
DataCite Documentation

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Invenio Software

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Python API wrapper for the DataCite Metadata Store API and DataCite XML generation.

CHAPTER 1

Installation

The datacite package is on PyPI so all you need is:

```
$ pip install datacite
```


CHAPTER 2

Usage

Below is full usage example of the DataCite MDS client API wrapper. Please see the [DataCite MDS API documentation](#) for further information on the API.

```
1 from datacite import DataCiteMDSClient, schema40
2
3 # If you want to generate XML for earlier version 3.1, you need to use
4 # schema31 instead.
5
6 data = {
7     'identifier': {
8         'identifier': '10.5072/test-doi',
9         'identifierType': 'DOI',
10    },
11    'creators': [
12        {'creatorName': 'Smith, John'}
13    ],
14    'titles': [
15        {'title': 'DataCite PyPI Package'}
16    ],
17    'publisher': 'CERN',
18    'publicationYear': '2015',
19    'resourceType': {
20        'resourceTypeGeneral': 'Dataset'
21    }
22 }
23
24 # Validate dictionary
25 assert schema40.validate(data)
26
27 # Generate DataCite XML from dictionary.
28 doc = schema40.tostring(data)
29
30 # Initialize the MDS client.
31 d = DataCiteMDSClient(
32     username='MYDC.MYACCOUNT',
```

```
33     password='mypassword',
34     prefix='10.5072',
35     test_mode=True
36 )
37
38 # Set metadata for DOI
39 d.metadata_post(doc)
40
41 # Mint new DOI
42 d.doi_post('10.5072/test-doi', 'http://example.org/test-doi')
43
44 # Get DOI location
45 location = d.doi_get("10.5072/test-doi")
46
47 # Set alternate URL for content type (available through content negotiation)
48 d.media_post(
49     "10.5072/test-doi",
50     {"application/json": "http://example.org/test-doi/json/",
51      "application/xml": "http://example.org/test-doi/xml/"})
52 )
53
54 # Get alternate URLs
55 mapping = d.media_get("10.5072/test-doi")
56 assert mapping["application/json"] == "http://example.org/test-doi/json/"
57
58 # Get metadata for DOI
59 doc = d.metadata_get("10.5072/test-doi")
60
61 # Make DOI inactive
62 d.metadata_delete("10.5072/test-doi")
```

Metadata Store API

Python API wrapper for the DataCite Metadata Store API.

```
class datacite.DataCiteMDSClient (username=None, password=None, url=None, prefix=None,  
                                test_mode=False, api_ver='2', timeout=None)
```

DataCite MDS API client wrapper.

```
doi_get (doi)
```

Get the URL where the resource pointed by the DOI is located.

Parameters **doi** – DOI name of the resource.

```
doi_post (new_doi, location)
```

Mint new DOI.

Parameters

- **new_doi** – DOI name for the new resource.
- **location** – URL where the resource is located.

Returns “CREATED” or “HANDLE_ALREADY_EXISTS”.

```
media_get (doi)
```

Get list of pairs of media type and URLs associated with a DOI.

Parameters **doi** – DOI name of the resource.

```
media_post (doi, media)
```

Add/update media type/urls pairs to a DOI.

Standard domain restrictions check will be performed.

Parameters **media** – Dictionary of (mime-type, URL) key/value pairs.

Returns “OK”

```
metadata_delete (doi)
```

Mark as ‘inactive’ the metadata set of a DOI resource.

Parameters **doi** – DOI name of the resource.

Returns “OK”

metadata_get (*doi*)

Get the XML metadata associated to a DOI name.

Parameters *doi* – DOI name of the resource.

metadata_post (*metadata*)

Set new metadata for an existing DOI.

Metadata should follow the DataCite Metadata Schema: <http://schema.datacite.org/>

Parameters *metadata* – XML format of the metadata.

Returns “CREATED” or “HANDLE_ALREADY_EXISTS”

3.1 Errors

Errors for the DataCite API.

MDS error responses will be converted into an exception from this module. Connection issues raises `datacite.errors.HttpError` while DataCite MDS error responses raises a subclass of `datacite.errors.DataCiteError`.

exception `datacite.errors.DataCiteBadRequestError`

Bad request error.

Bad requests can include e.g. invalid XML, wrong domain, wrong prefix. Request body must be exactly two lines: DOI and URL One or more of the specified mime-types or urls are invalid (e.g. non supported mimetype, not allowed url domain, etc.)

exception `datacite.errors.DataCiteError`

Exception raised when the server returns a known HTTP error code.

Known HTTP error codes include:

- 204 No Content
- 400 Bad Request
- 401 Unauthorized
- 403 Forbidden
- 404 Not Found
- 410 Gone (deleted)

static factory (*err_code*, **args*)

Create exceptions through a Factory based on the HTTP error code.

exception `datacite.errors.DataCiteForbiddenError`

Login problem, dataset belongs to another party or quota exceeded.

exception `datacite.errors.DataCiteGoneError`

Requested dataset was marked inactive (using DELETE method).

exception `datacite.errors.DataCiteNoContentError`

DOI is known to MDS, but not resolvable.

This might be due to handle’s latency.

exception `datacite.errors.DataCiteNotFoundError`

DOI does not exist in the database.

exception `datacite.errors.DataCitePreconditionError`
Metadata must be uploaded first.

exception `datacite.errors.DataCiteRequestError`
A DataCite request error. You made an invalid request.

Base class for all 4XX-related HTTP error codes as well as 204.

exception `datacite.errors.DataCiteServerError`
An internal server error happened on the DataCite end. Try later.

Base class for all 5XX-related HTTP error codes.

exception `datacite.errors.DataCiteUnauthorizedError`
Bad username or password.

exception `datacite.errors.HttpError`
Exception raised when a connection problem happens.

DataCite v3.1 XML generation

DataCite v3.1 JSON to XML transformations.

`datacite.schema31.dump_etree(data)`
Convert JSON dictionary to DataCite v3.1 XML as ElementTree.

`datacite.schema31.tostring(data, **kwargs)`
Convert JSON dictionary to DataCite v3.1 XML as string.

`datacite.schema31.validate(data)`
Validate DataCite v3.1 JSON dictionary.

DataCite v4.0 XML generation

DataCite v4.0 JSON to XML transformations.

`datacite.schema40.dump_etree(data)`
Convert JSON dictionary to DataCite v4.0 XML as ElementTree.

`datacite.schema40.tostring(data, **kwargs)`
Convert JSON dictionary to DataCite v4.0 XML as string.

`datacite.schema40.validate(data)`
Validate DataCite v4.0 JSON dictionary.

DataCite v4.1 XML generation

DataCite v4.1 JSON to XML transformations.

`datacite.schema41.dump_etree(data)`
Convert JSON dictionary to DataCite v4.1 XML as ElementTree.

`datacite.schema41.tostring(data, **kwargs)`
Convert JSON dictionary to DataCite v4.1 XML as string.

`datacite.schema41.validate(data)`
Validate DataCite v4.1 JSON dictionary.

CHAPTER 7

Changes

Version v1.0.1 (released 2018-03-08):

- Fixes schema location url for DataCite v4.1

Version v1.0.0 (released 2018-02-28):

- Adds full support for DataCite Metadata Schema v4.1 XML generation.

Version v0.3.0 (released 2016-11-18):

- Adds full support for DataCite Metadata Schema v4.0 XML generation.
- Adds the message from the server in the error exceptions.

Version v0.2.2 (released 2016-09-23):

- Fixes issue with generated order of nameIdentifier and affiliation tags.

Version v0.2.1 (released 2016-03-29):

- Fixes issue with JSON schemas not being included when installing from PyPI.

Version v0.2.0 (released 2016-03-21):

- Adds DataCite XML generation support.

Version 0.1 (released 2015-02-25):

- Initial public release.

CHAPTER 8

Contributing

Bug reports, feature requests, and other contributions are welcome. If you find a demonstrable problem that is caused by the code of this library, please:

1. Search for [already reported problems](#).
2. Check if the issue has been fixed or is still reproducible on the latest *master* branch.
3. Create an issue with **a test case**.

If you create a feature branch, you can run the tests to ensure everything is operating correctly:

```
$ python setup.py test
```


CHAPTER 9

License

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DataCite is developed for use in [Invenio](#) digital library software.

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