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API docs

Flight ADS-B V2.0

Flight Trajectory & Live Positioning Interface

produced by

VariFlight

With a vision of "living on time" , a global leading aviation data intelligence company

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This documentation is Intended to provide developers with a comprehensive understanding of our API endpoints, methods, requests, and responses, enabling them to effectively access data provided by Variflight.

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Introduction

This article describes how to use the Flight ADS-B API, version 2.0.

It supports 4 distinct methods for **querying flight trajectories and live positioning**, enabling radar-style monitoring of all aircraft within a designated airspace while simultaneously tracking flight paths of specified aircraft.

Authentication

The interface uses both token and IP for concurrent verification.

Token generation algorithm:

In the URL, all request parameters (excluding the token) are sorted in ascending order by KEY, the parameter names are connected in lowercase with the '&' symbol, then connected with the value of the **Registration code**, and then encrypted twice using MD5 (32-bit lowercase) encryption.

Registration code: Please obtain the registration code from the administrator of VariFlight. It is necessary for verification during the request process by both parties. Please be careful not to disclose it to the public.

Example (PHP):

```
ksort($data);
        foreach($data as $k=>$v){
           $strtomd5[]=$k.'='.$v;
        }
   $token= md5(md5(implode('&',$strtomd5).$appsecurity));
```

Note: $appsecurity=Registration code

API Endpoints

The base URL for all requests is:

```
https://open-al.variflight.com/api/radarv2?
```

The way to request: **GET**

The format of return: **JSON**

Query1 : Rectangular ranger query (Lower-left coordinates + upper-right coordinates)

Query all real-time flights in the air within the area.



Request parameters:

longleftdonwn	: Rectangular area's lower-left corner latitude
latleftdown	: Rectangular area's lower-left corner longitude
longrightup	: Rectangular area's upper-right longitude
latrightup	: Rectangular area's upper-right latitude
lang	: Language (en=English)
appid	: Appid (Obtain from your sales)

token : Token

Example URL:

http://open-al.variflight.com/api/radarv2?appid=10176&longleftdown=118&latleftdown=32&longrightup=122&latrightup=37&lang=en&token=$token

How to spell token:

Step1: Input parameters

appid=10176&longleftdown=118&latleftdown=32&longrightup=122&latrightup=37&lang=en

Step2: Encrypted string with lower case parameters sort

$str='appid=10176&longleftdown=118&latleftdown=32&longrightup=122&latrightup=37&lang=en'

Step3: Use Registration code

$appsecurity= '56934765683fc'

Step4: Spell token

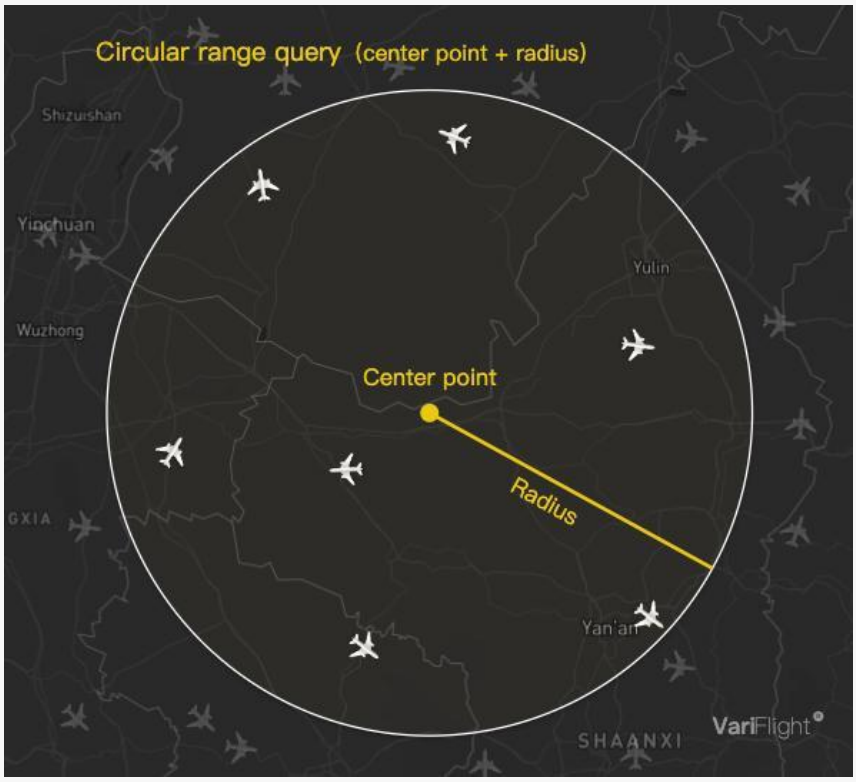
token=md5(md5($str.$appsecurity))

In this example, token= 24e52a54225619b7e6eb8811f72711ca

Note: '.' symbol is the connectors in PHP

Query2 : Circular range query (center point + radius)

Query all real-time flights in the air within the area.



Request parameters:

longcenter	: Longitude of the circle center
latcenter	: Latitude of the circle center
radius	: Circle radius (in kilometers)
lang	: Language (en=English)
appid	: Appid (Obtain from your sales)
token	: Token

Example URL:

http://open-al.variflight.com/api/radarv2?appid=10176&longcenter=118&latcenter=32&radius=50&lang=en&token=$token

How to spell token:

Step1: Input parameters

appid=10176&longcenter=118&latcenter=32&radius=50&lang=en

Step2: Encrypted string with lower case parameters sort

$str='appid=10176&longcenter=118&latcenter=32&radius=50&lang=en'

Step3: Use Registration code

$appsecurity= '56934765683fc'

Step4: Spell token

token=md5(md5($str.$appsecurity))

In this example, token= 07202f93a0a10231070edc22a050073c

Note: '.' symbol is the connectors in PHP

Query3 : Departure airport code + Arrival airport code + Flight date + Flight number

Query all flight path information for the specified flight.

dep	: Departure airport IATA code
arr	: Arrival airport IATA code
date	: Flight date
fnum	: Flight number
lang	: Language (en=English)
appid	: Appid (Obtain from your sales)
token	: Token

Example URL:

http://open-al.variflight.com/api/radarv2?appid=10176&dep=SHA&arr=TFU&date=2025-08-08&fnum=MU5138&lang=en&token=$token

How to spell token:

Step1: Input parameters

appid=10176&dep=SHA&arr=TFU&date=2025-08-08&fnum=MU5138&lang=en

Step2: Encrypted string with lower case parameters sort

$str='appid=10176&dep=SHA&arr=TFU&date=2025-08-08&fnum=MU5138&lang=en
'

Step3: Use Registration code

$appsecurity= '56934765683fc'

Step4: Spell token

token=md5(md5($str.$appsecurity))

In this example, token= c63e273722f6b51a5858e1a2d69c9340

Note: '.' symbol is the connectors in PHP

Query4 : Aircraft registration number

Query the real-time current location of the specified flight.

anum	: Aircraft registration number
lang	: Language (en=English)
appid	: Appid (Obtain from your sales)
token	: Token

Example URL:

http://open-al.variflight.com/api/radarv2?appid=10176&anum=B32G8&lang=en
&token=$token

How to spell token:

Step1: Input parameters

appid=10176&anum=B32G8&lang=en

Step2: Encrypted string with lower case parameters sort

$str='appid=10176&anum=B32G8&lang=en'

Step3: Use Registration code

$appsecurity= '56934765683fc'

Step4: Spell token

token=md5(md5($str.$appsecurity))

In this example, token= 595b0520362be389e7a4e6c203ff22e1

Note: '.' symbol is the connectors in PHP

Error Responses

Return parameter	Description
1	Wait for auditing
2	The visiting ip have not been joined in White List
3	Lack of parameters or parameter identification failed
4	No data permissions
10	No data
0	User does not exist
11	Unknown error

Return Parameter Examples

Example 1: Failed return

```
{
error_code: 3,
error: "Lack of parameters or parameter identification failed"
}
```

Example 2: Successful return （Query1 and Query2）


```
{
    "flightCount": 2,
    "data": [
        {
            "flightNo": "GJ8133",
            "dep": "CZX",
            "arr": "INC",
            "height": 6614.16015625,
            "speed": 814.88000488281,
            "angle": 277,
            "lat": 31.93886,
            "lng": 117.50812,
            "pic":
"http://file.veryzhun.com/buckets/adsb-dm/keys/20181102-173825-99825bd
c1b11c5fa2.jpg"
        },
        {
            "flightNo": "GT1075",
            "dep": "KWL",
            "arr": "CZX",
            "height": 6309.3598632812,
            "speed": 833.40002441406,
            "angle": 94,
            "lat": 31.69839,
```

```
                "lng": 117.68393,
                "pic":
"http://file.veryzhun.com/buckets/adsb-dm/keys/20181019-110312-70345bc
949701ad34.jpg"
            }
        ]
}
```


Example 3: Successful return (Query 3)


```
{
    "leftTip": "1782 kilometers journey",
    "rightTip": "The rest of 1 hours and 32 minutes",
    "distance": 1782,
    "percentage": "36%",
    "routeAlltime": 8580,
    "airModels": "A320",
    "flightStatus": "departure",
    "AircraftNumber": "B1608",
    "p_flightNo": "MU5138",
    "FlightCompany": "China Eastern Airlines",
    "FlightDepAirport": "Shanghai Hongqiao",
    "FlightArrAirport": "Chengdu Tianfu",
    "airplaneAge": 10.8,
    "line": [
        {
```

```
            "time": 1754633193,
            "name": "Shanghai",
            "airportName": "Shanghai Hongqiao",
            "code": "SHA",
            "position": {
                "lat": 31.19779,
                "lng": 121.33347
            },
            "height": 0,
            "speed": 0,
            "vspeed": 0,
            "angle": 0,
            "onground": -1,
            "tip": "place of departure"
        }
    ],
    "pic":
"http://file.veryzhun.com/buckets/wxapp/keys/20190520-102211-x7amh2zq
n4fyzdse.jpeg"
}
```


Example 4: Successful return （Query 4）


```
{
    "arr": "PKX",
    "anum": "B32G8",
    "speed": 848.216,
```

```
        "dep": "XMN",
        "fnum": "NS8105",
        "vspeed": -64,
        "angle": 358,
        "position": {
            "lng": 117.42507,
            "lat": 32.52791
        },
        "updatetime": 1754641245,
        "height": 9784.08,
        "pic": null
}
```


Return Parameter Details

Quer1 and Query2：Query all real-time flights in the air within the area

Return parameter	Description
flightCount	Number of aircraft
flightNo	Flight number
dep	Departure airport IATA code
arr	Arrival airport IATA code
height	Altitude (meters)
speed	Ground speed (km/h)

angle	Heading angle 0° =true North, clockwise
lat	Latitude
lng	Longitude
pic	Aircraft image URL

Query 3：Query all flight path information for the specified flight.

Return parameter	Description
leftTip	Left label (e.g., distance info)
rightTip	Right label (e.g., time info)
distance	Total flight distance (km)
percentage	Flight progress percentage
routeAlltime	Estimated total flight duration
airModels	Aircraft model
flightStatus	Flight status (e.g., airborne, landed)
AircraftNumber	Aircraft registration number
p_flightNo	Flight number (for trajectory queries)
FlightCompany	Airline name
FlightDepAirport	Departure airport name
FlightArrAirport	Destination airport name
airplaneAge	Aircraft age (years)
line	Flight trajectory coordinates
time	Data acquisition time (UTC)
name	Locatio city name If the position point is airborne, city name and airport

	name must remain empty.
airportName	Location airport name If the position point is airborne, city name and airport name must remain empty.
code	Location airport's IATA code If the position point is airborne, city name and airport name must remain empty.
position	Geographic position
lat	Latitude
lng	Longitude
height	Altitude (meters)
speed	Horizontal speed (km/h)
vspeed	Vertical speed (m/s) Positive values indicate aircraft climb, negative values indicate descent.
angle	Heading angle 0° =true North, clockwise
onground	Whether aircraft is on ground -1= on ground, 0= in the sky
tip	Description of trajectory point (e.g., place of departure)

Query 4：Query the real-time current location of the specified flight.

Return parameter	Description
arr	Destination airport IATA code
anum	Aircraft registration number

speed	Horizontal speed (km/h)
dep	Departure airport IATA code
fnum	Flight number
vspeed	Vertical speed (m/s) Positive values indicate aircraft climb, negative values indicate descent.
angle	Heading angle 0° =true North, clockwise
position	Geographic position
lng	Longitude
lat	Latitude
updatetime	Data acquisition time (UTC)
height	Altitude (meters)
pic	Aircraft image URL