airspace | Yes | Yes | Yes | No |
| Reference Request Type | Yes | Yes | Yes | No |
| Reference Timeframe | Yes | Yes | Yes | No |
|  |  |  |  |  |

### Resource Representations

This section define how each resource is represented.

<For each resource for the service, include a subsection below describing the resource representation.>

#### <Resource Name>

|  |  |  |  |
| --- | --- | --- | --- |
| **Class Name** | **Attribute Name** | **Data Type** | **Attribute Description** |
| Airport |  |  |  |
| Airspace |  |  |  |
| Airspace Authorization |  |  |  |
| Authorization | Authorization FAA Acknowledgement Indicator | boolean | FAA sUAS LAANCe CONOPS v1,. Page38.  Supports Scenario 3  The FAA envisions a record of the authorization will be pushed to the FAA via API with the FAA. The FAA will store the record of authorization approval with the data fields identified in the prior paragraph. |
| Authorization | Authorization FAA Acknowledgement Timestamp | dateTime | FAA sUAS LAANCe CONOPS v1,. Page 38.  Supports Scenario 3  The FAA envisions a record of the authorization will be pushed to the FAA via API with the FAA. The FAA will store the record of authorization approval with the data fields identified in the prior paragraph. |
| Authorization | ATC Approved Specific Conditions | char | The FAA envisions individual facilities may have specific conditions that would be conveyed to a part 107 operator regarding the planned flight, such as local warnings or conditions, or conditions of authorization (e.g.,in the case of SFO call the facility before flight). The FAA envisions local conditions would be conveyed via a location based file.     FAA sUAS LAANCe CONOPS v1,. Page 36.   Supports Scenario 3 |
| Authorization | Timeframe Code | char | Timedrame of Proposed Operation.   Daytime,   Sunrise to Noon,   Noon to 4,   4 to Sunset,   Nitetime.    FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenarios 1, 2, 3, & 4. |
| Authorization | Maximum Altitude | number | The FAA provides authoritative map source data for airports. That data will include a grid reference system for controlled airspace. The gridded map system indicates where a sUAS may be automatically authorized to fly, along with the automatically authorized altitudes within the grid elements.    The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place. Additionally, contact information would be provided in the planning section (e.g., telephone number).    FAA sUAS LAANCe CONOPS v1,. Page 9 & 29. Supports Scenarios 1, 2, 3, & 4. |
| Authorization | Latitude Degrees | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Authorization | Latitude Minutes | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Authorization | Latitude Seconds | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Authorization | Latitude Direction | char | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Authorization | Longitude Degrees | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Authorization | Longitude Minutes | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Authorization | Longitude Seconds | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Authorization | Longitude Direction | char | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Authorization | VLOS Indicator | boolean | Visual Line of Sight (VLOS). ATC and/or the FAA may require more information about the proposed UAS activity and more explicit procedures and automated support for the delivery and handling of that information as the risk of the operation increases. Under current rules (Part 107) and rules in process (operations over people) the information needed will be consistent with the use of VLOS types of operations. The basic information needs, though, should generally be consistent across operations.    FAA sUAS LAANCe CONOPS v1,. Page 9.  Supports Scenarios 1, 2, 3, & 4. |
| Authorization | Operations Over People Indicator | boolean | ATC and/or the FAA may require more information about the proposed UAS activity and more explicit procedures and automated support for the delivery and handling of that information as the risk of the operation increases. Under current rules (Part 107) and rules in process (operations over people) the information needed will be consistent with the use of VLOS types of operations. The basic information needs, though, should generally be consistent across operations.    FAA sUAS LAANCe CONOPS v1,. Page 9.  Supports Scenarios 1, 2, 3, & 4. |
| Authorization | Flight Radius | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, & 3. |
| Authorization | Flight Start Timestamp | dateTime | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, & 3. |
| Authorization | Flight End Timestamp | dateTime | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, & 3. |
| Authorization | Create Timestamp | dateTime | Date Time Authorization was created |
| Authorization | Sequence Number | number | Sequence Number for when an Authorization associated with a Request is modified |
| Proposed Operation | Operation Description | char | Text description of the Proposed Operation. |
| Proposed Operation | Timeframe Code | char | Timedrame of Proposed Operation.   Daytime,   Sunrise to Noon,   Noon to 4,   4 to Sunset,   Nitetime.    FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenarios 1, 2, 3, & 4. |
| Proposed Operation | Maximum Altitude | number | The FAA provides authoritative map source data for airports. That data will include a grid reference system for controlled airspace. The gridded map system indicates where a sUAS may be automatically authorized to fly, along with the automatically authorized altitudes within the grid elements.     FAA sUAS LAANCe CONOPS v1,. Page 9.  Supports Scenarios 1, 2, 3, & 4. |
| Proposed Operation | Latitude Degrees | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Proposed Operation | Latitude Minutes | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Proposed Operation | Latitude Seconds | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Proposed Operation | Latitude Direction | char | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
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| Proposed Operation | Longitude Direction | char | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.     FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, 3 & 4 |
| Proposed Operation | VLOS Indicator | boolean | Visual Line of Sight (VLOS). ATC and/or the FAA may require more information about the proposed UAS activity and more explicit procedures and automated support for the delivery and handling of that information as the risk of the operation increases. Under current rules (Part 107) and rules in process (operations over people) the information needed will be consistent with the use of VLOS types of operations. The basic information needs, though, should generally be consistent across operations.    FAA sUAS LAANCe CONOPS v1,. Page 9.  Supports Scenarios 1, 2, 3, & 4. |
| Proposed Operation | Operations Over People Indicator | boolean | ATC and/or the FAA may require more information about the proposed UAS activity and more explicit procedures and automated support for the delivery and handling of that information as the risk of the operation increases. Under current rules (Part 107) and rules in process (operations over people) the information needed will be consistent with the use of VLOS types of operations. The basic information needs, though, should generally be consistent across operations.  FAA sUAS LAANCe CONOPS v1,. Page 9.  Supports Scenarios 1, 2, 3, & 4. |
| Proposed Operation | Flight Radius | number | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.   The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.   FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, & 3. |
| Proposed Operation | Flight Start Timestamp | dateTime | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.   The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.   FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, & 3. |
| Proposed Operation | Flight End Timestamp | dateTime | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.   The interface would also allow and operator to enter information about a planned flight which may include; date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.   FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenario 1, 2, & 3. |
| Proposed Operation | Operation Status Denied Indicator | boolean | Denied.   If the operation has been authorized by ATC, the UAS operator may operate within the parameters specified in the notification. If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   FAA sUAS LAANCe CONOPS v1,. Page 15 & 20 |
| Proposed Operation | Operation Status Denied Timestamp | dateTime | Denied.   If the operation has been authorized by ATC, the UAS operator may operate within the parameters specified in the notification. If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   FAA sUAS LAANCe CONOPS v1,. Page 15 & 20 |
| Proposed Operation | Create Timestamp | dateTime | Date Time Proposed Operation was created |
| Proposed Operation | Sequence Number | number | Sequence Number for when a Proposed Operation associated with a Request is modified.  If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   FAA sUAS LAANCe CONOPS v1,. Page 15. |
| Proposed Operation Airspace |  |  |  |
| Reference Request Type | Request Type Code | char |  |
| Reference Request Type | Request Type Description | char | Notification, Auto Authorization , Manual Authorization, |
| Reference Timeframe | Timeframe Code | char |  |
| Reference Timeframe | Timeframe Description | char | Daytime,  Sunrise to Noon,  Noon to 4,  4 to Sunset,  Nitetime. |
| Request | Phone Number | number | Additionally, contact information would be provided in the planning section (e.g., telephone number). The FAA does not envision collecting personally identifiable information (PII) for its use, but does require a method to communicate with the operator directly.   FAA sUAS LAANCe CONOPS v1,.   Supports Scenario 1,2,3 & 4 |
| Request | Request Type Code | char | Notification,  Auto Authorization ,  Manual Authorization,  FAA sUAS LAANCe CONOPS v1,. Page 20.  Supports Scenarios 1 & 2 |
| Request | Request Status Acknowledged Indicator | boolean | Acknowledged.   If the operation has been authorized by ATC, the UAS operator may operate within the parameters specified in the notification. If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   Third Party Provider will provide an Acknowledgement of Notification to the Operator.  FAA sUAS LAANCe CONOPS v1,. Page 15 &20 |
| Request | Request Status Acknowledged Timestamp | dateTime | FAA sUAS LAANCe CONOPS v1,. Page 20.  Third Party Provider will provide an Acknowledgement of Notification to the Operator. |
| Request | Request Status Authorized Indicator | boolean | Authorized.   If the operation has been authorized by ATC, the UAS operator may operate within the parameters specified in the notification. If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   FAA sUAS LAANCe CONOPS v1,. Page 15 & 20 |
| Request | Request Status Authorized Timestamp | dateTime | Authorized.   If the operation has been authorized by ATC, the UAS operator may operate within the parameters specified in the notification. If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   FAA sUAS LAANCe CONOPS v1,. Page 15 & 20 |
| Request | Request Status Denied Indicator | boolean | Denied.   If the operation has been authorized by ATC, the UAS operator may operate within the parameters specified in the notification. If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   FAA sUAS LAANCe CONOPS v1,. Page 15 & 20 |
| Request | Request Status Denied Timestamp | dateTime | Denied.   If the operation has been authorized by ATC, the UAS operator may operate within the parameters specified in the notification. If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   FAA sUAS LAANCe CONOPS v1,. Page 15 & 20 |
| Request | ATC Denied Comments | char | For authorizations not within pre-approved altitudes in controlled airspace under part 107, the FAA anticipates that the operator would receive a denial with a question asking if the operator would like to request additional discussion with local ATC. An example message back would be, “Based on the information you provided for this proposed flight, your flight is not authorized. Would you like FAA Air Traffic to reconsider your request?” The FAA envisions an operator would then be prompted for specific information regarding the flight, with particular emphasis on the specifics of the flight and what actions will be taken to ensure safe operations of the flight. Additionally, the operator will enter the specific information on a map showing the flight area. The packet asking for reconsideration would be forwarded to ATC at JFK for reconsideration.  The FAA envisions that an approval or denial of the authorization request will be based on additional information provided by the operator, or the FAA may contact the operator directly for further information. The FAA currently uses a DOT form 7711 to authorize a sUAS operation. If denied based on the information provided, a denial will be issued with the rationale for the denial. The FAA is considering how denial information should be conveyed. A denial might state: “After consideration, this request authorization has been denied based on the location, time, and conditions of the flight. Due to the proximity of the operation to operational air traffic, no safe operation can be authorized.”  FAA sUAS LAANCe CONOPS v1,.   Supports Scenario 4 |
| Request | Request Status Terminated Indicator | boolean | Terminated.   If the operation has been authorized by ATC, the UAS operator may operate within the parameters specified in the notification. If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   FAA sUAS LAANCe CONOPS v1,. Page 15 & 20 |
| Request | Request Status Terminated Timestamp | dateTime | Terminated.   If the operation has been authorized by ATC, the UAS operator may operate within the parameters specified in the notification. If the operation has been denied, the UAS operator may review the reasons for denial and modify the proposed notification accordingly (e.g., choose a different start time, different operating area), and resubmit the notification.   FAA sUAS LAANCe CONOPS v1,. Page 15 & 20 |
| Request | Request Hazard Indicator | boolean | During the planning and entry of data, the operator may be provided additional guidance about the flight based on the location and any altitude restrictions which may lead to a hazardous condition of operation. In these cases, the operator may be provided with a warning message, such as... “You are planning a flight which may impact air traffic operations. This creates an unsafe condition and it is not recommended that you proceed with this specific flight.” Unless a hazardous condition is identified by the system, the operator is not required to receive a warning or further guidance.  FAA sUAS LAANCe CONOPS v1,. Page 15.  Supports Scenario 2 |
| Request | Notification Required Indicator | boolean | The FAA envisions that the TPP will provide an interface to an operator that allows the operator to plan a visual line of site (VLOS) flight. That interface may use phraseology specific to FAA operational procedures. In this specific use case, a hobbyist operator may be provided a message that states a notification of your intent to fly is required within 5M of an airport.   FAA sUAS LAANCe CONOPS v1,. Page 15.  Supports Scenarios 1 & 2 |
| Request | Authorization Required Indicator | boolean | Based on the operating area and altitude indicated by the UAS operator, the mechanism automatically indicates to the operator whether ATC authorization is required (i.e., the operation, or portions of the operation, will be in controlled airspace), or whether he/she may operate without authorization (i.e., the entire operation will be in uncontrolled airspace).  The FAA envisions that the TPP will provide an interface to an operator that allows the operator to plan a visual line of site (VLOS) flight. That interface may use phraseology specific to FAA operational procedures. In this specific use case, a commercial (107) operator may be provided a message that states An authorization is required to fly in this controlled airspace.   FAA sUAS LAANCe CONOPS v1,. Page 15.  Supports Scenario 1, 2, & 3. |
| Request | Prior Waiver Number | char | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.   FAA sUAS LAANCe CONOPS v1,.   Supports Scenario 1 & 3 |
| Request | Prior Authorization Number | char | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.   FAA sUAS LAANCe CONOPS v1,.   Supports Scenario 1 & 3 |
| Request | Prior Letters Of Agreement Number | char | The LAANC interface to be developed is expected to allow an operator to enter information about a planned flight which may include such elements as: date of flight, time of flight, type of flight (hobbyist, commercial), duration of flight, location of flight, planned maximum altitude, any letters of agreement (LOA) or waivers in place.   FAA sUAS LAANCe CONOPS v1,.   Supports Scenario 1 & 3 |
| Request | UAS Operator Class Code | char | hobbyist,  commercial,  municipal,  Government  Operators are people, corporations, or government entities that are external to the FAA and that must follow the rules for VLOS UAS operations outlined in Part 107 (sUAS) or Part 101 E. Operators must notify or obtain authorization before operating UAS (with the exception of Class G airspace). Operators can be classed into hobbyist, commercial, and municipal or Government.   • Hobbyist: The FAA defines recreational or hobby UAS use as flying for enjoyment and not for work, business purposes, or for compensation or hire. Recreational operators can be individuals or groups of individuals flying single or multiple UAS.   • Commercial: Commercial operators may be individuals holding a remote pilot airman certificate who are pilots in command (PIC) for small UAS (sUAS) weighing less than 55 lbs. For the purposes of Notification and Authorization, commercial operators may also be corporations. Commercial operators operate under Part 107 and are subject to the rules of part 107 for notification and authorization, unless specific waivers are granted to the operator.   • Government/Municipality: Government operator of UAS (fire/police/rescue) operate under part 107 (and are subject to the same rules of notification and authorization) unless otherwise waived by COA.   FAA sUAS LAANCe CONOPS v1,. Page 19.  Supports Scenario 3 |
| Request | UAS Operator Type Code | char | Person,  Corporation,  Government Entity  The FAA does not envision collecting personally identifiable information (PII) for its use, but does require a method to communicate with the operator directly.   FAA sUAS LAANCe CONOPS v1,. Page 19. |
| Request | Notification Acknowledgement Indicator | boolean | Because the operation is in G Class Airspace, the FAA anticipates that the operation will be treated as a notification record, not an authorization. If the operator chooses to enter the notification information into the TPP service, TPP may provide the operator with an acknowledgement message that might state “Thank you for notification to fly in [lat. /long.] Area defined by the operation you selected.”  The operator would receive an acknowledgement of the notification from the provider, such as “Thank you for notification of your intent to fly in [lat. /long.] Area and defined by the operation you selected.”  FAA sUAS LAANCe CONOPS v1,.   Supports Scenario 1 & 2. |
| Request | Nearest Airport | char | Designation of Nearest Airport  FAA sUAS LAANCe CONOPS v1,. Page 34  Supports Scenario 1 & 2. |
| Request | UAV Registration Number | char | Operator’s registration numbers may be used as unique identifiers if required to amend submitted approvals.   FAA sUAS LAANCe CONOPS v1,. Page 13. |
| Request | Third Party Provider Key. | char | Third Party Provider Key. |
| Request | Create Timestamp | dateTime | Request Create Timestamp |
| UAS Operator Class | UAS Operator Class Code | char |  |
| UAS Operator Class | UAS Operator Class Description | char | Hobbyist,  Commercial,  Municipal,  Government  Operators are people, corporations, or government entities that are external to the FAA and that must follow the rules for VLOS UAS operations outlined in Part 107 (sUAS) or Part 101 E. Operators must notify or obtain authorization before operating UAS (with the exception of Class G airspace). Operators can be classed into hobbyist, commercial, and municipal or Government.   • Hobbyist: The FAA defines recreational or hobby UAS use as flying for enjoyment and not for work, business purposes, or for compensation or hire. Recreational operators can be individuals or groups of individuals flying single or multiple UAS.   • Commercial: Commercial operators may be individuals holding a remote pilot airman certificate who are pilots in command (PIC) for small UAS (sUAS) weighing less than 55 lbs. For the purposes of Notification and Authorization, commercial operators may also be corporations. Commercial operators operate under Part 107 and are subject to the rules of part 107 for notification and authorization, unless specific waivers are granted to the operator.   • Government/Municipality: Government operator of UAS (fire/police/rescue) operate under part 107 (and are subject to the same rules of notification and authorization) unless otherwise waived by COA. |
| UAS Operator Type | UAS Operator Type Code | char |  |
| UAS Operator Type | UAS Operator Type Description | char | Person,  Corporation,  Government Entity  The FAA does not envision collecting personally identifiable information (PII) for its use, but does require a method to communicate with the operator directly.   FAA sUAS LAANCe CONOPS v1,. Page 19. |

### Sample Payloads

<For each data format supported, include a subsection below (entitled, for example, “Sample XML Payload”, “Sample JSON Payload”) with one or more sample payloads in each format. If the payloads differ significantly across resources, include samples for all such resources.>

#### <Sample Payload 1>

<Sample Payload for the Service in format 1.>

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## Service Implementation

### Endpoints

The following subsections provide information about the base service endpoints that are used to reference and access the resources.

<For each base service endpoint, include a subsection below describing the endpoint.>

#### <Endpoint 1 Name>

<Brief description of endpoint 1.>

##### Supported Data Formats

|  |  |
| --- | --- |
| Protocol: | XML |
| Description: | The Extensible Markup Language (XML) is a subset of SGML that is completely described in this document. Its goal is to enable generic SGML to be served, received, and processed on the Web in the way that is now possible with HTML. XML has been designed for ease of implementation and for interoperability with both SGML and HTML. |
| Specification Location: | https://www.w3.org/XML/Core/#Publications |

##### Network Address

The network address for this endpoint is:

http://{ServiceHost}.faa.gov/REST/<ServiceName.>Service.svc

##### End Point-Specific Qualities of Service

Please refer to the SLA document(s) for the service for QoS details.

