# INSTALL CONFIGURE AND RUN HADOOP AND HDFS

## Aim:

To install configure and run hadoop and hdfs.

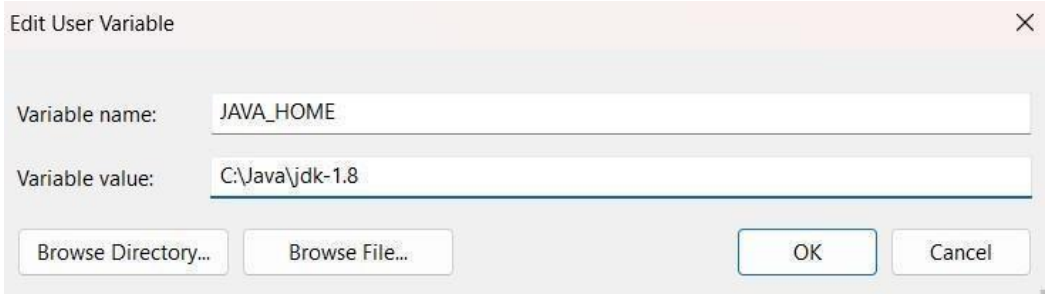
## Procedure:

### 1. To install Java

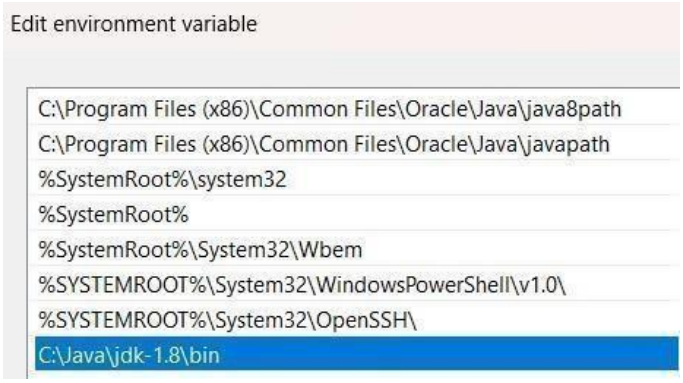
1) Check if java is available in the system

```
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

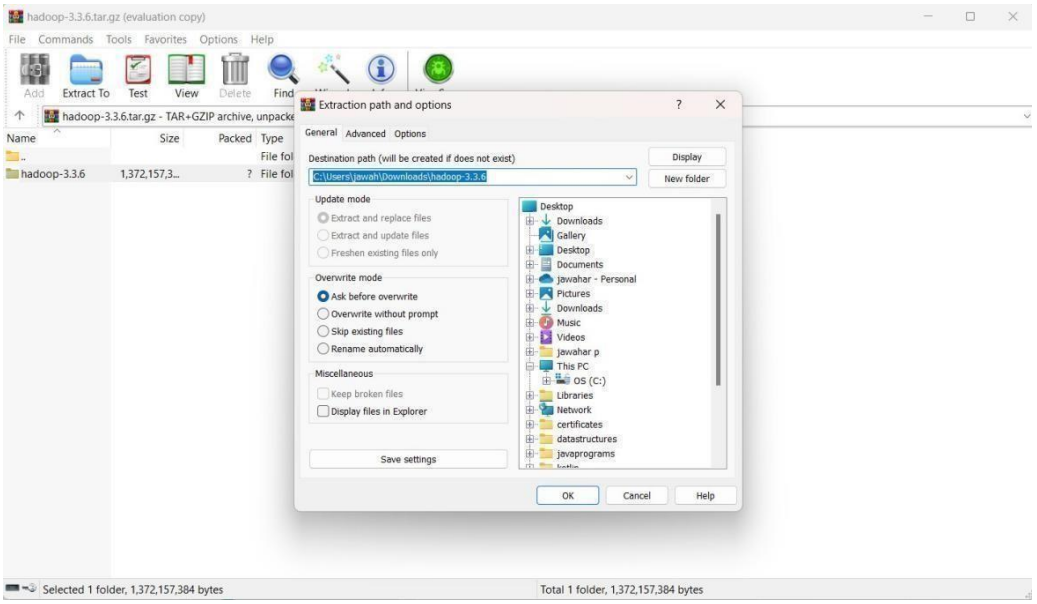



### 2. Hadoop Installation

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

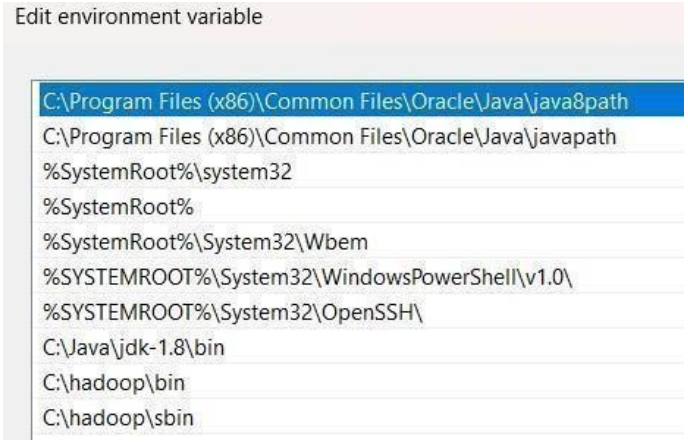

Download the binary(checksum signature)

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>*

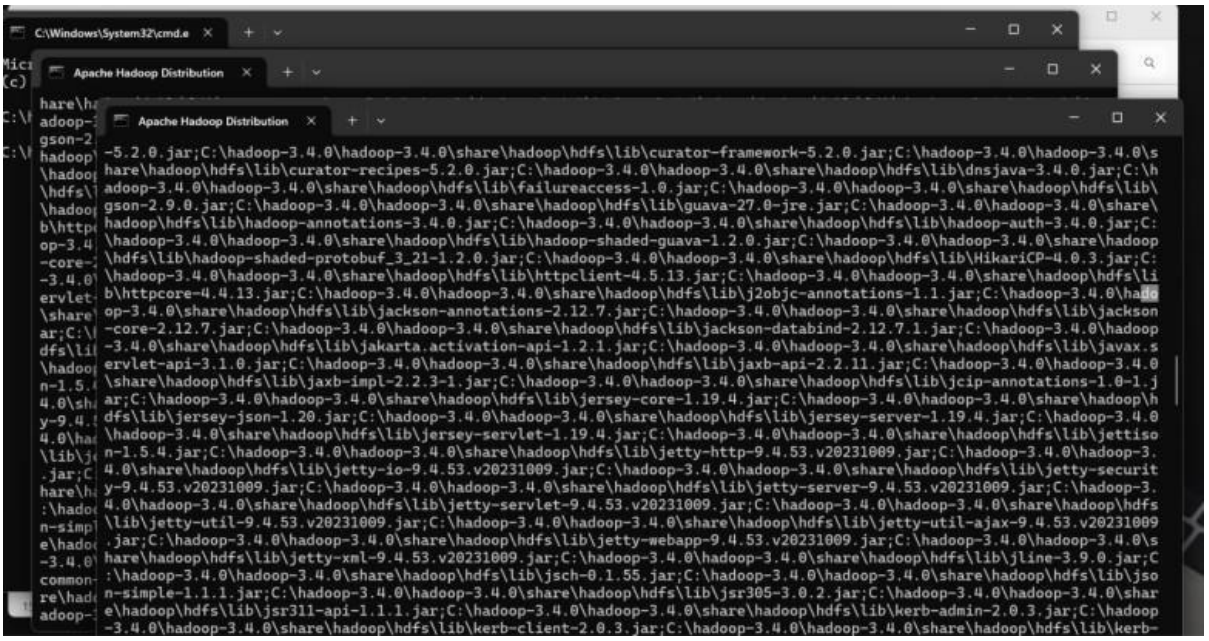
*</property>*
*</configuration>*

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**

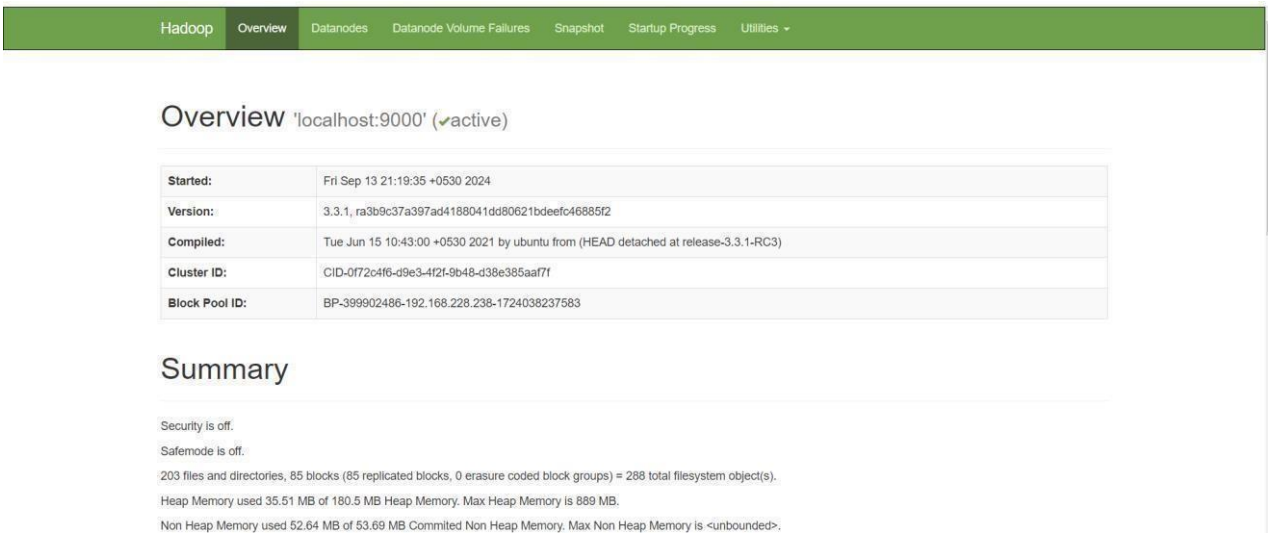
1. To check whether hadoop is running we must start the hadoop. To start hadoop we must use the command **start-all.cmd**

```
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.