

CKAN

Overview

The purpose of this document is to describe a simple set of test cases for CKAN in order to determine viability for integration with Clowder.

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Orientation

Familiarize yourself with the CKAN API by playing around with a few examples, like these: <https://docs.ckan.org/en/ckan-1.7.4/api-tutorial.html>

NOTE: You can use **demo.ckan.org** instead of **test.ckan.org** in the examples above.

Retrieve Your API Key

First, we'll need to add an API Key. To do this, you'll need to follow a few simple steps:

1. Navigate to <https://demo.ckan.org>
2. Register and/or login to CKAN
3. At the top-right, click on the button containing **Your Name**
4. At the bottom-left, your current API key should be listed

This should regenerate your existing API key, allowing you to interact with the CKAN API in an authorized fashion.

NOTE: This is currently causing an error on the CKAN Demo instance - Internal Server Error

Create a Dataset

Using the API key you just created above, create a dataset in CKAN:

```

$ curl https://demo.ckan.org/api/rest/dataset --header 'Content-Type: application/json' -d '{"name": "dataset-has-a-tail", "title": "OMG its a dataset"}' -H "Authorization: <API_KEY>" -vvv
* Trying 104.24.114.210...
* TCP_NODELAY set
* Connected to demo.ckan.org (104.24.114.210) port 443 (#0)
* ALPN, offering h2
* ALPN, offering http/1.1
* Cipher selection: ALL:!EXPORT:!EXPORT40:!EXPORT56:!aNULL:!LOW:!RC4:@STRENGTH
* successfully set certificate verify locations:
*   CAfile: /etc/ssl/cert.pem
*   CAspace: none
* TLSv1.2 (OUT), TLS handshake, Client hello (1):
* TLSv1.2 (IN), TLS handshake, Server hello (2):
* TLSv1.2 (IN), TLS handshake, Certificate (11):
* TLSv1.2 (IN), TLS handshake, Server key exchange (12):
* TLSv1.2 (IN), TLS handshake, Server finished (14):
* TLSv1.2 (OUT), TLS handshake, Client key exchange (16):
* TLSv1.2 (OUT), TLS change cipher, Client hello (1):
* TLSv1.2 (OUT), TLS handshake, Finished (20):
* TLSv1.2 (IN), TLS change cipher, Client hello (1):
* TLSv1.2 (IN), TLS handshake, Finished (20):
* SSL connection using TLSv1.2 / ECDHE-ECDH-AES128-GCM-SHA256
* ALPN, server accepted to use h2
* Server certificate:
*   subject: OU=Domain Control Validated; OU=PositiveSSL Multi-Domain; CN=sni113313.cloudflaressl.com
*   start date: Aug 11 00:00:00 2018 GMT
*   expire date: Feb 17 23:59:59 2019 GMT
*   subjectAltName: host "demo.ckan.org" matched cert's "*.ckan.org"
*   issuer: C=GB; ST=Greater Manchester; L=Salford; O=COMODO CA Limited; CN=COMODO ECC Domain Validation Secure Server CA 2
*   SSL certificate verify ok.
* Using HTTP2, server supports multi-use
* Connection state changed (HTTP/2 confirmed)
* Copying HTTP/2 data in stream buffer to connection buffer after upgrade: len=0
* Using Stream ID: 1 (easy handle 0x7f97b9005800)
> POST /api/rest/dataset HTTP/2
> Host: demo.ckan.org
> User-Agent: curl/7.54.0
> Accept: */*
> Content-Type: application/json
> Authorization: <API_KEY>
> Content-Length: 58
>
* Connection state changed (MAX_CONCURRENT_STREAMS updated)!
* We are completely uploaded and fine
< HTTP/2 201
< date: Mon, 13 Aug 2018 18:00:49 GMT
< content-type: application/json; charset=utf-8
< set-cookie: __cfduid=<COOKIE>; expires=Tue, 13-Aug-19 18:00:48 GMT; path=/; domain=.ckan.org; HttpOnly
< cache-control: no-cache
< location: https://demo.ckan.org/api/rest/dataset/a09f9319-bf4c-48a0-8d98-a8d066d6636d
< pragma: no-cache
< vary: Accept-Encoding
< expect-ct: max-age=604800, report-uri="https://report-uri.cloudflare.com/cdn-cgi/beacon/expect-ct"
< server: cloudflare
< cf-ray: 449d1555af3055be-ORD
<
* Connection #0 to host demo.ckan.org left intact
{"license_title": null, "maintainer": null, "private": false, "maintainer_email": null, "num_tags": 0, "id": "a09f9319-bf4c-48a0-8d98-a8d066d6636d", "metadata_created": "2018-08-13T18:00:48.853260", "relationships": [], "license": null, "metadata_modified": "2018-08-13T18:00:48.853275", "author": null, "author_email": null, "state": "active", "version": null, "creator_user_id": "28fb4558-3686-4b24-96d9-8d935190d962", "type": "dataset", "resources": [], "num_resources": 0, "tags": [], "groups": [], "license_id": null, "organization": null, "name": "dataset-has-a-tail", "isopen": false, "notes_rendered": "", "url": null, "ckan_url": "https://demo.ckan.org/dataset/dataset-has-a-tail", "notes": null, "owner_org": null, "ratings_average": null, "extras": {}, "ratings_count": 0, "title": "OMG its a dataset", "revision_id": "eaf48c90-b219-40a0-912a-00e7a5313697"}

```

Hooray! Your dataset has been created!

Updating or Modifying a Dataset

Simple modifications can occur with a PUT:

```

$ curl https://demo.ckan.org/api/rest/dataset/dataset-has-a-tail --header 'Content-Type: application/json' -
d'{"name":"dataset-has-a-tail", "title":"OMG its a dataset with a tail"}' -H "Authorization:<API_KEY>" -vvv
*   Trying 104.24.115.210...
* TCP_NODELAY set
* Connected to demo.ckan.org (104.24.115.210) port 443 (#0)
* ALPN, offering h2
* ALPN, offering http/1.1
* Cipher selection: ALL:!EXPORT:!EXPORT40:!EXPORT56:!aNULL:!LOW:!RC4:@STRENGTH
* successfully set certificate verify locations:
*   CAfile: /etc/ssl/cert.pem
*   Cpath: none
* TLSv1.2 (OUT), TLS handshake, Client hello (1):
* TLSv1.2 (IN), TLS handshake, Server hello (2):
* TLSv1.2 (IN), TLS handshake, Certificate (11):
* TLSv1.2 (IN), TLS handshake, Server key exchange (12):
* TLSv1.2 (IN), TLS handshake, Server finished (14):
* TLSv1.2 (OUT), TLS handshake, Client key exchange (16):
* TLSv1.2 (OUT), TLS change cipher, Client hello (1):
* TLSv1.2 (OUT), TLS handshake, Finished (20):
* TLSv1.2 (IN), TLS change cipher, Client hello (1):
* TLSv1.2 (IN), TLS handshake, Finished (20):
* SSL connection using TLSv1.2 / ECDHE-ECDH-AES128-GCM-SHA256
* ALPN, server accepted to use h2
* Server certificate:
*   subject: OU=Domain Control Validated; OU=PositiveSSL Multi-Domain; CN=sni113313.cloudflaressl.com
*   start date: Aug 11 00:00:00 2018 GMT
*   expire date: Feb 17 23:59:59 2019 GMT
*   subjectAltName: host "demo.ckan.org" matched cert's "*.ckan.org"
*   issuer: C=GB; ST=Greater Manchester; L=Salford; O=COMODO CA Limited; CN=COMODO ECC Domain Validation Secure
Server CA 2
*   SSL certificate verify ok.
* Using HTTP2, server supports multi-use
* Connection state changed (HTTP/2 confirmed)
* Copying HTTP/2 data in stream buffer to connection buffer after upgrade: len=0
* Using Stream ID: 1 (easy handle 0x7fca76800400)
> POST /api/rest/dataset/dataset-has-a-tail HTTP/2
> Host: demo.ckan.org
> User-Agent: curl/7.54.0
> Accept: */*
> Content-Type: application/json
> Authorization:<API_KEY>
> Content-Length: 70
>
* Connection state changed (MAX_CONCURRENT_STREAMS updated)!
* We are completely uploaded and fine
< HTTP/2 200
< date: Mon, 13 Aug 2018 22:03:32 GMT
< content-type: application/json; charset=utf-8
< set-cookie: __cfduid=<COOKIE>; expires=Tue, 13-Aug-19 22:03:31 GMT; path=/; domain=.ckan.org; HttpOnly
< cache-control: no-cache
< pragma: no-cache
< vary: Accept-Encoding
< expect-ct: max-age=604800, report-uri="https://report-uri.cloudflare.com/cdn-cgi/beacon/expect-ct"
< server: cloudflare
< cf-ray: 449e78e3af13560c-ORD
<
* Connection #0 to host demo.ckan.org left intact
{"license_title": null, "maintainer": null, "private": false, "maintainer_email": null, "num_tags": 0, "id":
"a09f9319-bf4c-48a0-8d98-a8d066d6636d", "metadata_created": "2018-08-13T18:00:48.853260", "relationships": [],
"license": null, "metadata_modified": "2018-08-13T22:03:32.287239", "author": null, "author_email": null,
"state": "active", "version": null, "creator_user_id": "28fb4558-3686-4b24-96d9-8d935190d962", "type":
"dataset", "resources": [], "num_resources": 0, "tags": [], "groups": [], "license_id": null, "organization":
null, "name": "dataset-has-a-tail", "isopen": false, "notes_rendered": "", "url": null, "ckan_url":
"https://demo.ckan.org/dataset/dataset-has-a-tail", "notes": null, "owner_org": null, "ratings_average": null,
"extras": {}, "ratings_count": 0, "title": "OMG its a dataset with a tail", "revision_id": "1f36361a-a9cf-498d-
94e6-5af2431c98cd"}

```

We can do the same thing to add arbitrary key-value pairs into the "extras" field. For example, if we wanted to stringify our extracted JSON metadata and attach it to a CKAN dataset:

```
$ curl https://demo.ckan.org/api/rest/dataset/dataset-has-a-tail --header 'Content-Type: application/json' -H
"Authorization:<API_KEY>" -d'{
  "name": "dataset-has-a-tail",
  "title": "OMG its a dataset with a tail",
  "extras": {
    "Metadata": "{\\r\\n  \\\"apiVersion\\\": \\\"1.0.0\\\",\\r\\n  \\\"swaggerVersion\\\": \\\"1.2\\\",\\r\\n
\\\"basePath\\\": \\\"http:\\/\\/petstore.swagger.io\\/api\\\",\\r\\n  \\\"resourcePath\\\": \\\"\\/store\\\",
\\r\\n  \\\"produces\\\": [\\r\\n    \\\"application\\/json\\\"\\r\\n  ],\\r\\n  \\\"apis\\\": [\\r\\n
{\\r\\n    \\\"path\\\": \\\"\\/store\\/order\\/\\{orderId\\}\\\",\\r\\n    \\\"operations\\\": [\\r\\n
\\r\\n      \\\"method\\\": \\\"GET\\\",\\r\\n      \\\"summary\\\": \\\"Find purchase order by ID\\\",
\\r\\n      \\\"notes\\\": \\\"For valid response try integer IDs with value <= 5. Anything above 5 or
nonintegers will generate API errors\\\",\\r\\n      \\\"type\\\": \\\"Order\\\",\\r\\n      \\\"
nickname\\\": \\\"getOrderByID\\\",\\r\\n      \\\"authorizations\\\": {},\\r\\n      \\\"
parameters\\\": [\\r\\n        {\\r\\n          \\\"name\\\": \\\"orderId\\\",\\r\\n          \\\"
description\\\": \\\"ID of pet that needs to be fetched\\\",\\r\\n          \\\"required\\\": true,
\\r\\n          \\\"type\\\": \\\"string\\\",\\r\\n          \\\"paramType\\\": \\\"path\\\"
\\r\\n        }\\r\\n      ],\\r\\n      \\\"responseMessages\\\": [\\r\\n
{\\r\\n        \\\"code\\\": 400,\\r\\n        \\\"message\\\": \\\"Invalid ID supplied\\\"
\\r\\n      },\\r\\n      {\\r\\n        \\\"code\\\": 404,\\r\\n        \\\"
message\\\": \\\"Order not found\\\"\\r\\n      }\\r\\n    ]\\r\\n      },\\r\\n
\\r\\n      \\\"method\\\": \\\"DELETE\\\",\\r\\n      \\\"summary\\\": \\\"Delete purchase order by
ID\\\",\\r\\n      \\\"notes\\\": \\\"For valid response try integer IDs with value < 1000. Anything above
1000 or nonintegers will generate API errors\\\",\\r\\n      \\\"type\\\": \\\"void\\\",\\r\\n      \\\"
nickname\\\": \\\"deleteOrder\\\",\\r\\n      \\\"authorizations\\\": {\\r\\n        \\\"oauth2\\\":
[\\r\\n          {\\r\\n            \\\"scope\\\": \\\"test:anything\\\",\\r\\n            \\\"
description\\\": \\\"anything\\\"\\r\\n          }\\r\\n        }\\r\\n      },\\r\\n      \\\"
parameters\\\": [\\r\\n        {\\r\\n          \\\"name\\\": \\\"orderId\\\",\\r\\n          \\\"
description\\\": \\\"ID of the order that needs to be deleted\\\",\\r\\n          \\\"required\\\": true,
\\r\\n          \\\"type\\\": \\\"string\\\",\\r\\n          \\\"paramType\\\": \\\"path\\\"
\\r\\n        }\\r\\n      ],\\r\\n      \\\"responseMessages\\\": [\\r\\n
{\\r\\n        \\\"code\\\": 400,\\r\\n        \\\"message\\\": \\\"Invalid ID supplied\\\"
\\r\\n      },\\r\\n      {\\r\\n        \\\"code\\\": 404,\\r\\n        \\\"
message\\\": \\\"Order not found\\\"\\r\\n      }\\r\\n    ]\\r\\n      },\\r\\n
\\r\\n      {\\r\\n        \\\"path\\\": \\\"\\/store\\/order\\\",\\r\\n        \\\"operations\\\": [\\r\\n
{\\r\\n          \\\"method\\\": \\\"POST\\\",\\r\\n          \\\"summary\\\": \\\"Place an order for a pet\\\",
\\r\\n          \\\"notes\\\": \\\"\\\",\\r\\n          \\\"type\\\": \\\"void\\\",\\r\\n          \\\"
nickname\\\": \\\"placeOrder\\\",\\r\\n          \\\"authorizations\\\": {\\r\\n            \\\"oauth2\\\":
[\\r\\n              {\\r\\n                \\\"scope\\\": \\\"test:anything\\\",\\r\\n                \\\"
description\\\": \\\"anything\\\"\\r\\n              }\\r\\n            }\\r\\n          },\\r\\n          \\\"
parameters\\\": [\\r\\n            {\\r\\n              \\\"name\\\": \\\"body\\\",\\r\\n              \\\"
description\\\": \\\"order placed for purchasing the pet\\\",\\r\\n              \\\"required\\\": true,
\\r\\n              \\\"type\\\": \\\"Order\\\",\\r\\n              \\\"paramType\\\": \\\"body\\\"
\\r\\n            }\\r\\n          ],\\r\\n          \\\"responseMessages\\\": [\\r\\n
{\\r\\n            \\\"code\\\": 400,\\r\\n            \\\"message\\\": \\\"Invalid order\\\"
\\r\\n          }\\r\\n        ]\\r\\n      },\\r\\n      \\\"models\\\":
{\\r\\n        \\\"Order\\\": {\\r\\n          \\\"id\\\": \\\"Order\\\",\\r\\n          \\\"description\\\": \\\"an order
in the system\\\",\\r\\n          \\\"properties\\\": {\\r\\n            \\\"id\\\": {\\r\\n              \\\"type\\\": \\\"
integer\\\",\\r\\n              \\\"format\\\": \\\"int64\\\"\\r\\n            },\\r\\n            \\\"petId\\\":
{\\r\\n              \\\"type\\\": \\\"integer\\\",\\r\\n              \\\"format\\\": \\\"int64\\\"\\r\\n            },
\\r\\n            \\\"quantity\\\": {\\r\\n              \\\"type\\\": \\\"integer\\\",\\r\\n              \\\"format\\\":
\\\"int32\\\"\\r\\n            },\\r\\n            \\\"status\\\": {\\r\\n              \\\"type\\\": \\\"string\\\",
\\r\\n              \\\"description\\\": \\\"Order Status\\\",\\r\\n              \\\"enum\\\": [\\r\\n
placed\\\",\\r\\n              approved\\\",\\r\\n              delivered\\\"\\r\\n            ]
\\r\\n          },\\r\\n            \\\"shipDate\\\": {\\r\\n              \\\"type\\\": \\\"string\\\",\\r\\n
\\\"format\\\": \\\"date-time\\\"\\r\\n            }\\r\\n          }\\r\\n        }\\r\\n      }
\\\"
}
}'
{
  "license_title": null,
  "maintainer": null,
  "private": false,
  "maintainer_email": null,
  "num_tags": 0,
  "id": "a09f9319-bf4c-48a0-8d98-a8d066d6636d",
  "metadata_created": "2018-08-13T18:00:48.853260",
  "relationships": [],
  "license": null,
```

```
"metadata_modified": "2018-08-13T22:19:02.606453",
"author": null,
"author_email": null,
"state": "active",
"version": null,
"creator_user_id": "28fb4558-3686-4b24-96d9-8d935190d962",
"type": "dataset",
"resources": [],
"num_resources": 0,
"tags": [],
"groups": [],
"license_id": null,
"organization": null,
"name": "dataset-has-a-tail",
"isopen": false,
"notes_rendered": "",
"url": null,
"ckan_url": "https://demo.ckan.org/dataset/dataset-has-a-tail",
"notes": null,
"owner_org": null,
"ratings_average": null,
"extras": {
    "Metadata": "{\n\n  \"apiVersion\": \"1.0.0\", \n  \"swaggerVersion\": \"1.2\", \n  \"basePath\": \"http://petstore.swagger.io/api\", \n  \"resourcePath\": \"\\\"/store\\\"\", \n  \"produces\": [\"application/json\"], \n  \"apis\": [\n    {\n      \"path\": \"\\\"/store/order/{orderId}\\\"\", \n      \"operations\": [\n        {\n          \"method\": \"GET\", \n          \"summary\": \"Find purchase order by ID\", \n          \"notes\": \"For valid response try integer IDs with value <= 5. Anything above 5 or nonintegers will generate API errors\", \n          \"type\": \"Order\", \n          \"nickname\": \"getOrderByID\", \n          \"authorizations\": {}, \n          \"parameters\": [\n            {\n              \"name\": \"orderId\", \n              \"description\": \"ID of pet that needs to be fetched\", \n              \"required\": true, \n              \"type\": \"string\", \n              \"paramType\": \"path\", \n            }, \n          ], \n          \"responseMessages\": [\n            {\n              \"code\": 400, \n              \"message\": \"Invalid ID supplied\", \n            }, \n            {\n              \"code\": 404, \n              \"message\": \"Order not found\", \n            }, \n          ], \n          \"method\": \"DELETE\", \n          \"summary\": \"Delete purchase order by ID\", \n          \"notes\": \"For valid response try integer IDs with value < 1000. Anything above 1000 or nonintegers will generate API errors\", \n          \"type\": \"void\", \n          \"nickname\": \"deleteOrder\", \n          \"authorizations\": {\n            \"oauth2\": {\n              \"scope\": \"test:anything\"\n            }\n          }, \n          \"description\": \"anything\", \n          \"parameters\": [\n            {\n              \"name\": \"orderId\", \n              \"description\": \"ID of the order that needs to be deleted\", \n              \"required\": true, \n              \"type\": \"string\", \n              \"paramType\": \"path\", \n            }, \n          ], \n          \"responseMessages\": [\n            {\n              \"code\": 400, \n              \"message\": \"Invalid ID supplied\", \n            }, \n            {\n              \"code\": 404, \n              \"message\": \"Order not found\", \n            }, \n          ], \n          \"path\": \"\\\"/store/order\\\"\", \n          \"operations\": [\n            {\n              \"method\": \"POST\", \n              \"summary\": \"Place an order for a pet\", \n              \"notes\": \"\", \n              \"type\": \"void\", \n              \"authorization\": {\n                \"oauth2\": {\n                  \"scope\": \"test:anything\"\n                }\n              }, \n              \"description\": \"anything\", \n              \"parameters\": [\n                {\n                  \"name\": \"body\", \n                  \"description\": \"order placed for purchasing the pet\", \n                  \"required\": true, \n                  \"type\": \"Order\", \n                  \"paramType\": \"body\", \n                }, \n              ], \n              \"responseMessages\": [\n                {\n                  \"code\": 400, \n                  \"message\": \"Invalid order\", \n                }, \n              ], \n              \"models\": {\n                \"Order\": {\n                  \"id\": \"Order\", \n                  \"description\": \"an order in the system\", \n                  \"properties\": {\n                    \"id\": {\n                      \"format\": \"int64\", \n                      \"petId\": {\n                        \"type\": \"integer\", \n                        \"format\": \"int64\", \n                      }, \n                    \"quantity\": {\n                      \"type\": \"integer\", \n                      \"format\": \"int32\", \n                    }, \n                    \"status\": {\n                      \"type\": \"string\", \n                      \"description\": \"Order Status\", \n                      \"enum\": [\n                        \"approved\", \n                        \"shipDate\", \n                      ], \n                    } \n                  }, \n                } \n              } \n            } \n          ] \n        } \n      ] \n    } \n  } \n}
```

```

\\\\"format\\": \\\\"date-time\\\\"\\r\\n      }\\r\\n      }\\r\\n      }\\r\\n      }\\r\\n}"
},
"ratings_count": 0,
"title": "OMG its a dataset with a tail",
"revision_id": "1f36361a-a9cf-498d-94e6-5af2431c98cd"
}

```

Creating or Uploading a New Resource to a Dataset

For more complex interactions such as file uploads, we may be much better off using the **ckanclient** in Python: <https://stackoverflow.com/questions/14947468/uploading-a-file-through-ckans-api-1-8-how-to-do-it>

If you're just learning or trying new things out, take a look at the CKAN FileStore docs: <http://docs.ckan.org/en/ckan-2.7.3/maintaining/filestore.html#filestore-api>

For example, you can upload a file using `curl` with the following syntax:

```

$ curl 'https://demo.ckan.org/api/action/resource_create' -H "Authorization:<API_KEY>" --form
upload=@<FILE_TO_UPLOAD> --form package_id=<DATASET_NAME_TO_ATTACH_FILE>
{
  "help": "https://demo.ckan.org/api/3/action/help_show?name=resource_create",
  "success": true,
  "result": {
    "cache_last_updated": null,
    "cache_url": null,
    "mimetype_inner": null,
    "hash": "",
    "description": "",
    "format": "PNG",
    "url": "https://demo.ckan.org/dataset/a09f9319-bf4c-48a0-8d98-a8d066d6636d/resource/526301cc-aaa3-423c-9159-3741fef913dc/download/tux-copy.png",
    "created": "2018-08-14T15:09:03.441040",
    "state": "active",
    "package_id": "a09f9319-bf4c-48a0-8d98-a8d066d6636d",
    "last_modified": null,
    "mimetype": null,
    "url_type": "upload",
    "position": 0,
    "revision_id": "7fda82dd-b0c7-42a0-a06d-01cb9685f290",
    "size": null,
    "datastore_active": false,
    "id": "526301cc-aaa3-423c-9159-3741fef913dc",
    "resource_type": null,
    "name": null
  }
}

```