

Accessing a MySQL DB from a NetBeans Java Program

You'll need:

- **NetBeans IDE** (can be download for free from <http://netbeans.org/>)
- **World DB already set up in MySQL** to run the Java program, UseMySQLDb

See internal Program comments (see below) & code in [UseMySQLDB](#) for instructions on how to proceed including examples of Query/Insert/Delete/Update.

PROGRAM: UseMySQLDb

DESCRIPTION: This program USES the World DB. It assumes the DB's already set up.

This set up was done directly in mysql by using script files to CREATE the database, CREATE its tables (with column descriptions), and populate the tables with actual data using INSERTs.

Such operations as CREATE, DROP, ALTER (i.e., DDL, Data Definition Language, SQL commands which affect the DB Schema) COULD have been done by a Java program instead. That's something you can explore later in a DBS course.

This program only queries & manipulates the DATA itself using DML (Data Manipulation Language) SQL commands: SELECT, INSERT, DELETE, UPDATE.

WHAT'S NEEDED FOR A Java PROGRAM TO ACCESS A MYSQL DB:

NOTE: NetBeans IDE should already include the necessary JDBC Driver for MySQL (Connector/J). If you are missing it, or using a different IDE, you can download the driver from this website: <http://www.mysql.com/products/connector/>

1. Make sure that "**MySQL (Connector/J driver)**" is listed under Services -> Databases -> Drivers. If it is not, you can add it by right-clicking Drivers -> New Driver. Browse to the .jar file downloaded from above link, and hit OK.
2. **ADD THE MySQL JDBC DRIVER LIBRARY:**
 - find your project under Projects on the upper left, expand to show Libraries.
 - right-click Libraries & select Add Library...
 - select MySQL JDBC Driver & select Add Library

3. **GET JDBC URL** (and test connection while you're at it)
 - Services -> Databases -> Drivers -> right-click MySQL (Connector/J driver) -> Connect Using... (this will bring up the New Connection Wizard)
 - Make sure Driver Name: MySQL (Connector/J driver)
 - Host: localhost (if MySQL is installed on your machine)
 - Port: 3306 (default)
 - Database: world (or whatever you named your database)
 - User Name: (your user name - in my case, "root")
 - Password: (your password)
 - Hit Test Connection, you should see "Connection Succeeded"
 - COPY the JDBC URL: this is what you will be using to make the connection
 - Hit Finish - you will now see the added connection listed under Services -> Databases (should look something like "jdbc:mysql://localhost:3306/world [root on Default schema]")
 - you can browse Tables, Views, Procedures, and more
4. **IMPORT the SQL LIBRARY** so that you have the necessary tools (import java.sql.*;)
5. **OPEN** the connection by declaring a Connection object, providing the constructor with the url string, username and password (see below).

Note that a program could ask an interactive user for data like userName & password to use in building a connection string.

IF THE CONNECTION FAILS TO OPEN, start the DB SERVER itself by starting up mysql by opening the Command Prompt client, starting mysql and logging in.
6. Create a **Statement object** to RETRIEVE/CHANGE the DB's data: two of the most useful methods are:
 - executeQuery - used to query the DB - results typically returned in a ResultSet object
 - executeUpdate - used to INSERT, DELETE, UPDATE data
7. **CLOSE** the connection to release resources