

*DataScience for Development and Social Change, 2015*

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# Social Media as Data

How to get it, what to expect

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# Twitter Library

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- ❖ Twitter library <https://pypi.python.org/pypi/twitter>
- ❖ `import twitter`

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# Twitter: before you start...

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- ❖ Need to get authorization keys from Twitter
  - ❖ Go to <https://apps.twitter.com/>
  - ❖ Click “create new app”
  - ❖ Fill in the details (the actual website address doesn't matter here)



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# <https://apps.twitter.com/app/new...>

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## Create an application

### Application Details

**Name \***

Your application name. This is used to attribute the source of a tweet and in user-facing authorization screens. 32 characters max.

**Description \***

Your application description, which will be shown in user-facing authorization screens. Between 10 and 200 characters max.

**Website \***

Your application's publicly accessible home page, where users can go to download, make use of, or find out more information about your application. This URL will be used for source attribution for tweets created by your application and will be shown in user-facing authorization screens.  
(If you don't have a URL yet, just put a placeholder here but remember to change it later.)

**Callback URL**

Where should we return after successfully authenticating? [OAuth 1.0a](#) applications should explicitly specify their `oauth_callback` URL on the request token request given here. To restrict your application from using callbacks, leave this field blank.

# Your security tokens...

The screenshot shows the 'Application Management' page for an application named 'Thingythingy2'. The page has a blue header with the Twitter logo and the text 'Application Management'. Below the header, the application name 'Thingythingy2' is displayed in large black font, with a 'Test OAuth' button to its right. A navigation bar contains four tabs: 'Details', 'Settings', 'Keys and Access Tokens', and 'Permissions'. The 'Keys and Access Tokens' tab is currently selected. Underneath, the 'Application Settings' section is visible, with a warning: 'Keep the "Consumer Secret" a secret. This key should never be human-readable in your application.' The settings are listed in a table-like format with redacted values for the API key and secret. At the bottom, there is a grey box titled 'Application Actions' containing two buttons: 'Regenerate Consumer Key and Secret' and 'Change App Permissions'.

Setting	Value
Consumer Key (API Key)	[Redacted]
Consumer Secret (API Secret)	[Redacted]
Access Level	Read and write (modify app permissions)
Owner	bodaceecat
Owner ID	42722682

**Application Actions**

- Regenerate Consumer Key and Secret
- Change App Permissions

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# Scroll to the bottom of that page

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## Application Actions

Regenerate Consumer Key and Secret

Change App Permissions

## Your Access Token

*You haven't authorized this application for your own account yet.*

*By creating your access token here, you will have everything you need to make API calls right away. The access token generated will be assigned your application's current permission level.*

## Token Actions

Create my access token

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# Your access token

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## Your Access Token

*This access token can be used to make API requests on your own account's behalf. Do not share your access token secret with anyone.*

Access Token

[REDACTED]

Access Token Secret

[REDACTED]

Access Level

Read and write

Owner

bodaceecat

Owner ID

42722682

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# Now you can use the Twitter API

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```
import twitter
```

```
auth = twitter.oauth.OAuth(OAUTH_TOKEN,  
OAUTH_TOKEN_SECRET, CONSUMER_KEY,  
CONSUMER_SECRET);
```

```
ta = twitter.Twitter(auth=auth);
```

```
#read your timeline
```

```
mytimeline = ta.statuses.home_timeline();
```




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# Here's just some of the things

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```
mytimeline = ta.statuses.home_timeline();  
fematimeline = ta.statuses.user_timeline(screen_name="fema");  
ta.statuses.update(status="I just posted from Python!");  
ta.direct_messages.new(user=myfriendsname, text=mytextmessage);  
  
#woeid: world=1; USA=23424977; UK=23424975;  
#Kenya=23424863; Tanzania, Yemen not supported by Twitter  
place_trends = ta.trends.place(_id=woeid);
```


# Fema Tweets

**FEMA**   
@fema

This channel provides FEMA mission-related information. For emergencies, call your local fire/EMS/police or 9-1-1.


United States  
fema.gov  
Joined October 2008





 **Tweet to FEMA**


 In times of crisis, this account helps share critical information with Twitter Alerts. Be prepared


94 Followers you know

**Tweets**   Tweets & replies   Photos & videos





 **FEMA** @fema · 6h  
Multitask during your weekend errands - download the @fema app today!  
[cards.twitter.com/cards/9x9xv/gh...](https://cards.twitter.com/cards/9x9xv/gh...)

  17    7   

 **FEMA** @fema · Apr 17  
"The Force is strong with you. A powerful Sith you will become" with the help of your kit. #StarWarsTheForceAwakens 🙄



**femaregion5** @femaregion5  
Luke put Yoda in his. Build your own go kit, you will. Visit Ready.gov #PrepareAthon #StarWars 🙄

  29    19   



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# Fema Tweets

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```
>>> fematimeline = ta.statuses.user_timeline(screen_name="fema");
>>> for i in range(0,5):
...     print("{}: {}".format(i, fematimeline[i]['text'].encode('utf-8')))
...
0: Multitask during your weekend errands - download the @fema app today! https://t.co/ERWTcj2RIE
1: "The Force is strong with you. A powerful Sith you will become" with the help of your kit. #StarWarsTheForceAwakens https://t.co/GPxAIURfAH
2: RT @DHSgov: #DHS Week in Review: @FEMA launched upgrade to free app. Get alerts from @NWS for up to 5 locations across the U.S.: http://t.c...
3: RT @Citizen_Corps: Coordination is key to #disaster recovery and resilience. Learn how to 'bounce back' in this @fema blog post: http://t.c...
4: Hey, #smemchat-ters: Have you had a chance to check out the latest version of the @fema app with @NWS alerts? https://t.co/ERWTcj2RIE
```



# One Tweet

```
>>> fematimeline[0]
{u'contributors': None, u'truncated': False, u'text': u'Multitask during your weekend errands - download the @fema app today! http://t.co/ERWTcj2RIE', u'in_reply_to_status_id': None, u'id': 589505750705242115, u'favorite_count': 7, u'source': u'<a href="http://www.hootsuite.com" rel="nofollow">Hootsuite</a>', u'retweeted': False, u'coordinates': None, u'entities': {u'symbols': [], u'user_mentions': [{u'id': 16669075, u'indices': [55, 58], u'id_str': u'16669075', u'screen_name': u'fema', u'name': u'FEMA'}]}, u'hashtags': [], u'urls': [{u'url': u'https://t.co/ERWTcj2RIE', u'indices': [70, 93], u'expanded_url': u'https://pbs.twimg.com/cards/9x9xv/ghcn', u'display_url': u'cards.twitter.com/cards/9x9xv/gh\u2026'}]}, u'in_reply_to_screen_name': None, u'id_str': u'589505750705242115', u'retweet_count': 17, u'in_reply_to_user_id': None, u'favorited': False, u'user': {u'follow_request_sent': False, u'profile_use_background_image': True, u'profile_text_color': u'65686E', u'default_profile_image': False, u'id': 16669075, u'profile_background_image_url_https': u'https://pbs.twimg.com/profile_background_images/133948885/tw-412-1500.jpg', u'verified': True, u'profile_location': None, u'profile_image_url_https': u'https://pbs.twimg.com/profile_images/2620163192/j143q33k69loivqmp2dg_normal.gif', u'profile_sidebar_fill_color': u'DCDCE0', u'entities': {u'url': {u'urls': [{u'url': u'http://t.co/yHUd9eUBs0', u'indices': [0, 22], u'expanded_url': u'http://www.fema.gov/', u'display_url': u'fema.gov'}]}}, u'description': {u'urls': []}}, u'followers_count': 392812, u'profile_sidebar_border_color': u'FFFFFF', u'id_str': u'16669075', u'profile_background_color': u'CCCCCC', u'listed_count': 8377, u'is_translation_enabled': False, u'utc_offset': -14400, u'statuses_count': 9749, u'description': u'This channel provides FEMA mission-related information. For emergencies, call your local fire/EMS/police or 9-1-1.', u'friends_count': 609, u'location': u'United States', u'profile_link_color': u'2A91B0', u'profile_image_url': u'http://pbs.twimg.com/profile_images/2620163192/j143q33k69loivqmp2dg_normal.gif', u'following': False, u'geo_enabled': False, u'profile_banner_url': u'https://pbs.twimg.com/profile_banners/16669075/1399556408', u'profile_background_image_url': u'http://pbs.twimg.com/profile_background_images/133948885/tw-412-1500.jpg', u'name': u'FEMA', u'lang': u'en', u'profile_background_tile': False, u'favorites_count': 301, u'screen_name': u'fema', u'notifications': False, u'url': u'http://t.co/yHUd9eUBs0', u'created_at': u'Thu Oct 09 16:54:20 +0000 2008', u'contributors_enabled': False, u'time_zone': u'Eastern Time (US & Canada)', u'protected': False, u'default_profile': False, u'is_translator': False}, u'geo': None, u'in_reply_to_user_id_str': None, u'possibly_sensitive': False, u'lang': u'en', u'created_at': u'Sat Apr 18 19:08:18 +0000 2015', u'in_reply_to_status_id_str': None, u'place': None}
```



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# Tweepy: another Twitter library

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- ❖ Tweepy has some functions that aren't in the Twitter library
- ❖ tweepy <https://pypi.python.org/pypi/tweepy/3.3.0>

- ❖ Authenticate before using tweedy :

```
import tweepy
```

```
auth = tweepy.OAuthHandler(CONSUMER_KEY, CONSUMER_SECRET)
```

```
auth.set_access_token(OAUTH_TOKEN, OAUTH_TOKEN_SECRET)
```

```
ta = tweepy.API(auth)
```

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# Twitter Rate-Limits

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## Resource Information

Response formats	JSON
Requires authentication?	Yes
Rate limited?	Yes
Requests / 15-min window (user auth)	180
Requests / 15-min window (app auth)	300



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# Facebook

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- ❖ There's always a library: <https://facepy.readthedocs.org/en/latest/>
- ❖ `from facepy import GraphAPI`
- ❖ `import json`
- ❖ `#Get access token from https://developers.facebook.com/tools/explorer/`
- ❖ `access = 'your_facebook_access_token'`
- ❖ `graph = GraphAPI(access)`
- ❖ `page_id = 'id_of_page_you're_tracking'`
- ❖ `datas = graph.get(page_id + '/posts?fields=message', page=True, retry=5)`

# Facebook access token

The screenshot shows the Facebook Graph API Explorer interface. At the top, the browser address bar displays `https://developers.facebook.com/tools/explorer/`. The navigation menu includes 'Developers', 'My Apps', 'Products', 'Docs', 'Tools & Support', and 'News'. The main content area is titled 'Graph API Explorer' and includes settings for 'Application: [?] Graph API Explorer', 'Locale: [?] English (US)', and 'API Version: [?] v2.3'. Below these settings, the 'Access Token' field is redacted with a dark red brush. To the right of the redacted field are buttons for 'Debug' and 'Get Token'. The 'Get Token' button is circled in pink. Below the 'Access Token' field, there are tabs for 'Graph API' and 'FQL Query'. The 'Graph API' tab is active, showing a 'GET' method and a query `→ /v2.3/me?fields=id,name`. There are also 'Debug Enabled' and 'Submit' buttons. At the bottom, there is a link to 'Learn more about the Graph API syntax.'



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# OpenWeather

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```
boundingbox = '29.256,-12.039,40.561523,-0.922812'; #Tanzania
url = 'http://api.openweathermap.org/data/2.1/find/station?bbox='+boundingbox+',10&cluster=no'

response = requests.get(url=url)
data = json.loads(response.text)

fout = open('TZAweather.csv', 'wb+')
outcsv = csv.writer(fout)
outcsv.writerow(['name', 'latitude', 'longitude'])

for station in data['list']:
    print(station['name']+ ' latlong: '+
          str(station['coord']['lat'])+" "+
          str(station['coord']['lon']))
    outcsv.writerow([station['name'], station['coord']['lat'], station['coord']['lon']])
```



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# Other social APIs

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- ❖ Youtube
- ❖ Pachube
- ❖ Instagram
- ❖ Wikipedia
- ❖ etc