

Downloading and installing Hadoop, Understanding different Hadoop modes, Startup scripts, Configuration files.

Aim:

To Download and install Hadoop, Understanding different Hadoop modes, Startup scripts, Configuration files.

Procedure:

Step 1 : Install java jdk 8

First of all you must install Java JDK 8 on your system. You can just type this command to install java jdk on your system.

```
sudo apt install openjdk-8-jdk
```

To check it's there `cd /usr/lib/jvm`

Step 2 : Add this configuration on you bash file

Now just open .bashrc file and paste these commands.

```
export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64
export PATH=$PATH:/usr/lib/jvm/java-8-openjdk-amd64/bin
export HADOOP_HOME=~/.hadoop-3.2.3/
export PATH=$PATH:$HADOOP_HOME/bin
export PATH=$PATH:$HADOOP_HOME/sbin
export HADOOP_MAPRED_HOME=$HADOOP_HOME
export YARN_HOME=$HADOOP_HOME
export HADOOP_CONF_DIR=$HADOOP_HOME/etc/hadoop
export HADOOP_COMMON_LIB_NATIVE_DIR=$HADOOP_HOME/lib/native
export HADOOP_OPTS="-Djava.library.path=$HADOOP_HOME/lib/native"
export HADOOP_STREAMING=$HADOOP_HOME/share/hadoop/tools/lib/hadoop-streaming-3.2.3.jar
export HADOOP_LOG_DIR=$HADOOP_HOME/logs
export PDSH_RCMD_TYPE=ssh
```

(ssh — secure shell — protocol used to securely connect to remote server/system — transfers data in encrypted form)

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

now go to hadoop.apache.org website download the tar file
(hadoop.apache.org — download tar file of hadoop.)

```
tar -zxvf ~/Downloads/hadoop-3.2.3.tar.gz
```

(Extract the tar file)

```
cd hadoop-3.2.3/etc/hadoop
```

now open `hadoop-env.sh` `sudo nano hadoop-env.sh` `JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64` (set the path for JAVA_HOME)

Step 3 : Add this file in core-site.xml

Now add this configuration in core-site.xml file.

core-site.xml

```
<configuration>
<property>
<name>fs.defaultFS</name>
<value>hdfs://localhost:9000</value> </property>
<property>
<name>hadoop.proxyuser.dataflair.groups</name> <value>*</value>
</property>
<property>
<name>hadoop.proxyuser.dataflair.hosts</name> <value>*</value>
</property>
<property>
<name>hadoop.proxyuser.server.hosts</name> <value>*</value>
</property>
<property>
<name>hadoop.proxyuser.server.groups</name> <value>*</value>
</property>
</configuration>
```

Step 3 : Add this file in hdfs-site.xml

Now add this configuration in hdfs-site.xml file.

hdfs-site.xml

```
<configuration>
<property>
<name>dfs.replication</name>
<value>1</value>
</property>
</configuration>
```

Step 4: Add this file in mapred-site.xml

Now add this configuration in mapred-site.xml file.

mapred-site.xml

```
<configuration>
<property>
<name>mapreduce.framework.name</name> <value>yarn</value>
</property>
<property>
<name>mapreduce.application.classpath</name>

<value>$HADOOP_MAPRED_HOME/share/hadoop/mapreduce/*:$HADOOP_MAPR
ED_HOME/share/hadoop/mapreduce/lib/*</value>
</property>
</configuration>
```

Step 4: Add this file in yarn-site.xml

Now add this configuration in yarn-site.xml file.

yarn-site.xml

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

<value>JAVA_HOME,HADOOP_COMMON_HOME,HADOOP_HDFS_HOME,HADOOP_
CONF_DIR,CLASSPATH_PREP
END_DISTCACHE,HADOOP_YARN_HOME,HADOOP_MAPRED_HOME</value>
</property>
</configuration>
```

ssh

ssh localhost

```
ssh-keygen -t rsa -P "" -f ~/.ssh/id_rsa
```

```
cat ~/.ssh/id_rsa.pub >> ~/.ssh/authorized_keys
```

```
chmod 0600 ~/.ssh/authorized_keys
```

```
hadoop-3.2.3/bin/hdfs namenode -format
```

format the file system

```
export PDSH_RCMD_TYPE=ssh
```

Step 5 : Start hadoop

To start

start-all.sh(Start NameNode daemon and DataNode daemon)

This is how you can install hadoop on your ubuntu operating system and start using on your system.

Step 6 : Check the status using jps

Jps

```
Activities Terminal Sep 17 17:13
user@Ubuntu: ~
user@ubuntu:~$ start-all.sh
WARNING: Attempting to start all Apache Hadoop daemons as user to 10 seconds.
WARNING: This is not a recommended production deployment configuration.
WARNING: Use CTRL-C to abort.
Starting namenodes on [localhost]
Starting datanodes
Starting secondary namenodes [ubuntu]
2024-09-17 17:13:33,767 WARN util.NativeCodeLoader: Unable to load native-hadoop library for your platform... using builtin-java classes where applicable
Starting resourcemanager
Starting nodemanagers
user@ubuntu:~$ jps
2029 DataNode
4886 NameNode
5464 ResourceManager
5257 SecondaryNameNode
5593 NodeManager
5945 Jps
user@ubuntu:~$
```



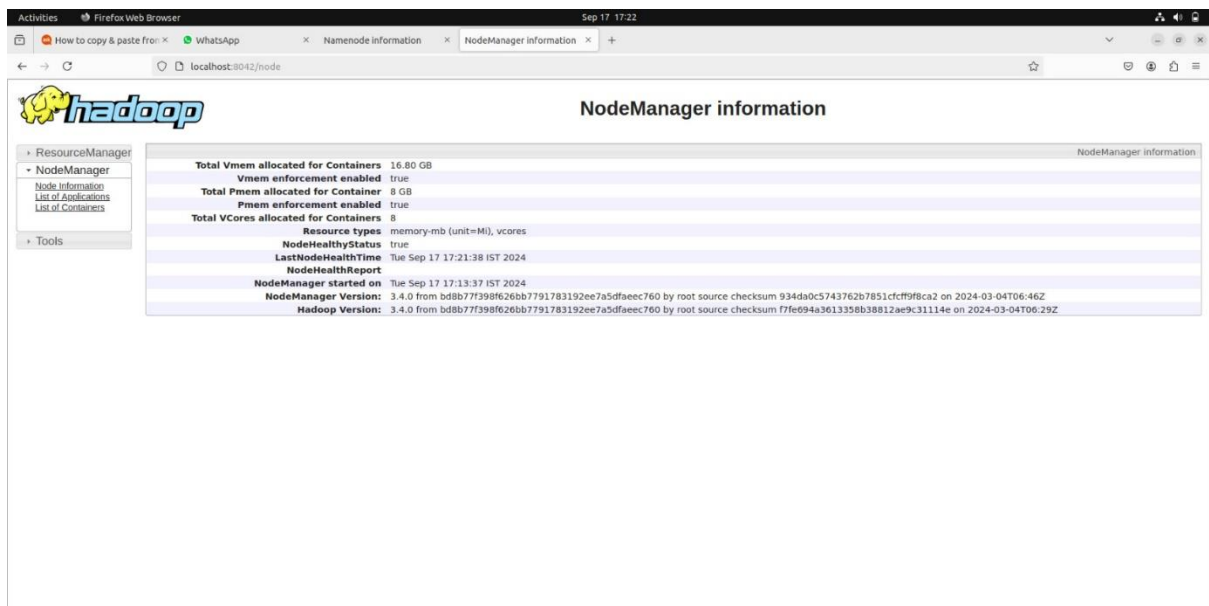
Overview 'localhost:9000' (✓active)

Started:	Tue Sep 17 17:13:26 +0530 2024
Version:	3.4.0, rbd8b77f398f626bb7791783192ee7a5dfaee760
Compiled:	Mon Mar 04 11:59:00 +0530 2024 by root from (HEAD detached at release-3.4.0-RC3)
Cluster ID:	CID-653f4afa-bc4d-4111-9842-8c068261eaad
Block Pool ID:	BP-750355565-127.0.1.1-1724908368015

Summary

Security is off.
Safemode is off.
147 files and directories, 89 blocks (89 replicated blocks, 0 erasure coded block groups) = 236 total filesystem object(s).
Heap Memory used 183.12 MB of 348.5 MB Heap Memory. Max Heap Memory is 1.9 GB.
Non Heap Memory used 53.72 MB of 55.53 MB Committed Non Heap Memory. Max Non Heap Memory is <unbounded>.

Configured Capacity:	28.87 GB
Configured Remote Capacity:	0 B
DFS Used:	24.89 MB (0.08%)
Non DFS Used:	22.19 GB
DFS Remaining:	5.16 GB (17.88%)
Block Bad Head:	7.4 MB (0.000026%)



Result:

The step-by-step installation and configuration of Hadoop on Ubutu linux system have been successfully completed.