Poultry Documentation

Release 1.0.2

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Contents

Poultry is a tweet collection manager.

CHAPTER 1

User guide

1.1 Installation

Use *pip'* to install `poultry`:

```
$ pip install poultry
```

Alternatively, you can use virtualenv and pip to install `poultry`:

```
$ virtualenv .env
$ .env/bin/pip install poultry
```

Tip: If you get a strange behavior, run `poulry` in the verbose mode by adding the `-v` flag to see the possible problems.

```
$ .env/bin/poultry -s twitter://sample group -c poultry.cfg -v
2013-12-14 12:40:54,922: poultry.stream - WARNING - An http error occurred.␣
↪Reconnecting...
Traceback (most recent call last):
  File "/Users/dimazest/Documents/qmul/tools/src/poultry/poultry/stream.py", line 86,␣
↪in run
    self._run()
  File "/Users/dimazest/Documents/qmul/tools/src/poultry/poultry/stream.py", line 73,␣
↪in _run
    response.raise_for_status()
  File "/Users/dimazest/Documents/qmul/tools/src/poultry/.env/lib/python2.7/site-
↪packages/requests/models.py", line 765, in raise_for_status
    raise HTTPError(http_error_msg, response=self)
HTTPError: 401 Client Error: Unauthorized
```

The error above suggests that the Twitter credentials are incorrect.

1.2 Local tweet collection management

It is common to store a collection of tweets in compressed files grouped by hour. For example:

```
$ tree ./tweets
./tweets
├── 2012-04-19-00.gz
├── 2012-04-20-00.gz
├── 2012-04-21-00.gz
├── 2012-04-21-08.gz
├── 2012-04-21-09.gz
└── 2012-04-21-10.gz
```

Where each line in the files is the json representation of a tweet. The first two tweets in my collection look like:

```
$ zcat ./tweets/2012-04-19-00.gz | head -n 2
{"text":"100 days until summer Olympics","id_str":"192764446173708291","coordinates
↪":null,"created_at":"Thu Apr 19 00:00:00 +0000 2012","in_reply_to_status_id_str
↪":null,"favorited":false,"source":"web","in_reply_to_user_id_str":null,"entities":{
↪"urls":[],"user_mentions":[],"hashtags":[]},"contributors":null,"place":null,"in_
↪reply_to_screen_name":null,"in_reply_to_status_id":null,"geo":null,"user":{"is_
↪translator":false,"statuses_count":861,"time_zone":"Quito","profile_background_color
↪":"db4c39","id_str":"395132292","follow_request_sent":null,"verified":false,
↪"profile_background_tile":true,"created_at":"Fri Oct 21 05:40:09 +0000 2011",
↪"profile_sidebar_fill_color":"48dbaa","default_profile_image":false,"notifications
↪":null,"friends_count":128,"url":null,"description":"","favourites_count":0,
↪"profile_sidebar_border_color":"e2e83f","followers_count":114,"profile_image_url":
↪"http:\/\/a0.twimg.com\/profile_images\/1807429969\/Spring_2012_009_WarmingFilter_1_
↪normal.jpg","screen_name":"MEL0L407","profile_use_background_image":true,"profile_
↪background_image_url_https":"https:\/\/si0.twimg.com\/profile_background_images\/
↪500309685\/056.JPG","location":"Floridaa","contributors_enabled":false,"lang":"en",
↪"geo_enabled":false,"profile_text_color":"0a090a","protected":false,"profile_image_
↪url_https":"https:\/\/si0.twimg.com\/profile_images\/1807429969\/Spring_2012_009_
↪WarmingFilter_1_normal.jpg","listed_count":0,"profile_background_image_url":"http:\/
↪\/a0.twimg.com\/profile_background_images\/500309685\/056.JPG","name":"Melissa␣
↪Townsend","profile_link_color":"7a0c41","id":395132292,"default_profile":false,
↪"show_all_inline_media":false,"following":null,"utc_offset":-18000},"retweeted
↪":false,"id":192764446173708291,"retweet_count":0,"in_reply_to_user_id":null,
↪"truncated":false}
{"text":"Maeva et...? #ForeverAlone","id_str":"192764447666864129","coordinates":null,
↪"created_at":"Thu Apr 19 00:00:00 +0000 2012","in_reply_to_status_id_str":null,
↪"favorited":false,"source":"web","in_reply_to_user_id_str":null,"entities":{"urls
↪":[],"user_mentions":[],"hashtags":[{"text":"ForeverAlone","indices":[13,26]}]},
↪"contributors":null,"place":{"bounding_box":{"type":"Polygon","coordinates":[[[2.
↪3894531,48.8832118],[2.4279991,48.8832118],[2.4279991,48.9180446],[2.3894531,48.
↪9180446]]]},"place_type":"city","country":"France","url":"http:\/\/api.twitter.com\/
↪1\/geo\/id\/35d2c646704fa4a1.json","country_code":"FR","attributes":{},"full_name":
↪"Pantin, Seine-Saint-Denis","name":"Pantin","id":"35d2c646704fa4a1"},"in_reply_to_
↪screen_name":null,"in_reply_to_status_id":null,"geo":null,"user":{"is_translator
↪":false,"statuses_count":25433,"time_zone":"Paris","profile_background_color":
↪"C0DEED","id_str":"379912464","follow_request_sent":null,"verified":false,"profile_
↪background_tile":true,"created_at":"Sun Sep 25 19:26:25 +0000 2011","profile_
↪sidebar_fill_color":"DDEEF6","default_profile_image":false,"notifications":null,
↪"friends_count":179,"url":null,"description":"Tu m'as pas encore follow ?
↪#RickRossSurToi !  \r\nMake people laugh, nigga that's my motto\r\n#TeamCuisseDodue
↪#TeamSkinnyNigga","favourites_count":22,"profile_sidebar_border_color":"C0DEED",
↪"followers_count":236,"profile_image_url":"http:\/\/a0.twimg.com\/profile_images\/
↪1839059455\/IMG-20120218-00089_normal.jpg","screen_name":"JulianSKEETER","profile_
↪use_background_image":true,"profile_background_image_url_https":"https:\/\/si0.
↪twimg.com\/profile_background_images\/528094149\/Women-Ruined-My-life-shirt.jpg",
↪"location":"Rack city","contributors_enabled":false,"lang":"fr","geo_enabled":true,
↪"profile_text_color":"333333","protected":false,"profile_image_url_https":"https:\/
↪\/si0.twimg.com\/profile_images\/1839059455\/IMG-20120218-00089_normal.jpg","listed_
↪count":1,"profile_background_image_url":"http:\/\/a0.twimg.com\/profile_background_
↪images\/528094149\/Women-Ruined-My-life-shirt.jpg","name":"Julian Freemann",
```

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1.2.1 Showing the collection to humans

`poultry show` is a command which represents the tweets in the human readable form:

```
$ zcat ./tweets/2012-04-19-00.gz | head -n 2 | .env/bin/poultry show
MEL0L407: 100 days until summer Olympics
https://twitter.com/#!/MEL0L407/status/192764446173708291
2012-04-19 00:00:00

JulianSKEETER: Maeva et...? #ForeverAlone
https://twitter.com/#!/JulianSKEETER/status/192764447666864129
2012-04-19 00:00:00
```

Note: `poultry` can get data from several sources.

It cat read the input from the standard input. It also can read tweets from files in a directory. `-s` option specifies which directory has to be processed by `poultry`. If the source starts with `twitter://` then the Twitter Streaming API is used, see *Twitter streaming API Stream capturing* for more details.

Another way to get the tweets from the `./twwets` is to specify it via the `-s` option:

```
$ .env/bin/poultry show -s ./tweets
MEL0L407: 100 days until summer Olympics
https://twitter.com/#!/MEL0L407/status/192764446173708291
2012-04-19 00:00:00

JulianSKEETER: Maeva et...? #ForeverAlone
https://twitter.com/#!/JulianSKEETER/status/192764447666864129
2012-04-19 00:00:00

... many other tweets from the files in ./tweets ...
```

1.2.2 Grouping the collection by time

Sometimes it is necessary to group a tweet collection to files by tweet's creation time. `poultry group` groups the tweets (either from the standard input or from the input directory to chunks which are written to files.

```
$ .env/bin/poultry group -t 'by_day/%Y-%m-%d.gz' -s ./tweets
by_day/2012-04-19.gz
by_day/2012-04-20.gz
by_day/2012-04-21.gz
```

`-t` defines the template. The default template is `%Y-%m-%d-%H.gz` which groups the tweets by hour and stores them in files in the current directory.

1.3 Filter the collection

It is possible to filter the tweets of interest from the collection. The tweets can be filtered by three **main predicates**. Either of them needs to be true in order for a tweet to be filtered:

- follow IDs of the users of interest. In the configuration file one ID per line is expected.
- track a list of phrases that a tweet should contain to be filtered. In the configuration file one phrase per line is expected.
- locations a list of longitude, latitude pairs specifying a set of bounding boxes to filter tweets by. The South-West point of tweet's place is used if its coordinate is not provided.

It is possible to provide a desired language of the tweets using the `language` predicate. Note that `language` is an **additional predicate**. A main predicate has to be provided if the POST statuses/filter endpoint is used, however it can be the only predicate if filtering is done locally. Also, the `language` predicate has to be true in order for a tweet to belong to a filter.

`split_template` defines the destination path of the filtered stream. Use `--` to make it output to the console. This is useful in conjunction with the `--filters` parameter of `poultry filter`. Then you can have a general definition of a filter that, for example, selects the Dutch tweets and apply it to several collections by redirecting the standard output to different destinations.

The `--mode` parameter for the `filter` subcommand that sets the file opening mode. Use *w* to rewrite the files and *a* (the default) to append.

An example configuration file `./poultry.cfg`:

```
# A trick to be able to specify hashtags as individual tracking words.
[DEFAULT]
hash = #

# Filter only by one word `work`.
[filter:work]
split_template = ./work-%Y-%m-%d.gz
track = work
follow =
locations =
language =

# Filter tweets with the phrase `visit London`, or
# which are created by or mention the user with ID `47319664`
[filter:london]
split_template = ./london-%Y-%m-%d.gz
track = visit London
follow = 47319664
locations =
language =

# It is possible to mention several phrases
[filter:love-like-hate]
split_template = ./love-like-hate-%Y-%m-%d.gz
track = love
        like
        hate
follow =
locations =
language =

# The Netherlands are defined as two rectangles.
[filter:netherlands]
split_template = ./netherlands-%Y-%m-%d.gz
track =
follow =
```

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```
locations = 3.734090,51.560411,5.667684,52.493220
            3.821980,51.934515,7.040975,53.687342
# Request only the Dutch tweets from the location above.
language = nl

[filter:hashtags]
split_template = ./hashtags/%Y-%m-%d.gz
track =
        # this line is ignored
        # in the next line %(hash)s is substituted with #
        # see the top of the file for the hash definition.
        %(hash)slisten
        %(hash)smusic
        %(hash)slol
follow =
locations =
language =

[filter:debug]
# Print all English and Russian tweets to the console.
split_template = --
track =
follow =
locations =
language =
           en
           ru
```

Note: The main predicates (`track`, `follow`, `locations`) in the filter are ORed, meaning that a tweet to be filtered has to satisfy at least one predicate. `language` is ANDed afterwards.

Note: The directories defined in the `split_template` have to exist.

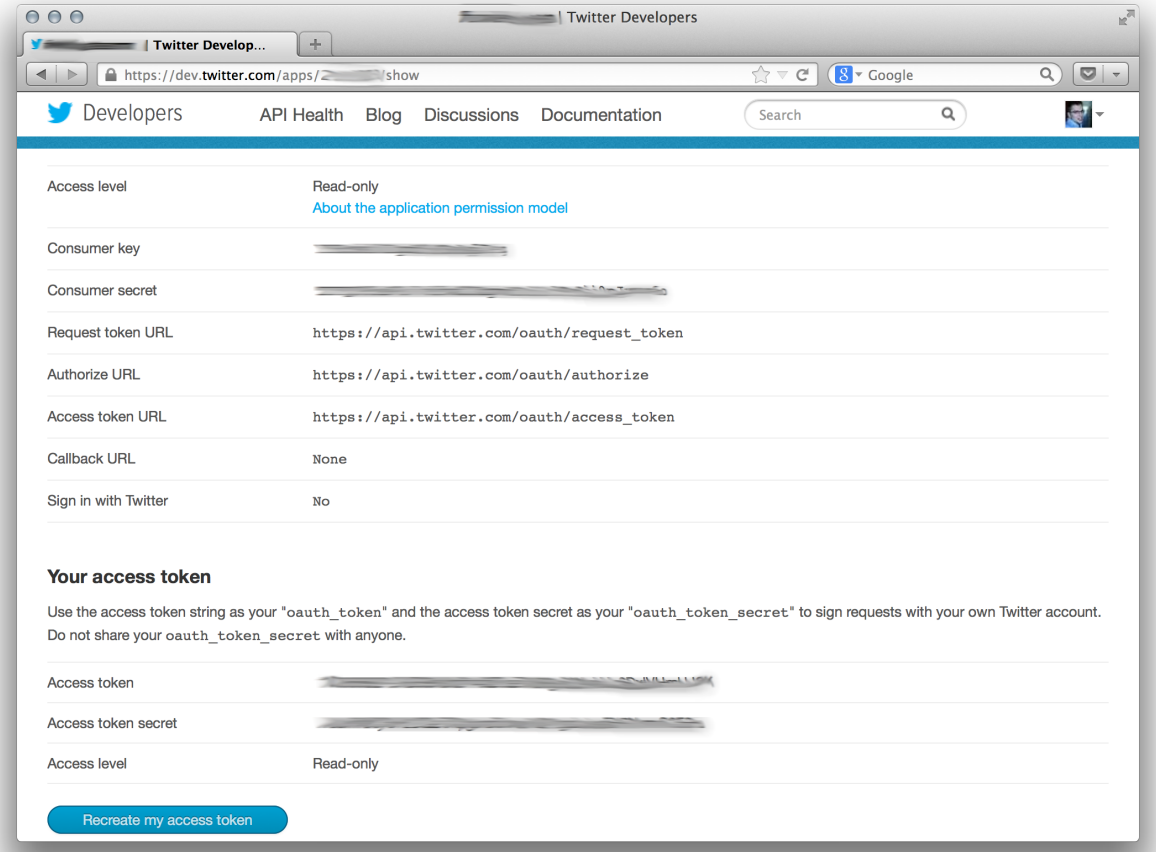
To filter the collection run:

```
$ .env/bin/poultry filter -c ./poultry.cfg  -s ./tweets
```

CHAPTER 2

Twitter streaming API Stream capturing

To get the access to the Twitter Streaming API, you need to create an application at https://apps.twitter.com/ and obtain `access_token`, `access_token_secret`, `consumer_key` and `consumer_secret`. You can get them from the app dashboard:



and copy to `poultry.cfg`:

```
[twitter]
access_token = ...
access_token_secret = ...
consumer_key = ...
consumer_secret = ...
```

2.1 Accessing the public streams

Twitter provides several public streams. The most interesting are POST statuses/filter and GET statuses/sample.

2.1.1 POST statuses/filter

Returns public statuses that match one or more filter predicates. The filtering predicates are defined in the configuration file:

```
.env/bin/poultry -s twitter://filter show
GermaineBling: SJ's manager is like the 16th member of SJ
https://twitter.com/#!/GermaineBling/status/411832441003704321
```

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```
2013-12-14 12:18:00

JASMEENAJ: It's like I am seeing myself in the mirror
https://twitter.com/#!/JASMEENAJ/status/411832441045655553
2013-12-14 12:18:00
```

The best way to collect several streams of tweets is to use the `filter` command:

```
$ .env/bin/poultry -s twitter://filter filter -c poultry.cfg -v
./love-like-hate-2013-12-14.gz
./work-2013-12-14.gz
./netherlands-2013-12-14.gz
```

2.1.2 GET statuses/sample

Returns a small random sample of all public statuses:

```
.env/bin/poultry -s twitter://sample show
Ferry_Chai: @graciel_11 wkwkwkw sama aja boong --"
https://twitter.com/#!/Ferry_Chai/status/411833391395266560
2013-12-14 12:21:46

Fofoll110: RT @itzGhadh:
https://twitter.com/#!/Fofoll110/status/411833391383052288
2013-12-14 12:21:46
```

The best way to capture a sample of tweets is to use the `group` command:

```
$ .env/bin/poultry -s twitter://sample group -c poultry.cfg
2013-12-14-11.gz
2013-12-14-12.gz
2013-12-14-13.gz
```

CHAPTER 3

Integration with other tools

If you want just to collect tweets and pass their text to your application, you can use the `text` command, which replaces the new line symbol `\n` with a space, so it should be safe assume that you will get one tweet per line:

```
$ .env/bin/poultry -s twitter://sample text -c poultry.cfg
@m1a2n0a1e
@ru_tiroru
Boleh kok boleh ka"@ekhaasyari: @deidrays dih gaboleh tah?"
siempre te llevo en mi mente pero ni idea donde estarás
```

and pipe it's output to your app:

```
$ .env/bin/poultry -s twitter://sample text -c poultry.cfg | java␣
↪TheUltimateTwitterSentimentor
```

CHAPTER 4

Iterating over a collection of tweets

It is possible to iterate over a colletion of tweets:

```
>>> from poultry import readline_dir

>>> for tweet in readline_dir('./tweets/'):
...     print(tweet.id, tweet.parsed['user']['screen_name'])
535436910794387460 dimazest
535432030939791360 dimazest
```

New in version 1.3.0

CHAPTER 5

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5.1 Developer guide

5.1.1 API

Producers

poultry.producers.**consume_stream**(*target*, *input_dir=None*)
Read lines from the standard input or files in a directory.

Behaves as a generator, should receive a .send() call to send a line to the target.

poultry.producers.**from_stream**(*target*, *source=None*, *config=None*, *extract_retweets=False*)
Send lines from the standard input, the input directory or the Twitter Streaming API.

Parameters

- **target** – a generator to which the read lines are sent.
- **source** – the path to a directory with tweet files.
- **config** – the config file
- **extract_retweets** – Extract retweets from the tweets.

poultry.producers.**readline_dir**(*input_dir*, *extract_retweets=False*, *mark_extracted=False*)
Read a tweet collection directory.

Parameters **input_dir** (*str*) – the patht to the directory

Returns an iterable of Tweet objects

Consumers

exception poultry.consumers.**BatchEndException**(*last_item*, *batch_size*)
Is thrown by batch() to the target generator on the end of the current batch.

class poultry.consumers.**SendNext**
Returned a consumer if the sent value is ignored, and the next value should be sent immediately.

poultry.consumers.**closing**(**args*, ***kwds*)
Throw exceptions to targets and close targets on exit.

poultry.consumers.**consumer**(*func*)
A decorator function that takes care of starting a coroutine automatically on call.

See http://www.dabeaz.com/generators/ for more details.

poultry.consumers.**count_tokens**(**counters*, ***kwargs*)
Count tokens in a tweet.

poultry.consumers.**lazy_counter**(**args*, ***kwds*)
Delay the update of the counter.

poultry.consumers.**timeline**(**counters*, ***kwargs*)
Count tweet's creation time.

Tweet

class poultry.tweet.**Coordinates**

exception poultry.tweet.**TweetValueError**
Thrown when a class:*Tweet* can't be built.

Stream

exception poultry.stream.**EndOfStreamError**
Twitter streams are supposed to be infinite.

The exception should be thrown, if for any reason the stream has ended.

class poultry.stream.**StreamConsumer**(*queue*, *target*, **args*, ***kwargs*)
A consumer of a stream of tweets.

run()
Method representing the thread's activity.

You may override this method in a subclass. The standard run() method invokes the callable object passed to the object's constructor as the target argument, if any, with sequential and keyword arguments taken from the args and kwargs arguments, respectively.

class poultry.stream.**StreamProducer**(*target*, *twitter_credentials*, *follow=None*, *track=None*, *locations=None*, *language=None*, *url='https://stream.twitter.com/1.1/statuses/filter.json'*, **args*, ***kwargs*)
A producer of a tweet stream retrieved from twitter.

Parameters

- **target** – A coroutine to which collected tweets are sent.
- **twitter_credentials** – A dictionary with *access_token*,

access_token_secret, *consumer_key* and *consumer_secret*. :param follow: A list of user ids to follow. :param track: A list of phrases to track. :param locations: A list of coordinates to get.

..todo:: Parameter description!

The default access level allows up to 400 track keywords, 5,000 follow userids and 25 0.1-360 degree location boxes. https://dev.twitter.com/docs/streaming-api/methods

run()
Method representing the thread's activity.

You may override this method in a subclass. The standard run() method invokes the callable object passed to the object's constructor as the target argument, if any, with sequential and keyword arguments taken from the args and kwargs arguments, respectively.

poultry.stream.**from_twitter_api**(*target*, *endpoint*, *config*)
Consume tweets from a Streaming API endpoint.

CHAPTER 6

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