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# SsODNet / Quaero REST API

Identification of  
Solar System objects

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# Issues

- Several designations
  - lo : 85, 1899 LA, I99L00A, 1899 UA, I99U00A
  - P/2000 S1 : P/Skiff, 2000 S1
  - lo : 501, J-1, J-I
  - 1P : 61 designations
- Different designations according to databases, services and articles

# Quaero API

Identify

Search

Explore

Resolve



# Quaero API - Data

## Asteroids

Satellites

Exoplanets

~830000 objects  
3.4 M designations

Planets

Dwarf planets

Comets

Spacejunks

Spacecrafts

- Sources
  - IAU
  - Minor Planet Center
  - R. Johnston
  - The Extrasolar Planets Encyclopaedia
  - Celestrack
  - Cometpro
- Weekly update



# Examples

- Direct access by unique identifier  
/Mars
- Search by token  
?q=io
- Advanced search  
?q=system:Mars -type:(Spacecraft OR  
Spacejunk)
- Name resolver  
/Mars/resolver



# Quaero API - Overview

- REST architecture
- Standards HTTP verbs and codes
- JSON and GeoJSON representation
- Web Linking
- CORS
- Elasticsearch / Lucene



# Quaero API – sso resource

- Identification
  - Unique identifier
  - Name
  - Other designations
- Other properties
  - Parent-child relationship
  - Dynamical system
  - Type
  - Class

```
{  
  "name": "Io",  
  "id": "Io_(Asteroid)",  
  "aliases": ["85", "1899 LA"...],  
  "ephemeris": true,  
  "class": ["MB", "Middle"],  
  "system": "Sun",  
  "parent": "Sun",  
  "type": "Asteroid",  
  "updated": "2017-01-23",  
  "links" :  
  {"self": "...Io_(Asteroid)"}  
}
```

# Quaero API - Endpoints

Get by id

*/sso/{id}*

List

*/sso?q={token}*

Options

*type and class*

Search

*/sso/search?  
q={queryDSL}*

Resolver

*/sso/{id}/resolve*

Instant  
search

*autocomplete*





# Quaero API – Name resolver

- GeoJSON representation
- Reference system
- 3D coordinates

```
GET /sso/Mars/resolver

HTTP/1.1 200 OK
Content-Type: application/geo+json;charset=utf-8

{
  "properties": {
    "epoch": 2457772.0749884,
    "coosys": {
      "equinox": "J2000",
      "system": "ICRS"
    },
    "links": {
      "self": "https://{...}/sso/Mars/resolver?
epoch=2457772.0749884"
    }
  },
  "type": "Feature",
  "geometry": {
    "type": "Point",
    "coordinates": [23.558179798130066, -
3.500094251546666, 1.7585274746630883]
  }
}
```

# Next releases

- Resolve a list of Solar System objects
- Add new properties
  - Physical parameters
  - Orbital elements
- Add inverse name resolver (ConeSearch)
- Add new resource “observatory”



# Online resources

- API documentation

<https://doc.ssodnet.imcce.fr/quaero.html>

- Examples and use cases

<http://vo.imcce.fr/webservices/ssodnet/?quaero>

- Mailing list

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