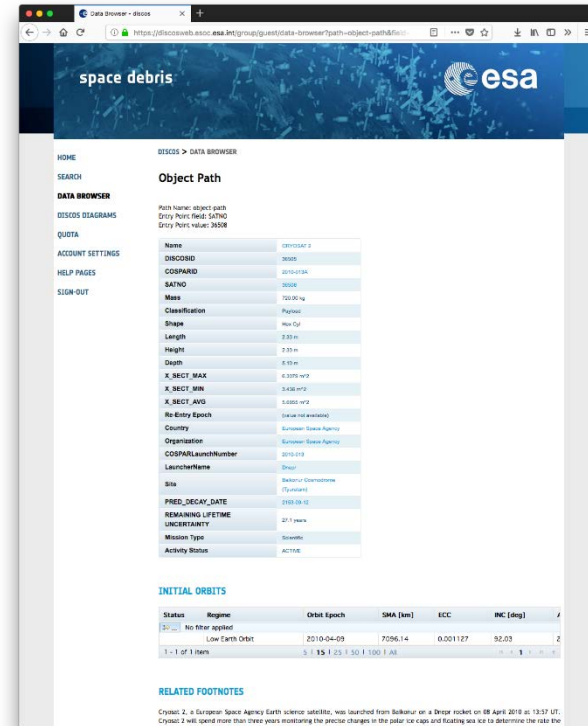


DISCOSweb and its APIs

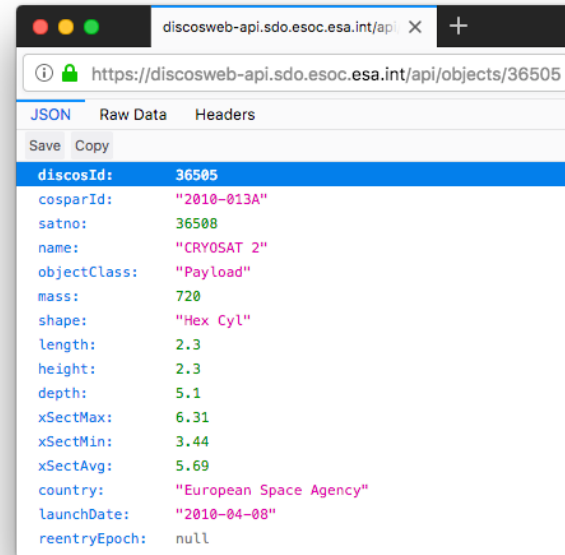
Space Debris Office

20.03.2019

- <https://discosweb.esoc.esa.int>
- Graphical user interface
- Shares information on:
 - Objects
 - Fragmentations
 - Re-entries
 - Launchers and launch sites
 - Launches
 - Countries and organisations
- Targeted to human users
- Difficult to interface to for a program



- <https://discosweb-api.sdo.esoc.esa.int>
- HTTP based API with query possibilities
- Shares information on objects only
- Targeted to interface with programs
- Limited to operational use like collision avoidance
- A version, available to all users, is being developed



Basic API Usage (Single Object Query)



- HTTP GET requests
- Basic HTTP authentication
- Single object query:

<https://discosweb-api.sdo.esoc.esa.int/api/objects/36505>

```
{  
  "discosId": 36505,  
  "cosparId": "2010-013A",  
  "satno": 36508,  
  "name": "CRYOSAT 2",  
  "objectClass": "Payload",  
  "mass": 720,  
  "shape": "Hex Cyl",  
  "length": 2.3,  
  "height": 2.3,  
  "depth": 5.1,  
  "xSectMax": 6.31,  
  "xSectMin": 3.44,  
  "xSectAvg": 5.69,  
  "country": "European Space Agency",  
  "launchDate": "2010-04-08",  
  "reentryEpoch": null  
}
```



Querying Multiple Objects



- By DISCOS ID:
</api/objects?discosId=36505,30440,39631>
- By SATNO:
</api/objects?satno=36508,39634>
- By COSPAR ID:
</api/objects?cosparId=2010-013A,2013-067B,2014-016A>
- Single SATNO:
</api/objects?satno=36508>
- Paginated results
- More help on <https://discosweb-api.sdo.esoc.esa.int/>

```
{  
  "content": [  
    {<Object 1 satno=36508>},  
    {<Object 2 satno=39634>}  
  ],  
  "size": 20,  
  "number": 0,  
  "totalPages": 1,  
  "totalElements": 2,  
  "first": true,  
  "last": true  
}
```



Curl

```
curl --fail --user "username:password" https://discosweb-api.sdo.esoc.esa.int/api/objects/36505
```

Python

```
#!/usr/bin/env python3
import requests
url = 'https://discosweb-api.sdo.esoc.esa.int/api/objects/36505'
r = requests.get(url, auth=('username', 'password'))
if r.status_code == 200:
    object_dict = r.json()
    print(object_dict['name'])
elif r.status_code == 404:
    print("Object not found")
else:
    r.raise_for_status
```

Target groups

- Researchers and academia:
 - Analysing the state of the environment
 - Trend analysis
 - ...

- Operational service providers
 - Surveillance networks
 - Collision avoidance services
 - ...

Embedding the API in your application



- You can use the DISCOSweb API in your own applications
- Your users need a DISCOSweb API account
- Authentication is based on open standards: OpenID Connect and OAuth 2.0
- Benefits:
 - Users never give their credentials to third parties
 - Third parties get secure access to APIs on behalf of users
 - Third parties do not have to deal with user management
 - Supported by web and native applications as well as smartphone apps

