INSTALL CONFIGURE AND RUN HADOOP AND HDFS

Aim:

To install configure and run hadoop and hdfs.

Procedure:

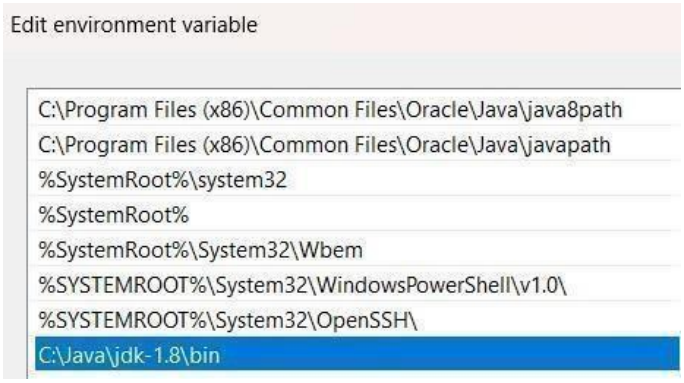
1. To install Java

1) Check if java is available in the system

```
C:\Windows\System32>java -version
java version "1.8.0_421"
Java(TM) SE Runtime Environment (build 1.8.0_421-b09)
Java HotSpot(TM) 64-Bit Server VM (build 25.421-b09, mixed mode)
```

2) If not install java jdk 1.8 and set the environment variables

3) Set the path variable

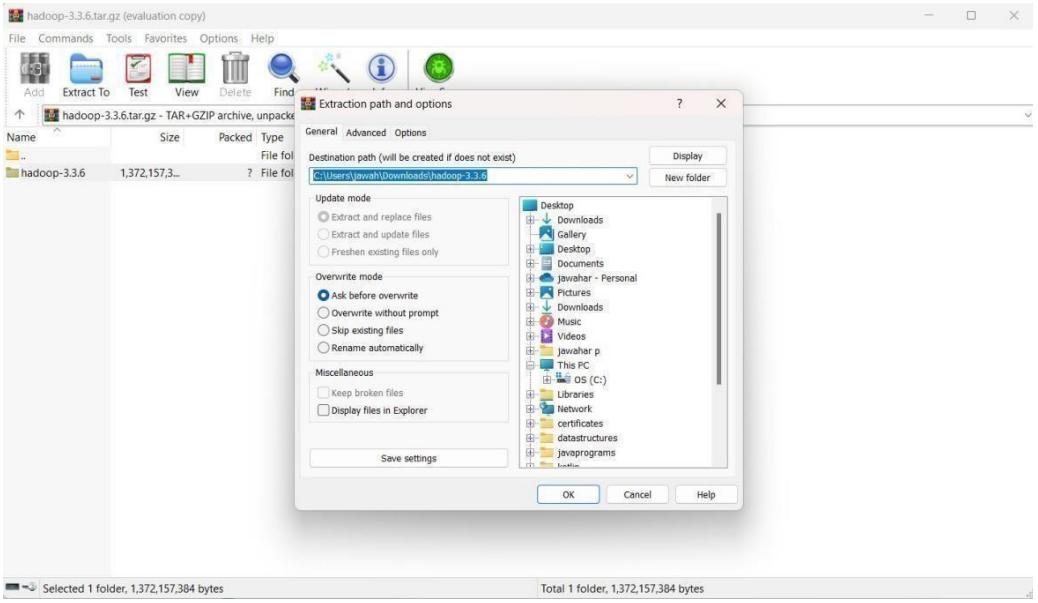


2. Hadoop Installation

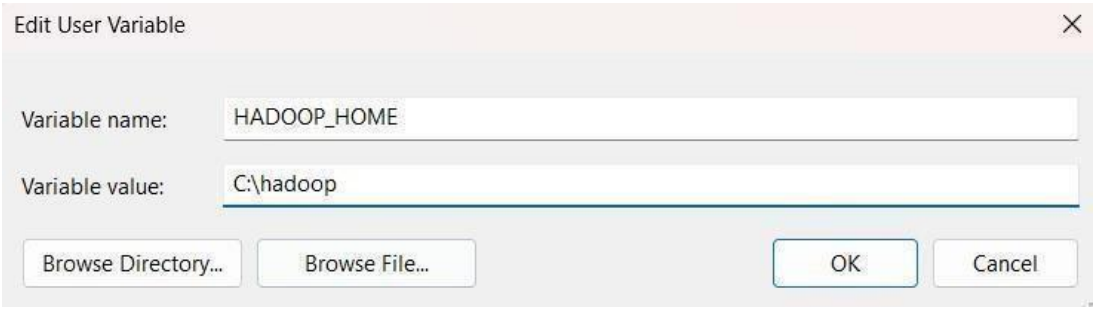
1) Install Hadoop 3.3.6 from https://hadoop.apache.org/releases.html

Download the binary(checksum signature)

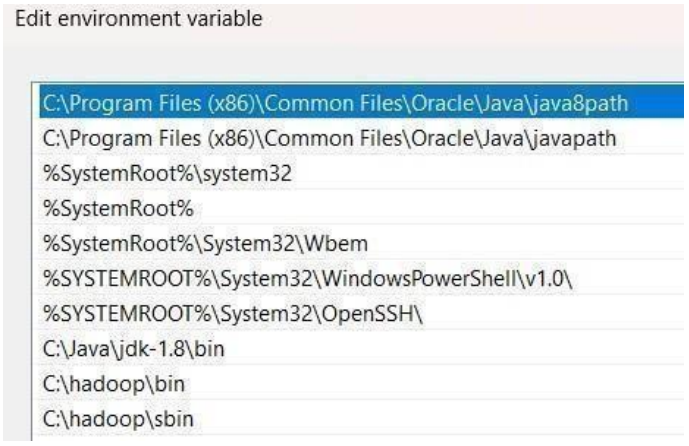
2) Extract the jar files to C://Hadoop



3) Add environment variables for Hadoop



Add path variable



4) Check if Hadoop is installed successfully using the command prompt

```
C:\Windows\System32>hadoop
Usage: hadoop [--config confdir] [--loglevel loglevel] COMMAND
where COMMAND is one of:
  fs                   run a generic filesystem user client
  version              print the version
  jar <jar>            run a jar file
                       note: please use "yarn jar" to launch
                             YARN applications, not this command.
  checknative [-a|-h]  check native hadoop and compression libraries availability
  conftest             validate configuration XML files
  distch path:owner:group:permisson
                       distributed metadata changer
  distcp <srcurl> <desturl> copy file or directories recursively
  archive -archiveName NAME -p <parent path> <src>* <dest> create a hadoop archive
  classpath            prints the class path needed to get the
                       Hadoop jar and the required libraries
  credential           interact with credential providers
  jnipath              prints the java.library.path
  kerbname             show auth_to_local principal conversion
  kdiag                diagnose kerberos problems
  key                  manage keys via the KeyProvider
  trace                view and modify Hadoop tracing settings
  daemonlog            get/set the log level for each daemon
 or
  CLASSNAME            run the class named CLASSNAME

Most commands print help when invoked w/o parameters.
```

5) Thus Hadoop is installed successfully

3. Hadoop Configuration

1) Configure core-site.xml in C:\hadoop\etc\hadoop by adding
   <configuration>
   <property>
   <name>fs.defaultFS</name>
   <value>hdfs://localhost:9000</value>
   </property>
   </configuration>
2) Configure the httpfs-site.xml file by adding the following xml code
   <configuration>
   <property>
   <name>dfs.replication</name>
   <value>1</value>
   </property>
   <property>
   <name>dfs.namenode.name.dir</name>
   <value>C:\hadoop\data\namenode</value>
   </property>
   <property>

<name>dfs.datanode.data.dir</name>
<value>C:\hadoop\data\datanode</value>
</property>
</configuration>

3. Configure mapred-site.xml file by adding the following xml code
<configuration>
<property>
<name>mapreduce.framework.name</name>
<value>yarn</value>
</property>
</configuration>
4. Configure yarn-site.xml file by adding the following xml code
<configuration>
<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>
5. Change the bin shell command files.
6. Thus hadoop is configured.

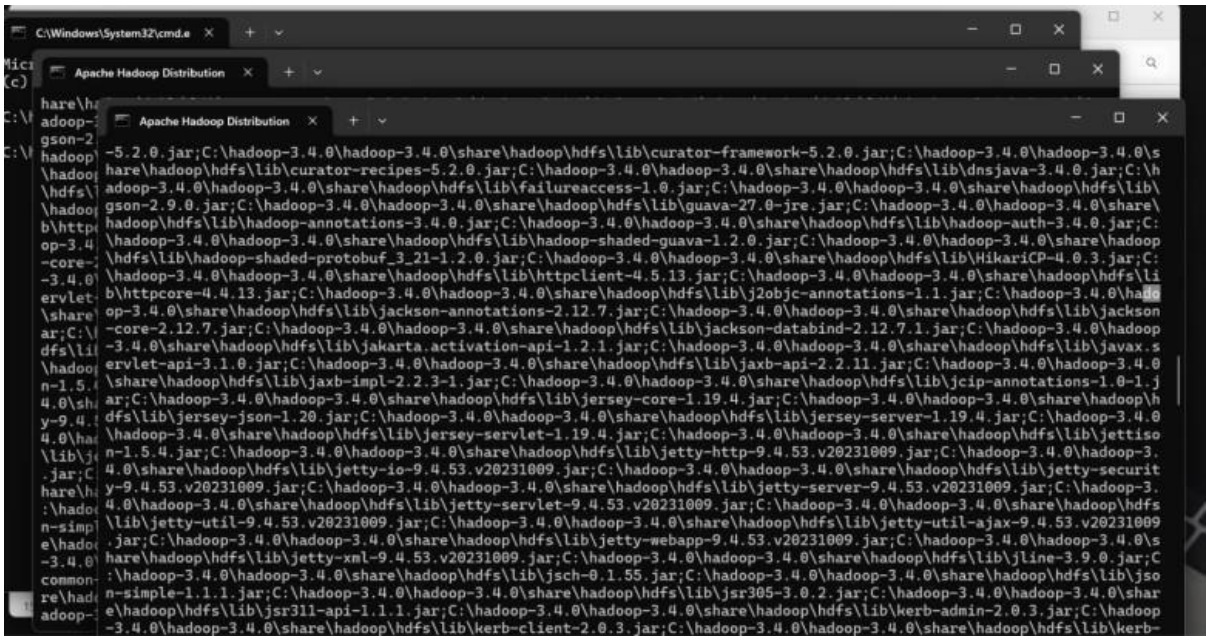
4. Hadoop execution

1. To check whether hadoop is running we must start the hadoop. To start hadoop we must use the command **start-all.cmd**

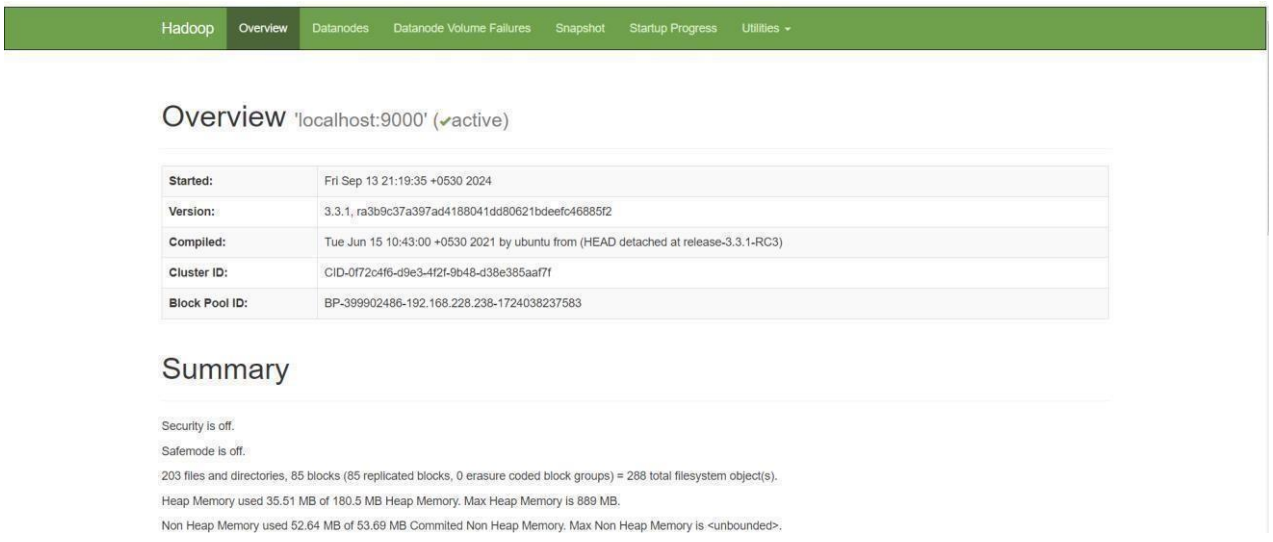
```
C:\Hadoop\sbin>start-dfs.cmd

C:\Hadoop\sbin>start-yarn.cmd
starting yarn daemons

C:\Hadoop\sbin>jps
13120 NameNode
2384 NodeManager
4100 DataNode
7956 ResourceManager
9124 Jps
```



2. Check if hadoop runs in localhost.
To check this go to browser and type localhost:9870



Non Heap Memory used 52.64 MB of 53.69 MB Commited Non Heap Memory. Max Non Heap Memory is <unbounded>.

Configured Capacity:	475.5 GB
Configured Remote Capacity:	0 B
DFS Used:	177.47 MB (0.04%)
Non DFS Used:	143.36 GB
DFS Remaining:	331.96 GB (69.81%)
Block Pool Used:	177.47 MB (0.04%)
DataNodes usages% (Min/Median/Max/stdDev):	0.04% / 0.04% / 0.04% / 0.00%
Live Nodes	1 (Decommissioned: 0, In Maintenance: 0)
Dead Nodes	0 (Decommissioned: 0, In Maintenance: 0)
Decommissioning Nodes	0
Entering Maintenance Nodes	0
Total Datanode Volume Failures	0 (0 B)
Number of Under-Replicated Blocks	15
Number of Blocks Pending Deletion (including replicas)	0
Block Deletion Start Time	Fri Sep 13 21:19:35 +0530 2024
Last Checkpoint Time	Fri Sep 13 21:19:36 +0530 2024
Enabled Erasure Coding Policies	RS-6-3-1024k

Result:

Thus, hadoop has been installed, configured and run successfully.