

Using Apache Derby:

Derby is installed (by default) in C:\Program Files\Java\jdk1.8.0\db

Configuring Java DB:

Typically, you do not need to configure Java DB when you have installed JDK8.

If you come across any errors in starting up the database or running SQL commands from the command line, you need to set the following environment variables:

- Set the **DERBY_HOME** environment variable to the **JDK_HOME\db** directory.
- Set the **JAVA_HOME** environment variable to the **JDK_HOME** directory.
- Add the **DERBY_HOME/bin** directory to your **PATH** environment variable to run the **ij** tool.
- Include the **JDK_HOME/bin** directory in the **PATH** environment variable.

Derby can be used in a *server mode* and in *embedded mode*. We shall only be using Server mode

- If Derby runs in the *server mode* you start the Derby network server which will be responsible for handling the database requests.

Make sure you run command prompt in Admin mode, else nothing really works

- To start Java DB server: **c:\java8\db\bin> startNetworkServer**
- By default, in server mode, Java DB starts at localhost and at port 1527

You may get an `AccessControlException` in starting the server. The error message may read as follows:
`java.security.AccessControlException: access denied ("java.net.SocketPermission" "localhost:1527" "listen,resolve")`

To resolve the `AccessControlException`, you can start the server with no security manager installed as follows:
c:\java8\db\bin> startNetworkServer -noSecurityManager

- Use the following command to stop the Java DB running in server mode.
Note that you will need to run this command using a separate command prompt.

c:\java8\db\bin> stopNetworkServer

C:\Program Files\Java\jdk1.8.0_161\db\bin>stopNetworkServer
Sat Nov 02 23:12:26 IST 2019 : Apache Derby Network Server - 10.11.1.2 - (1629631) shutdown

ij tool: Derby provides a command-line tool called **ij**, which is an abbreviation for **interactive JDBC** scripting tool. This tool provides a way to connect to and manipulate Derby databases.

Start the **ij** tool : **c:\java8\db\bin> ij**

```
C:\Program Files\Java\jdk1.8.0_161\db\bin>ij
ij version 10.11
ij> _
```

```
ij> help;
ij> exit;
```

Connecting to a new database:

To create a database, specify the create=true attribute in the connection URL.

```
ij> connect 'jdbc:derby://localhost:1527/TestDB2;create=true';
ERROR 08001: java.net.ConnectException : Error connecting to server localhost on port 1,527 with message Connection refused: connect.
ij>
```

Connection here is refused since I haven't started in Server mode using startNetworkServer command!

After starting server, run command: `connect 'jdbc:derby://localhost:1527/TestDB2;create=true';`

```
ij> connect 'jdbc:derby://localhost:1527/TestDB2;create=true';
ij(CONNECTION1)>
```

Connect to an existing database

Start up ij again and connect to the database you just created (don't use create=true anymore)

```
ij> connect 'jdbc:derby:TestDB1';
```

Using the database:

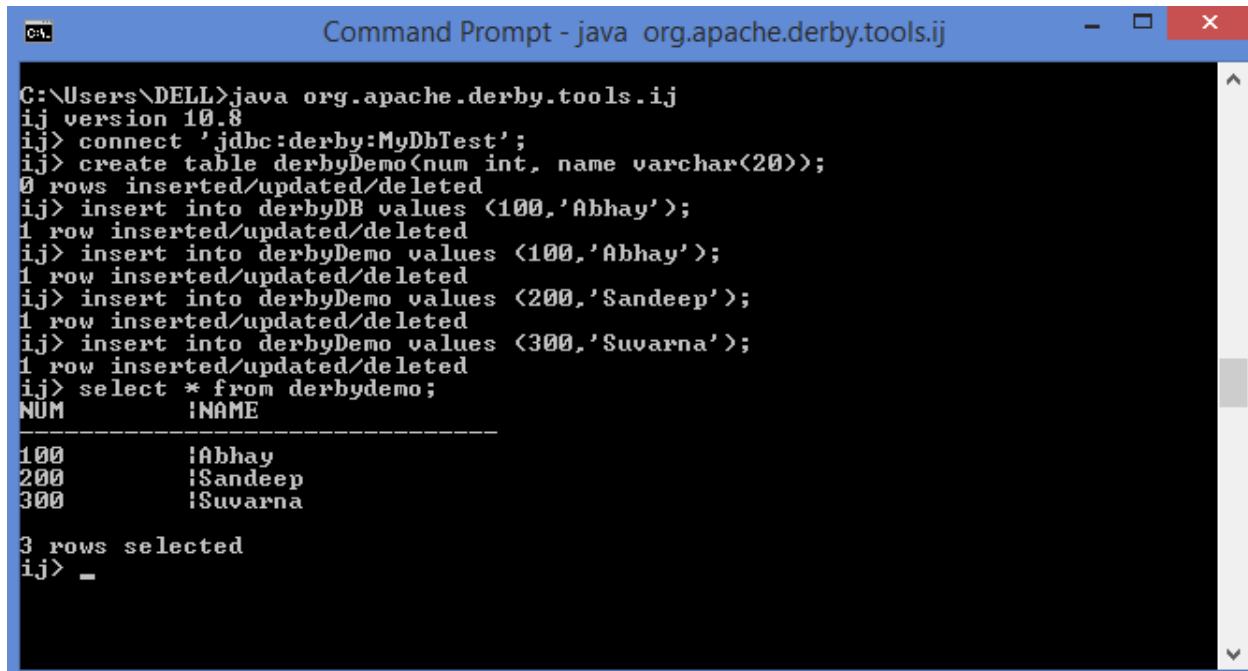
```
ij> connect 'jdbc:derby:TestDB1';
ij> create table test(id int, name varchar(10));
0 rows inserted/updated/deleted
ij> insert into test values(10,'Anita');
1 row inserted/updated/deleted
ij> insert into test values(20,'Sunita');
1 row inserted/updated/deleted
ij> insert into test values(30,'Kavita');
1 row inserted/updated/deleted
ij> select * from test;
ID      NAME
-----
10      Anita
20      Sunita
30      Kavita
3 rows selected
```

To use Derby in Java application:

You have to place appropriate jar file to the classpath:

- `derbyclient.jar`: for network client driver.

```
ij> create table derbyDB(num int, addr varchar(40));
ij> insert into derbyDB values (1956,'Webster St. ');
ij> insert into derbyDB values (1910,'Union St. ');
ij> update derbyDB set num=180, addr='Grand Ave.' where num=1956;
ij> select * from derbyDb;
```



```
C:\Users\DELL>java org.apache.derby.tools.ij
ij version 10.8
ij> connect 'jdbc:derby:MyDbTest';
ij> create table derbyDemo(num int, name varchar(20));
0 rows inserted/updated/deleted
ij> insert into derbyDB values (100,'Abhay');
1 row inserted/updated/deleted
ij> insert into derbyDemo values (100,'Abhay');
1 row inserted/updated/deleted
ij> insert into derbyDemo values (200,'Sandeep');
1 row inserted/updated/deleted
ij> insert into derbyDemo values (300,'Suvarna');
1 row inserted/updated/deleted
ij> select * from derbydemo;
NUM      I'NAME
-----
100      !Abhay
200      !Sandeep
300      !Suvarna

3 rows selected
ij> _
```

Import data into the sample database using sample.sql.

```
ij> RUN 'C:\sample.sql';
```

Disconnect from a database

The [disconnect](#) command disconnects from the current database:

```
ij> disconnect;
```