

# Introduction to Twitter

Tweets, Retweets, Mentioning, Hashtag

Intro to Twitter Dev

Intro to HCDE user module

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# Outline

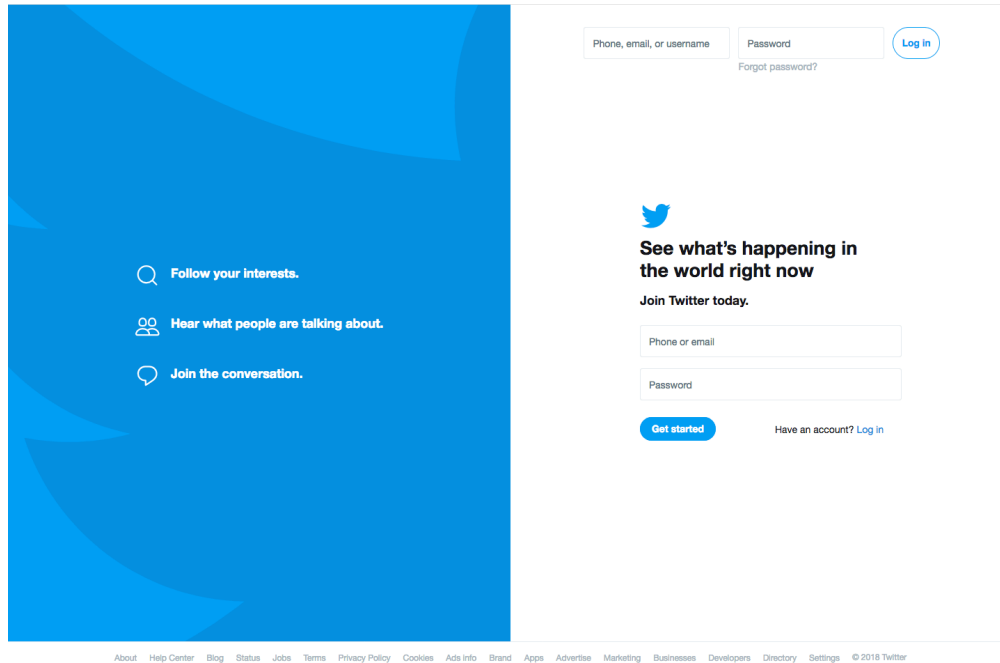
- What is Twitter?
    - UI and Interactions
  - Twitter Dev
    - Reading the REST API specifications
  - Installing HCDE python user module
-

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# What is Twitter?

- Micro blog
    - Status messages
    - 140 280 characters max
    - Links
  - Social
    - Follow (be followed)
    - Groups
-

# What is Twitter?



The screenshot shows the Twitter login interface. On the left, a blue sidebar contains three options: 'Follow your interests.', 'Hear what people are talking about.', and 'Join the conversation.' The main white area features a login form with fields for 'Phone, email, or username' and 'Password', a 'Log in' button, and a 'Forgot password?' link. Below this is a section for new users with the Twitter bird logo, the text 'See what's happening in the world right now', 'Join Twitter today.', and fields for 'Phone or email' and 'Password'. A 'Get started' button and a 'Have an account? Log in' link are at the bottom of this section. The footer contains a long list of links: About, Help Center, Blog, Status, Jobs, Terms, Privacy Policy, Cookies, Ads info, Brand, Apps, Advertise, Marketing, Businesses, Developers, Directory, Settings, and © 2018 Twitter.

Follow your interests.

Hear what people are talking about.

Join the conversation.

Phone, email, or username

Password

Log in

Forgot password?

See what's happening in the world right now

Join Twitter today.

Phone or email

Password

Get started

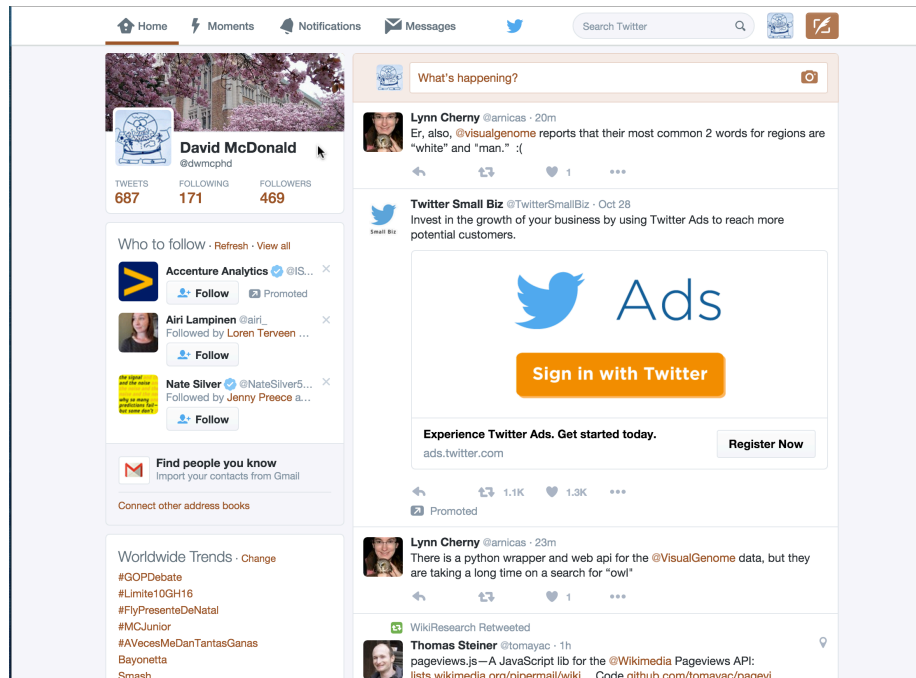
Have an account? Log in

About Help Center Blog Status Jobs Terms Privacy Policy Cookies Ads info Brand Apps Advertise Marketing Businesses Developers Directory Settings © 2018 Twitter

- Login screen
- Create account

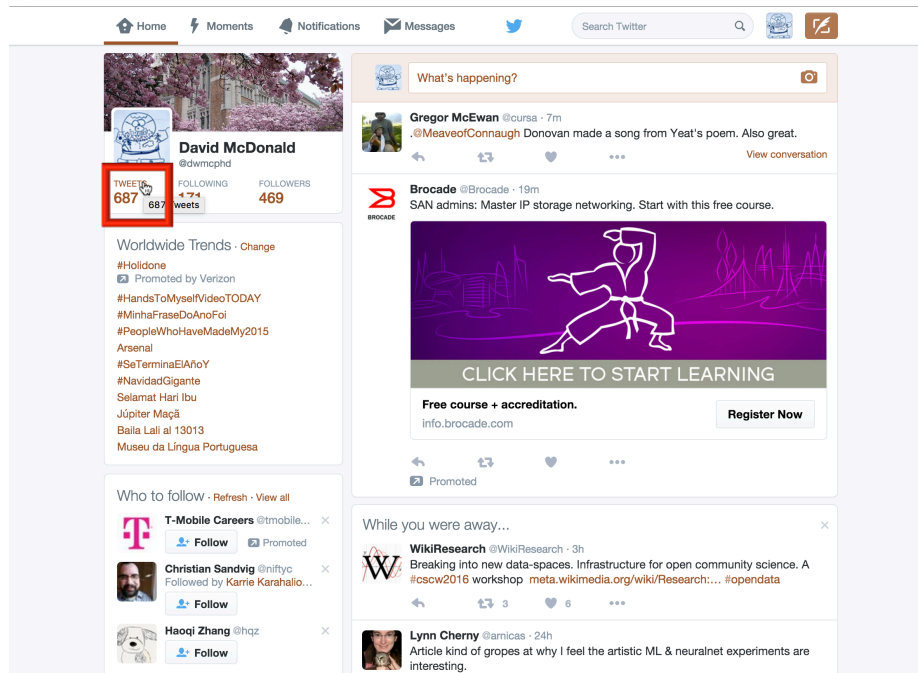


# What is Twitter?



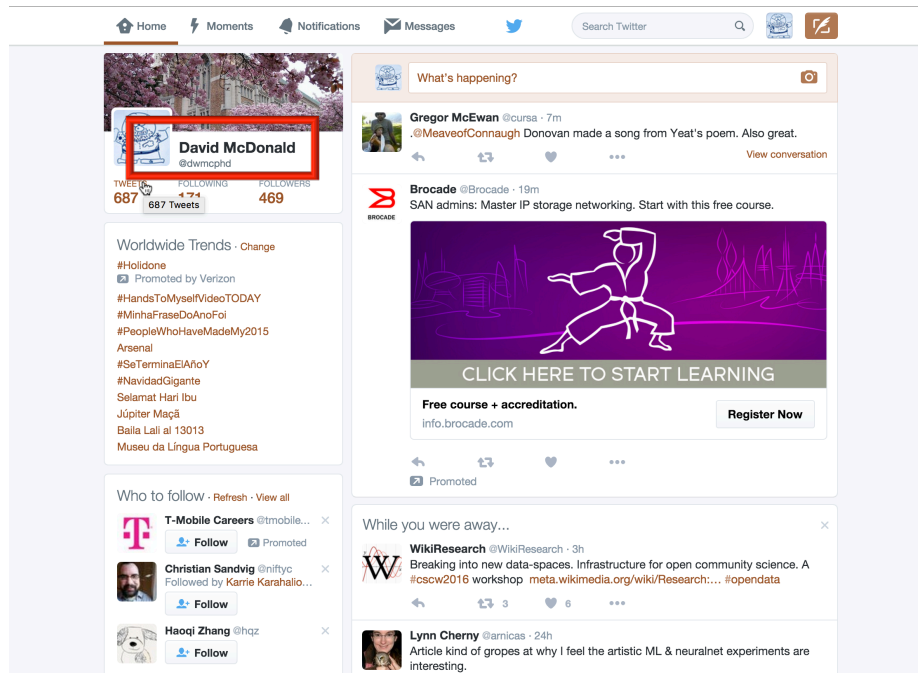
- Your main page
- “Public Timeline”
  - People you \*follow\*
  - Promoted content
    - Advertisements
- Trending topics
- Recommendations

# What is Twitter?



■ Getting to your tweet history

# What is Twitter?



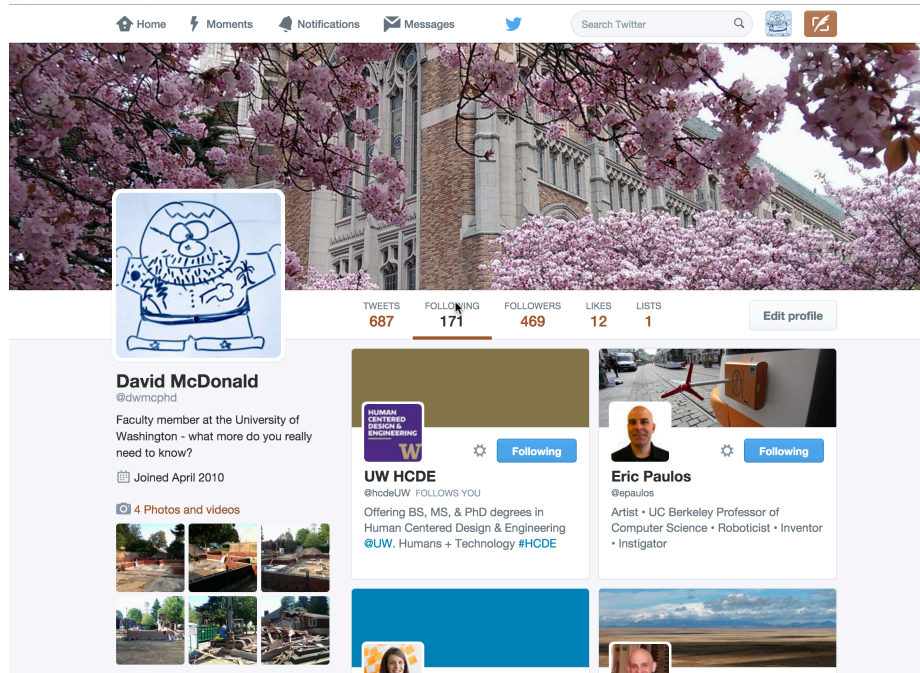
■ Getting to your tweet history

# What is Twitter?



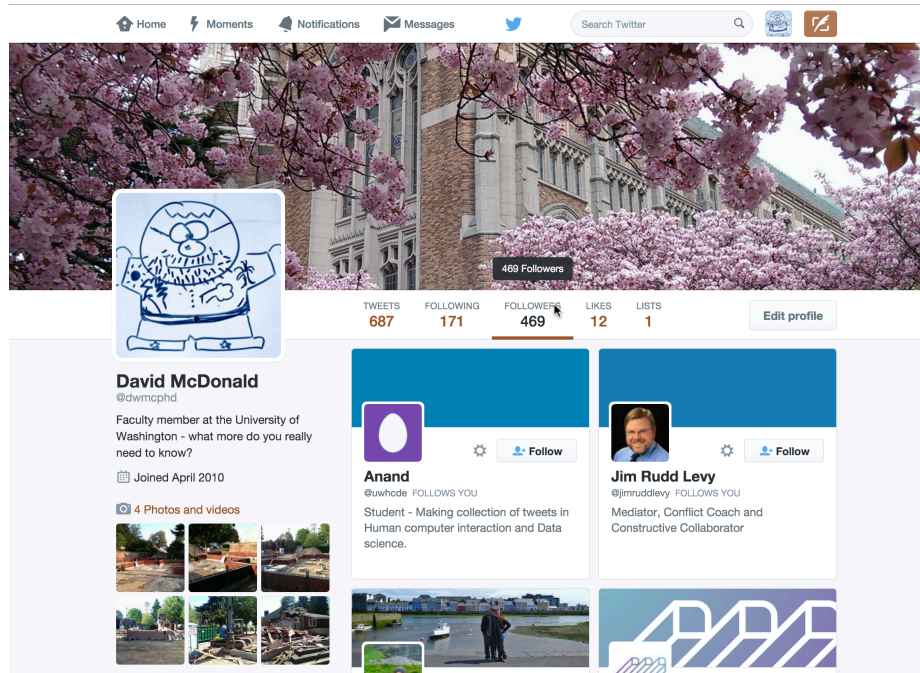
■ Your tweet history

# What is Twitter?



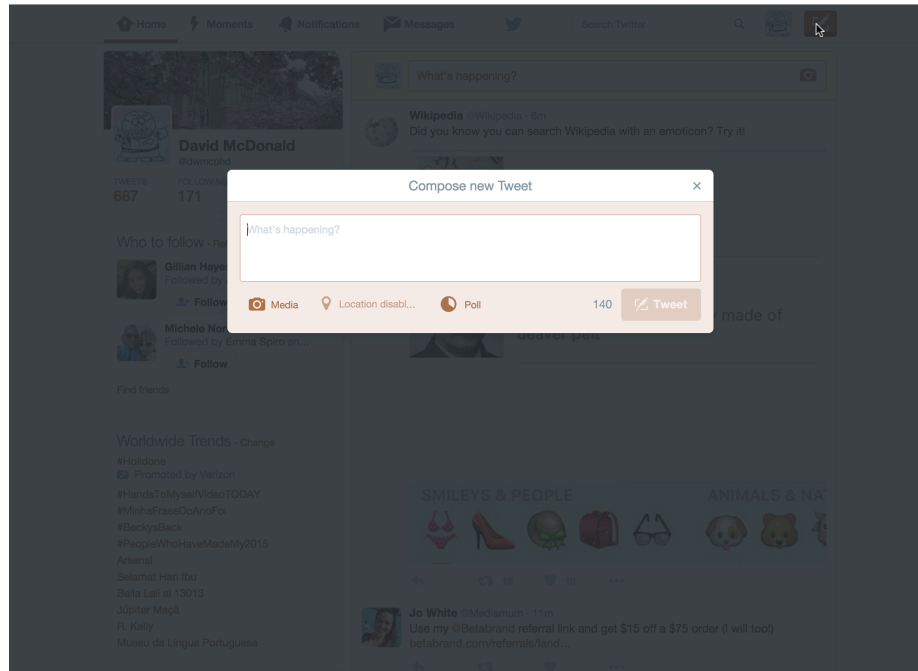
- Your “friends”
- The people who you follow

# What is Twitter?



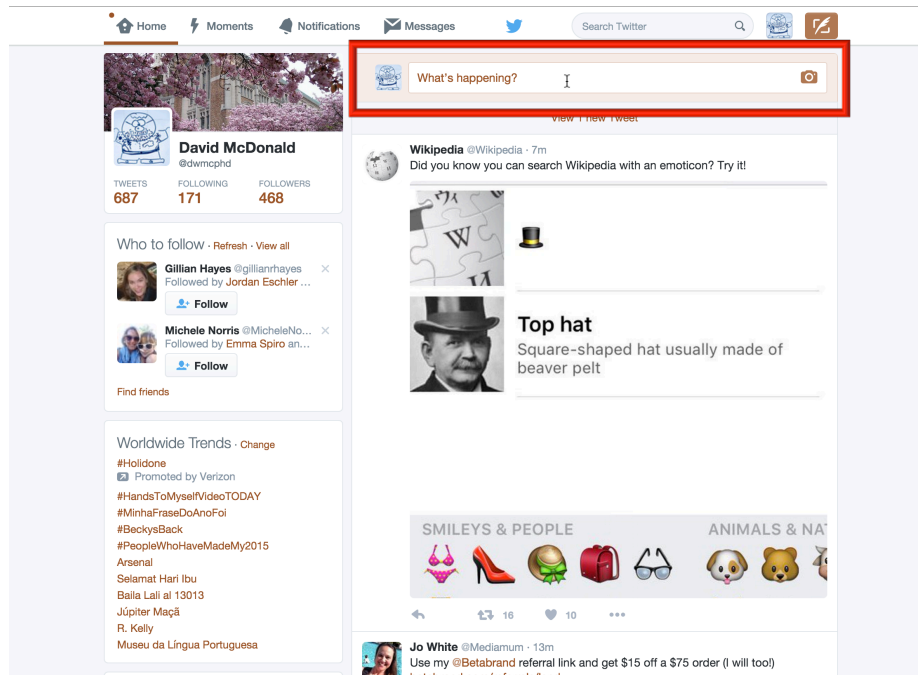
- Your followers
- The people who follow you

# What is Twitter?



- Compose, write a tweet
- Write a status update

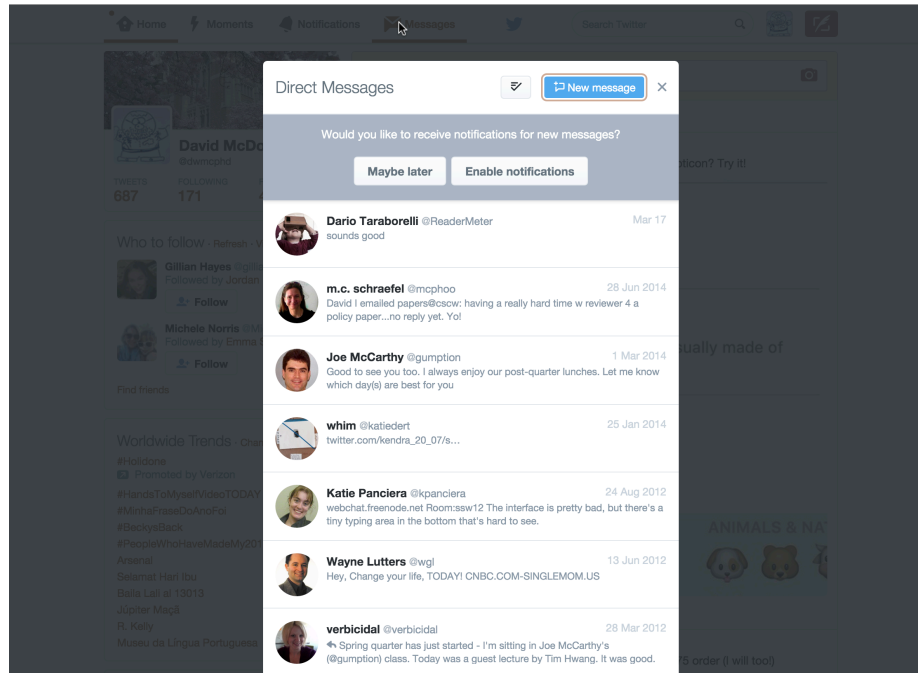
# What is Twitter?



- Compose, write a tweet

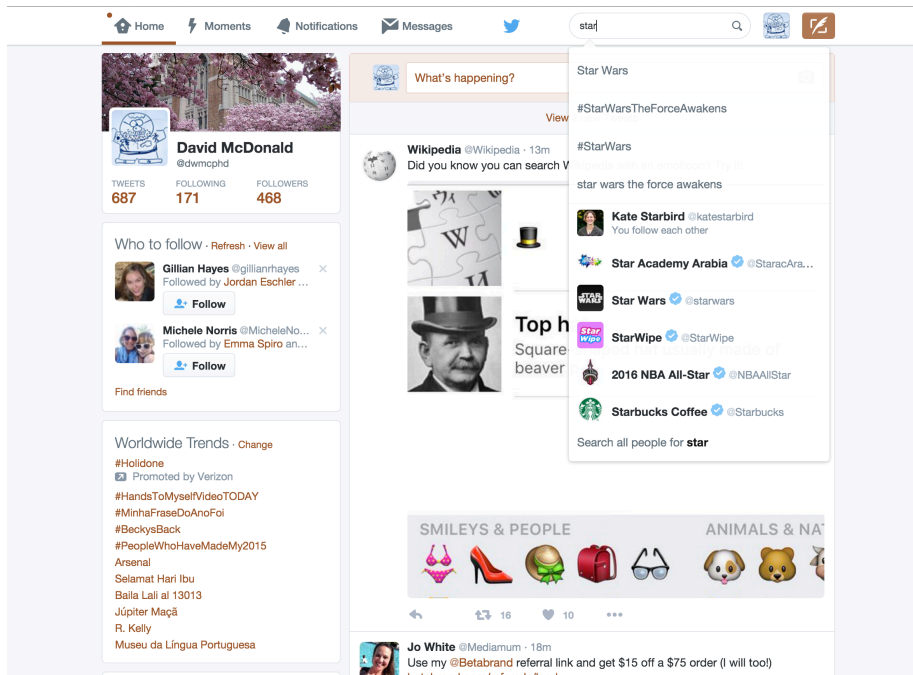


# What is Twitter?



- You can direct message people who follow you
- To have a direct message conversation you need to have a reciprocal follow!

# What is Twitter?



- Yes, you can search
  - Tweet content
  - People
  - Organizations
  - Lists

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# Twitter Conventions

- A “mention” or a directed tweet
  - @username (also see .@username)

# Twitter Conventions

- A “mention” or a directed tweet
  - @username (also see .@username)
- A re-tweet
  - RT @username (or) rt @username
  - via @username
    - (very) old style – almost never see this
  - More and more tools automate "re-tweet"

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# Twitter Conventions

- ▣ Categorization, tagging
    - ▣ #category
  - ▣ URL Shortening
    - ▣ URLs are long, too many characters
    - ▣ Services like bitly.com, tinyurl.com, ...
    - ▣ Twitter has t.co
-

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# Intro to Twitter Development

How to read the specifications

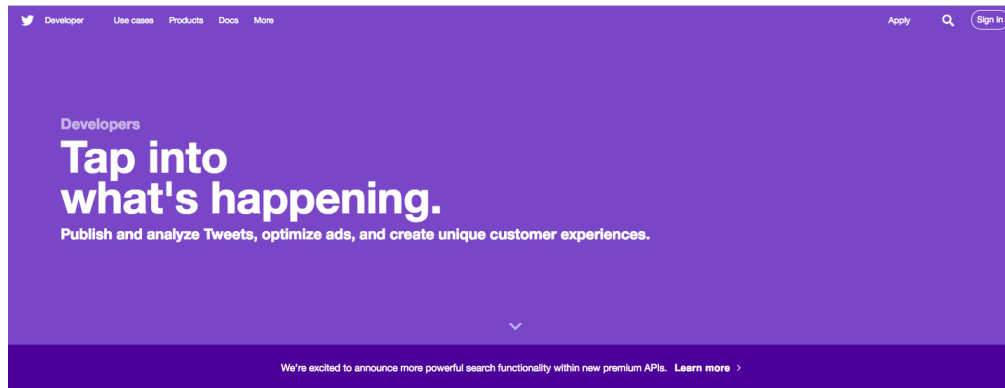
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# Goals

- Set up things to develop Twitter Applications
  - How to read and understand the way to interact with Twitter programmatically
    - REST – REpresentational State Transfer
      - Web model, where the state of the communication or the state of the communication/application is transferred each time a client interacts with a host
    - API – Application Programming Interface
-

# Twitter Dev



 <https://dev.twitter.com/>

## Use cases

### Advertise

Programmatically create and manage Twitter ad campaigns.

[Learn more >](#)

### Publish and curate

Tell great stories with Twitter content.

[Learn more >](#)

### Analyze

Evaluate Twitter data to inform business decisions.

[Learn more >](#)

### Engage

Create connections with conversational experiences.

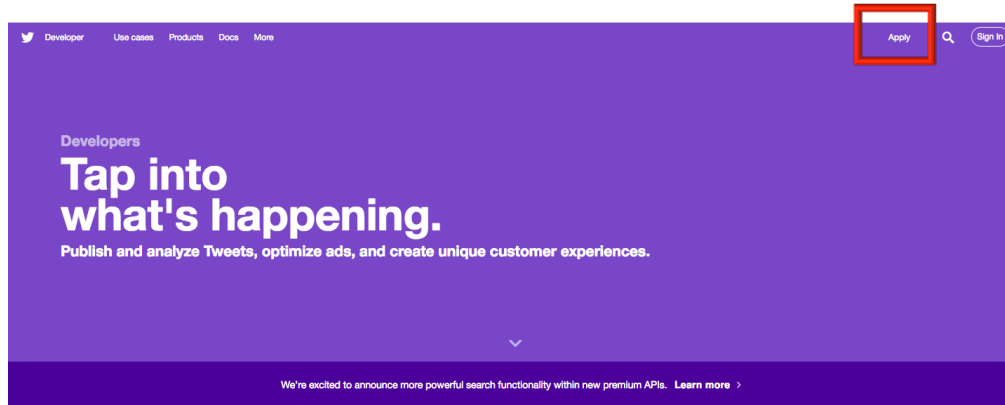
[Learn more >](#)

## Top endpoints

Below are a few examples of our Twitter API endpoints, requests, and responses. These examples use `twurl`—a command-line application that can be used to make authenticated requests to the Twitter platform. `twurl` is like `curl`, except that it abstracts away OAuth details once you configure it with your keys.



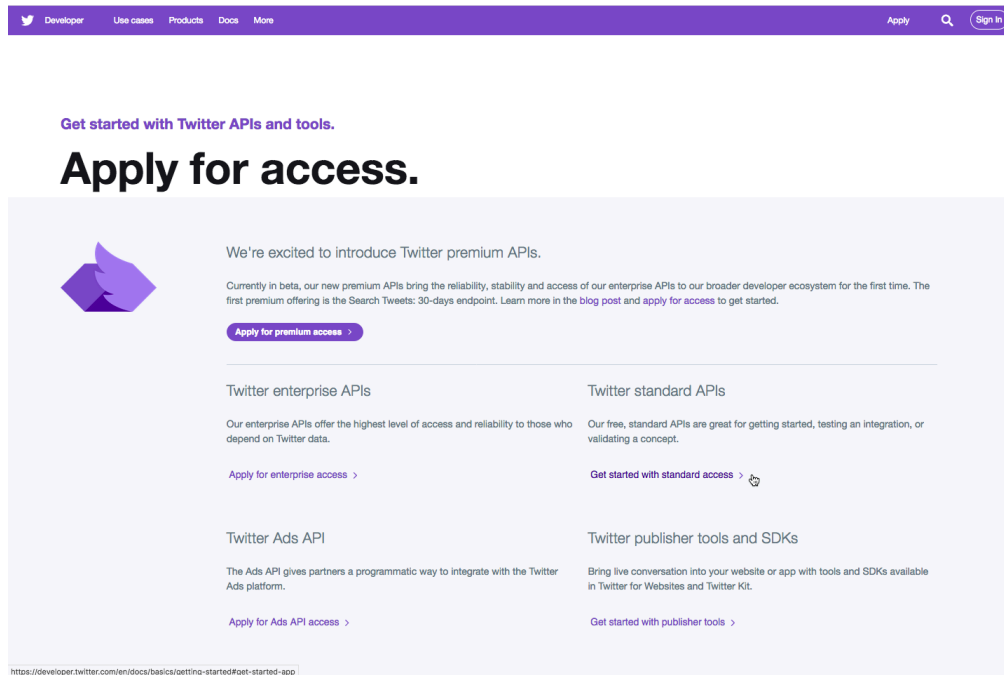
# Twitter Dev



■ <https://dev.twitter.com/>

■ Your twitter account is your "dev" account

# Twitter Dev



The screenshot shows the Twitter Dev website with a purple header containing navigation links: Developer, Use cases, Products, Docs, More, Apply, a search icon, and a Sign in button. Below the header, the text 'Get started with Twitter APIs and tools.' is followed by the main heading 'Apply for access.' and a purple icon of two hands. The main content area is divided into four sections: 'Twitter enterprise APIs' (with a description and an 'Apply for enterprise access' link), 'Twitter standard APIs' (with a description and a 'Get started with standard access' link), 'Twitter Ads API' (with a description and an 'Apply for Ads API access' link), and 'Twitter publisher tools and SDKs' (with a description and a 'Get started with publisher tools' link). A URL is visible at the bottom left: https://developer.twitter.com/en/docs/basics/getting-started#get-started-app.

Developer Use cases Products Docs More Apply Search Sign in

Get started with Twitter APIs and tools.

## Apply for access.

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[Apply for premium access](#)

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### Twitter enterprise APIs

Our enterprise APIs offer the highest level of access and reliability to those who depend on Twitter data.

[Apply for enterprise access](#)

### Twitter standard APIs

Our free, standard APIs are great for getting started, testing an integration, or validating a concept.

[Get started with standard access](#)

### Twitter Ads API

The Ads API gives partners a programmatic way to integrate with the Twitter Ads platform.

[Apply for Ads API access](#)

### Twitter publisher tools and SDKs

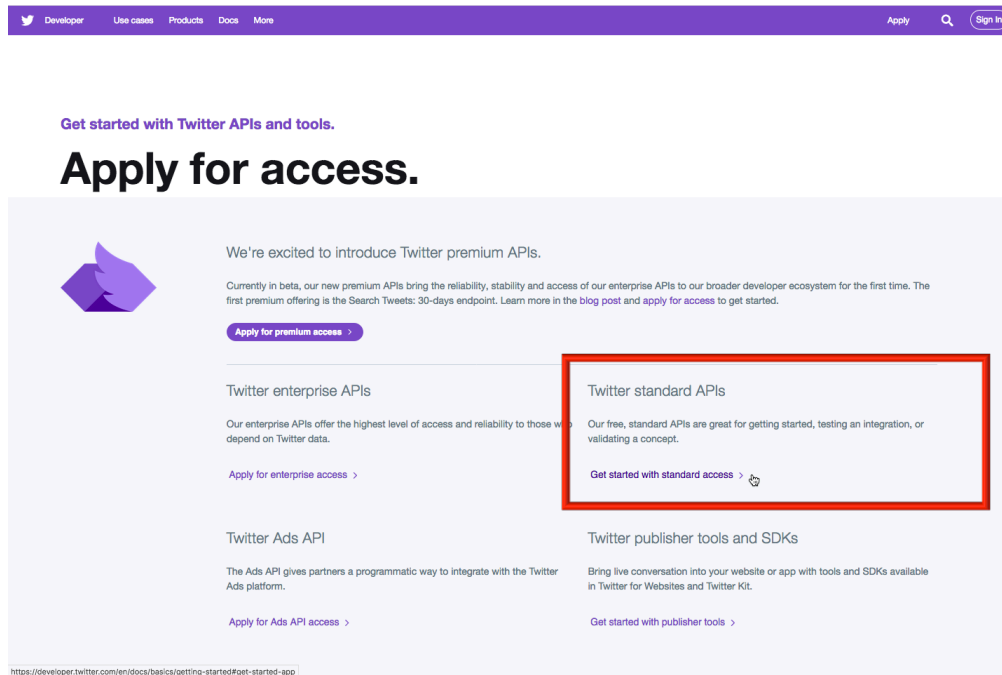
Bring live conversation into your website or app with tools and SDKs available in Twitter for Websites and Twitter Kit.

[Get started with publisher tools](#)

<https://developer.twitter.com/en/docs/basics/getting-started#get-started-app>

- Your twitter account is your dev sign in
- Allows you to create new twitter applications

# Twitter Dev



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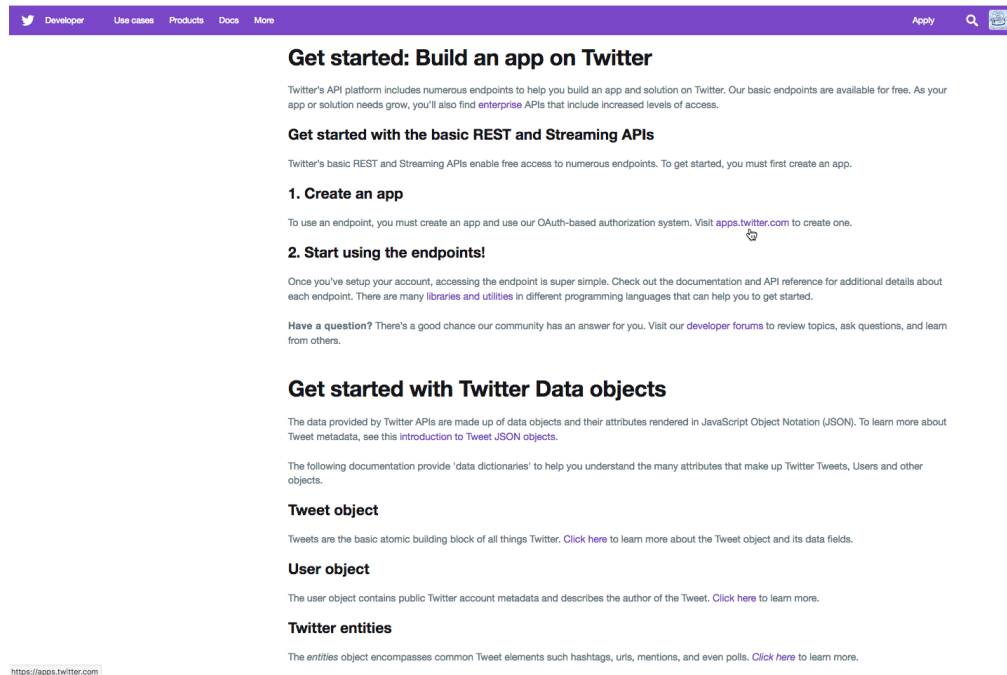
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- Get started: Build an app on Twitter**

Twitter's API platform includes numerous endpoints to help you build an app and solution on Twitter. Our basic endpoints are available for free. As your app or solution needs grow, you'll also find [enterprise](#) APIs that include increased levels of access.
- Get started with the basic REST and Streaming APIs**

Twitter's basic REST and Streaming APIs enable free access to numerous endpoints. To get started, you must first create an app.

  - 1. Create an app**

To use an endpoint, you must create an app and use our OAuth-based authorization system. Visit [apps.twitter.com](https://apps.twitter.com) to create one.
  - 2. Start using the endpoints!**

Once you've setup your account, accessing the endpoint is super simple. Check out the documentation and API reference for additional details about each endpoint. There are many [libraries](#) and [utilities](#) in different programming languages that can help you to get started.

**Have a question?** There's a good chance our community has an answer for you. Visit our [developer forums](#) to review topics, ask questions, and learn from others.
- Get started with Twitter Data objects**

The data provided by Twitter APIs are made up of data objects and their attributes rendered in JavaScript Object Notation (JSON). To learn more about Tweet metadata, see this [introduction to Tweet JSON objects](#).

The following documentation provide 'data dictionaries' to help you understand the many attributes that make up Twitter Tweets, Users and other objects.

  - Tweet object**

Tweets are the basic atomic building block of all things Twitter. [Click here](#) to learn more about the Tweet object and its data fields.
  - User object**

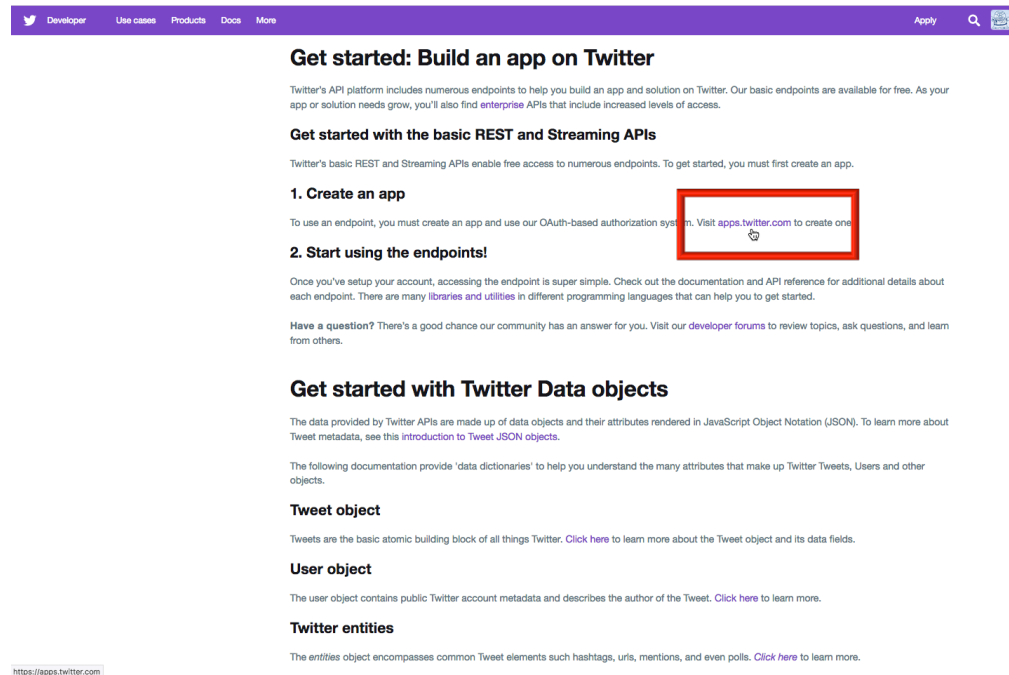
The user object contains public Twitter account metadata and describes the author of the Tweet. [Click here](#) to learn more.
  - Twitter entities**

The entities object encompasses common Tweet elements such as hashtags, urls, mentions, and even polls. [Click here](#) to learn more.

<https://apps.twitter.com>

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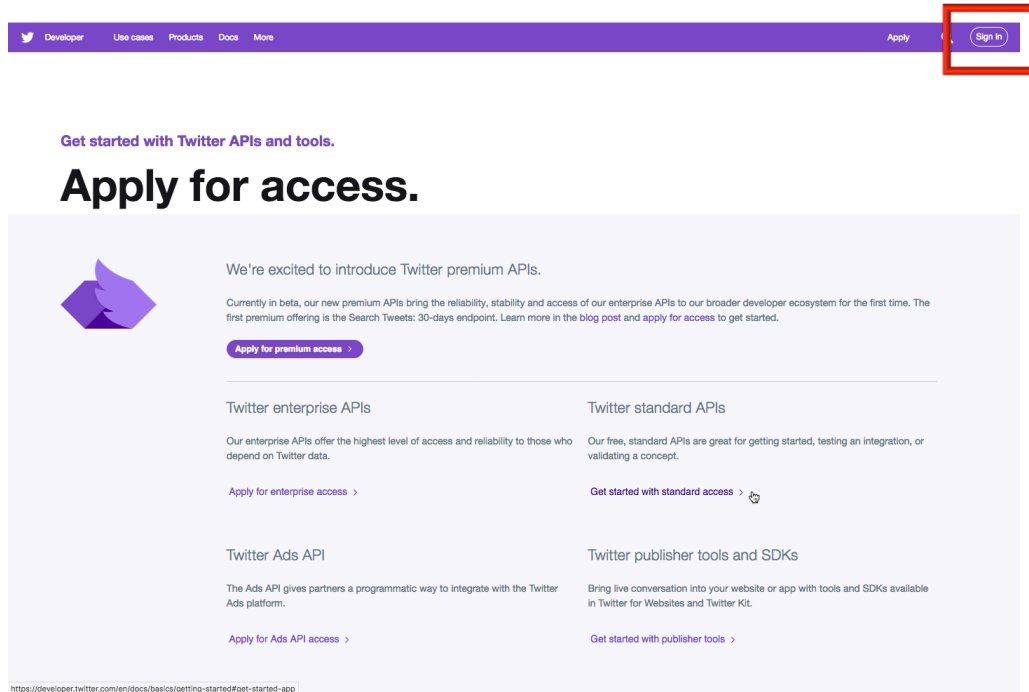
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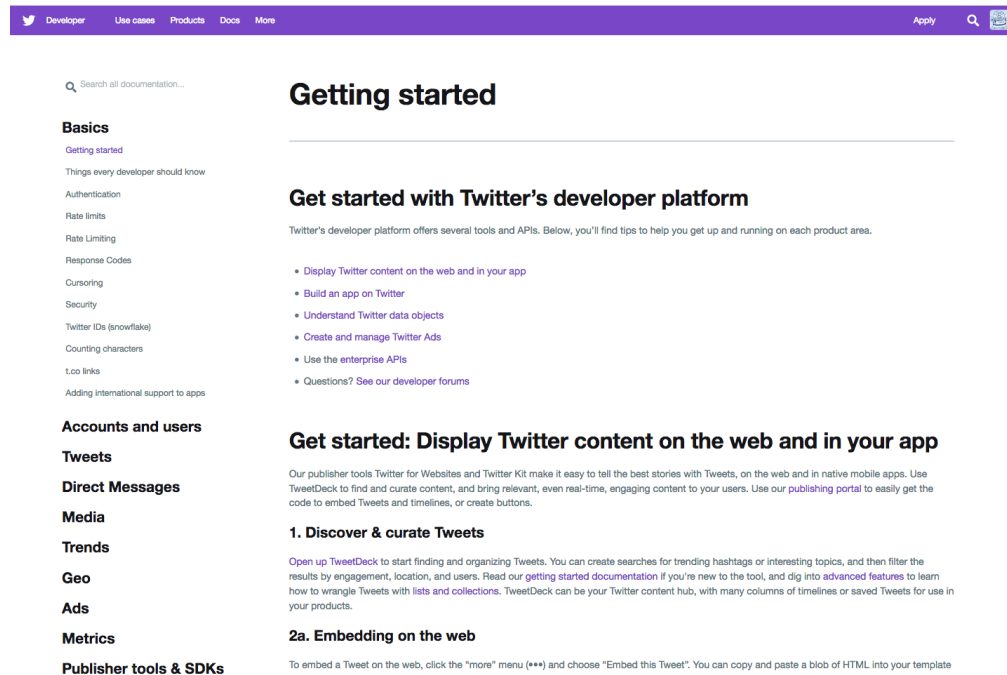


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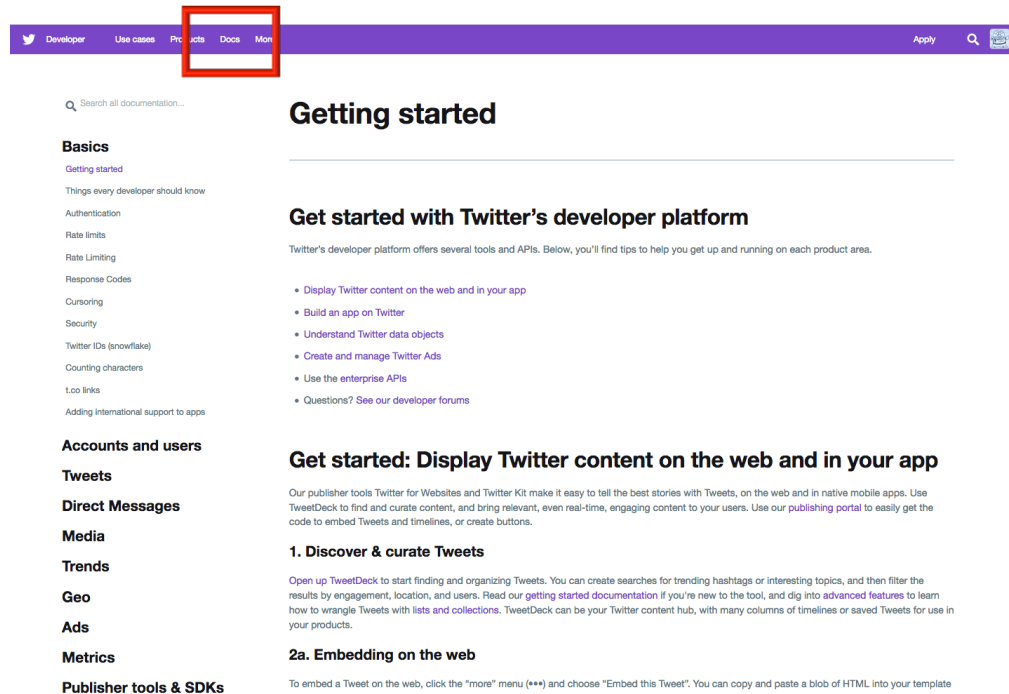
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- Allows you to find the documentation

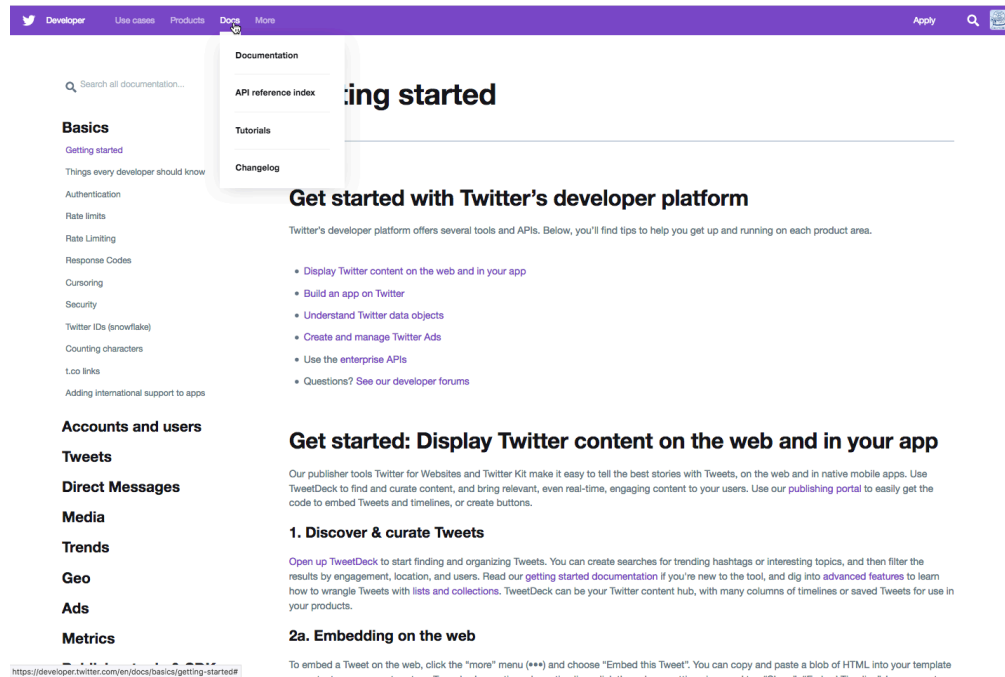
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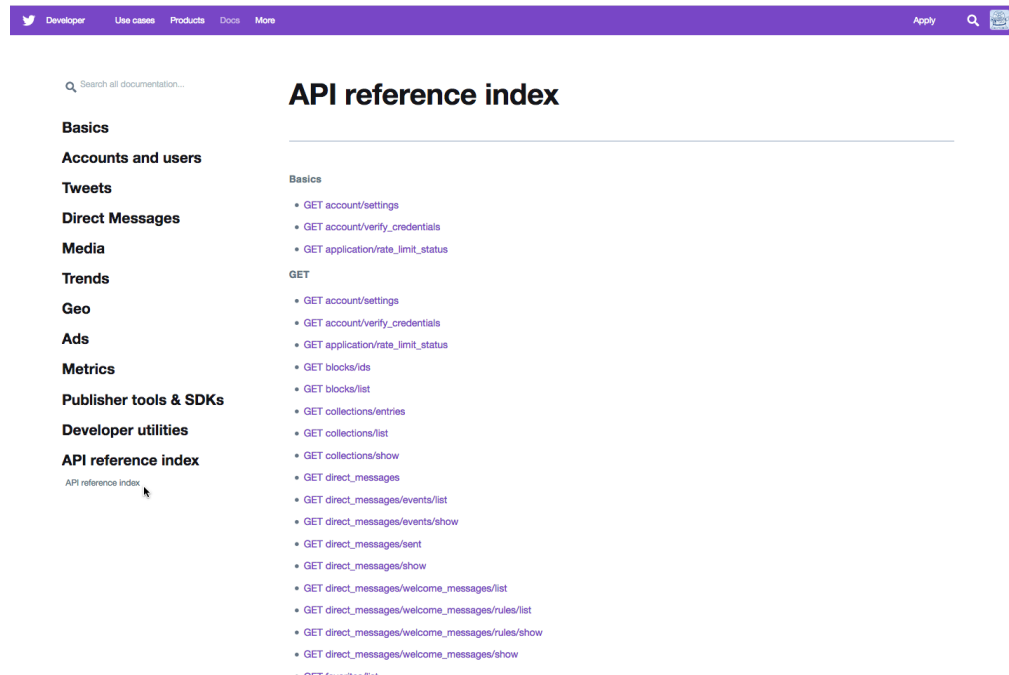


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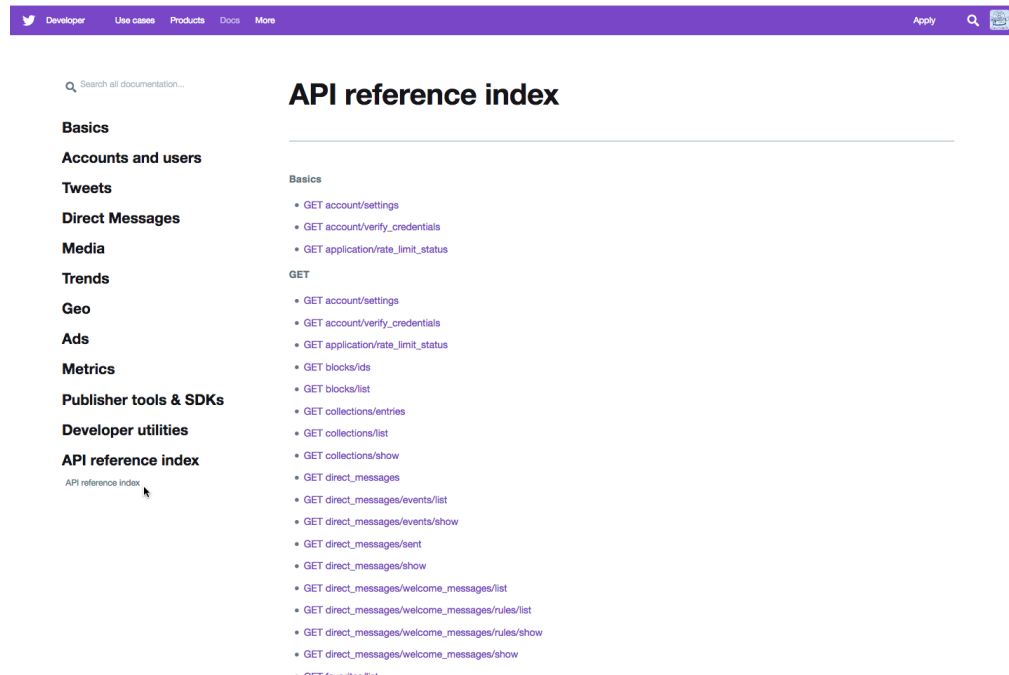


- Your twitter account is your dev sign in
- Allows you to create new twitter applications
- Allows you to find the documentation

# Twitter API Documentation

- This course focuses on the REST API
  - Documentation: <https://developer.twitter.com/en/docs>
  - More direct:  
<https://developer.twitter.com/en/docs/api-reference-index>
  - Data that you want to get is a "Resource"
    - Tweets, user profiles, friends, followers
- You access a "resource" through a URL
  - Almost like requesting a web page
    - All twitter resources require authentication (OAuth2)

# Twitter API Documentation



- Long list ways to get data from Twitter using their API
- Let's look at Search

# Twitter API Documentation

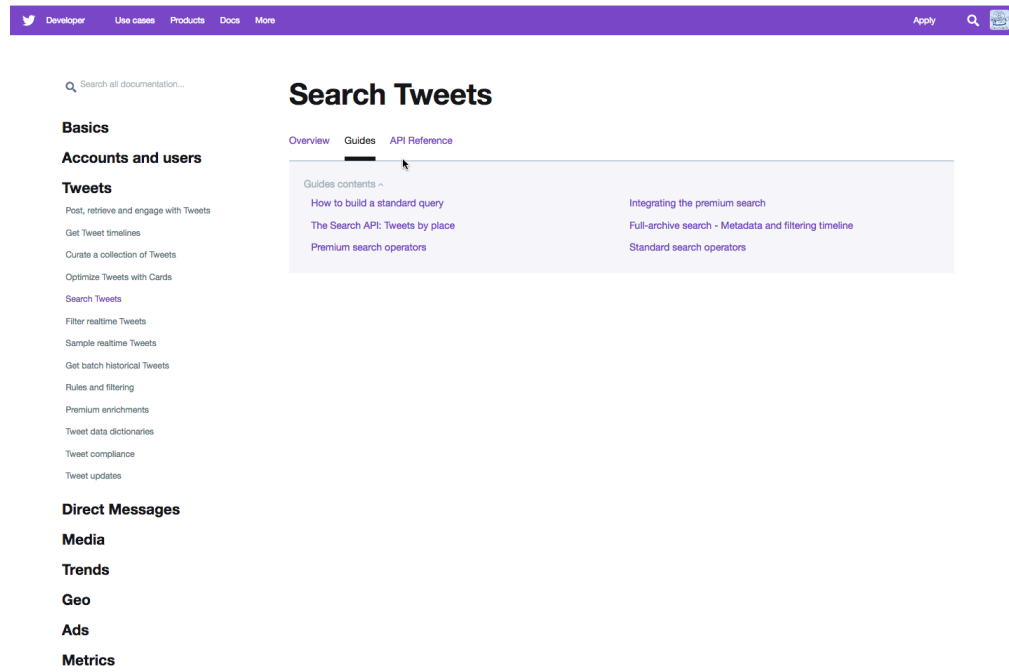
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Category	Product name	Supported history	Query capability	Counts endpoint	Data fidelity
Standard	Standard Search API	7 days	Standard operators	Not available	Incomplete
Premium	Search Tweets: 30-Day API	30 days	Premium operators	Available	Full
Enterprise	Enterprise Search API	30 days or more	Premium operators	Available	Full

■ GET search/tweets

■ Overview

# Twitter API Documentation



- GET search/tweets
- Guides
  - Examples, help ...

# Twitter API Documentation

The screenshot shows the Twitter API Documentation website. The top navigation bar is purple with links for Developer, Use cases, Products, Docs, and More. A search bar is on the right. The left sidebar contains a search bar and a list of categories: Basics, Accounts and users, Tweets, Direct Messages, Media, Trends, Geo, Ads, and Metrics. The main content area is titled 'Search Tweets' and has tabs for Overview, Guides, and API Reference. The 'API Reference' tab is active, showing a list of search APIs: Standard search API, Premium search API, and Enterprise search APIs. Below this, the 'Standard search API' section is expanded, showing a description of the API and a 'Resource URL' section with the URL `https://api.twitter.com/1.1/search/tweets.json`. A 'Resource Information' table is also present.

Resource Information	
Response formats	JSON
Requires authentication?	Yes

- GET search/tweets
- API Reference
  - How it works

# Twitter API Caveat

- All Resources have to be authenticated
  - In the best case this is just annoying
  - In the worst case this is frustrating to newcomers
- Open Authentication version 2 (OAuth2)
  - Great idea – in principle
  - Different implementations (versions) of the same specification



---

# GET search/tweets Resource

- Resource access point
  - <https://api.twitter.com/1.1/search/tweets.json>

# GET search/tweets Resource

- Resource access point
  - <https://api.twitter.com/1.1/search/tweets.json>
  - domain

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  - version

# GET search/tweets Resource

- Resource access point
  - <https://api.twitter.com/1.1/search/tweets.json>
  - domain
  - version
  - resource

# GET search/tweets Resource

- Resource access point
  - <https://api.twitter.com/1.1/search/tweets.json>
  - domain
  - version
  - resource
  - data return type

# GET search/tweets Resource

- Digression – Return Type JSON
  - JavaScript Object Notation (JSON)
  - Simple text based data structure
    - Collection of Key:Value pairs (like a python dictionary)
    - Lists (like a python list)
    - Keys are text (words)
    - Values are strings, int, real, collection, list
- Python has a json module – “slow”
  - There are several other json implementations - ultrajson

# GET search/tweets Resource

- Resource access point
  - <https://api.twitter.com/1.1/search/tweets.json>
- Parameters of the request
  - q – query parameter, term phrase
  - count – number of tweets to return
  - lang – restrict tweets to the indicated ISO 2 character code
  - result\_type – popular, recent, mixed
  - since\_id – return tweets more recent than the one given
  - max\_id – return tweets older than the one given



# Intro to HCDE User Module





# Basic Steps

1. Install distribution modules:
  - ▣ pymysql, requests, oauthlib, requests\_oauthlib
2. Download the HCDE python user module
3. Unzip
4. Copy into your python directory
  - ▣ The PYTHONPATH directory
5. Start using code
  - ▣ Authenticate both HCDE applications with your twitter user
  - ▣ Try some samples

# Download the HCDE user module

The screenshot shows a web page titled "COMPUTATIONAL TECHNIQUES FOR HCDE". The page is organized by weeks. Under "Week 3", there is a "Sample Code" section. A red rectangular box highlights the link "file\_example.py" within this section. The page also includes a "MENU" button in the top left corner and various lecture and reading links for each week.

**COMPUTATIONAL TECHNIQUES FOR HCDE**

**Week 3**

Lecture: [Intro to Twitter & HCDE Module Setup](#)  
Lecture: [Storing Tweets and Connecting to DBs](#)

Suggested Reading  
Russell, Chapter 1, Pages 5-19  
Russell, Chapter 6, Pages 240-263

**Sample Code**

[HCDE Module \(January 3, 2017 release\)](#)  
[file\\_example.py](#)  
[Person.py](#)  
[Student.py](#)

**Week 4**

Lecture: [Collecting Tweets with Search](#)  
Lecture: [Elementary Text Analysis](#)

Suggested Reading  
Russell, Chapter 1, Pages 20-44

**Sample Code**

[Example using Search object from Search.py](#)  
[Saving/restore data as Pickle and JSON](#)  
[Example of parsing hashtags](#)  
[Example parsing with regular expression](#)  
[Example frequency count and PrettyTables](#)  
[Example with bigrams and trigrams using nltk](#)

**Week 5**

Lecture: [Collecting Tweets with User Timelines](#)  
Lecture: [Programmatic Visualization - Intro to the Web as a Visualization Environment \(Ray\)](#)

Suggested Reading  
Russell, Chapter 3 Section 3.3, Pages 97-131  
Russell, Chapter 4 Sections 4.3 & 4.4, Pages 147-178

- Visit the course web page
- Click on the "Meeting Schedule" menus
- In Week 3, Sample Code is a link to a zip file for the HCDE user module

# Examples

## ■ Authenticate Apps with Login.py

- `python Login.py -auth HCDE530Test01 -user <your_twitter_user>`

## ■ Finding Trending Topics with Trend.py

- `python Trends.py -auth HCDE530Test01 -user <your_twitter_user> -place seattle`

- `python Trends.py -auth HCDE530Test01 -user <your_twitter_user> -woeid 2514815`