

## Install JDK & Download and install Hadoop on Ubuntu

```
root@p930026096:~# apt update && apt-get upgrade -y && apt-get install openjdk-8-jdk openssh-server openssh-client -y
```

```
root@p930026096:~# apt update && apt-get upgrade -y && apt-get install openjdk-8-jdk openssh-server openssh-client -y
Hit:1 http://nova.clouds.archive.ubuntu.com/ubuntu focal InRelease
Hit:2 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:3 http://nova.clouds.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:4 http://nova.clouds.archive.ubuntu.com/ubuntu focal-backports InRelease
Reading package lists... Done
Building dependency tree
Reading state information... Done
20 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  fwupd fwupd-signed gnome-shell-extension-desktop-icons libegl-mesa0
  libfwupd2 libfwupdplugin1 libgbm1 libgl1-mesa-dri libglapi-mesa libglx-mesa0
  libxatracker2 mesa-va-drivers mesa-va-drivers mesa-vulkan-drivers
  ubuntu-advantage-tools
The following packages will be upgraded:
  libpam-modules libpam-modules-bin libpam-runtime libpam0g squashfs-tools
5 upgraded, 0 newly installed, 0 to remove and 15 not upgraded.
```

```
Need to get 512 kB of archives.
After this operation, 0 B of additional disk space will be used.
Get:1 http://nova.clouds.archive.ubuntu.com/ubuntu focal-updates/main amd64 libpam0g amd64 1.3.1-5ubuntu4.3 [55.4 kB]
Get:2 http://nova.clouds.archive.ubuntu.com/ubuntu focal-updates/main amd64 libpam-modules-bin amd64 1.3.1-5ubuntu4.3 [41.2 kB]
Get:3 http://nova.clouds.archive.ubuntu.com/ubuntu focal-updates/main amd64 libpam-modules amd64 1.3.1-5ubuntu4.3 [260 kB]
Get:4 http://nova.clouds.archive.ubuntu.com/ubuntu focal-updates/main amd64 libpam-runtime all 1.3.1-5ubuntu4.3 [37.3 kB]
Get:5 http://nova.clouds.archive.ubuntu.com/ubuntu focal-updates/main amd64 squashfs-tools amd64 1:4.4-1ubuntu0.3 [117 kB]
Fetched 512 kB in 3s (201 kB/s)
Preconfiguring packages ...
(Reading database ... 235630 files and directories currently installed.)
Preparing to unpack .../libpam0g_1.3.1-5ubuntu4.3_amd64.deb ...
Unpacking libpam0g:amd64 (1.3.1-5ubuntu4.3) over (1.3.1-5ubuntu4.2) ...
Setting up libpam0g:amd64 (1.3.1-5ubuntu4.3) ...
(Reading database ... 235630 files and directories currently installed.)
Preparing to unpack .../libpam-modules-bin_1.3.1-5ubuntu4.3_amd64.deb ...
Unpacking libpam-modules-bin (1.3.1-5ubuntu4.3) over (1.3.1-5ubuntu4.2) ...
Setting up libpam-modules-bin (1.3.1-5ubuntu4.3) ...
(Reading database ... 235630 files and directories currently installed.)
Preparing to unpack .../libpam-modules_1.3.1-5ubuntu4.3_amd64.deb ...
```

```

Get:1 http://nova.clouds.archive.ubuntu.com/ubuntu focal-updates/universe amd64
openjdk-8-jre amd64 8u292-b10-0ubuntu1~20.04 [70.0 kB]
Get:2 http://nova.clouds.archive.ubuntu.com/ubuntu focal-updates/universe amd64
openjdk-8-jdk amd64 8u292-b10-0ubuntu1~20.04 [2895 kB]
Fetched 2965 kB in 3s (1095 kB/s)
Selecting previously unselected package openjdk-8-jre:amd64.
(Reading database ... 235630 files and directories currently installed.)
Preparing to unpack .../openjdk-8-jre_8u292-b10-0ubuntu1~20.04_amd64.deb ...
Unpacking openjdk-8-jre:amd64 (8u292-b10-0ubuntu1~20.04) ...
Selecting previously unselected package openjdk-8-jdk:amd64.
Preparing to unpack .../openjdk-8-jdk_8u292-b10-0ubuntu1~20.04_amd64.deb ...
Unpacking openjdk-8-jdk:amd64 (8u292-b10-0ubuntu1~20.04) ...
Setting up openjdk-8-jre:amd64 (8u292-b10-0ubuntu1~20.04) ...
update-alternatives: using /usr/lib/jvm/java-8-openjdk-amd64/jre/bin/policytool
to provide /usr/bin/policytool (policytool) in auto mode
Setting up openjdk-8-jdk:amd64 (8u292-b10-0ubuntu1~20.04) ...
update-alternatives: using /usr/lib/jvm/java-8-openjdk-amd64/bin/appletviewer to
provide /usr/bin/appletviewer (appletviewer) in auto mode
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.2) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...
root@p930026096:~# █

```

Update the system and install JRE and JDK.

```

root@p930026096:~# adduser hduser

root@p930026096:~# adduser hduser
Adding user `hduser' ...
Adding new group `hduser' (1001) ...
Adding new user `hduser' (1001) with group `hduser' ...
Creating home directory `/home/hduser' ...
Copying files from `/etc/skel' ...
New password:
Retype new password: I
passwd: password updated successfully
Changing the user information for hduser
Enter the new value, or press ENTER for the default
    Full Name []: RoyMa
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] y
root@p930026096:~# █

```

Create a Hadoop user. The username is RoyMa with no room number, work phone and home phone and others.



```
root@p930026096:~# su - hduser
```

SSH the localhost.

```
hduser@p930026096:~$ ssh-keygen -t rsa -P '' -f ~/.ssh/id_rsa
hduser@p930026096:~$ ssh-keygen -t rsa -P '' -f ~/.ssh/id_rsa
Generating public/private rsa key pair.
Created directory '/home/hduser/.ssh'.
Your identification has been saved in /home/hduser/.ssh/id_rsa
Your public key has been saved in /home/hduser/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:bmuqlqyrdTx9yjHpnSqZHJMcRrun8/F6cqJcW17YBvs hduser@p930026096
The key's randomart image is:
+---[RSA 3072]-----+
|
| .
| ..
| +
| o +S .
| .*o.. =
| .++BX = +
| ..oX*+&o=
| .o+++BXB= E
+---[SHA256]-----+
hduser@p930026096:~$
```

Generate an SSH key pair and define the storage location.

```
hduser@p930026096:~$ cat ~/.ssh/id_rsa.pub >> ~/.ssh/authorized_keys
hduser@p930026096:~$ chmod 0600 ~/.ssh/authorized_keys
```

“cat” to move public key as authorized\_keys to the ssh directory.  
Set the permissions by “chmod” command.

```
hduser@p930026096:~$ ssh localhost
```

Establish SSH connection to the localhost.

```
hduser@p930026096:~$ wget https://downloads.apache.org/hadoop/common/hadoop-3.2.2/hadoop-3.2.2.tar.gz
```

Download the Hadoop 3.2.2 mirrors.

```
hduser@p930026096:~$ wget https://downloads.apache.org/hadoop/common/hadoop-3.2.2/hadoop-3.2.2.tar.gz
--2021-10-14 00:54:34-- https://downloads.apache.org/hadoop/common/hadoop-3.2.2/hadoop-3.2.2.tar.gz
Resolving downloads.apache.org (downloads.apache.org)... 135.181.214.104, 88.99.95.219, 2a01:4f9:3a:2c57::2, ...
Connecting to downloads.apache.org (downloads.apache.org)|135.181.214.104|:443..
. connected.
HTTP request sent, awaiting response... 200 OK
Length: 395448622 (377M) [application/x-gzip]
Saving to: 'hadoop-3.2.2.tar.gz'

hadoop-3.2.2.tar.gz 100%[=====>] 377.13M 682KB/s in 2m 28s

2021-10-14 00:57:04 (2.54 MB/s) - 'hadoop-3.2.2.tar.gz' saved [395448622/395448622]
```

```
hduser@p930026096:~$ tar xzf hadoop-3.2.2.tar.gz
```

Extract the zip files.

```
hduser@p930026096:~$ nano .bashrc
```

Edit .bashrc file, adding some environment variables as follow.

```
if ! shopt -oq posix; then
  if [ -f /usr/share/bash-completion/bash_completion ]; then
    . /usr/share/bash-completion/bash_completion
  elif [ -f /etc/bash_completion ]; then
    . /etc/bash_completion
  fi
fi

#Hadoop Realted Options

export HADOOP_HOME=/home/hduser/hadoop-3.2.2
export HADOOP_INSTALL=$HADOOP_HOME
export HADOOP_MAPRED_HOME=$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 PATH=$path:$HADOOP_HOME/sbin:$HADOOP_HOME/bin
export HADOOP_OPTS="-Djava.library.path=$HADOOP_HOME/lib/native"

^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos
^X Exit      ^R Read File  ^\ Replace   ^U Paste Text ^T To Spell  ^_ Go To Line
```

```
hduser@p930026096:~$ source ~/.bashrc
```

Apply the changes of .bashrc.

```
hduser@p930026096:~$ nano $HADOOP_HOME/etc/hadoop/hadoop-env.sh
```

Edit Hadoop-env.sh file as follow.

```

## {yarn-env.sh|hdfs-env.sh} > hadoop-env.sh > hard-coded defaults
##
## {YARN_xyz|HDFS_xyz} > HADOOP_xyz > hard-coded defaults
##

# Many of the options here are built from the perspective that users
# may want to provide OVERWRITING values on the command line.
# For example:
#
#   JAVA_HOME=/usr/java/testing hdfs dfs -ls
#
# Therefore, the vast majority (BUT NOT ALL!) of these defaults
# are configured for substitution and not append.  If append
# is preferable, modify this file accordingly.

###
# Generic settings for HADOOP
###

# Technically, the only required environment variable is JAVA_HOME.
# All others are optional.  However, the defaults are probably not
# preferred.  Many sites configure these options outside of Hadoop,
# such as in /etc/profile.d

# The java implementation to use.  By default, this environment
# variable is REQUIRED on ALL platforms except OS X!
export JAVA_HOME=/usr/lib/jvm/java-8-openjdk-amd64

# Location of Hadoop.  By default, Hadoop will attempt to determine
# this location based upon its execution path.
# export HADOOP_HOME=

# Location of Hadoop's configuration information.  i.e., where this
# file is living.  If this is not defined, Hadoop will attempt to
# locate it based upon its execution path.
#
# NOTE: It is recommend that this variable not be set here but in
# /etc/profile.d or equivalent.  Some options (such as
# --config) may react strangely otherwise.
# export HADOOP_CONF_DIR=${HADOOP_HOME}/etc/hadoop

```

```
hduser@p930026096:~$ nano $HADOOP_HOME/etc/hadoop/core-site.xml
```

Edit core-site.xml file as follow. Hostname is localhost.

```

GNU nano 4.8 /home/hduser/hadoop-3.2.2/etc/hadoop/core-site.xml
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<!--
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  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
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  limitations under the License. See accompanying LICENSE file.
-->

<!-- Put site-specific property overrides in this file. -->

<configuration>
  <property>
    <name>hadoop.tmp.dir</name>
    <value>/home/hduser/tmpdata</value>
  </property>
  <property>
    <name>fs.default.name</name>
    <value>hdfs://localhost:9000</value>
  </property>
</configuration>

```

```
hduser@p930026096:~$ nano $HADOOP_HOME/etc/hadoop/hdfs-site.xml
```

Edit hdfs-site.xml file as follow.

```
GNU nano 4.8 /home/hduser/hadoop-3.2.2/etc/hadoop/hdfs-site.xml
<?xml version="1.0" encoding="UTF-8"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<!--
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  you may not use this file except in compliance with the License.
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  distributed under the License is distributed on an "AS IS" BASIS,
  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License. See accompanying LICENSE file.
-->

<!-- Put site-specific property overrides in this file. -->

<configuration>
<property>
  <name>dfs.data.dir</name>
  <value>/home/hduser/dfsdata/namenode</value>
</property>
<property>
  <name>dfs.data.dir</name>
  <value>/home/hduser/dfsdata/datanode</value>
</property>
<property>
  <name>dfs.replication</name>
  <value>1</value>
</property>
</configuration>
```

hduser@p930026096:~\$ nano \$HADOOP\_HOME/etc/hadoop/mapred-site.xml

Edit mapred-site.xml as follow.

```
GNU nano 4.8 /home/hduser/hadoop-3.2.2/etc/hadoop/mapred-site.xml
<?xml version="1.0"?>
<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>
<!--
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  you may not use this file except in compliance with the License.
  You may obtain a copy of the License at

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  WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
  See the License for the specific language governing permissions and
  limitations under the License. See accompanying LICENSE file.
-->

<!-- Put site-specific property overrides in this file. -->

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

```
hduser@p930026096:~$ nano $HADOOP_HOME/etc/hadoop/yarn-site.xml
```

Edit yarn-site.xml file as follow. Hostname is localhost.

```
Terminal - hduser@p930026096: ~/hadoop-3.2.2/sbin
File Edit View Terminal Tabs Help
GNU nano 4.8 /home/hduser/hadoop-3.2.2/etc/hadoop/yarn-site.xml
<!--
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    http://www.apache.org/licenses/LICENSE-2.0

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distributed under the License is distributed on an "AS IS" BASIS,
WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or implied.
See the License for the specific language governing permissions and
limitations under the License. See accompanying LICENSE file.
-->
<configuration>
  <!-- Site specific YARN configuration properties -->
  <property>
    <name>yarn.nodemanager.aux-services</name>
    <value>mapreduce_shuffle</value>
  </property>
  <property>
    <name>yarn.nodemanager.aux-services.mapreduce.shuffle.class</name>
    <value>org.apache.hadoop.mapred.ShuffleHandler</value>
  </property>
  <property>
    <name>yarn.resourcemanager.hostname</name>
    <value>localhost</value>
  </property>
  <property>
    <name>yarn.acl.enable</name>
    <value>false</value>
  </property>
  <property>
    <name>yarn.nodemanager.env-whitelist</name>
    <value>JAVA_HOME,HADOOP_COMMON_HOME,HADOOP_HDFS_HOME,HADOOP_CONF_DIR,CLASSPATH_PERPEND_DISTCACHE,HADOOP_YARN_HOME,HADOOP_MAPRED_HOME</value>
  </property>
</configuration>
```

```
hduser@p930026096:~$ hdfs namenode -format
```

Format the namenode at the first time starting Hadoop services.

```
WARNING: /home/hduser/hadoop-3.2.2/logs does not exist. Creating.
2021-10-18 12:34:15.555 INFO namenode.NameNode: STARTUP MSG:
*****
STARTUP MSG: Starting NameNode
STARTUP MSG: host = p930026096/127.0.0.1
STARTUP MSG: args = [-format]
STARTUP MSG: version = 3.2.2
STARTUP MSG: classpath = /home/hduser/hadoop-3.2.2/etc/hadoop:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerby-util-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/
/lib/jsch-0.1.55.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jackson-annotations-2.9.10.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jackson-xc-1.9.0.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/slf4j-log4j12-1.7.25.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/netty-3.10.6.Final.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-io-2.5.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/j2objc-annotations-1.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jetty-xml-9.4.20.v20190813.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/htrace-core4-4.1.0-incubating.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerb-identity-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerby-asn1-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jersey-core-1.19.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-configuration2-2.11.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/curator-framework-2.13.0.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jsr305-3.0.2.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-logging-1.1.3.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/audience-annotations-0.5.0.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/protobuf-java-2.5.0.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jetty-http-9.4.20.v20190813.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jetty-io-9.4.20.v20190813.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerb-admin-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/cip-annotations-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jackson-databind-2.9.10.4.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jersey-F-1.19.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/avro-1.7.7.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/asm-5.0.4.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/httpcore4-4.4.13.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-math3-3.1.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/gson-2.2.4.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jackson-core-asl-1.9.13.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/zookeeper-3.4.13.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/log4j-1.2.17.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jetty-util-9.4.20.v20190813.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/error-prone-annotations-2.2.0.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerb-simplekdc-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerb-server-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/httpclient-4.5.13.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/javax.servlet-api-3.1.0.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/f4j-api-1.7.25.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/accessors-smart-1.2.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/snappy-java-1.0.5.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jaxb-api-2.2.11.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-net-3.6.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/s-jose-jwt-7.9.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jackson-mapper-asl-1.9.13.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/javax.activation-api-1.2.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jetty-security-9.4.20.v20190813.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jul-to-slf4j-1.7.25.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/token-provider-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/metrics-core-3.2.4.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/rb-util-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jersey-servlet-1.19.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jetty-server-9.4.20.v20190813.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-cli-1.2.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerb-core-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jetty-servlet-9.4.20.v20190813.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jaxb-impl-2.2.3-1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jetty-webapp-9.4.20.v20190813.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-codec-1.11.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-compress-1.19.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-text-1.4.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jsr311-api-1.1.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jackson-jaxrs-1.9.13.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerby-pkix-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerby-config-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/failureaccess-1.0.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/kerby-xdr-1.0.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/curator-client-2.13.0.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/jsp-api-2.1.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/json-smart-2.3.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-collections-3.2.2.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/animal-sniffer-annotations-1.17.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/commons-beanutils-1.9.4.jar:/home/hduser/hadoop-3.2.2/share/hadoop/common/lib/...
```

```

2021-10-18 12:34:15,687 ERROR conf.Configuration: error parsing conf core-site.xml
com.ctc.wstx.exc.WstxUnexpectedCharException: Unexpected character '>' (code 62) in epilog; expected '<'
at [row,col,system-id]: [28,17,"file:/home/hduser/hadoop-3.2.2/etc/hadoop/core-site.xml"]
    at com.ctc.wstx.sr.StreamScanner.throwUnexpectedChar(StreamScanner.java:653)
    at com.ctc.wstx.sr.BasicStreamReader.nextFromProlog(BasicStreamReader.java:2133)
    at com.ctc.wstx.sr.BasicStreamReader.closeContentTree(BasicStreamReader.java:2991)
    at com.ctc.wstx.sr.BasicStreamReader.nextFromTree(BasicStreamReader.java:2734)
    at com.ctc.wstx.sr.BasicStreamReader.next(BasicStreamReader.java:1123)
    at org.apache.hadoop.conf.Configuration$Parser.parseNext(Configuration.java:3336)
    at org.apache.hadoop.conf.Configuration$Parser.parse(Configuration.java:3138)
    at org.apache.hadoop.conf.Configuration.loadResource(Configuration.java:3023)
    at org.apache.hadoop.conf.Configuration.loadResources(Configuration.java:2984)
    at org.apache.hadoop.conf.Configuration.loadProps(Configuration.java:2864)
    at org.apache.hadoop.conf.Configuration.getProps(Configuration.java:2846)
    at org.apache.hadoop.conf.Configuration.get(Configuration.java:1200)
    at org.apache.hadoop.conf.Configuration.getDuration(Configuration.java:1812)
    at org.apache.hadoop.conf.Configuration.getDuration(Configuration.java:1789)
    at org.apache.hadoop.util.ShutdownHookManager.getShutdownTimeout(ShutdownHookManager.java:183)
    at org.apache.hadoop.util.ShutdownHookManager.shutdownExecutor(ShutdownHookManager.java:145)
    at org.apache.hadoop.util.ShutdownHookManager.access$300(ShutdownHookManager.java:65)
    at org.apache.hadoop.util.ShutdownHookManager$1.run(ShutdownHookManager.java:102)
Exception in thread "Thread-1" java.lang.RuntimeException: com.ctc.wstx.exc.WstxUnexpectedCharException: Unexpected character '>' (code 62) in epilog; expected '<'
    at [row,col,system-id]: [28,17,"file:/home/hduser/hadoop-3.2.2/etc/hadoop/core-site.xml"]
    at org.apache.hadoop.conf.Configuration.loadResource(Configuration.java:3049)
    at org.apache.hadoop.conf.Configuration.loadResources(Configuration.java:2984)
    at org.apache.hadoop.conf.Configuration.loadProps(Configuration.java:2864)
    at org.apache.hadoop.conf.Configuration.getProps(Configuration.java:2846)
    at org.apache.hadoop.conf.Configuration.get(Configuration.java:1200)
    at org.apache.hadoop.conf.Configuration.getDuration(Configuration.java:1812)
    at org.apache.hadoop.conf.Configuration.getDuration(Configuration.java:1789)
    at org.apache.hadoop.util.ShutdownHookManager.getShutdownTimeout(ShutdownHookManager.java:183)
    at org.apache.hadoop.util.ShutdownHookManager.shutdownExecutor(ShutdownHookManager.java:145)
    at org.apache.hadoop.util.ShutdownHookManager.access$300(ShutdownHookManager.java:65)
    at org.apache.hadoop.util.ShutdownHookManager$1.run(ShutdownHookManager.java:102)
Caused by: com.ctc.wstx.exc.WstxUnexpectedCharException: Unexpected character '>' (code 62) in epilog; expected '<'
    at [row,col,system-id]: [28,17,"file:/home/hduser/hadoop-3.2.2/etc/hadoop/core-site.xml"]
    at com.ctc.wstx.sr.StreamScanner.throwUnexpectedChar(StreamScanner.java:653)
    at com.ctc.wstx.sr.BasicStreamReader.nextFromProlog(BasicStreamReader.java:2133)
    at com.ctc.wstx.sr.BasicStreamReader.closeContentTree(BasicStreamReader.java:2991)
    at com.ctc.wstx.sr.BasicStreamReader.nextFromTree(BasicStreamReader.java:2734)
    at com.ctc.wstx.sr.BasicStreamReader.next(BasicStreamReader.java:1123)
    at org.apache.hadoop.conf.Configuration$Parser.parseNext(Configuration.java:3336)
    at org.apache.hadoop.conf.Configuration$Parser.parse(Configuration.java:3138)
    at org.apache.hadoop.conf.Configuration.loadResource(Configuration.java:3023)
    ... 16 more
hduser@p930026096:~$

```

```

hduser@p930026096:~/hadoop-3.2.2/sbin$ ./start-dfs.sh
Starting namenodes on [localhost]
Starting datanodes
Starting secondary namenodes [p930026096]

```

Go to the directory “~/Hadoop-3.2.2/sbin”, and start the namenode and datanode.

```

hduser@p930026096:~/hadoop-3.2.2/sbin$ ./start-yarn.sh
Starting resourcemanager
Starting nodemanagers

```

Start the yarn resource and nodemanagers

```

hduser@p930026096:~/hadoop-3.2.2/sbin$ jps
jpp56896 NodeManager
56193 SecondaryNameNode
57748 Jps
55963 DataNode
56526 ResourceManager

```

Check if all the daemons are active and running as java processes.



Namenode information x +

localhost:9870/dfshealth.html#tab-overview

Hadoop Overview Datanodes Datanode Volume Failures Snapshot Startup Progress Utilities

There are 2 versions of datanodes currently live: 3.2.1 (1) , 3.2.2 (1)

## Overview 'namenode:9000' (active)

<b>Started:</b>	Mon Oct 18 13:54:13 +0000 2021
<b>Version:</b>	3.2.1, rb3cbbb467e22ea829b3808f4b7b01d07e0bf3842
<b>Compiled:</b>	Tue Sep 10 15:56:00 +0000 2019 by rohithsharmaks from branch-3.2.1
<b>Cluster ID:</b>	CID-7a0f85b0-60c9-4048-ae49-66323c9f0a4a
<b>Block Pool ID:</b>	BP-1663102267-172.18.0.4-1634175900642

## Summary

Security is off.

Safe mode is ON. The reported blocks 20 has reached the threshold 0.9990 of total blocks 20. The minimum number of live datanodes is not required. In safe mode extension, Safe mode will be turned off automatically in 20 seconds.

Access the Hadoop namenode UI by port 9870.

DataNode Information — Mozilla Firefox

DataNode Information x +

localhost:9864/datanode.html

Hadoop Overview Utilities

## DataNode on localhost:9866

<b>Cluster ID:</b>	CID-7a0f85b0-60c9-4048-ae49-66323c9f0a4a
<b>Version:</b>	3.2.2, r7a3bc90b05f257c8ace2f76d74264906f0f7a932

## Block Pools

Namenode Address	Block Pool ID	Actor State	Last Heartbeat	Last Block Report	Last Block Report Size (Max Size)
localhost:9000	BP-1663102267-172.18.0.4-1634175900642	RUNNING	2s	a few seconds	0 B (64 MB)

## Volume Information

Storage	StorageType	CapacityUsed	CapacityLeft	CapacityReserved	Reserved Space for Redundancy	Blocks

Access individual datanode by port 9864.

**Cluster Metrics**

Apps Submitted	Apps Pending	Apps Running	Apps Completed	Containers Running	Used Resources
0	0	0	0	0	<memory:0, vCores:0>

**Cluster Nodes Metrics**

Active Nodes	Decommissioning Nodes	Decommissioned Nodes
1	0	0

**Scheduler Metrics**

Scheduler Type	Scheduling Resource Type	Minimum Allocation
Capacity Scheduler	[memory-mb (unit=Mi), vcores]	<memory:1024, vCores:1>

**Table Header:**

ID	User	Name	Application Type	Queue	Application Priority	StartTime	LaunchTime	FinishTime	State	FinalStatus	Running Containers	All
----	------	------	------------------	-------	----------------------	-----------	------------	------------	-------	-------------	--------------------	-----

Access yarn resource manager by port 8088.

Successfully installed Hadoop on Ubuntu!