Open Notify API

Release 0.2

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Contents

CHAPTER 1

International Space Station Current Location

GET /iss-now/v1/

GET /iss-now/

GET /iss-now.json

The International Space Station (ISS) is moving at close to 28,000 km/h so its location changes really fast! Where is it right now?

This is a simple api to return the current location above the Earth of the ISS. It returns the current latitude and longitude of the space station with a unix timestamp for the time the location was valid. This API takes no inputs.

Status Codes

- 200 OK – when successful

Response JSON Object

- **message** (*str*) – Operation status.
- **timestamp** (*int*) – Unix timestamp for this location.
- **iss_position** (*obj*) – Position on Earth directly below the ISS.
- **iss_position.latitude** (*int*) – Latitude
- **iss_position.longitude** (*int*) – Longitude

Example response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "iss_position": {
    "latitude": -19.783929798887073,
    "longitude": -72.29753187401747
  },
  "message": "success",
  "timestamp": 1454357342
}
```

CHAPTER 2

International Space Station Pass Predictions

GET /iss/v1/

GET /iss/

GET /iss-pass.json

The international space station (ISS) is an orbital outpost circling high above out heads. Sometimes it's overhead, but when? It depends on your location. Given a location on Earth (latitude, longitude, and altitude) this API will compute the next n number of times that the ISS will be overhead.

Overhead is defined as 10 degrees in elevation for the observer. The times are computed in UTC and the length of time that the ISS is above 10 degrees is in seconds.

This gives you enough information to compute pass times for up to several weeks, but beware! times are less and less accurate as you go into the future. This is because the orbit of the ISS decays unpredictably over time and because station controllers periodically move the station to higher and lower orbits for docking, re-boost, and debris avoidance.

Overview

The API returns a list of upcoming ISS passes for a particular location formatted as JSON.

As input it expects a latitude/longitude pair, altitude and how many results to return. All fields are required.

As output you get the same inputs back (for checking) and a time stamp when the API ran in addition to a success or failure message and a list of passes. Each pass has a duration in seconds and a rise time as a unix time stamp.

Status Codes

- 200 OK – when successful
- 400 Bad Request – if one or more inputs is out of range or invalid

Query Parameters

- **lat** – latitude in decimal degrees of the ground station. **required** Range: -90, 90
- **lon** – longitude in decimal degress of the ground station. **required** Range: -180, 180
- **alt** – altitude in meters of the gronud station. optional. Range: 0, 10,000
- **n** – requested number of predictions. default: 5. May return less than requested

Response JSON Object

- **message** (*str*) – Operation status.
- **request** (*obj*) – Parameters used in prediction

- **response** (*list*) – List of predicted passes

Example Request:

```
GET /iss/v1/?lat=40.027435&lon=-105.251945&alt=1650&n=1 HTTP/1.1
Host: api.open-notify.org
Accept: application/json, text/javascript
```

Example Response:

```
HTTP/1.1 200 OK
Content-Type: application/json

{
  "message": "success",
  "request": {
    "altitude": 1650.0,
    "datetime": 1454475126,
    "latitude": 40.027435,
    "longitude": -105.251945,
    "passes": 1
  },
  "response": [
    {
      "duration": 525,
      "risetime": 1454475538
    }
  ]
}
```

CHAPTER 3

Open APIs From Space

Open Notify is an open source project to provide a simple programming interface for some of NASA's awesome data. I do some of the work to take raw data and turn them into APIs related to space and spacecraft.

APIs:

- *International Space Station Current Location*
- *International Space Station Pass Predictions*

/iss

`GET /iss/`, 5
`GET /iss/v1/`, 5

/iss-now

`GET /iss-now/`, 3
`GET /iss-now/v1/`, 3

/iss-now.json

`GET /iss-now.json`, 3

/iss-pass.json

`GET /iss-pass.json`, 5