

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 hive-site.xml inside hive/conf and paste 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 failed
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 20:35:22,678 INFO conf.HiveConf: Found configuration file 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.DerbySQLFunction.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.datanucleus.store.rdbms.adapter.DerbySQLFunction.matches'
No rows affected (0.004 seconds)
0: jdbc:derby>
0: jdbc:derby> CREATE TABLE "APP"."DBS" ( ("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_NAME" 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(180) 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_TYPE" 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  
  
C:\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/hive-common-3.1.2.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 20:37:36,728 INFO conf.HiveConf: Found configuration file null  
2026-01-26 20:37:39,864 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 20:37:38,903 INFO SessionState:  
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/bavana/AppData/Local/Temp/bavana/9a297e49-88d8-4917-994d-67eba42922da  
2026-01-26 20:37:40,248 INFO session.SessionState: Created HDFS directory: /tmp/hive/bavana/9a297e49-88d8-4917-994d-67eba42922da/_tmp_space.db  
2026-01-26 20:37:40,248 INFO session.SessionState: Using the default value passed in for log id: 9a297e49-88d8-4917-994d-67eba42922da  
2026-01-26 20:37:40,248 INFO session.SessionState: Updating thread name to 9a297e49-88d8-4917-994d-67eba42922da main  
2026-01-26 20:37:41,372 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 20:37:41,422 INFO metastore.ObjectStore: ObjectStore, initialize called  
2026-01-26 20:37:41,424 INFO conf.MetastoreConf: Unable to find 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.level2 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 20:37:43,180 INFO pool.PoolBase: 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 20:37:43,274 INFO hikari.HikariDataSource: HikariPool-2 - Starting...  
2026-01-26 20:37:43,276 WARN util.DriverDataSource: Registered driver with driverClassName=org.apache.derby.jdbc.EmbeddedDriver was not found, trying direct instantiation.  
2026-01-26 20:37:43,280 INFO pool.PoolBase: 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 hikari.HikariDataSource: 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_LIS
John Doe      25
John Doe      25

```