



Developing with Twitter

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18th Feb 2014

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Outline

- Hello Twitter
- Twitter APIs
 - Statistics and Application
 - Key Features
- Developing with Twitter API
(A Case Study on Mining User Profile)
 - API Accessing
 - Handling Outputs

How Twitter was Born

- Twitter was inspired by bike couriers
- First prototype was used as an internal service for Odeo employees
- Released into the wild in July 2006
- The tipping point was the 2007 SXSW conference

Twitter API: numbers

- >750K active developers
- >1M applications
 - Tools for Publishing: Twitterfeed

Feed your blog to Twitter,
Facebook, LinkedIn and more.

SERVING MILLIONS OF FEEDS TO SOCIAL NETWORKS

Register Now



Your Feed

+



Social Networks

=



twitterfeed

Sign In

Email Address

Password

Login

Sign In with LinkedIn,
Google, Yahoo! and more

[Help, I can't log in!](#)

[Don't have an account yet?](#)

Getting Started

Getting setup is easy and takes just minutes!

1

Create My Account.



2

Add My Feeds

Easily add your
existing feeds



3

Track My Feeds

Real-time Stats



Twitter API: numbers

- >750K active developers
- >1M applications
 - Tools for Publishing: Twitterfeed
 - Tools for Search: Tweetbeep



Free Twitter Alerts by Email!

If you love Twitter, you'll love TweetBeep! Keep track of conversations that mention you, your products, your company, anything, **with hourly updates!** You can even **keep track of who's tweeting your website or blog,** even if they use a shortened URL (like bit.ly or tinyurl.com). Now, how cool is that?!

Great for online reputation management, catching all your @replies and @mentions, finding job/networking opportunities, keeping up on your favorite hobby, and more!

TweetBeep has been featured in the [Wall Street Journal](#) and the [NY Times](#)!

Try TweetBeep Premium!

Upgrade your account to [TweetBeep Premium](#)! For \$20/month you get 200 alerts, a 15 minute alert option, and no advertisements! With [TweetBeep Premium](#) you can respond quickly to relevant tweets! Just sign up for a free account and then click the Upgrade link!

Free Sign Up

Username

For TweetBeep

Password

Be Tricky

Confirm Password

Your Name

Your Email

Twitter Username

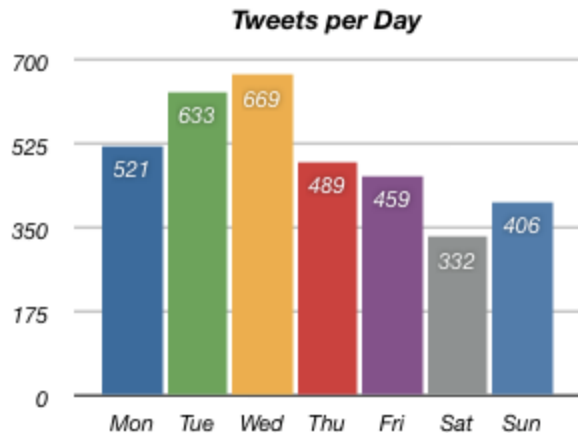
Note: Before you begin receiving alerts, you must check your email and click on the link!

Twitter API: numbers

- >750K active developers
- >1M applications
 - Tools for Publishing: Twitterfeed
 - Tools for Search: Tweetbeep
 - Tools for statistics: TweetStats

TweetStats

In ur Tweets, Graphin' Your Stats!

[Home](#)[Trends](#)[Donate](#)

Graph your Twitter Stats including

Tweets per hour

Tweets per month

Tweet timeline

Reply statistics

In use by nearly 1,000,000 Twitter-folk!

Enter your Twitter username

Graph My Tweets!

Looking for simple
Social Media Monitoring?



Brought to you by @dacort!

Refresh your stats - stats get updated when you come back after 8 hours and enter your username.

Interested in more detailed analytics?
Contact dacort at tweetstats.com

BOOKMARK ...

Donate

Made with love and lots of help by

[Damon Cortesi](#) aka ([@dacort](#))



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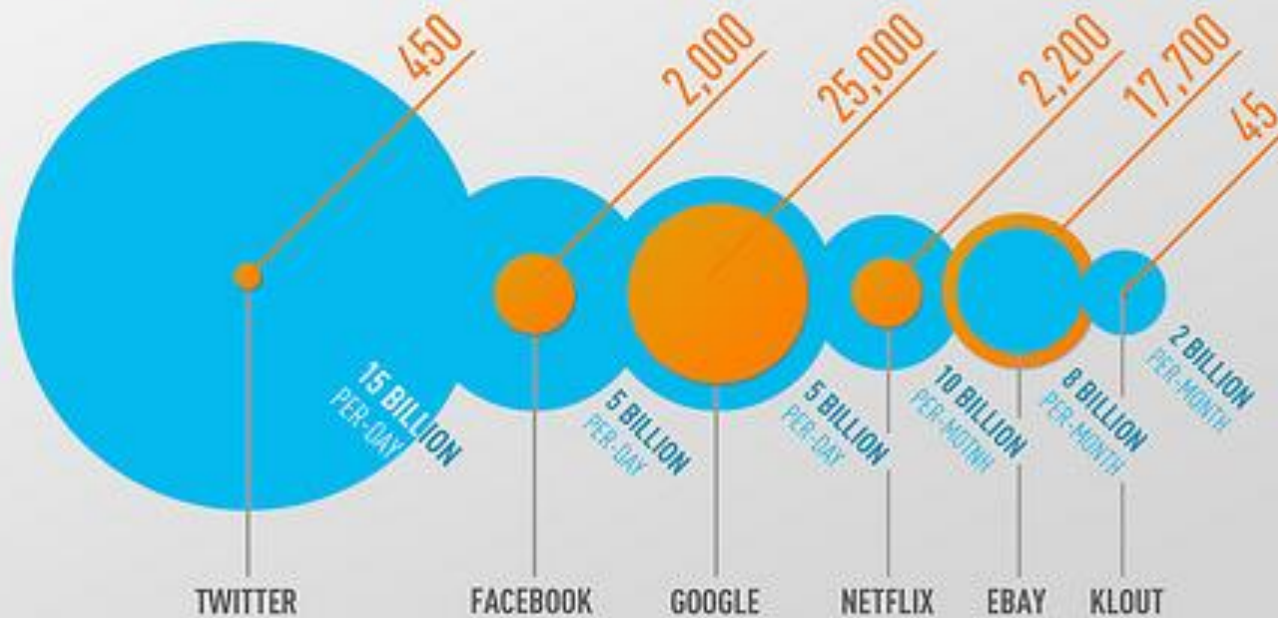
Twitter API: numbers

- >750K active developers
- >1M applications
 - Tools for Publishing: Twitterfeed
 - Tools for Search: Tweetbeep
 - Tools for statistics: TweetStats
 - And many more...
- 15B API requests per day

API BILLIONAIRES CLUB

API CALLS

EMPLOYEES



Twitter API: Key Features

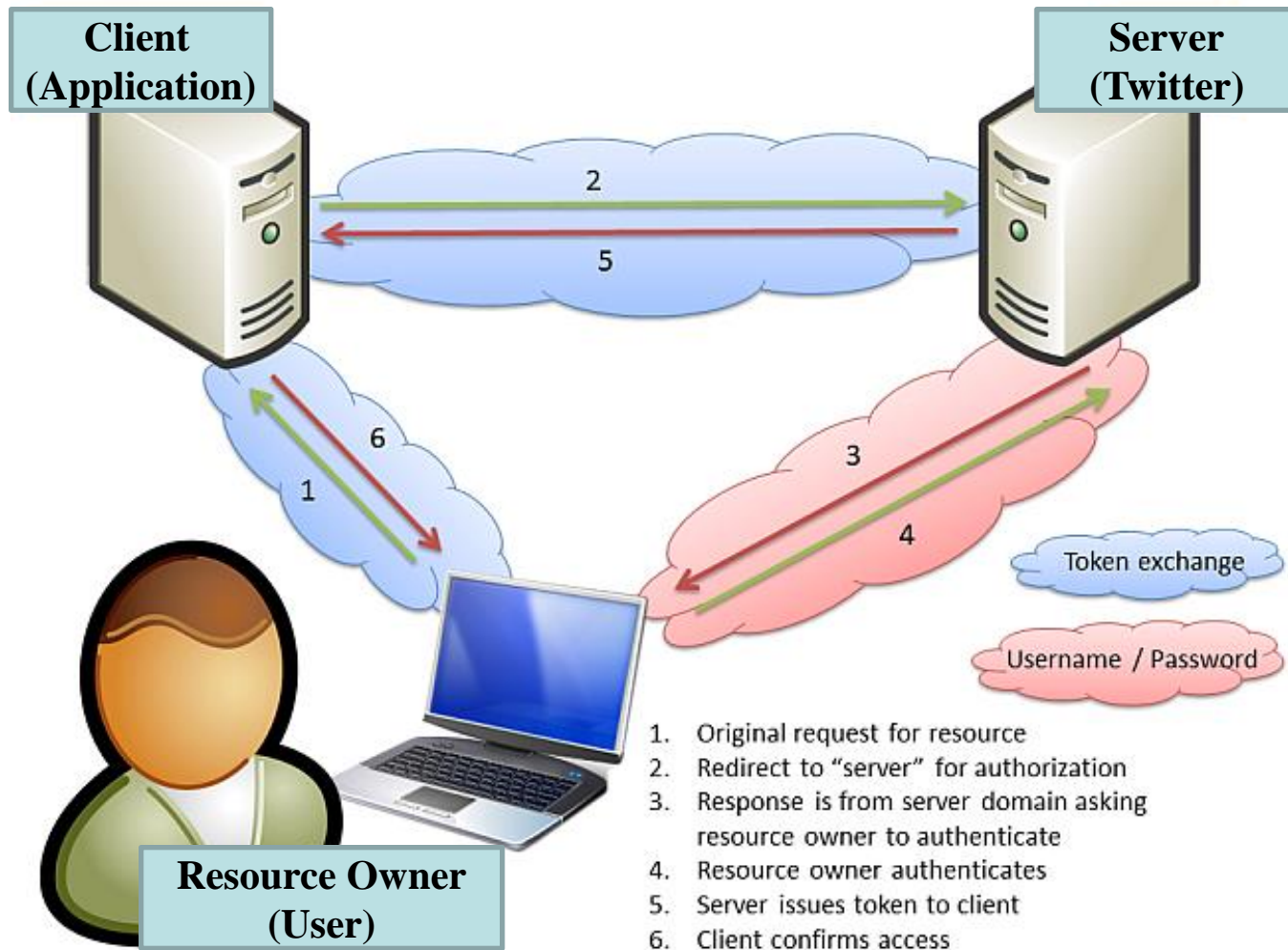
- OAuth
 - Open standard for authentication
- Three APIs
 - REST, Search and Streaming
- Main Objects
 - Timeline, Status and User
- Rate Limits

OAuth



- What is OAuth
 - a method for clients (application) to access server resources (Twitter info.) on behalf of a resource owner (Twitter User)
 - a process for resource owner to authorize third-party access to their server resources without sharing their credentials, using user-agent redirections.

OAuth Mechanism



Twitter API (REST API)

- REST API
 - Basic tweet functionality
 - Post tweet
 - Follow others,
 - Modify account settings, etc
 - All functions on the timeline
 - View tweets
 - Retweet etc

Twitter API (Search API)

- Search API
 - Discover trends
 - Real-time search index
 - By keywords
 - By user
 - By location

Twitter API (Streaming API)

- Streaming API
 - HTTP long-poll connection
 - Tweets in real-time
 - Sample of public tweets
 - Filter real-time tweets on
 - Keywords
 - Users etc.

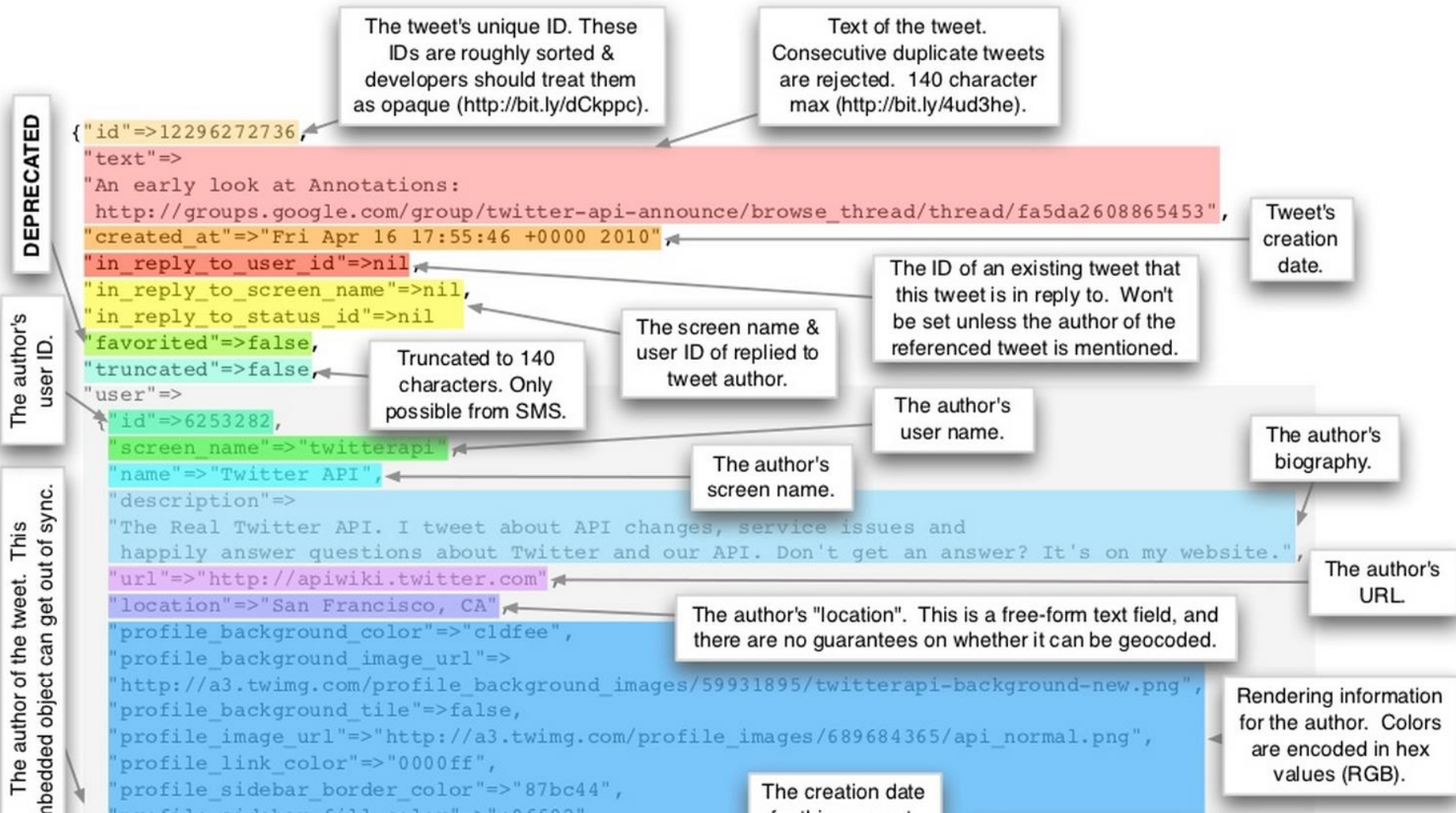
Rate limit

- **Per User Basis**
- **Time Window: 15 minute intervals**
 - REST API: 15 or 180 calls per window
 - Search API: will be rate limited at 180 queries per window
 - Streaming API: streaming cap (about 1% of the public stream)

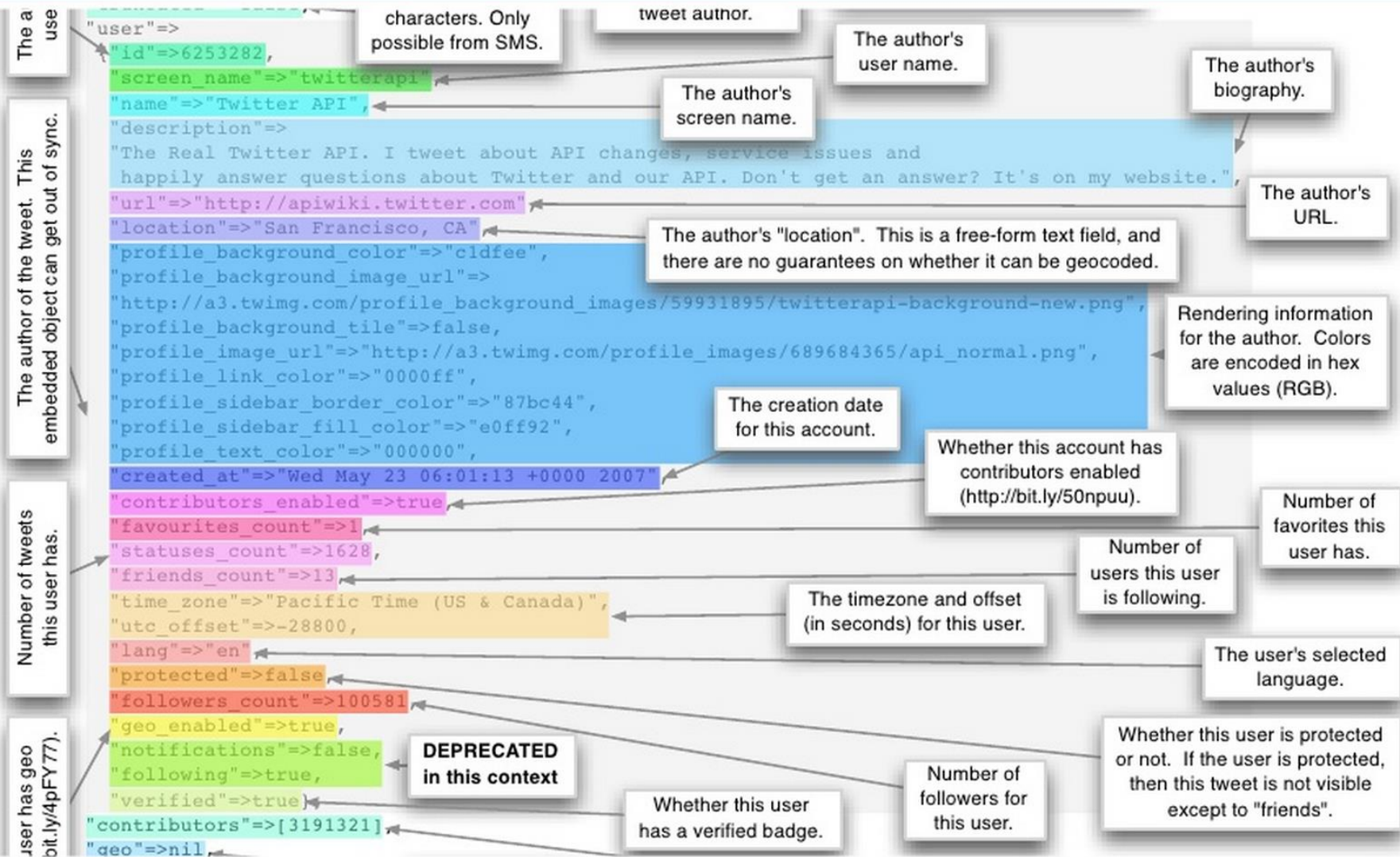
Three Main Objects

- Timeline
 - Orderings of tweets/**Status**
- Status
 - The tweet (text, author/**User**, location ...)
- User
 - Twitter user profile

Three Main Objects (JSON)



Three Main Objects (JSON)



A case study for user profile crawling by using JAVA

DEVELOPING WITH TWITTER API

In order to build ...

- A Twitter developer ID
- Java
 - <https://www.java.com/en/download/>
- Eclipse: IDE for Java development
 - <https://www.eclipse.org/downloads/>
- Twitter4j: Java library for the Twitter API
 - <http://twitter4j.org/en/index.html#download>

Establish Account



Have an account? [Sign in](#) ▼

Join Twitter today.

Full name

Enter your first and last name.

Email address

Create a password

Choose your username

☒ Keep me signed-in on this computer.

By clicking the button, you agree to the terms below:

These Terms of Service ("Terms") govern your access to and use of the services, including our various websites, SMS, APIs, email

Printable versions:

[Terms of Service](#) · [Privacy Policy](#) · [Cookie Use](#)

Create my account

Note: Others will be able to find you by name, username or email. Your email will not be shown publicly. You can change your privacy settings at any time.

Create Application

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



Create Application

 Application Management

Twitter Apps

Create New App

Create Application

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 fully-qualified URL is used in the 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 step, regardless of the value given here. To restrict your application from using callbacks, leave this field blank.

Create Application

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 *

<http://www.<abcdefg>.com>

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 fully-qualified URL is used in the 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 step, regardless of the value given here. To restrict your application from using callbacks, leave this field blank.

Get API Keys

Your application has been created. Please take a moment to review and adjust your application's settings.

twit for dmsn

Test OAuth

Details

Settings

API Keys

Permissions



an app for show to the dmsn

<http://tweet-dmsn.com/>

Organization

Information about the organization or company associated with your application. This information is optional.

Organization None

Organization website None

Application settings

Your application's API keys are used to [authenticate](#) requests to the Twitter Platform.

Access level Read-only ([modify app permissions](#))

Get Access Token

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

Get Access Token

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

121257170-HDLEIR-CONCEP-10MOM-02BAS-M000H00P-01

Access token secret

4HUS-K-SHLL-ENT-H-0E-M0IS-1A1555E

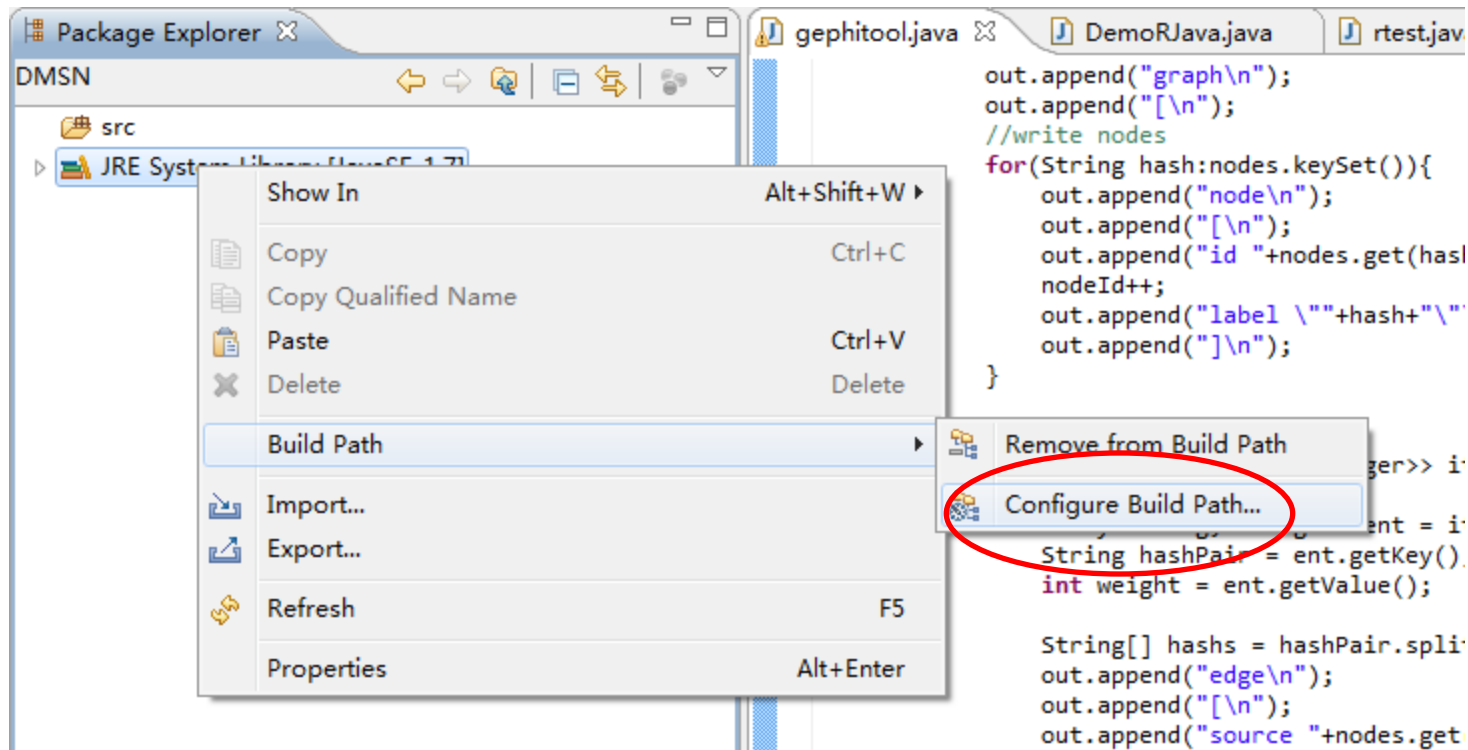
Get API Keys

- Remember your
 - API key
 - API secret
 - Access token
 - Access token secret

Java Project for Twitter

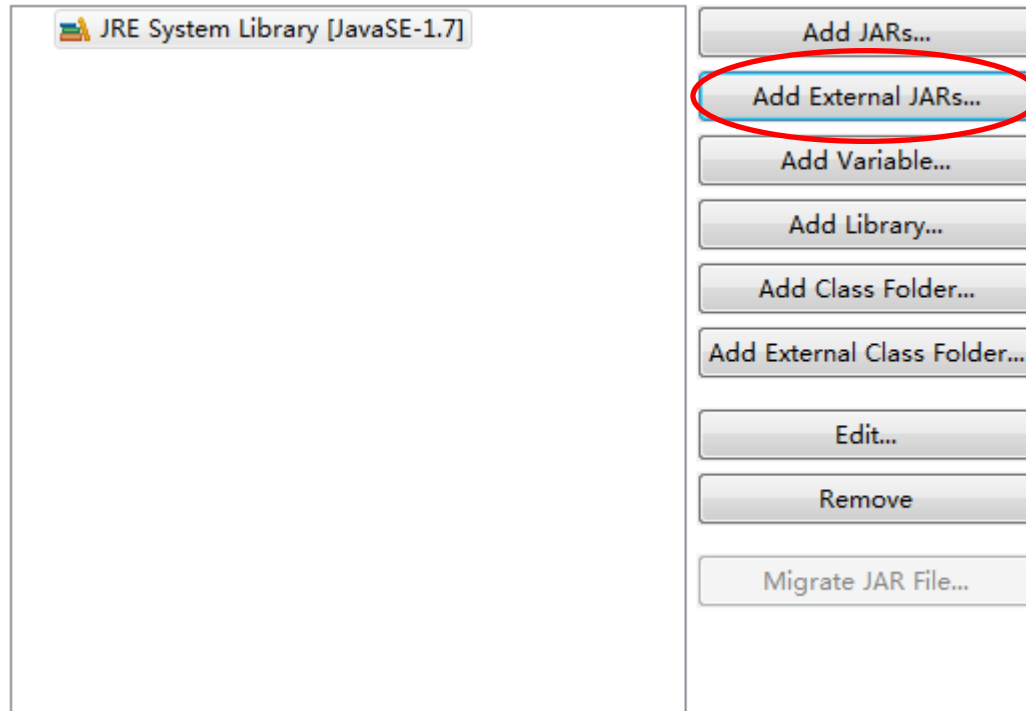
- Install Java & Eclipse
- Create a new project
- Twitter4j library:
 - Current version 3.0.5
 - all jar files under directory /lib

import the Twitter4j library

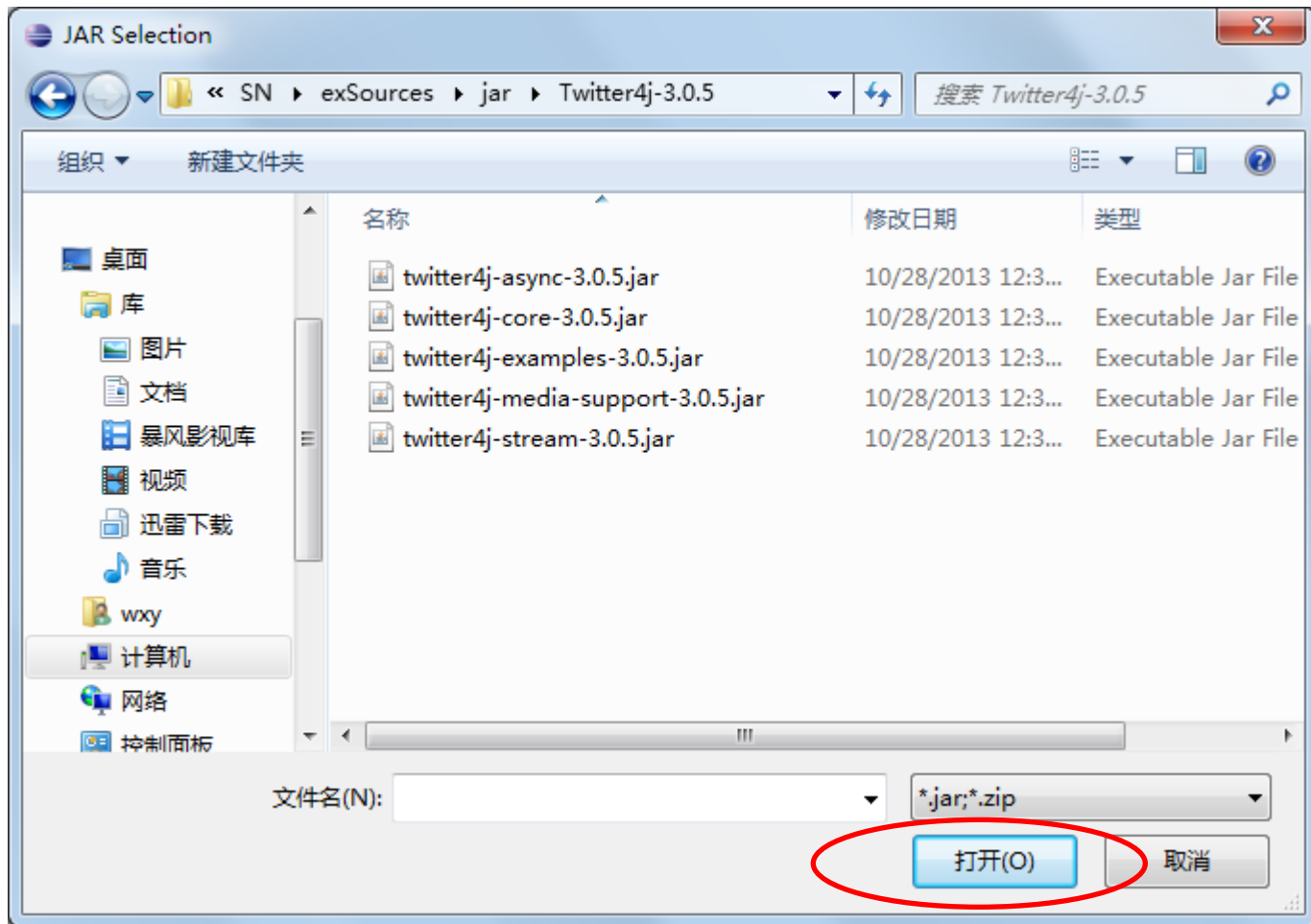


import the Twitter4j library

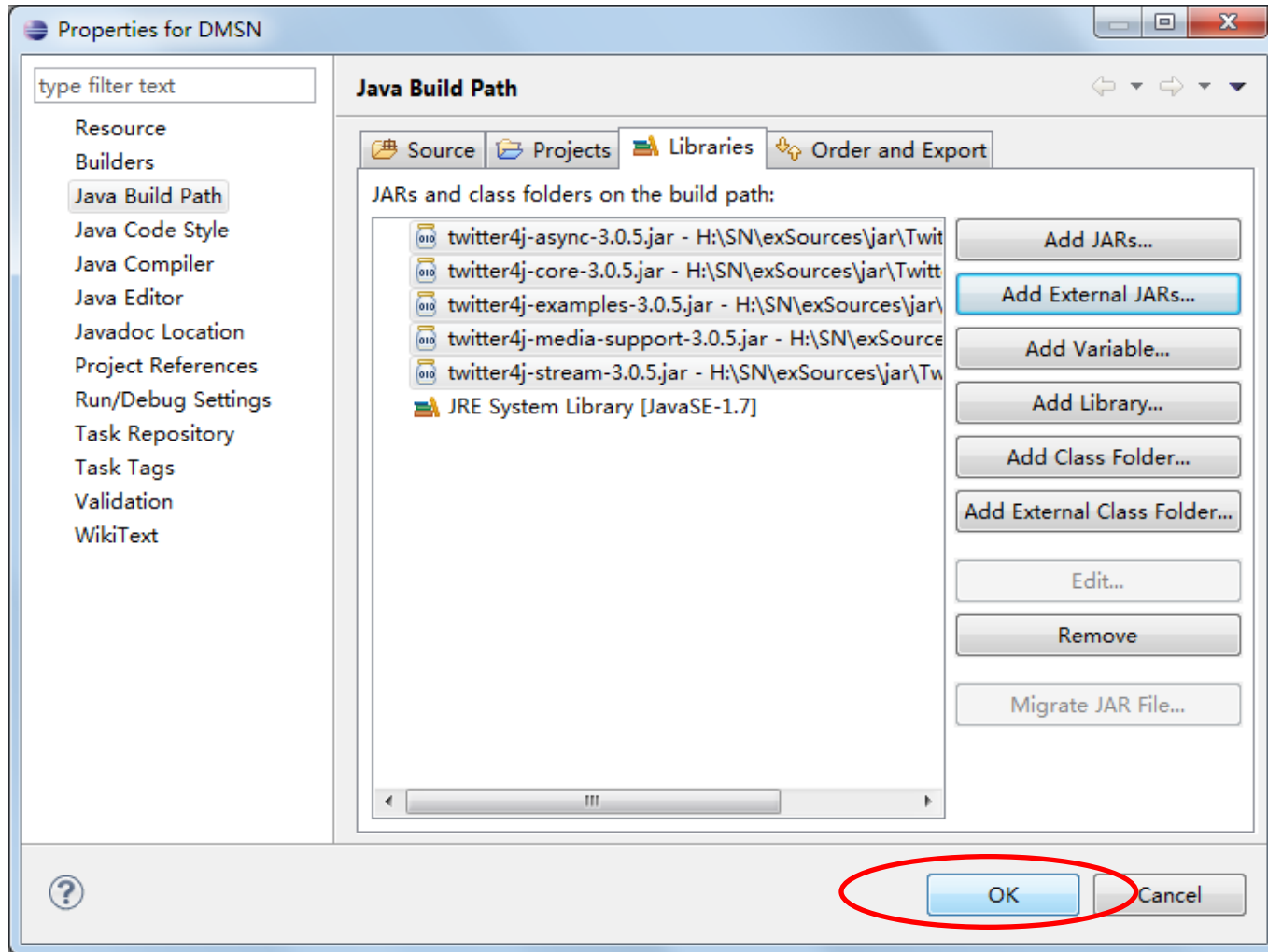
JARs and class folders on the build path:



import the Twitter4j library



import the Twitter4j library



Twitter4j: OAuth

```
import twitter4j.conf.ConfigurationBuilder;

private ConfigurationBuilder OAuthBuilder() {
    ConfigurationBuilder cb = new ConfigurationBuilder();
    cb.setOAuthConsumerKey("YOUR API KEY");
    cb.setOAuthConsumerSecret("YOUR API SECRET");
    cb.setOAuthAccessToken("YOUR ACCESS TOKEN");
    cb.setOAuthAccessTokenSecret("YOUR ACCESS TOKEN
SECRET");
    return cb;
}
```

Twitter4j: connect to Twitter

```
import twitter4j.TwitterFactory;
import twitter4j.conf.ConfigurationBuilder;
public ....(){
    ConfigurationBuilder cb = OAuthBuilder();
    Twitter twitter = new
    TwitterFactory(cb.build()).getInstance();
        ... ..
}
```

Twitter4j: get user profile

```
import twitter4j.User;

public ....() {
    ConfigurationBuilder cb = OAuthBuilder();
    Twitter twitter = new
TwitterFactory(cb.build()).getInstance();
    User user = twitter.showUser("USER NAME/USER
ID")
    System.out.println(user.getDescription());
    System.out.println(user.getCreatedAt());
    ... ..
}
```

Twitter4j: User Object

- Access to all user's field
 - `getScreenName()`
 - `getFollowersCount()`
 - `getFriendsCount()`
 - `getStatus()`
 - `getRetweetCount()`
 - etc...

Twitter4j: handle rate limit

- Mining multiple user profile in short time
- Rate limit exception (twitter.showUser)
 - Error code: 88
 - Forbidden period
 - `getRateLimitStatus().getSecondsUntilReset();`
 - Solution: thread sleep

Twitter4j: handle rate limit

```
import twitter4j.User;
public ....() {
    ... ..
    try {
        User user = twitter.showUser("USER
NAME/USER ID")
        ... ..
    } catch (TwitterException e) {
        <continued in next page...>
    }
}
```

Twitter4j: handle rate limit

```
catch (TwitterException e){  
    if(e.getErrorCode()==88){  
        System.err.println("Rate Limit exceeded!!!!!!");  
        try{  
            long time =  
e.getRateLimitStatus().getSecondsUntilReset();  
            System.err.println("Waiting for "+time+"  
seconds");  
            if(time>0)Thread.sleep((time+5)*1000);  
        }catch(InterruptedException e1){  
            e1.printStackTrace();  
        }  
        continue;  
    }  
}
```

Storing Data

- Statistics: e.g. followers/friends count
 - csv file etc
 - Produce through Java (FileWriter)
- Batch of User & Tweet
 - DBMS, e.g. MySQL
 - Install the database software
 - Build the classpath with JDBC
 - Define the table

Other Language

- Python
 - [tweepy](#)
 - [python-twitter](#)
- C++
 - [twitcurl](#)
- And many else

Reference

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