

## **Step 1: Download and Install Apache Derby**

- Download Apache Derby binary from:  
<https://apache.root.lu/db/derby/db-derby-10.14.2.0/db-derby-10.14.2.0-bin.zip>
- Extract the ZIP file to **C drive**.
- Rename the extracted folder as **derby**.

## **Step 2: Download and Install Apache Hive**

- Download Apache Hive binary from:  
<https://archive.apache.org/dist/hive/hive-3.1.2/apache-hive-3.1.2-bin.tar.gz>
- Extract the file to C drive.
- Rename the extracted folder as **hive**.

## **Step 3: Environment Variable Configuration**

- Set the following environment variables for proper execution of Hadoop, Hive, and Derby:
  - JAVA\_HOME → C:\Java\jdk1.8.0
  - HADOOP\_HOME → C:\hadoop-3.3.0
  - DERBY\_HOME → C:\derby
  - HIVE\_HOME → C:\hive
- Update the PATH variable by adding:
  - %HADOOP\_HOME%\bin
  - %HADOOP\_HOME%\sbin
  - %HIVE\_HOME%\bin
  - %DERBY\_HOME%\bin

## **Step 4: Download Hive CMD Files**

- Download Hive-cmd master ZIP from GitHub.
- Open the GitHub repository and click Code → Download ZIP.
- Extract the ZIP file.
- Copy all extracted .cmd files and paste them into:C:\hive

## **Step 5: Copy Derby Library Files**

- Copy all files from:C:\derby\lib
- Paste them into:C:\hive\lib

**step 6:**

- Navigate to:C:\hadoop-3.3.0\share\hadoop\common\lib
- Copy the file:guava-27.0-jre.jar
- Paste it into:C:\hive\lib
- Delete the older file:guava-19.0.jar

**Step 7:**

Create hite-site.xml inside hive/conf and pase the following code in it:

```
<?xml version="1.0"?>

<?xml-stylesheet type="text/xsl" href="configuration.xsl"?>

<configuration>

<property>
    <name>javax.jdo.option.ConnectionURL</name>
    <value>jdbc:derby:C:/hive/metastore_db;create=true</value>
    <description>Derby database location on your local C drive</description>
</property>

<property>
    <name>javax.jdo.option.ConnectionDriverName</name>
    <value>org.apache.derby.jdbc.EmbeddedDriver</value>
</property>

<property>
    <name>javax.jdo.option.ConnectionUserName</name>
    <value>APP</value>
</property>

<property>
    <name>javax.jdo.option.ConnectionPassword</name>
    <value>mine</value>
</property>
```

```
<property>
  <name>datanucleus.identifier.schema</name>
  <value>APP</value>
</property>
```

```
<property>
  <name>hive.metastore.schema.verification</name>
  <value>false</value>
</property>
```

```
<property>
  <name>datanucleus.schema.autoCreateAll</name>
  <value>true</value>
</property>
```

```
<property>
  <name>hive.metastore.warehouse.dir</name>
  <value>/user/hive/warehouse</value>
</property>
```

```
<property>
  <name>hive.exec.scratchdir</name>
  <value>/tmp/hive</value>
</property>
```

```
<property>
  <name>hive.exec.local.scratchdir</name>
  <value>C:/hive/scratchdir</value>
</property>
```

```

<property>
  <name>hive.querylog.location</name>
  <value>C:/hive/scratchdir</value>
</property>

```

```

<property>
  <name>hive.scratch.dir.permission</name>
  <value>733</value>
</property>

```

</configuration>

## Step 8:

- Open Command Prompt.
- Navigate to:C:\hive\bin
- Execute the command:

```
hive --service schematool -dbType derby -initSchema --verbose
```

```

Schematool :0:0
C:\hive\bin>hive --service schematool -dbType derby -initSchema --verbose
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/C:/hadoop-3.3.0/share/hadoop/common/lib/slf4j-log4j12-1.7.25.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/C:/hive/lib/log4j-slf4j-impl-2.10.0.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory]
2026-01-26 20:35:27,676 INFO config:Config: Configuration file is null
2026-01-26 20:35:28,042 INFO tools.HiveSchemaHelper: Metastore connection URL: jdbc:derby:;databaseName=metastore_db;create=true
Metastore connection URL: jdbc:derby:;databaseName=metastore_db;create=true
2026-01-26 20:35:28,042 INFO tools.HiveSchemaHelper: Metastore Connection Driver : org.apache.derby.jdbc.EmbeddedDriver
Metastore Connection Driver : org.apache.derby.jdbc.EmbeddedDriver
2026-01-26 20:35:28,042 INFO tools.HiveSchemaHelper: Metastore connection User: APP
Metastore connection User: APP
Starting metastore schema initialization to 3.1.0
Initialization script hive-schema-3.1.0.derby.sql
Connecting to jdbc:derby:;databaseName=metastore_db;create=true
Connected to Apache Derby (version 10.14.1.0 - (1808820))
Driver: Apache Derby Embedded JDBC Driver (version 10.14.1.0 - (1808820))
Transaction isolation: TRANSACTION_READ_COMMITTED
0: jdbc:derby:> !autocommit on
Autocommit status: true
0: jdbc:derby:>
0: jdbc:derby:> CREATE FUNCTION "APP"."NUCLEUS_ASCII" (C CHAR(1)) RETURNS INTEGER LANGUAGE JAVA PARAMETER STYLE JAVA READS SQL DATA CALLED ON NULL INPUT EXTERNAL NAME 'org.datanucleus.store.rdbms.adapter.DerbySQ
LFunction.ascii'
No rows affected (0.169 seconds)
0: jdbc:derby:>
0: jdbc:derby:> CREATE FUNCTION "APP"."NUCLEUS_MATCHES" (TEXT VARCHAR(8000),PATTERN VARCHAR(8000)) RETURNS INTEGER LANGUAGE JAVA PARAMETER STYLE JAVA READS SQL DATA CALLED ON NULL INPUT EXTERNAL NAME 'org.datanu
cleus.store.rdbms.adapter.DerbySQLFunction.matches'
No rows affected (0.004 seconds)
0: jdbc:derby:>
0: jdbc:derby:> CREATE TABLE "APP"."DB$" ("DB_ID" BIGINT NOT NULL, "DESC" VARCHAR(4000), "DB_LOCATION_URI" VARCHAR(4000) NOT NULL, "NAME" VARCHAR(128), "OWNER_NAME" VARCHAR(128), "OWNER_TYPE" VARCHAR(10), "CTLG
_NAME" VARCHAR(256) NOT NULL DEFAULT 'hive' )
No rows affected (0.036 seconds)
0: jdbc:derby:>
0: jdbc:derby:> CREATE TABLE "APP"."TBL_PRIVS" ("TBL_GRANT_ID" BIGINT NOT NULL, "CREATE_TIME" INTEGER NOT NULL, "GRANT_OPTION" SMALLINT NOT NULL, "GRANTOR" VARCHAR(128), "GRANTOR_TYPE" VARCHAR(128), "PRINCIPAL_N
AME" VARCHAR(128), "PRINCIPAL_TYPE" VARCHAR(128), "TBL_PRIV" VARCHAR(128), "TBL_ID" BIGINT, "AUTHORIZER" VARCHAR(128))
No rows affected (0.015 seconds)
0: jdbc:derby:>
0: jdbc:derby:> CREATE TABLE "APP"."DATABASE_PARAMS" ("DB_ID" BIGINT NOT NULL, "PARAM_KEY" VARCHAR(198) NOT NULL, "PARAM_VALUE" VARCHAR(4000))
No rows affected (0.011 seconds)
0: jdbc:derby:>
0: jdbc:derby:> CREATE TABLE "APP"."TBL_COL_PRIVS" ("TBL_COLUMN_GRANT_ID" BIGINT NOT NULL, "COLUMN_NAME" VARCHAR(767), "CREATE_TIME" INTEGER NOT NULL, "GRANT_OPTION" SMALLINT NOT NULL, "GRANTOR" VARCHAR(128), "GRANTOR_T
YPE" VARCHAR(128), "PRINCIPAL_NAME" VARCHAR(128), "PRINCIPAL_TYPE" VARCHAR(128), "TBL_COL_PRIV" VARCHAR(128), "TBL_ID" BIGINT, "AUTHORIZER" VARCHAR(128))
No rows affected (0.008 seconds)
0: jdbc:derby:>
0: jdbc:derby:> CREATE TABLE "APP"."SERDE_PARAMS" ("SERDE_ID" BIGINT NOT NULL, "PARAM_KEY" VARCHAR(256) NOT NULL, "PARAM_VALUE" CLOB)
No rows affected (0.013 seconds)

```

## Step 9 Start Hadoop Services

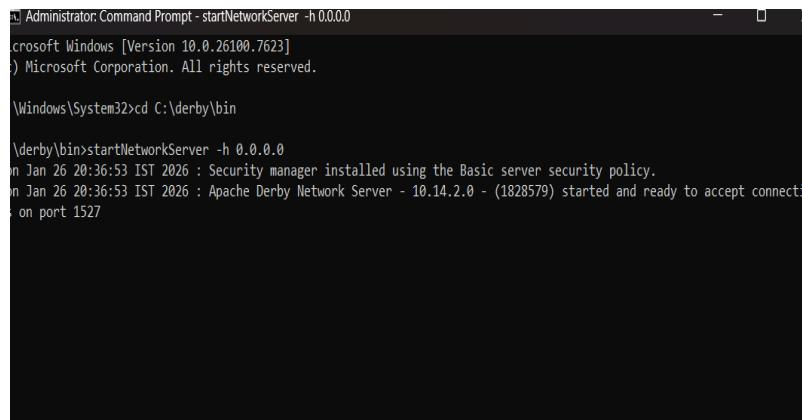
- Open Command Prompt.
- Navigate to:C:\hadoop-3.3.0\sbin
- Start Hadoop services using:

start-dfs.cmd

start-yarn.cmd

## Step 10: Start Derby Network Server

- Open a new Command Prompt.
- Navigate to:C:\derby\bin
- Start the Derby server using the cmd:startNetworkServer -h 0.0.0.0



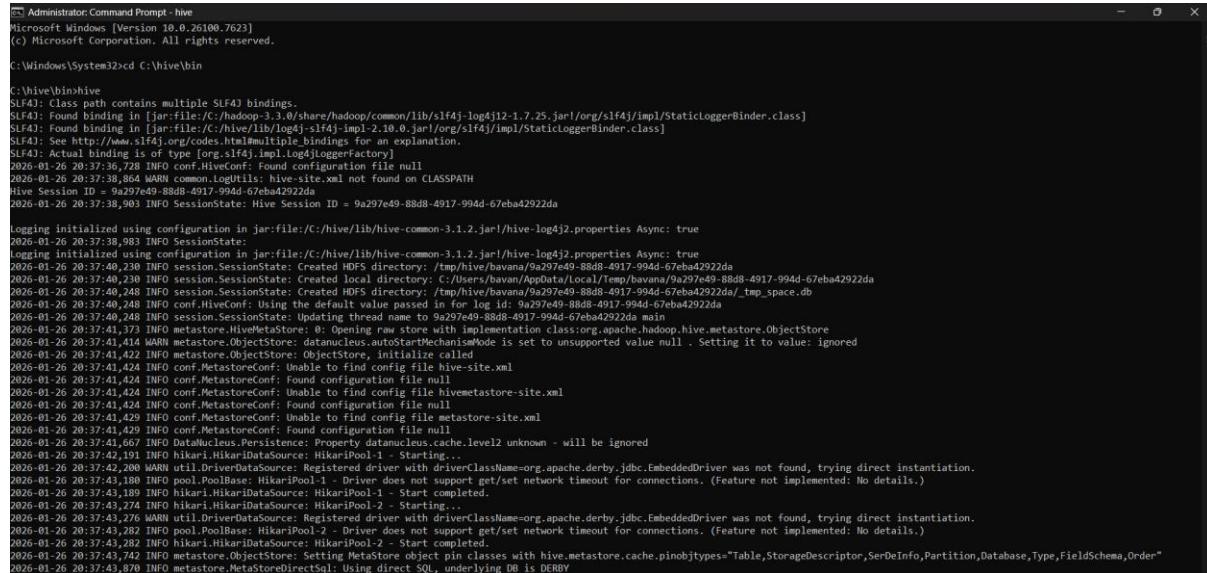
```
Administrator: Command Prompt - startNetworkServer -h 0.0.0.0
Microsoft Windows [Version 10.0.26100.7623]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>cd C:\derby\bin

\derby\bin>startNetworkServer -h 0.0.0.0
Jan 26 20:36:53 IST 2026 : Security manager installed using the Basic server security policy.
Jan 26 20:36:53 IST 2026 : Apache Derby Network Server - 10.14.2.0 - (1828579) started and ready to accept connections on port 1527
```

## step 11:

- Open a new Command Prompt.
- Navigate to:C:\hive\bin
- Start Hive using the cmd:hive



```
Administrator: Command Prompt - hive
Microsoft Windows [Version 10.0.26100.7623]
(c) Microsoft Corporation. All rights reserved.

C:\Windows\System32>cd C:\hive\bin

C:\hive\bin>hive
SLF4J: Class path contains multiple SLF4J bindings.
SLF4J: Found binding in [jar:file:/C:/hive/lib/hadoop-common-3.8/share/hadoop/common/lib/slf4j-log4j12-1.7.25.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: Found binding in [jar:file:/C:/hive/lib/hadoop-mapreduce-client-jobclient-3.8/share/hadoop/mapreduce/lib/slf4j-log4j12-1.7.25.jar!/org/slf4j/impl/StaticLoggerBinder.class]
SLF4J: See http://www.slf4j.org/codes.html#multiple_bindings for an explanation.
SLF4J: Actual binding is of type [org.slf4j.impl.Log4jLoggerFactory].
2026-01-26 20:37:36,728 INFO conf.HiveConf: Found configuration file null
2026-01-26 20:37:38,864 WARN common.LogUtils: hive-site.xml not found on CLASSPATH
Hive Session ID = 9a297e49-88d8-4917-994d-67eba42922da
2026-01-26 20:37:38,903 INFO SessionState: Hive Session ID = 9a297e49-88d8-4917-994d-67eba42922da

Logging initialized using configuration in jar:file:/C:/hive/lib/hive-common-3.1.2.jar!/hive-log4j2.properties Async: true
2026-01-26 20:37:40,230 INFO Session.SessionState: Created HDFS directory: /tmp/hive/bavana/9a297e49-88d8-4917-994d-67eba42922da
2026-01-26 20:37:40,230 INFO session.SessionState: Created local directory: C:/Users/bavann/appData/Local/Temp/bavana/9a297e49-88d8-4917-994d-67eba42922da/_tmp_space.db
2026-01-26 20:37:40,248 INFO session.SessionState: Created DFS directory: /tmp/hive/bavana/9a297e49-88d8-4917-994d-67eba42922da/_tmp_space.db
2026-01-26 20:37:40,248 INFO conf.HiveConf: Using the default value passed in for log id: 9a297e49-88d8-4917-994d-67eba42922da main
2026-01-26 20:37:41,373 INFO metastore.HiveMetaStore: 0: Opening raw store with implementation class:org.apache.hadoop.hive.metastore.ObjectStore
2026-01-26 20:37:41,414 WARN metastore.ObjectStore: datanucleus.autoStartMechanismMode is set to unsupported value null . Setting it to value: ignored
2026-01-26 20:37:41,424 INFO metastore.ObjectStore: initialize called
2026-01-26 20:37:41,424 INFO metastore.ObjectStore: Analytics feature is disabled by config file: hive-site.xml
2026-01-26 20:37:41,424 INFO conf.MetastoreConf: Found configuration file null
2026-01-26 20:37:41,424 INFO conf.MetastoreConf: Unable to find config file hivemetastore-site.xml
2026-01-26 20:37:41,424 INFO conf.MetastoreConf: Found configuration file null
2026-01-26 20:37:41,429 INFO conf.MetastoreConf: Unable to find config file metastore-site.xml
2026-01-26 20:37:41,429 INFO conf.MetastoreConf: Found configuration file null
2026-01-26 20:37:41,667 INFO DataNucleus.Persistence: Property dataNucleus.cache.level unknown - will be ignored
2026-01-26 20:37:42,191 INFO hikari.HikariDataSource: HikariPool-1 - Starting...
2026-01-26 20:37:42,200 WARN util.DriverDataSource: Registered driver with driverClassName=org.apache.derby.jdbc.EmbeddedDriver was not found, trying direct instantiation.
2026-01-26 20:37:42,200 WARN util.DriverDataSource: HikariPool-1 - Driver does not support get/set network timeout for connections. (Feature not implemented: No details.)
2026-01-26 20:37:43,189 INFO hikari.HikariDataSource: HikariPool-1 - Start completed.
2026-01-26 20:37:43,374 INFO hikari.HikariDataSource: HikariPool-2 - Starting...
2026-01-26 20:37:43,376 WARN util.DriverDataSource: Registered driver with driverClassName=org.apache.derby.jdbc.EmbeddedDriver was not found, trying direct instantiation.
2026-01-26 20:37:43,376 WARN util.DriverDataSource: HikariPool-2 - Driver does not support get/set network timeout for connections. (Feature not implemented: No details.)
2026-01-26 20:37:43,282 INFO pool.PoolBase: HikariPool-2 - Start completed.
2026-01-26 20:37:43,742 INFO metastore.ObjectStore: Setting MetaStore object pin classes with hive.metastore.cache.pinobjtypes="Table,StorageDescriptor,SerDeInfo,Partition,Database,Type,FieldSchema,Order"
2026-01-26 20:37:43,870 INFO metastore.MetaStoreDirectSql: Using direct SQL, underlying DB is DERBY
```

- Execute the following Hive commands one by one:
  - set hive.exec.mode.local.auto=true;
  - CREATE DATABASE ipdir;
  - SHOW DATABASES;
  - USE ipdir;
  - CREATE TABLE student(id int, name string, age int) ROW FORMAT DELIMITED FIELDS TERMINATED BY '';
  - INSERT INTO student VALUES (1, 'John Doe', 25);
  - SELECT \* FROM student;

```
2026-01-26 20:44:08,690 INFO exec.TableScanOperator: Initializing operator TS[0]
2026-01-26 20:44:08,690 INFO exec.SelectOperator: Initializing operator SEL[1]
2026-01-26 20:44:08,690 INFO exec.SelectOperator: SELECT struct<id:int,name:string,age:int>
2026-01-26 20:44:08,690 INFO exec.ListSinkOperator: Initializing operator LIST_SINK[3]
2026-01-26 20:44:08,692 INFO ql.Driver: Completed compiling command(queryId=bavana_20260126204408_ab959d
2026-01-26 20:44:08,692 INFO reexec.ReExecDriver: Execution #1 of query
2026-01-26 20:44:08,692 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager
2026-01-26 20:44:08,692 INFO ql.Driver: Executing command(queryId=bavana_20260126204408_ab959dab-5ef2-45
2026-01-26 20:44:08,694 INFO ql.Driver: Completed executing command(queryId=bavana_20260126204408_ab959d
OK
2026-01-26 20:44:08,694 INFO ql.Driver: OK
2026-01-26 20:44:08,694 INFO ql.Driver: Concurrency mode is disabled, not creating a lock manager
2026-01-26 20:44:08,713 INFO mapred.FileInputFormat: Total input files to process : 2
2026-01-26 20:44:08,736 INFO exec.TableScanOperator: RECORDS_OUT_INTERMEDIATE:0, RECORDS_OUT_OPERATOR_TS
2026-01-26 20:44:08,736 INFO exec.SelectOperator: RECORDS_OUT_INTERMEDIATE:0, RECORDS_OUT_OPERATOR_SEL_1
2026-01-26 20:44:08,738 INFO exec.ListSinkOperator: RECORDS_OUT_INTERMEDIATE:0, RECORDS_OUT_OPERATOR_LTS
+-----+
| John Doe | 25 |
+-----+
```