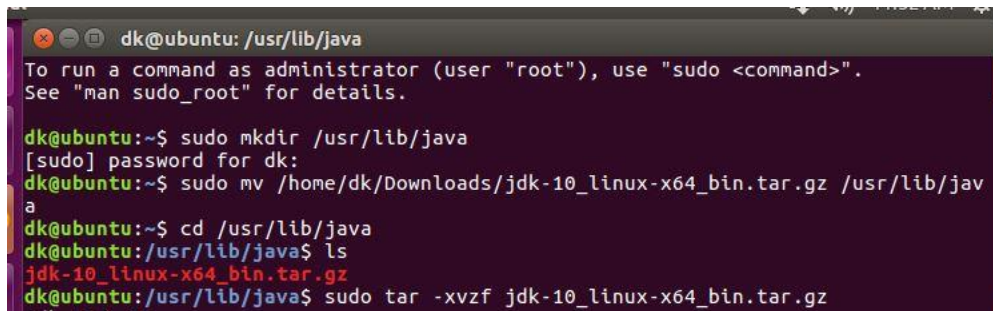


- 1) Created a virtual Machine in Vmware Workstation.
- 2) Installed Hadoop in Ubuntu 16.04 os.
- 3) Configured Ubuntu to run on two core two processors.

Hadoop Installation:

Install-java:

Download java: <http://www.oracle.com/technetwork/java/javase/downloads/jdk10-downloads-4416644.html>

A terminal window titled 'dk@ubuntu: /usr/lib/java' showing the process of installing Java. The user runs 'sudo mkdir /usr/lib/java', then 'sudo mv /home/dk/Downloads/jdk-10_linux-x64_bin.tar.gz /usr/lib/java', then 'cd /usr/lib/java', and finally 'sudo tar -xvzf jdk-10_linux-x64_bin.tar.gz'. The terminal output shows the directory being created, the file being moved, and the tar file being extracted.

```
dk@ubuntu: /usr/lib/java
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

dk@ubuntu:~$ sudo mkdir /usr/lib/java
[sudo] password for dk:
dk@ubuntu:~$ sudo mv /home/dk/Downloads/jdk-10_linux-x64_bin.tar.gz /usr/lib/java
dk@ubuntu:~$ cd /usr/lib/java
dk@ubuntu:/usr/lib/java$ ls
jdk-10_linux-x64_bin.tar.gz
dk@ubuntu:/usr/lib/java$ sudo tar -xvzf jdk-10_linux-x64_bin.tar.gz
```

Verify-java installation:

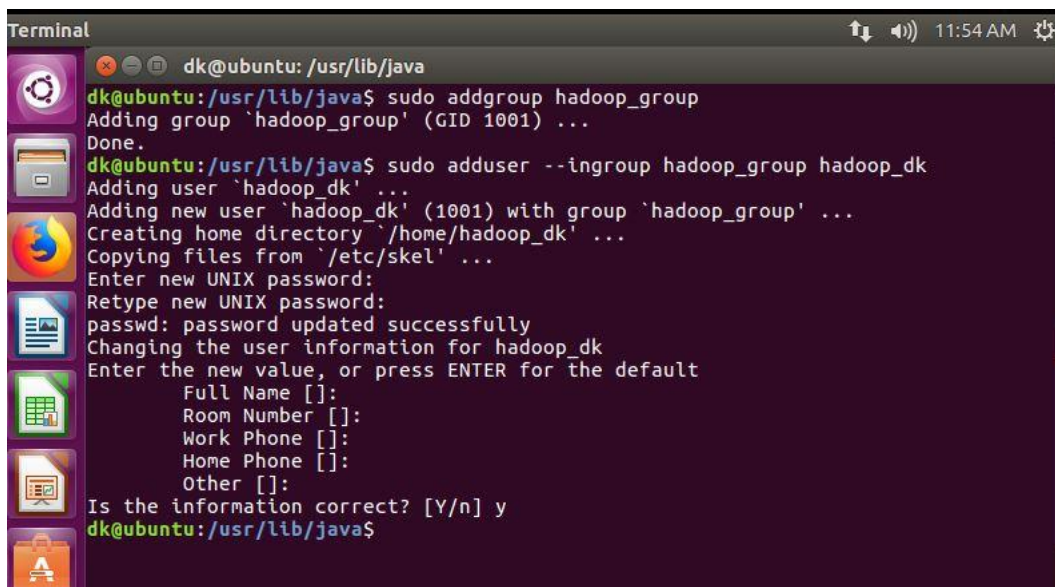
java -version

Install-Hadoop:

<http://download.nextag.com/apache/hadoop/common/hadoop-2.8.3/hadoop-2.8.3.tar.gz>

Add a Hadoop group and user:

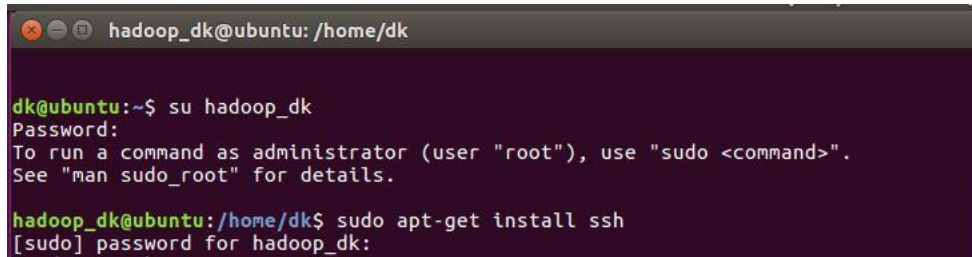
```
sudo addgroup Hadoop_group
sudo adduser --ingroup hadoop_group hadoop_dk
```

A terminal window titled 'dk@ubuntu: /usr/lib/java' showing the process of adding a group and user. The user runs 'sudo addgroup hadoop_group' and 'sudo adduser --ingroup hadoop_group hadoop_dk'. The terminal output shows the group being added, the user being added, and the user information being set.

```
Terminal
dk@ubuntu: /usr/lib/java
dk@ubuntu:/usr/lib/java$ sudo addgroup hadoop_group
Adding group 'hadoop_group' (GID 1001) ...
Done.
dk@ubuntu:/usr/lib/java$ sudo adduser --ingroup hadoop_group hadoop_dk
Adding user 'hadoop_dk' ...
Adding new user 'hadoop_dk' (1001) with group 'hadoop_group' ...
Creating home directory '/home/hadoop_dk' ...
Copying files from '/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for hadoop_dk
Enter the new value, or press ENTER for the default
Full Name []:
Room Number []:
Work Phone []:
Home Phone []:
Other []:
Is the information correct? [Y/n] y
dk@ubuntu:/usr/lib/java$
```

Installing SSH:

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

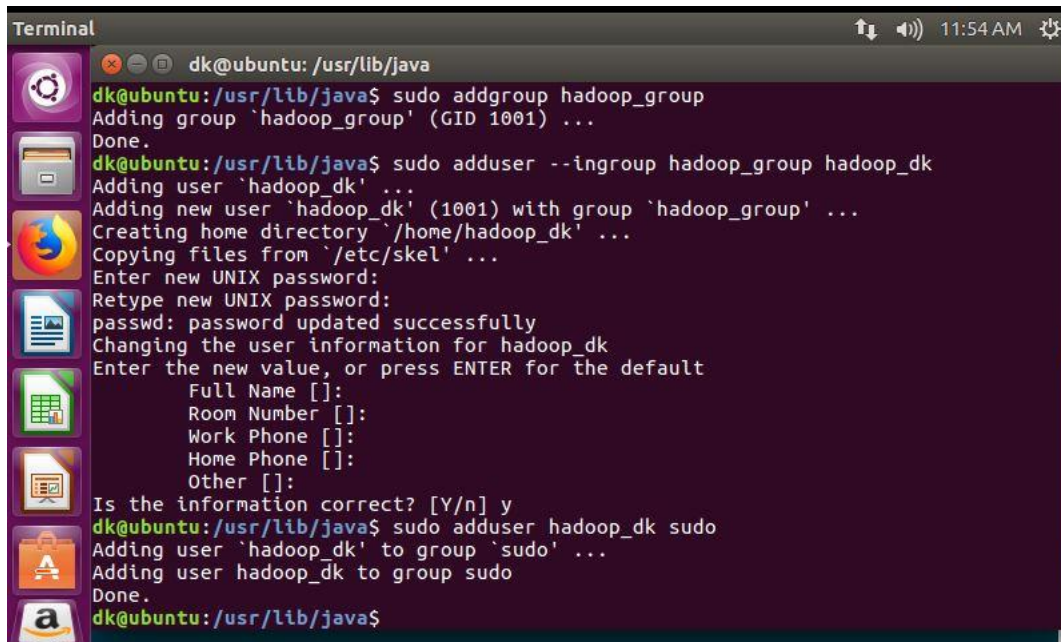
A terminal window titled 'hadoop_dk@ubuntu: /home/dk'. The user 'dk' runs 'su hadoop_dk'. The prompt changes to 'hadoop_dk@ubuntu:~\$'. The user enters a password. The prompt changes to 'hadoop_dk@ubuntu:/home/dk\$'. The user runs 'sudo apt-get install ssh'. The prompt changes to '[sudo] password for hadoop_dk:'.

```
hadoop_dk@ubuntu:~$ su hadoop_dk
Password:
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

hadoop_dk@ubuntu:/home/dk$ sudo apt-get install ssh
[sudo] password for hadoop_dk:
```

Add Hadoop user to sudo:

```
Sudo adduser Hadoop_dk sudo
```

A terminal window titled 'Terminal' with a system clock showing 11:54 AM. The user 'dk' is at the prompt 'dk@ubuntu: /usr/lib/java'. The user runs 'sudo addgroup hadoop_group'. The prompt changes to 'dk@ubuntu:/usr/lib/java\$'. The user runs 'sudo adduser --ingroup hadoop_group hadoop_dk'. The prompt changes to 'dk@ubuntu:/usr/lib/java\$'. The user runs 'sudo adduser hadoop_dk sudo'. The prompt changes to 'dk@ubuntu:/usr/lib/java\$'.

```
Terminal
dk@ubuntu: /usr/lib/java

dk@ubuntu:/usr/lib/java$ sudo addgroup hadoop_group
Adding group `hadoop_group' (GID 1001) ...
Done.

dk@ubuntu:/usr/lib/java$ sudo adduser --ingroup hadoop_group hadoop_dk
Adding user `hadoop_dk' ...
Adding new user `hadoop_dk' (1001) with group `hadoop_group' ...
Creating home directory `/home/hadoop_dk' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for hadoop_dk
Enter the new value, or press ENTER for the default
Full Name []:
Room Number []:
Work Phone []:
Home Phone []:
Other []:
Is the information correct? [Y/n] y

dk@ubuntu:/usr/lib/java$ sudo adduser hadoop_dk sudo
Adding user `hadoop_dk' to group `sudo' ...
Adding user hadoop_dk to group sudo
Done.

dk@ubuntu:/usr/lib/java$
```

Edit hadoop configuration files as per the official documentation:

Reference video: <https://www.youtube.com/watch?v=EDcXRPk7Qk&t=2149s>

Start-hadoop clusters:

```
Cd $Hadoop_home/sbin
```

```
Start-dfs.sh
```

```
Start-yarn.sh
```

Run jps to check all the active services.

```

hadoop_dk@ubuntu: /usr/local/hadoop/sbin
18/03/22 13:25:27 INFO namenode.NameNode: SHUTDOWN_MSG:
/*****
SHUTDOWN_MSG: Shutting down NameNode at ubuntu/127.0.1.1
*****/
hadoop_dk@ubuntu: /usr/local/hadoop/etc/hadoop$ cd $HADOOP_HOME/sbin
hadoop_dk@ubuntu: /usr/local/hadoop/sbin$ ls
distribute-exclude.sh      start-all.cmd          stop-balancer.sh
hadoop-daemon.sh           start-all.sh           stop-dfs.cmd
hadoop-daemons.sh         start-balancer.sh       stop-dfs.sh
hdfs-config.cmd            start-dfs.cmd           stop-secure-dns.sh
hdfs-config.sh             start-dfs.sh            stop-yarn.cmd
httpfs.sh                  start-secure-dns.sh     stop-yarn.sh
kms.sh                     start-yarn.cmd          yarn-daemon.sh
mr-jobhistory-daemon.sh    start-yarn.sh           yarn-daemons.sh
refresh-namenodes.sh       stop-all.cmd           stop-all.sh
slaves.sh                  stop-all.sh
hadoop_dk@ubuntu: /usr/local/hadoop/sbin$ jps
9165 Jps
hadoop_dk@ubuntu: /usr/local/hadoop/sbin$ start-dfs.sh
WARNING: An illegal reflective access operation has occurred
WARNING: Illegal reflective access by org.apache.hadoop.security.authentication.
util.KerberosUtil (file:/usr/local/hadoop/share/hadoop/common/lib/hadoop-auth-2.
8.3.jar) to method sun.security.krb5.Config.getInstance()
WARNING: Please consider reporting this to the maintainers of org.apache.hadoop.
Mar 22, 2018 1:27:26

```

```

hadoop_dk@ubuntu: /usr/local/hadoop/sbin
WARNING: All illegal access operations will be denied in a future release
hadoop_dk@ubuntu: /usr/local/hadoop/sbin$ start-yarn.sh
starting yarn daemons
starting resourcemanager, logging to /usr/local/hadoop/logs/yarn-hadoop_dk-resou
rcemanager-ubuntu.out
localhost: starting nodemanager, logging to /usr/local/hadoop/logs/yarn-hadoop_d
k-nodemanager-ubuntu.out
hadoop_dk@ubuntu: /usr/local/hadoop/sbin$ jps
9905 ResourceManager
10338 Jps
9716 SecondaryNameNode
9511 DataNode
9351 NameNode
10031 NodeManager
hadoop_dk@ubuntu: /usr/local/hadoop/sbin$ hadoop version
Hadoop 2.8.3
Subversion https://git-wip-us.apache.org/repos/asf/hadoop.git -r b3fe56402d90801
9d99af1f1f4fc65cb1d1436a2
Compiled by jdu on 2017-12-05T03:43Z
Compiled with protoc 2.5.0
From source with checksum 9ff4856d824e983fa510d3f843e3f19d
This command was run using /usr/local/hadoop/share/hadoop/common/hadoop-common-2
.8.3.jar
hadoop_dk@ubuntu: /usr/local/hadoop/sbin$

```

