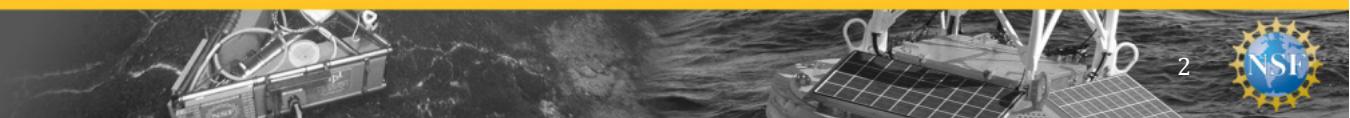
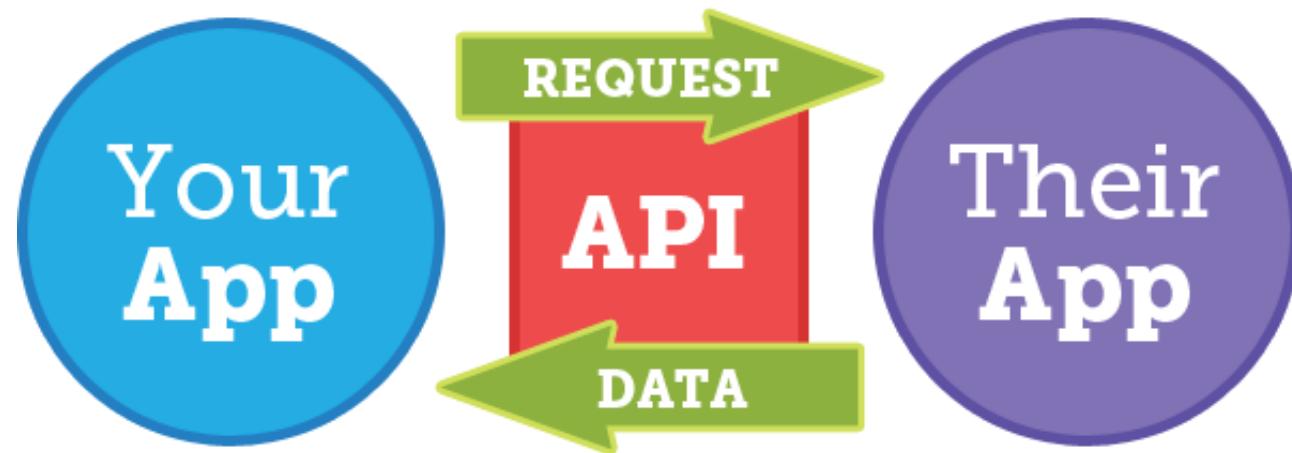


The OOI M2M (API) Interface

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2018 OOI Data Workshops



What is an API



Basic API Syntax

`https://api.example.com/directory/api?var1=123&var2=abc`



Basic elements:

- Servername
- Directory
- Endpoint
- GET variables

More complicated APIs might include:

- Port number
- POST Variables
- Additional custom headers

Insomnia

Available from:
<https://insomnia.rest>

- Application Window
 - Environments, Request, Response
 - Authentication
 - Query Variables
 - JSON Response Filtering
 - Generate Code Option

The screenshot shows the Postman interface with the following details:

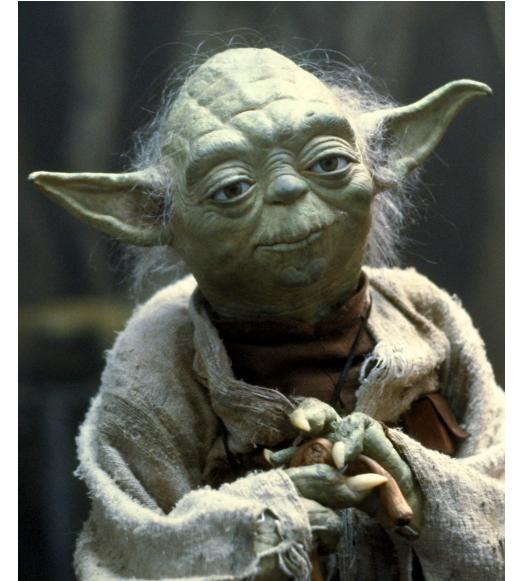
- Header:** Content-Type: application/json
- Method:** POST
- URL:** `var_base_url /tasks`
- Status:** 200 OK, TIME 33.9 ms, SIZE 199 B
- RequestBody (JSON):**

```
1 {  
2   "name": "Download Insomnia",  
3   "due_date": "n!",  
4   "duration_min":  
5   "completed": true  
6 }
```
- ResponseBody (JSON):**

```
1 {  
2   "_type": "tasks",  
3   "_id": "tas_6f553cbc98794e7ba81b",  
4   "title": "Download Insomnia",  
5   "created": 1491346135,  
6   "modified": 1491344806,  
7   "due": "2017-04-04T22:48:55.438Z",  
8   "duration": 5,  
9   "completed": false  
10 }
```

Yoda API

- <http://api.funtranslations.com/translate/yoda.json>
- Specify a variable “text” with the sentence you want to translate.
- Note this API only supports 5 free requests per hour.



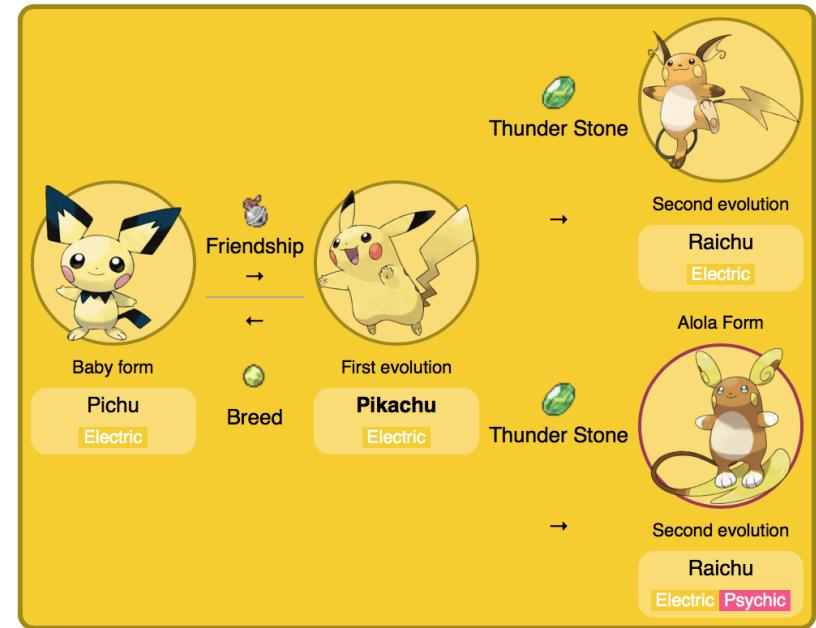
Star Wars API

- <https://swapi.co/api/starships>
- Filter out just the names
 - `$.results[:].name`
- Access the second entry
 - `$.results[2]`



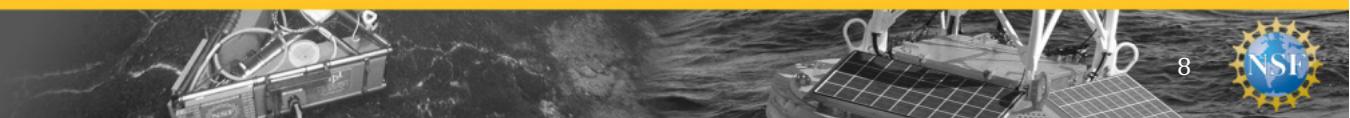
Pokemon API

- <https://pokeapi.co/api/v2/pokemon>
- <https://pokeapi.co/api/v2/pokemon/pikachu>
- `$.species`
- `$.evolution_chain`
- <https://pokeapi.co/api/v2/evolution-chain/10/>
- `$.chain.species.name`
- `$.chain.evolves_to[0].species.name`
- `$.chain.evolves_to[0].evolves_to[0].species.name`



Dark Sky

- You need an API key to access this API
 - <https://darksky.net/dev>
- Forecast Request
 - `https://api.darksky.net/forecast/[key]/[latitude],[longitude]`
- Filtering results
 - `$.daily.data[:].summary`
- For New Brunswick
 - `https://api.darksky.net/forecast/{key}/40.4866,-74.4444`



Fun APIs to play with

- Yoda Translator
 - <http://funtranslations.com/api#yoda>
- Star Wars API
 - <https://swapi.co/documentation>
- Pokemon
 - <https://pokeapi.co/docsv2/>
- Dark Sky API
 - <https://darksky.net/dev/docs>
- NY Times
 - <http://developer.nytimes.com>
- Wolfram | Alpha
 - <http://products.wolframalpha.com/api/>



Your M2M Challenge

For the 3 instruments you plotted earlier:

- Identify the data streams that are available
- Identify how many deployments each has had. Date ranges?
- Use the vocab service to identify the names for each instrument



How to access the OOI M2M Web Service

python (using the [Requests](#) library)

```
requests.get(URL, auth=(API_USERNAME, API_TOKEN))
```

Matlab

```
urlread(URL, 'Authentication', 'Basic', 'Username', API_USERNAME, 'Password',  
API_TOKEN);
```

Curl (command line)

```
curl -k https://API_USERNAME:API_TOKEN@URL
```

httpie (command line)

```
http --auth API_USERNAME:API_TOKEN URL
```

