An introduction to the SEEK API

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Outline:

- What is a web service?
- REST API concepts
- SEEK API
- API usage example
Web Services

API / Web Service Call

[Diagram showing various web services and a smartphone connected to an API]

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The Concept of API

- **API**: Application Programming Interface

- **Web APIs**,
  - Protocol: Requests/Responds is sent/received by using HTTP/HTTPS
  - Request/Response is in XML/JSON format

http://www.twitter.com

http://api.twitter.com

HTML+CSS

Data in JSON/XML
REST Web Service

- **REST**: Representational State Transfer
- Resource based URIs
- HTTP methods
- Message headers
Instance Resource URLs:

- Every resource is identified and accessible by
  
  https://<host>/<resource-types>/<id>.json

- Find the resource via your browser
  i.e.  https://sandbox2.fairdomhub.org/models/20

- Just add .json to the URL to get the JSON response,
  i.e.  https://sandbox2.fairdomhub.org/models/20.json

- resource-types: people, projects, institutions, assets (models, data files, etc.)
  see more https://fairdomhub.org/api
Collection Resource URLs:

- Find the resource via your browser
  i.e. https://sandbox2.fairdomhub.org/models

- Just add .json to the URL to get the JSON response,
  i.e. https://sandbox2.fairdomhub.org/models.json
Custom Filters

- Filtering results

  ```plaintext
  https://<host>/<resource-types>.json?filter[<filter_type>]=<value>
  ```

  ```plaintext
  https://fairdomhub.org/people.json?filter[project]=190
  https://fairdomhub.org/studies?filter[creator]=49
  ```

- Pagination

  ```plaintext
  https://<host>/<resource-types>.json?page=<value>
  ```

  ```plaintext
  https://fairdomhub.org/projects.json?page=2
  ```
Search in SEEK

- Search URL
  https://fairdomhub.org/search?utf8=✓&q=covid-19&search_type=models

- JSON Response:
  https://fairdomhub.org/search.json?utf8=✓&q=covid-19&search_type=models
HTTP Methods

**Read API**

- **GET**

**Write API**

- **CREATE**: POST + .json
- **UPDATE**: PUT + Body .json
- **DELETE**: DELETE

**CRUD Operation**
HTTP Methods: READ UPDATE and DELETE

Client → send HTTP request → a Instance URL

GET

PUT + Body .json

DELETE

https://<host>/models/20
HTTP Methods: CREATE

Client send HTTP request a collection URL

https://<host>/models/

POST Body .json

return the new resource ID
**Message Headers**

<table>
<thead>
<tr>
<th>Headers</th>
<th>Body</th>
</tr>
</thead>
</table>

- "Accept": "application/vnd.api+json",
- "Accept-Charset": "ISO-8859-1"
- "Content-Type": "application/vnd.api+json"
- "Authorization": API_TOKEN
API Token

https://<hostname>/users/<id>/api_tokens

headers = {
    "Content-type": "application/vnd.api+json",
    "Accept": "application/vnd.api+json",
    "Accept-Charset": "ISO-8859-1",
    "Authorization": "Token r3MM3vf1Vq5lNREa84zNDfvuNcSqEqDoyFQxQK6U"
}
Usage of SEEK API: HITS publication SEEK

HITS Groups

- AIN
- CCC
- CME
- CST
- DMQ
- GRG
- MBM
- MCM
- NLP
- PSO
- SDBV

Publications in SEEK

- register publications
- synchronize
- generate

https://publications.h-its.org/

HITS Website

Annual report

THINK BEYOND THE LIMITS!
Useful links:

- Example code: https://github.com/whomingbird/SEEK-API-Workshop

- Documentation
  - The Seek documentation
  - The Seek API documentation
  - The SEEK API specifications