api-client: RC

Oxidian

Table of contents

Resource Catalog

This notebook demostrates usage of the EODH resource catalog API using `pyeodh`

First we need to create an instance of the `Client`, which is our entrypoint to EODH APIs.

```python
import pyeodh

client = pyeodh.Client(base_url="https://test.eodatahub.org.uk") # Optionally specify a different
```

Fetch the resource catalog object.

```python
# GET /stac-fastapi
rc = client.get_resource_catalog()
```

All attributes are mapped to properties, e.g.

```python
print("id: ", rc.id)
print("title: ", rc.title)
print("description: ", rc.description)
```

```
id:  stac-fastapi
title:  stac-fastapi-elasticsearch
description:  A STAC FastAPI with an Elasticsearch backend
```

API endpoints are wrapped in methods and are structured into classes following the same logic as the API. E.g. to fetch a collection item, I first need to get the collection from the resource catalog.

```
# GET /stac-fastapi/collections/{collection_id}/items/{item_id}
cmip6 = rc.get_collection("cmip6")
item = cmip6.get_item("CMIP6.ScenarioMIP.THU.CIESM.ssp585.r1i1p1f1.Amon.rsus.gr.v20200806")
print(item.id)
```

```
CMIP6.ScenarioMIP.THU.CIESM.ssp585.r1i1p1f1.Amon.rsus.gr.v20200806
```

Some API responses are paginated (e.g. collection items), and you can simply iterate over them.

```
# GET /stac-fastapi/collections/cmip6/items
items = cmip6.get_items()
for item in items:
    print(item.id)
```

```
CMIP6.ScenarioMIP.THU.CIESM.ssp585.r1i1p1f1.Amon.rsus.gr.v20200806
CMIP6.ScenarioMIP.THU.CIESM.ssp585.r1i1p1f1.Amon.rlus.gr.v20200806
CMIP6.ScenarioMIP.CSIRO.ACCESS-ESM1-5.ssp126.r1i1p1f1.day.uas.gn.v20210318
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp585.r1i1p1f1.day.pr.gn.v20210317
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp126.r1i1p1f1.day.pr.gn.v20210317
CMIP6.ScenarioMIP.CSIRO.ACCESS-ESM1-5.ssp585.r1i1p1f1.day.rsds.gn.v20210318
CMIP6.ScenarioMIP.CSIRO.ACCESS-ESM1-5.ssp585.r1i1p1f1.day.hurs.gn.v20210318
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp585.r1i1p1f1.day.tas.gn.v20210317
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp585.r1i1p1f1.day.psl.gn.v20210317
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp126.r1i1p1f1.day.tasmin.gn.v20210317
```

Attempting to create a collection with id that already exists will result in 409 error code. To see the example in action delete the test collection first by running the cell below.

Delete a colletion

```
rc.get_collection("test1").delete()
```

Create new collection example

```
test1 = rc.create_collection(id="test1", title="Test", description="Test collection")
print(test1.description)
```

```
Test collection
```

Update a collection

```python
test1.update(description="Different description")
print(test1.description)
```

```
Different description
```

Create an item

```python
testitem1 = test1.create_item(id="test1.testitem1")
print(f"Created {testitem1.id} in collection {testitem1.collection}")
```

```
Created test1.testitem1 in collection test1
```

Update an item

```python
testitem1.update(properties={"foo": "bar"})
print(testitem1.properties)
```

```
{'foo': 'bar', 'updated': '2024-04-30T14:08:44.187241Z', 'created': '2024-04-30T14:08:44.187241Z'
```

Delete an item

```python
testitem1.delete()
```

Find out more information about the resource catalog.

```python
print(f"Livecheck: PING-{rc.ping()}")
print("\nAPI conforms to:", *rc.get_conformance(), sep="\n")
```

```
Livecheck: PING-PONG

API conforms to:
http://www.opengis.net/spec/ogcapi-features-1/1.0/conf/oas30
http://www.opengis.net/spec/cql2/1.0/conf/advanced-comparison-operators
http://www.opengis.net/spec/ogcapi-features-3/1.0/conf/features-filter
http://www.opengis.net/spec/cql2/1.0/conf/cql2-text
http://www.opengis.net/spec/cql2/1.0/conf/basic-cql2
https://api.stacspec.org/v1.0.0-rc.2/item-search#filter
http://www.opengis.net/spec/cql2/1.0/conf/cql2-json
http://www.opengis.net/spec/ogcapi-features-1/1.0/conf/geojson
```

```
https://api.stacspec.org/v1.0.0/collections
https://api.stacspec.org/v1.0.0/ogcapi-features
https://api.stacspec.org/v1.0.0-rc.2/item-search#context
https://api.stacspec.org/v1.0.0/item-search#sort
http://www.opengis.net/spec/ogcapi-features-3/1.0/conf/filter
https://api.stacspec.org/v1.0.0/item-search#fields
https://api.stacspec.org/v1.0.0-rc.3/ogcapi-features/extensions/transaction
https://api.stacspec.org/v1.0.0/core
https://api.stacspec.org/v1.0.0/item-search#query
http://www.opengis.net/spec/ogcapi-features-1/1.0/conf/core
https://api.stacspec.org/v1.0.0/item-search
```

Search the catalog

```python
for result in rc.search(collections=['cmip6']):
    print(result.id)
```

```
CMIP6.ScenarioMIP.THU.CIESM.ssp585.r1i1p1f1.Amon.rsus.gr.v20200806
CMIP6.ScenarioMIP.THU.CIESM.ssp585.r1i1p1f1.Amon.rlus.gr.v20200806
CMIP6.ScenarioMIP.CSIRO.ACCESS-ESM1-5.ssp126.r1i1p1f1.day.uas.gn.v20210318
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp585.r1i1p1f1.day.pr.gn.v20210317
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp126.r1i1p1f1.day.pr.gn.v20210317
CMIP6.ScenarioMIP.CSIRO.ACCESS-ESM1-5.ssp585.r1i1p1f1.day.rsds.gn.v20210318
CMIP6.ScenarioMIP.CSIRO.ACCESS-ESM1-5.ssp585.r1i1p1f1.day.hurs.gn.v20210318
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp585.r1i1p1f1.day.tas.gn.v20210317
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp585.r1i1p1f1.day.psl.gn.v20210317
CMIP6.ScenarioMIP.CSIRO-ARCCSS.ACCESS-CM2.ssp126.r1i1p1f1.day.tasmin.gn.v20210317
```