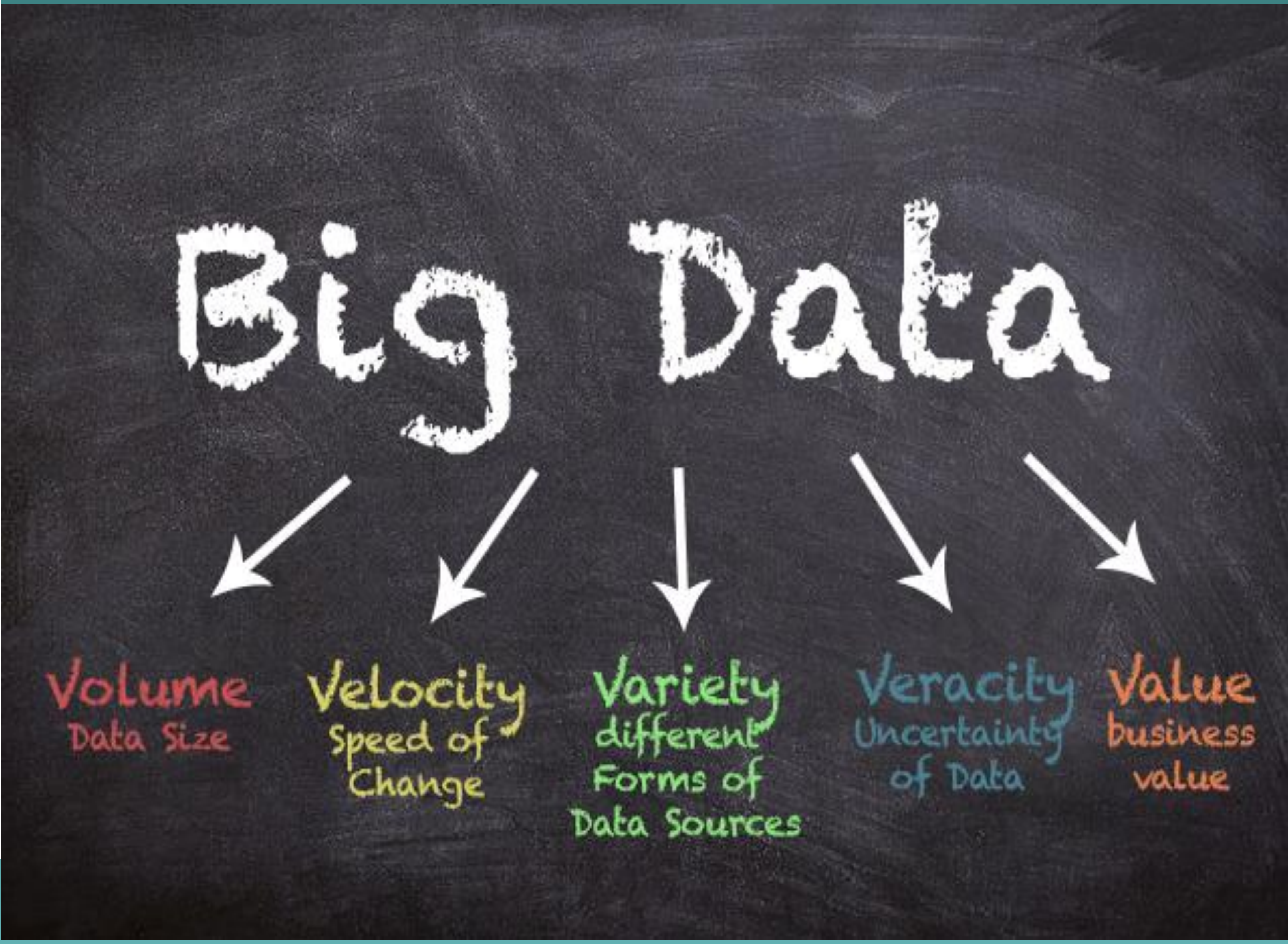
08/19/2018 | By: Ajit K Prasad



Big Data Engineering with Hadoop & Spark

Assignment on Advance HBase

Acadgild

Session 12: Assignment 12.1

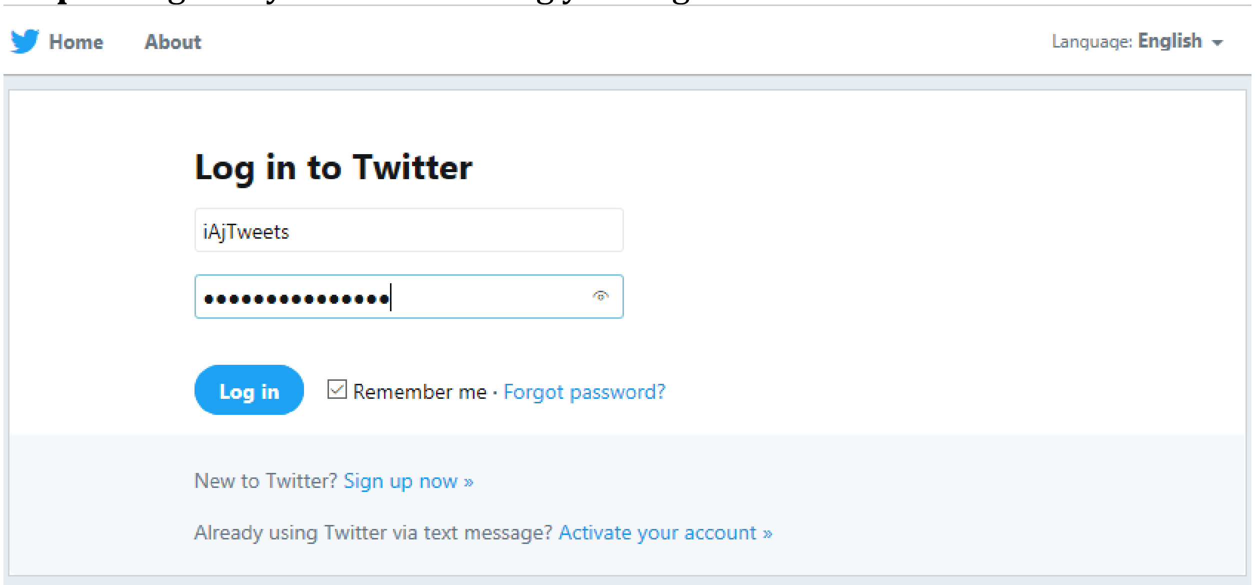
This assignment is aimed at consolidating the concepts that was learnt during the Oozie and Flume session of the course.

Task 1:

Create a flume agent that streams data from Twitter and stores in the HDFS.

Solution:

Step 1: Login to your twitter using your sign-in credentials.



Log in to Twitter

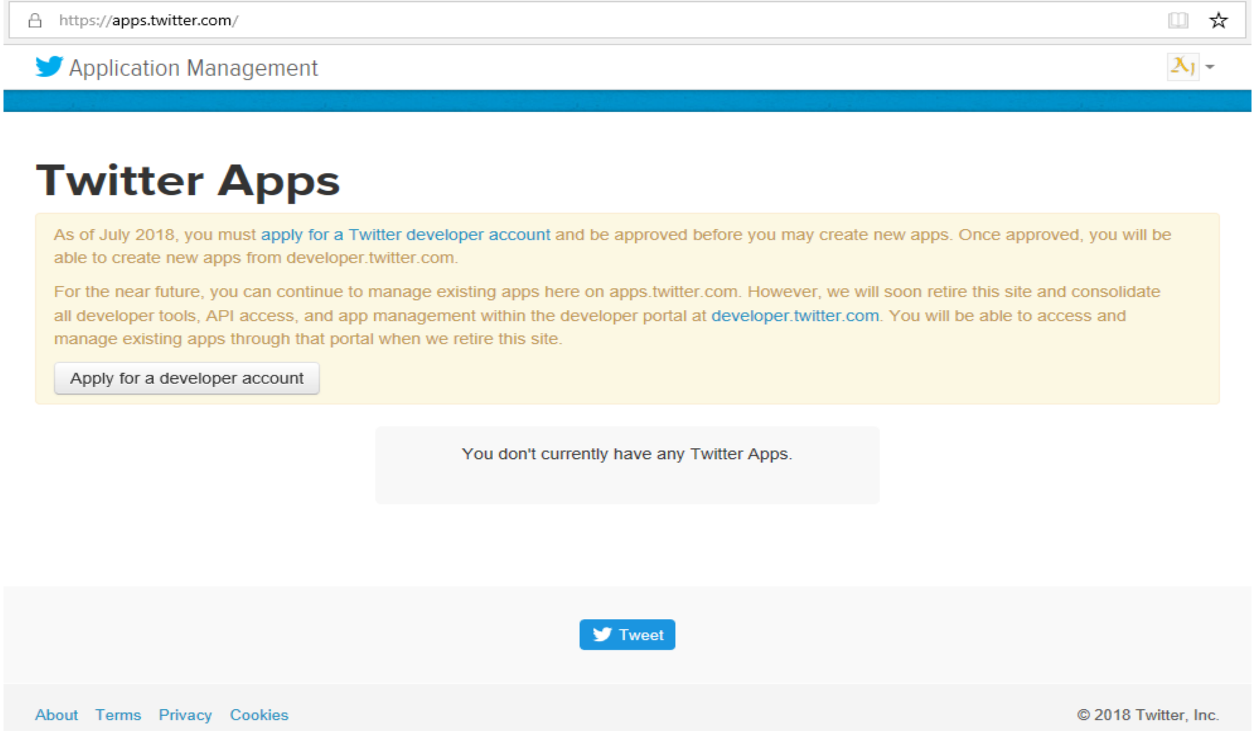
iAjTweets

•••••••••••••••

New to Twitter? Sign up now »

Already using Twitter via text message? Activate your account »

Step 2: Following this link and click the 'Apply for Developer Account' button to obtain your developer account.



Twitter Apps

As of July 2018, you must apply for a Twitter developer account and be approved before you may create new apps. Once approved, you will be able to create new apps from developer.twitter.com.

For the near future, you can continue to manage existing apps here on apps.twitter.com. However, we will soon retire this site and consolidate all developer tools, API access, and app management within the developer portal at developer.twitter.com. You will be able to access and manage existing apps through that portal when we retire this site.

You don't currently have any Twitter Apps.

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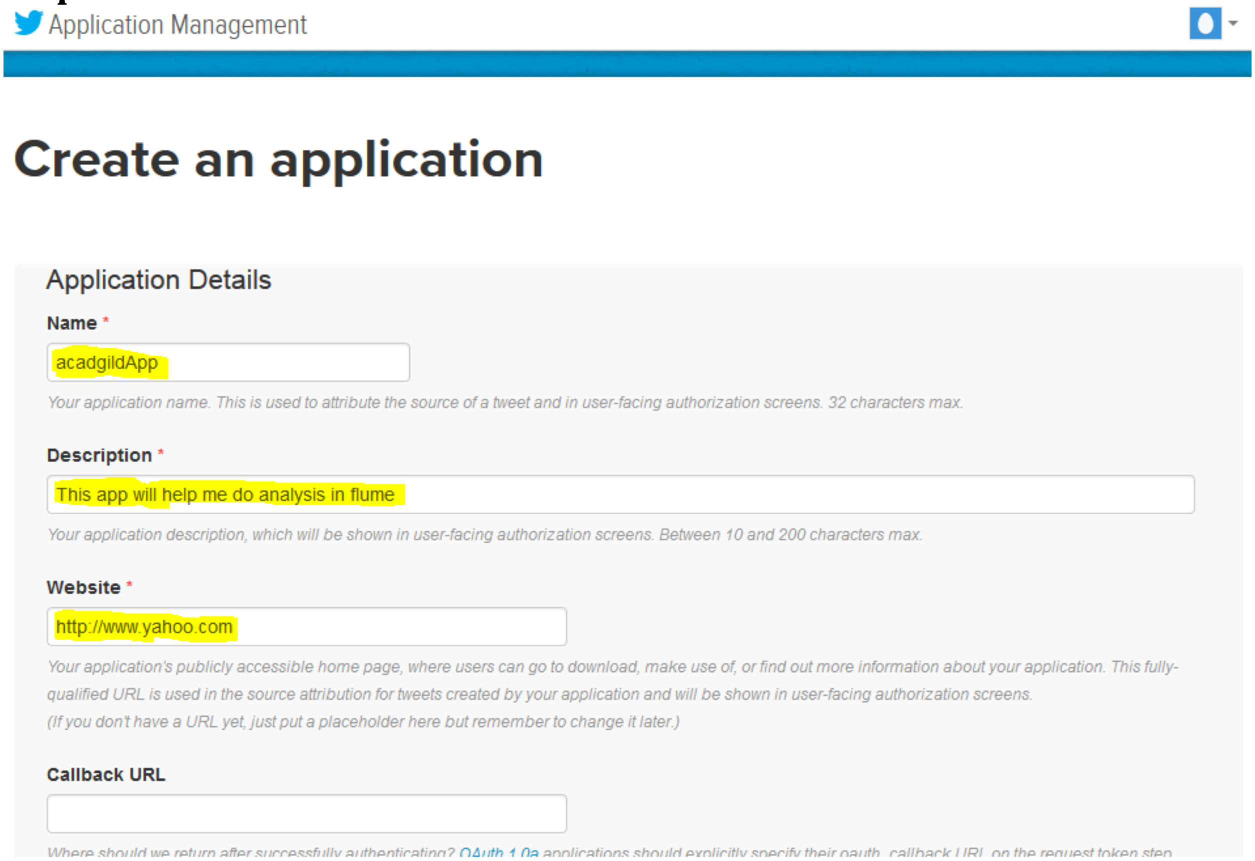
Step 3: Enter the details below.



Create an application

Application Details

Name *

acadgildApp

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

Description *

This app will help me do analysis in flume

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

Website *

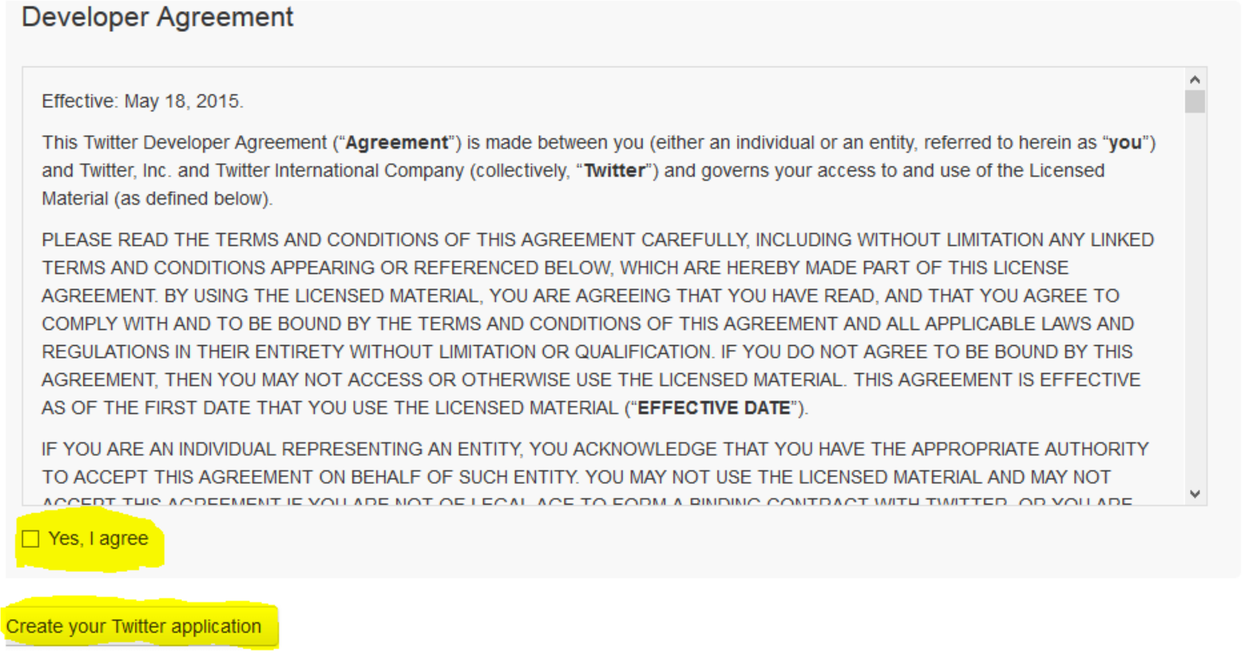
http://www.yahoo.com

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

Step 4: Accept the Developer Agreement.



Developer Agreement

Effective: May 18, 2015.

This Twitter Developer Agreement ("**Agreement**") is made between you (either an individual or an entity, referred to herein as "**you**") and Twitter, Inc. and Twitter International Company (collectively, "**Twitter**") and governs your access to and use of the Licensed Material (as defined below).

PLEASE READ THE TERMS AND CONDITIONS OF THIS AGREEMENT CAREFULLY, INCLUDING WITHOUT LIMITATION ANY LINKED TERMS AND CONDITIONS APPEARING OR REFERENCED BELOW, WHICH ARE HEREBY MADE PART OF THIS LICENSE AGREEMENT. BY USING THE LICENSED MATERIAL, YOU ARE AGREEING THAT YOU HAVE READ, AND THAT YOU AGREE TO COMPLY WITH AND TO BE BOUND BY THE TERMS AND CONDITIONS OF THIS AGREEMENT AND ALL APPLICABLE LAWS AND REGULATIONS IN THEIR ENTIRETY WITHOUT LIMITATION OR QUALIFICATION. IF YOU DO NOT AGREE TO BE BOUND BY THIS AGREEMENT, THEN YOU MAY NOT ACCESS OR OTHERWISE USE THE LICENSED MATERIAL. THIS AGREEMENT IS EFFECTIVE AS OF THE FIRST DATE THAT YOU USE THE LICENSED MATERIAL ("**EFFECTIVE DATE**").

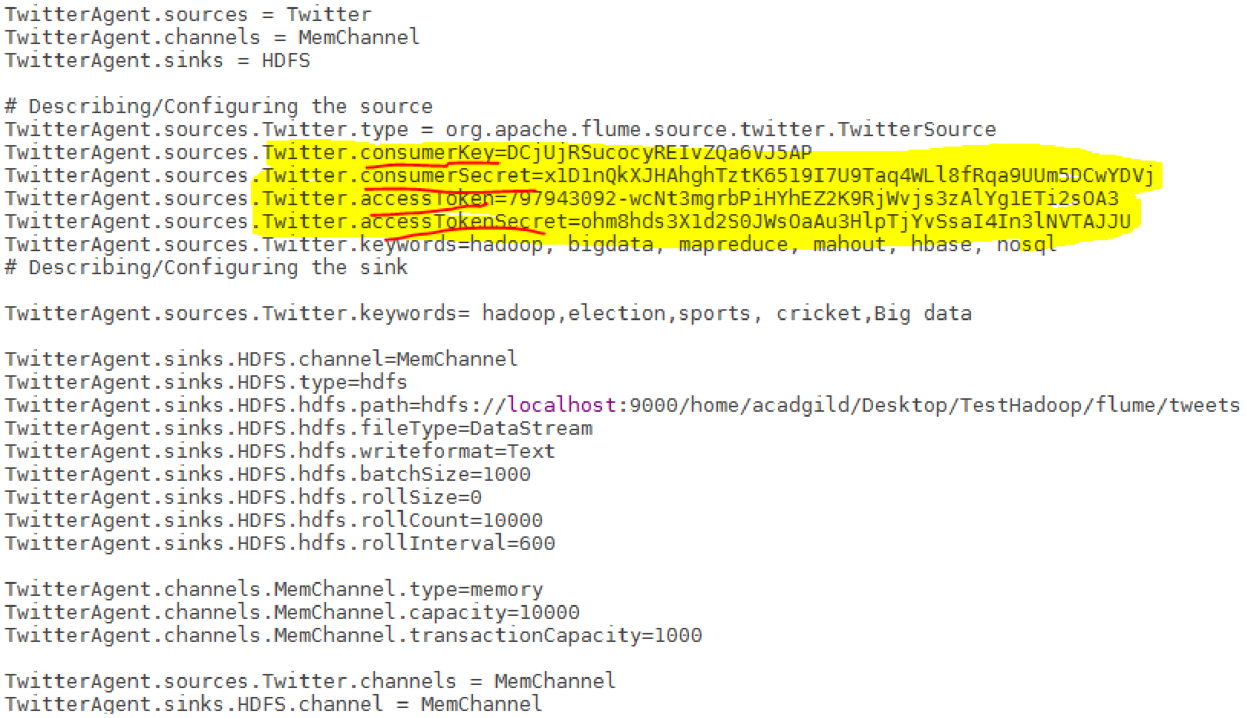
IF YOU ARE AN INDIVIDUAL REPRESENTING AN ENTITY, YOU ACKNOWLEDGE THAT YOU HAVE THE APPROPRIATE AUTHORITY TO ACCEPT THIS AGREEMENT ON BEHALF OF SUCH ENTITY. YOU MAY NOT USE THE LICENSED MATERIAL AND MAY NOT ACCEPT THIS AGREEMENT IF YOU ARE NOT OF LEGAL AGE TO FORM A BINDING CONTRACT WITH TWITTER, OR YOU ARE

☐ Yes, I agree

Note: It will take few weeks for your developer account to be approved by Twitter.

Step 5: Create a new flume.conf file & copy the Flume configuration code from this link and paste it in the newly created file flume.conf.

Step 6: Once the developer account is approved, you would receive *"consumerKey", "consumerSecret", "accessToken", "accessTokenSecret"* from Twitter. Edit these these four values within flume.conf file as highlighted below and accordingly.

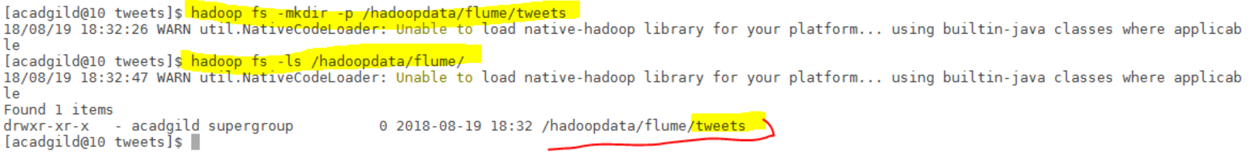


```
TwitterAgent.sources = Twitter
TwitterAgent.channels = MemChannel
TwitterAgent.sinks = HDFS

# Describing/Configuring the source
TwitterAgent.sources.Twitter.type = org.apache.flume.source.twitter.TwitterSource
TwitterAgent.sources.Twitter.consumerKey=DCjUjRSucocyREIvZQa6VJ5AP
TwitterAgent.sources.Twitter.consumerSecret=x1D1nQkXJHAhghTztK6519I7U9Taq4WLl8fRqa9UUm5DCwYDVj
TwitterAgent.sources.Twitter.accessToken=797943092-wcNt3mgrbPiHYhEZ2K9RjWvjs3zAlYg1ETi2sOA3
TwitterAgent.sources.Twitter.accessTokenSecret=ohm8hds3X1d2S0JWsOaAu3HlpTjYvSsaI4In3lNVTAJJU
TwitterAgent.sources.Twitter.keywords=hadoop, bigdata, mapreduce, mahout, hbase, nosql
# Describing/Configuring the sink

TwitterAgent.sources.Twitter.keywords= hadoop,election,sports, cricket,Big data

TwitterAgent.sinks.HDFS.channel=MemChannel
TwitterAgent.sinks.HDFS.type=hdfs
TwitterAgent.sinks.HDFS.hdfs.path=hdfs://localhost:9000/home/acadgild/Desktop/TestHadoop/flume/tweets
TwitterAgent.sinks.HDFS.hdfs.fileType=DataStream
TwitterAgent.sinks.HDFS.hdfs.writeformat=Text
TwitterAgent.sinks.HDFS.hdfs.batchSize=1000
TwitterAgent.sinks.HDFS.hdfs.rollSize=0
TwitterAgent.sinks.HDFS.hdfs.rollCount=10000
TwitterAgent.sinks.HDFS.hdfs.rollInterval=600

TwitterAgent.channels.MemChannel.type=memory
TwitterAgent.channels.MemChannel.capacity=10000
TwitterAgent.channels.MemChannel.transactionCapacity=1000

TwitterAgent.sources.Twitter.channels = MemChannel
TwitterAgent.sinks.HDFS.channel = MemChannel
```

Step 7: Within the same flume.conf file enter the keywords that you want to search the tweets on twitter against the key *"TwitterAgent.sources.Twitter.keywords"*

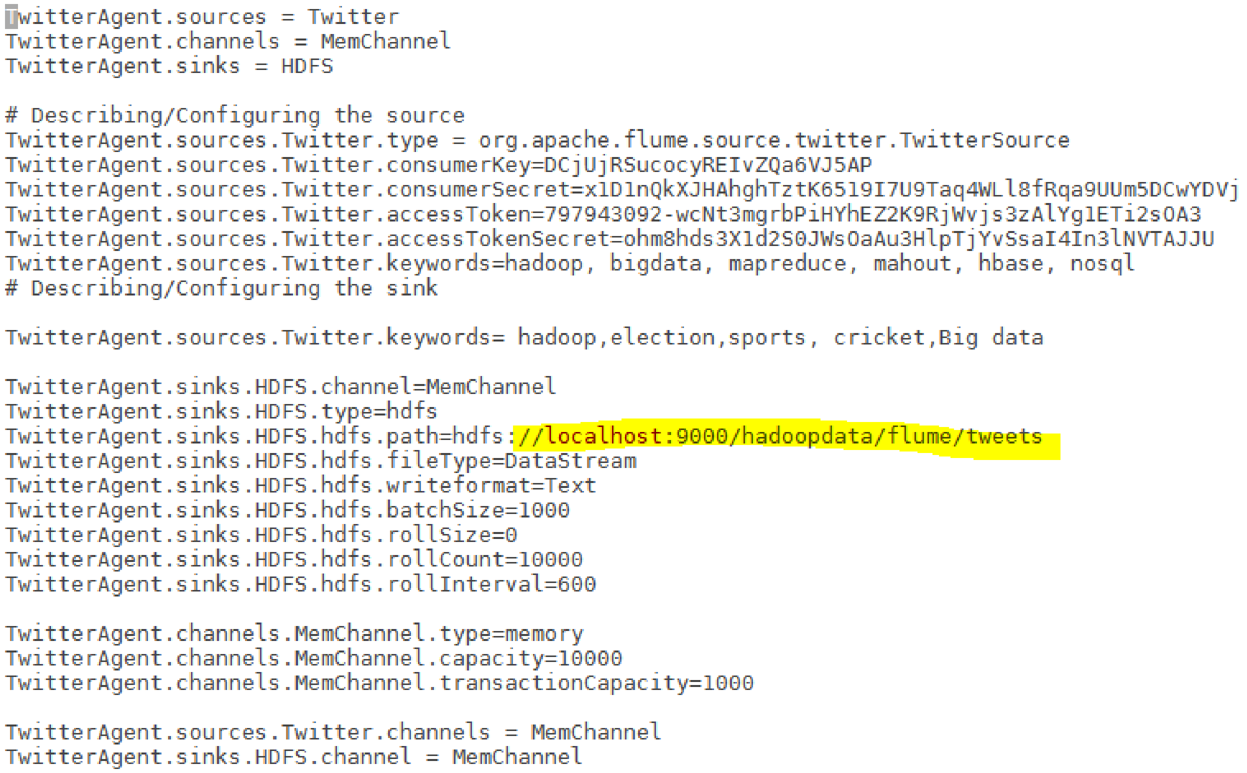
e.g.: TwitterAgent.sources.Twitter.keywords= hadoop, bigdata, mapreduce, mahout, hbase, nosql

Step 8: Create a new directory tweets which would store tweets stream by flume agent on to HDFS: "*hadoop fs -mkdir -p /hadoopdata/flume/tweets*"



```
[acadgild@10 tweets]$ hadoop fs -mkdir -p /hadoopdata/flume/tweets
18/08/19 18:32:26 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicab
le
[acadgild@10 tweets]$ hadoop fs -ls /hadoopdata/flume/
18/08/19 18:32:47 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicab
le
Found 1 items
drwxr-xr-x   - acadgild supergroup          0 2018-08-19 18:32 /hadoopdata/flume/tweets
[acadgild@10 tweets]$ 
```

Step 9: Mention the newly created directory path into the flume.conf as shown below:
"TwitterAgent.sinks.HDFS.hdfs.path=hdfs://localhost:9000/hadoopdata/flume/tweets"

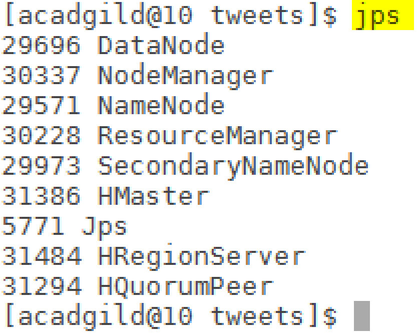


```
TwitterAgent.sources = Twitter
TwitterAgent.channels = MemChannel
TwitterAgent.sinks = HDFS

# Describing/Configuring the source
TwitterAgent.sources.Twitter.type = org.apache.flume.source.twitter.TwitterSource
TwitterAgent.sources.Twitter.consumerKey=DCjUjRSucocyREIvZQa6VJ5AP
TwitterAgent.sources.Twitter.consumerSecret=x1D1nQkXJHAhghTztK6519I7U9Taq4WLl8fRqa9UUm5DCwYDVj
TwitterAgent.sources.Twitter.accessToken=797943092-wcNt3mgrbPiHYhEZ2K9RjWvjs3zAlYg1ETi2sOA3
TwitterAgent.sources.Twitter.accessTokenSecret=ohm8hds3X1d2S0JWsOaAu3HlpTjYvSsaI4In3lNVTAJJU
TwitterAgent.sources.Twitter.keywords=hadoop, bigdata, mapreduce, mahout, hbase, nosql
# Describing/Configuring the sink

TwitterAgent.sources.Twitter.keywords= hadoop,election,sports, cricket,Big data

TwitterAgent.sinks.HDFS.channel=MemChannel
TwitterAgent.sinks.HDFS.type=hdfs
TwitterAgent.sinks.HDFS.hdfs.path=hdfs://localhost:9000/hadoopdata/flume/tweets
TwitterAgent.sinks.HDFS.hdfs.fileType=DataStream
TwitterAgent.sinks.HDFS.hdfs.writeformat=Text
TwitterAgent.sinks.HDFS.hdfs.batchSize=1000
TwitterAgent.sinks.HDFS.hdfs.rollSize=0
TwitterAgent.sinks.HDFS.hdfs.rollCount=10000
TwitterAgent.sinks.HDFS.hdfs.rollInterval=600

TwitterAgent.channels.MemChannel.type=memory
TwitterAgent.channels.MemChannel.capacity=10000
TwitterAgent.channels.MemChannel.transactionCapacity=1000

TwitterAgent.sources.Twitter.channels = MemChannel
TwitterAgent.sinks.HDFS.channel = MemChannel
```

Note: Make sure all the daemons are started

$ start-all.sh

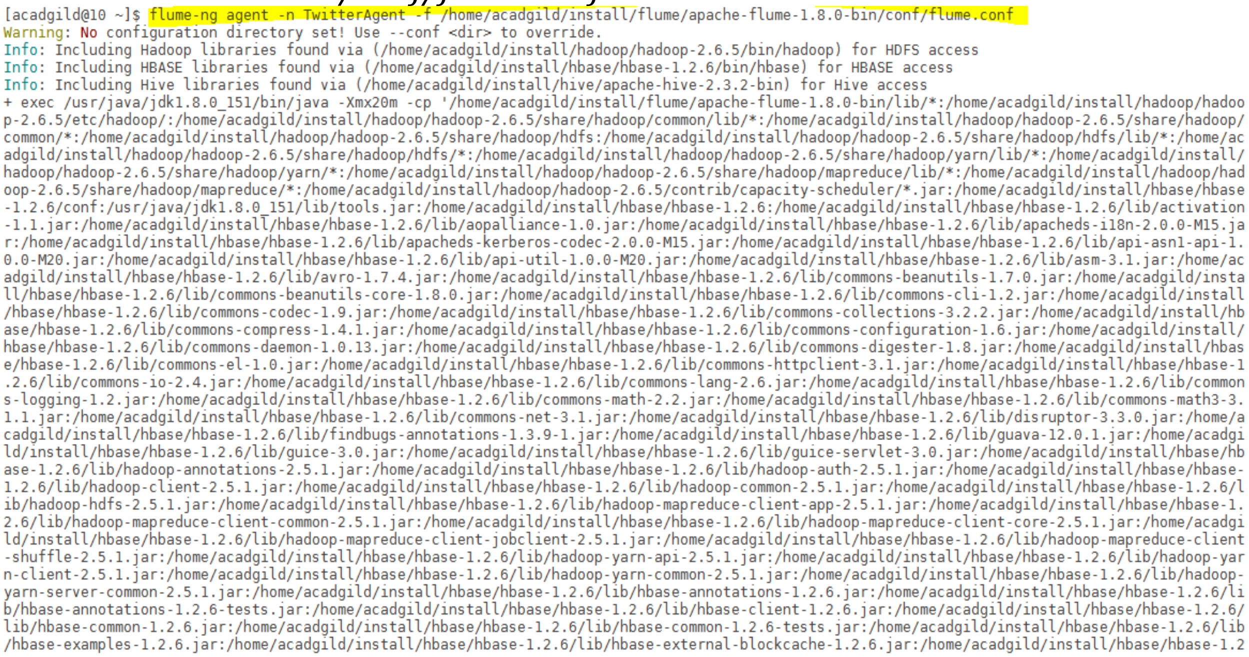
$ jps



```
[acadgild@10 tweets]$ jps
29696 DataNode
30337 NodeManager
29571 NameNode
30228 ResourceManager
29973 SecondaryNameNode
31386 HMaster
5771 Jps
31484 HRegionServer
31294 HQuorumPeer
[acadgild@10 tweets]$
```

Step 10: For fetching data from Twitter into the HDFS cluster path, use the command below.

$ flume-ng agent -n TwitterAgent -f /home/acadgild/install/flume/apache-flume-1.8.0-bin/conf/flume.conf



```
[acadgild@10 ~]$ flume-ng agent -n TwitterAgent -f /home/acadgild/install/flume/apache-flume-1.8.0-bin/conf/flume.conf
Warning: No configuration directory set! Use --conf <dir> to override.
Info: Including Hadoop libraries found via (/home/acadgild/install/hadoop/hadoop-2.6.5/bin/hadoop) for HDFS access
Info: Including HBASE libraries found via (/home/acadgild/install/hbase/hbase-1.2.6/bin/hbase) for HBASE access
Info: Including Hive libraries found via (/home/acadgild/install/hive/apache-hive-2.3.2-bin) for Hive access
+ exec /usr/java/jdk1.8.0_151/bin/java -Xmx20m -cp '/home/acadgild/install/flume/apache-flume-1.8.0-bin/lib/*:/home/acadgild/install/hadoop/hadoo
p-2.6.5/etc/hadoop/:/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/common/lib/*:/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/
common/*:/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/hdfs:/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/hdfs/lib/*:/home/ac
adgild/install/hadoop/hadoop-2.6.5/share/hadoop/hdfs/*:/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/yarn/lib/*:/home/acadgild/install/
hadoop/hadoop-2.6.5/share/hadoop/yarn/*:/home/acadgild/install/hadoop/hadoop-2.6.5/share/hadoop/mapreduce/lib/*:/home/acadgild/install/hadoop/had
oop-2.6.5/share/hadoop/mapreduce/*:/home/acadgild/install/hadoop/hadoop-2.6.5/contrib/capacity-scheduler/*.jar:/home/acadgild/install/hbase/hbase
-1.2.6/conf:/usr/java/jdk1.8.0_151/lib/tools.jar:/home/acadgild/install/hbase/hbase-1.2.6:/home/acadgild/install/hbase/hbase-1.2.6/lib/activation
-1.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/aopalliance-1.0.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/apacheds-i18n-2.0.0-M15.ja
r:/home/acadgild/install/hbase/hbase-1.2.6/lib/apacheds-kerberos-codec-2.0.0-M15.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/api-asn1-api-1.
0.0-M20.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/api-util-1.0.0-M20.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/asm-3.1.jar:/home/ac
adgild/install/hbase/hbase-1.2.6/lib/avro-1.7.4.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-beanutils-1.7.0.jar:/home/acadgild/insta
ll/hbase/hbase-1.2.6/lib/commons-beanutils-core-1.8.0.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-cli-1.2.jar:/home/acadgild/install
/hbase/hbase-1.2.6/lib/commons-codec-1.9.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-collections-3.2.2.jar:/home/acadgild/install/hb
ase/hbase-1.2.6/lib/commons-compress-1.4.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-configuration-1.6.jar:/home/acadgild/install/
hbase/hbase-1.2.6/lib/commons-daemon-1.0.13.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-digester-1.8.jar:/home/acadgild/install/hbas
e/hbase-1.2.6/lib/commons-el-1.0.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-httpclient-3.1.jar:/home/acadgild/install/hbase/hbase-1
.2.6/lib/commons-io-2.4.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-lang-2.6.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/common
s-logging-1.2.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-math-2.2.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-math3-3.
1.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/commons-net-3.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/disruptor-3.3.0.jar:/home/a
cadgild/install/hbase/hbase-1.2.6/lib/findbugs-annotations-1.3.9-1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/guava-12.0.1.jar:/home/acadgi
ld/install/hbase/hbase-1.2.6/lib/guice-3.0.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/guice-servlet-3.0.jar:/home/acadgild/install/hbase/hb
ase-1.2.6/lib/hadoop-annotations-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hadoop-auth-2.5.1.jar:/home/acadgild/install/hbase/hbase-
1.2.6/lib/hadoop-client-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hadoop-common-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/l
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2.6/lib/hadoop-mapreduce-client-common-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hadoop-mapreduce-client-core-2.5.1.jar:/home/acadgi
ld/install/hbase/hbase-1.2.6/lib/hadoop-mapreduce-client-jobclient-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hadoop-mapreduce-client
-shuffle-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hadoop-yarn-api-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hadoop-yar
n-client-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hadoop-yarn-common-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hadoop-
yarn-server-common-2.5.1.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hbase-annotations-1.2.6.jar:/home/acadgild/install/hbase/hbase-1.2.6/li
b/hbase-annotations-1.2.6-tests.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hbase-client-1.2.6.jar:/home/acadgild/install/hbase/hbase-1.2.6/
lib/hbase-common-1.2.6.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hbase-common-1.2.6-tests.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib
/hbase-examples-1.2.6.jar:/home/acadgild/install/hbase/hbase-1.2.6/lib/hbase-external-blockcache-1.2.6.jar:/home/acadgild/install/hbase/hbase-1.2
```

This triggers the streaming of data from Twitter. To stop the streaming press *"ctrl + c"*.

Step 11: To check the contents of the tweet go to the output directory at hdfs

$ hadoop fs -ls /hadoopdata/flume/tweets

Note: This needs Flume to be installed and configured on the system. To do the necessary installation, please access this blog and follow the procedures.