How to install hadoop 2.7.3 single node cluster on ubuntu 16.04

Before installing or downloading anything, It is always better to update using following command:

```
$ sudo apt-get update
```

Step 1: Install oracle Java

Step 2: Add dedicated hadoop user

```
$ sudo addgroup hadoop
$ sudo adduser --ingroup hadoop hduser
```

NOTE: don't write password or any things here, Just press 'y' when it ask "Is the information correct?[Y|n]"

```
$ sudo adduser hduser sudo
```

Step 3: Install SSH

```
$ sudo apt-get install ssh
```

Step-4: Passwordless entry for localhost using SSH

```
$ su hduser
```

Now we are logined in in 'hduser'.

```
$ ssh-keygen -t rsa
NOTE: Leave file name and other things blank.
$ cat ~/.ssh/id_rsa.pub >> ~/.ssh/authorized_keys
$ chmod 0600 ~/.ssh/authorized_keys
$ ssh localhost

$ exit
```

Step 5: Install hadoop-2.7.3

```
$ wget http://www-us.apache.org/dist/hadoop/common/hadoop-2.7.3/hadoop-
2.7.3.tar.gz
$ tar xvzf hadoop-2.7.3.tar.gz
$ sudo mkdir -p /usr/local/hadoop
$ cd hadoop-2.7.3/
$ sudo mv * /usr/local/hadoop
$ sudo chown -R hduser:hadoop /usr/local/hadoop
```

Step 6: Setup Configuration Files

The following files should to be modified to complete the Hadoop setup:

6.1 ~/.bashrc

6.2 hadoop-env.sh

6.3 core-site.xml

6.4 mapred-site.xml

6.5 hdfs-site.xml

6.6 yarn-site.xml

6.1 ~/.bashrc

First, we need to find the path where JAVA is installed in our system

```
$ update-alternatives --config java
```

It may possible vi will not work properly. If it does install vim

```
$ sudo apt-get install vim
```

Open bashrc file using command:

```
$ vim ~/.bashrc
```

Append following at the end. (Follow this process -> First append below content at the end by pressing ‘INSERT’ or ‘i’ key from keyboard-> Press ‘ecs’ -> Press ‘:’ (colon) -> Press ‘wq’->Press ‘Enter’ Key)

```
#HADOOP VARIABLES START
export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64
export HADOOP_HOME=/usr/local/hadoop
export PATH=$PATH:$HADOOP_HOME/bin
export PATH=$PATH:$HADOOP_HOME/sbin
export HADOOP_MAPRED_HOME=$HADOOP_HOME
export HADOOP_COMMON_HOME=$HADOOP_HOME
export HADOOP_HDFS_HOME=$HADOOP_HOME
export YARN_HOME=$HADOOP_HOME
export HADOOP_COMMON_LIB_NATIVE_DIR=$HADOOP_HOME/lib/native
export HADOOP_OPTS="-Djava.library.path=$HADOOP_HOME/lib"
#HADOOP VARIABLES END
```

Update .bashrc file to apply changes

```
$ source ~/.bashrc
```

6.2 hadoop-env.sh

We need to modify JAVA_HOME path in hadoop-env.sh to ensure that the value of JAVA_HOME variable will be available to Hadoop whenever it is started up.

```
$ vim /usr/local/hadoop/etc/hadoop/hadoop-env.sh
```

Search JAVA_HOME variable in file. It may first variable in file. Do Change it by following:

```
export JAVA_HOME=/usr/lib/jvm/java-8-oracle
```

6.3 core-site.xml

core-site.xml file has configuration properties which are requires when Hadoop is started up.

```
$ sudo mkdir -p /app/hadoop/tmp
```

```
$ sudo chown hduser:hadoop /app/hadoop/tmp
```

Open the file and enter the following in between the <configuration></configuration> tag:

```
$ vim /usr/local/hadoop/etc/hadoop/core-site.xml

<configuration>
<property>
 <name>hadoop.tmp.dir</name>
   <value>/app/hadoop/tmp</value>
   <description>A base for other temporary directories.</description>
</property>
<property>
  <name>fs.default.name</name>
   <value>hdfs://localhost:54310</value>
 </property>
</configuration>
```

6.4 mapred-site.xml

By default, the /usr/local/hadoop/etc/hadoop/ folder contains /usr/local/hadoop/etc/hadoop/mapred-site.xml.template file which has to be renamed/copied with the name mapred-site.xml:

```
$ cp /usr/local/hadoop/etc/hadoop/mapred-site.xml.template
/usr/local/hadoop/etc/hadoop/mapred-site.xml
```

The /usr/local/hadoop/etc/hadoop/mapred-site.xml file is used to specify which framework is being used for MapReduce.

We need to enter the following content in between the <configuration></configuration> tag:

```
$ vim /usr/local/hadoop/etc/hadoop/mapred-site.xml

<configuration>
<property>
  <name>mapred.job.tracker</name>
    <value>localhost:54311</value>
</property>
<property>
<name>mapreduce.framework.name</name>
   <value>yarn</value>
</property>

</configuration>
```

6.5 hdfs-site.xml

We need to configure hdfs-site.xml for each host in the cluster which specifies two directories:

1. Name node
2. Data node

These can be done using the following commands:

```
$ sudo mkdir -p /usr/local/hadoop_store/hdfs/namenode
$ sudo mkdir -p /usr/local/hadoop_store/hdfs/datanode
$ sudo chown -R hduser:hadoop /usr/local/hadoop_store
```

Open hdfs-site.xml file and enter the following content in between the <configuration></configuration> tag:

```
$ vim /usr/local/hadoop/etc/hadoop/hdfs-site.xml
```

```
<configuration>
 <property>
  <name>dfs.replication</name>
  <value>1</value>
 </property>
 <property>
   <name>dfs.namenode.name.dir</name>
   <value>file:/usr/local/hadoop_store/hdfs/namenode</value>
 </property>
 <property>
   <name>dfs.datanode.data.dir</name>
   <value>file:/usr/local/hadoop_store/hdfs/datanode</value>
 </property>
</configuration>
```

6.6 yarn-site.xml

Open hdfs-site.xml file and enter the following content in between the <configuration></configuration> tag:

```
$ vim /usr/local/hadoop/etc/hadoop/yarn-site.xml
```

```
 <configuration>
   <property>
      <name>yarn.nodemanager.aux-services</name>
      <value>mapreduce_shuffle</value>
   </property>
</configuration>
```

Step7: Format hadoop file system

```
$  hadoop namenode –format
```

Step 8: Start Hadoop Daemons

```
$  cd /usr/local/hadoop/sbin
```

```
$ start-all.sh
```

```
$ jps
```

MAKE SURE NAMENODE IS RUNNING

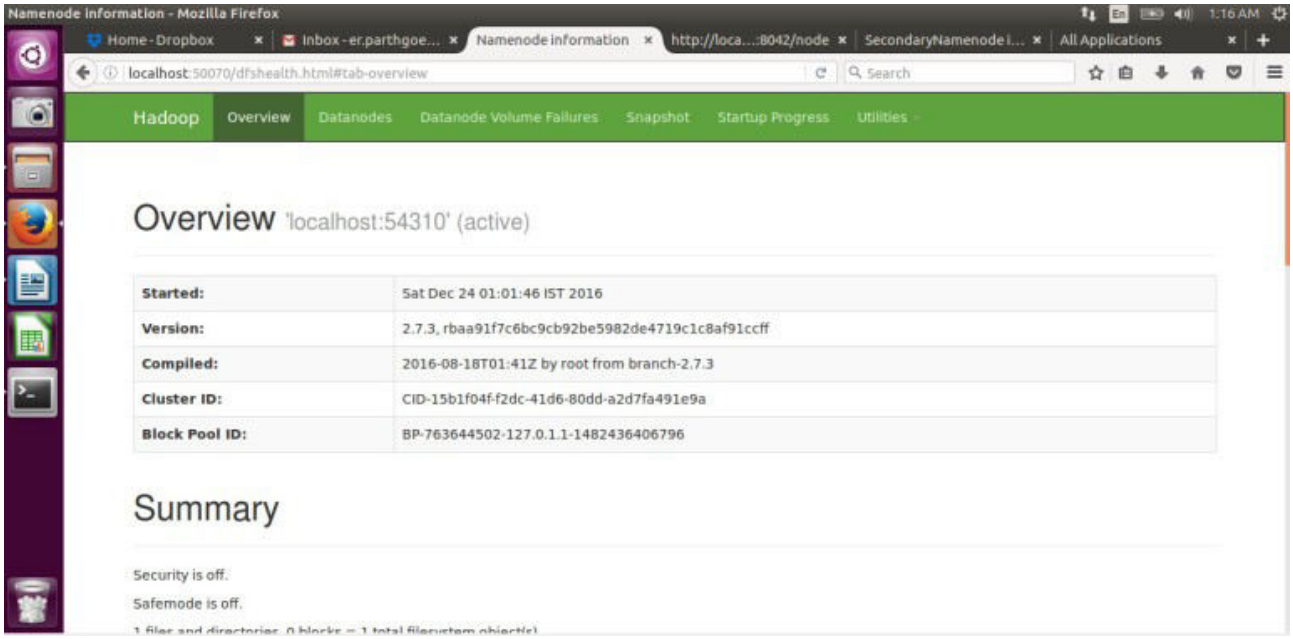
Step 9: Stop hadoop Daemons

```
$ stop-all.sh
```

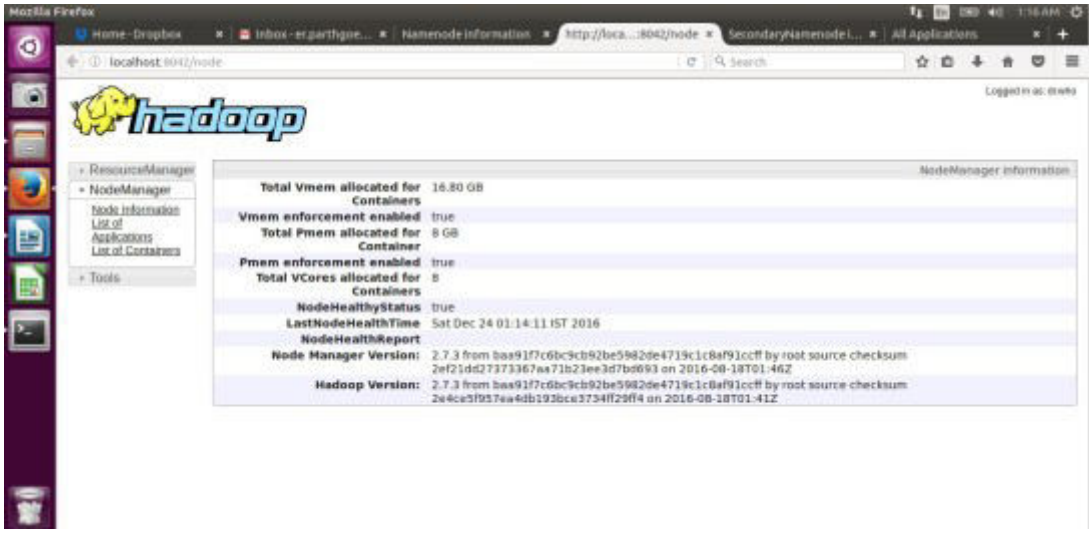
Congratulation..!! We have installed hadoop successfully..

Hadoop has Web Interfaces too. (Copy and paste following links in your browser)

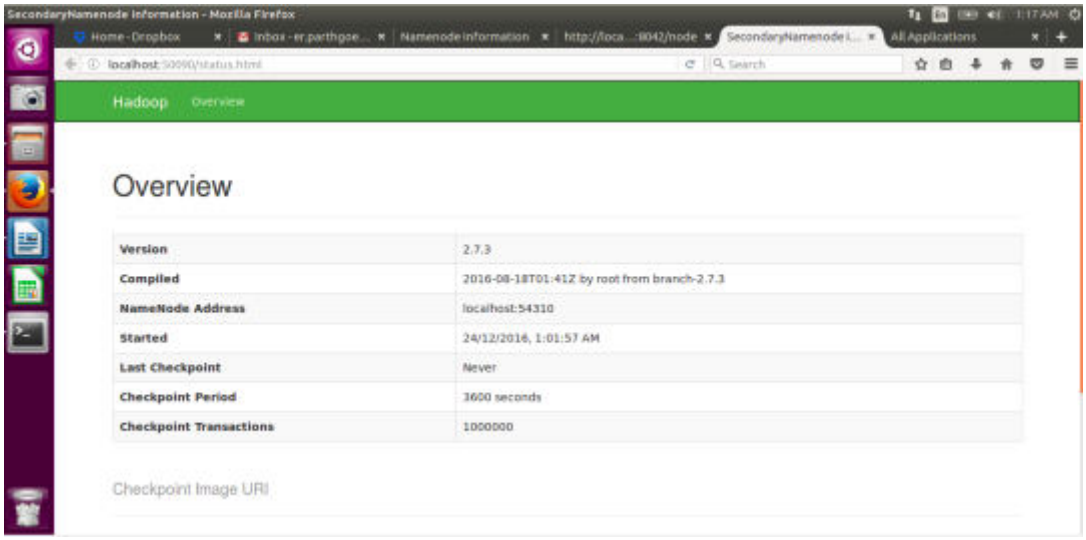
NameNode daemon: http://localhost:50070/



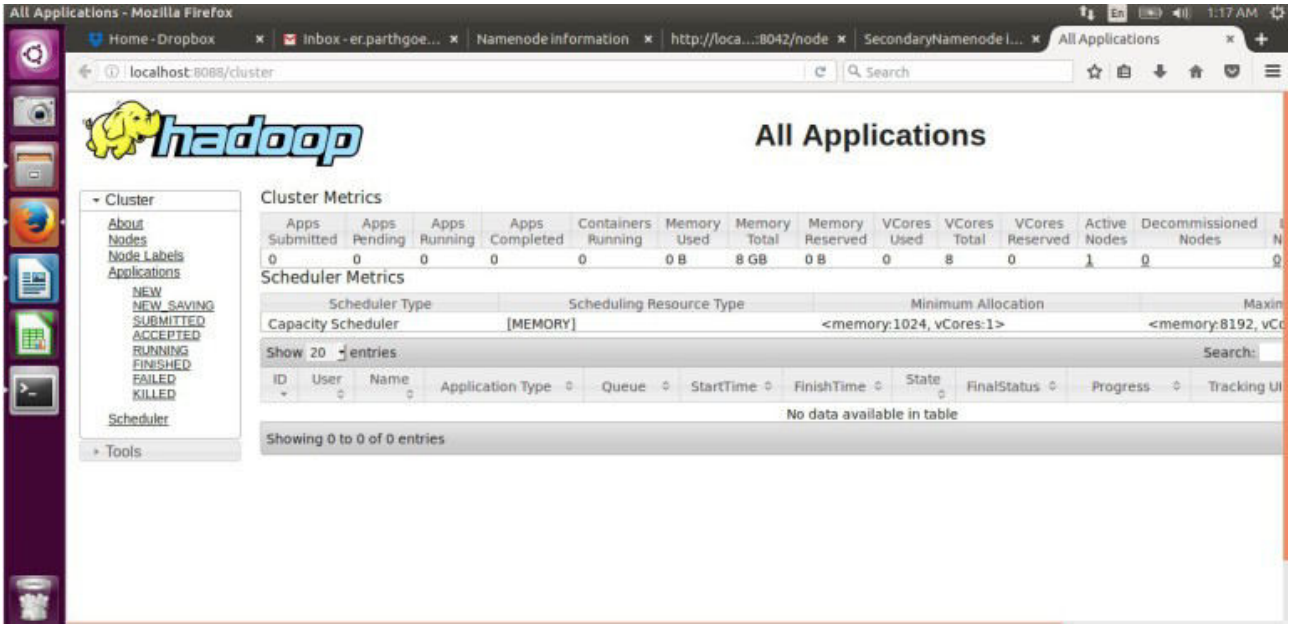
mapreduce: http://localhost:8042/



SecondaryNameNode:: http://localhost:50090/status.html

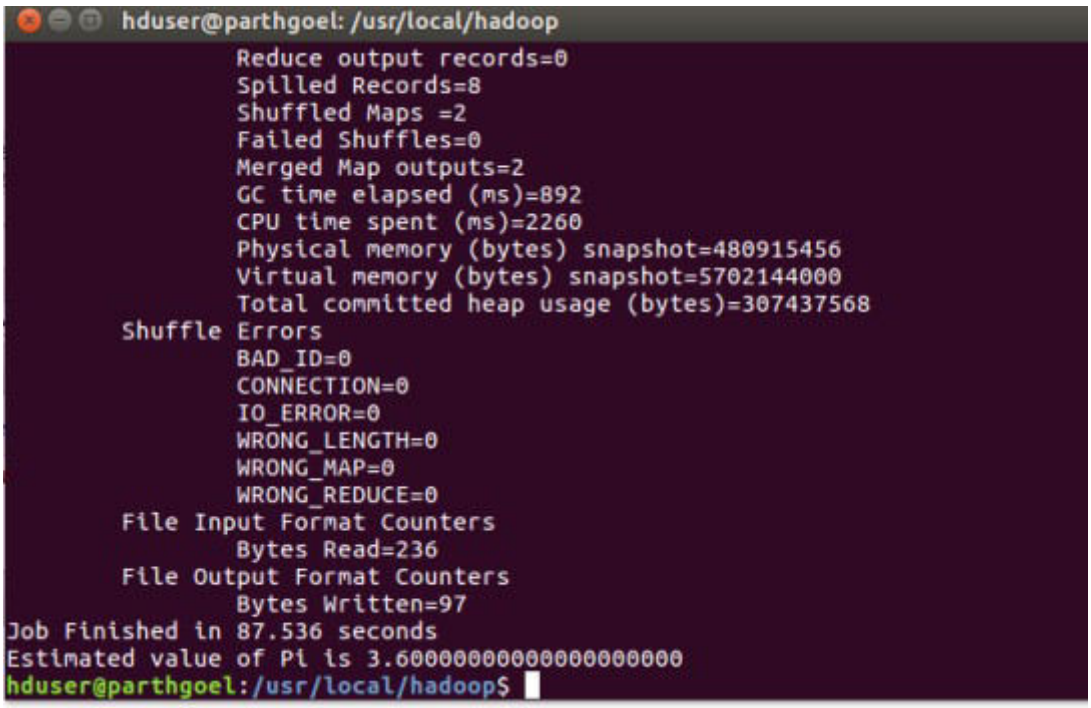


Resource Manager: http://localhost:8088/



Now, we run mapreduce job on our newly created hadoop single node cluster setup.

```
hduser@parthgoel:/usr/local/hadoop$ hadoop jar ./share/hadoop/mapreduce/hadoop-mapreduce-examples-2.7.3.jar pi 2 5
```



NOTE: Whenever we login in Ubuntu, make sure you are in 'hduser'.

If you are not in hduser, use below command to login in 'hduser'

```
$ su hduser
```

Hbase-1.2.5 Installation With Hadoop-2.7.3 In Ubuntu 16.04

for hadoop-2.7.3 ,hbase-1.2.x will support ,not less than this

1. HBASE Installation In Ubuntu
0) Running HDFS
$ cd $HADOOP_HOME
$ bin/hdfs namenode -format
$ sbin/start-dfs.sh

1) Download hbase-1.2.5.tar.gz In Apache Hbase (binary file)
http://apache.mirror.cdnetworks.com/hbase/1.2.5/hbase-1.2.5-bin.tar.gz

2) Make folder, Move and Extract tar file
$ sudo mkdir /usr/local/hbase
$ sudo tar -zxvf hbase-1.2.5-bin.tar.gz
$ sudo mv apache-hbase-1.2.5-bin /usr/local/hbase

3) Set Environment Variables
$ cd ~
$ vi .bashrc

[.bashrc] : Below the Last Line

```
export HBASE_HOME=/usr/local/hbase/hbase-1.2.5
export PATH=$PATH:$HBASE_HOME/bin
export CLASSPATH=$CLASSPATH:$HBASE_HOME/lib/*:.
```

$ source ~/.bashrc

4) Configuration Check

4-1) **Edit the hbase-env.sh about JAVA_HOME**
$ cd $HBASE_HOME/conf
$ sudo vi hbase-env.sh
$sudo chmod -R 777 /usr/local/hbase/

[hbase-env.sh]
```
export JAVA_HOME= /usr/local/java/jdk1.7.0_80/jre
export HBASE_MANAGES_ZK=true
```

4-2) Editing Configuration and Making Temporary Directories For Hbase Temp File

$sudo mkdir hbaseinfra
$ sudo vi hbase-site.xml

[hbase-site.xml]
```
<configuration>
  <property>
    <name>hbase.rootdir</name>
    <value>hdfs://129.168.1.129:8030/hbase/hfile</value>
<!-- <value>/usr/local/hbase/hbaseinfra/hfile</value> -->
  </property>

  <property>
    <name>hbase.zookeeper.property.dataDir</name>
    <value>file///usr/local/hbase/hbaseinfra/zookeeper</value>
  </property>
</configuration>
```

2. Running HBASE

$ cd $HBASE_HOME/bin
$ start-hbase.sh
$ hbase shell
> create 'hbase_test_table','id data'
> list

Submittted by:

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