

## MySQL Setup on Local WildFly

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### Overview

In the sections below, we will deploy the MySQL Connector/J driver as a core module of our **local** WildFly server. The deployment will enable the MySQL driver to be detected by the WildFly server. Also, a JDBC datasource will be created which will enable us to access the MySQL database without supplying credentials from within our code. This technique is an example of Context Dependency Injection (CDI). The JDBC datasource is maintained by the WildFly server and “injected” into our application when we specify the JNDI name in our Java class files.

We do not need to perform these steps on the **remote** server since that setup has already been accomplished. In the steps below, we configure the driver as a core module on the client using the jboss-cli.bat tool and add a datasource using the WildFly Admin page.

Note: version numbers will likely be different. Use the “latest stable” versions.

The steps in this tutorial should be performed **after** the following:

#### Local Installations/Configurations:

1. JDK
2. WildFly Local
3. NetBeans
4. Your local database
  - a. database name: inew233800x00x
  - b. database user: inew233800x00x
  - c. password: from Web Credentials

## MySQL Setup on Local WildFly

### Remote:

5. Uploaded .war file(s) to your lineofcode.com student website and successfully tested your site.

## Download the MySQL .JAR File

Download the latest stable mysql...jar (known as Connector/J) from the MySQL site:

<http://dev.mysql.com/downloads/connector/j/>

Be sure to select “**Platform Independent**” to get just the .jar file and not the installation package for Windows.

Generally Available (GA) Releases

### Connector/J 5.1.32

Select Platform:

Platform Independent

Platform Independent (Architecture Independent), Compressed TAR Archive	3.6M	<a href="#">Download</a>
(mysql-connector-java-5.1.32.tar.gz)		
		MD5: 8a92d6dd0cd1a5b017684767800c0025   <a href="#">Signature</a>
Platform Independent (Architecture Independent), ZIP Archive	3.9M	<a href="#">Download</a>
(mysql-connector-java-5.1.32.zip)		
		MD5: 8f4ec740f775b658a03acfb86a0d1c0f   <a href="#">Signature</a>

## Install MySQL Driver as a Core Module (Local)

We have a choice to install the driver as a deployment or a **core module**. We elect the core module approach since it is more suitable for enterprise applications. By the way, using the jboss-cli (cmd line interface) is required to install the module in the server locally. And, recall from above that MySQL module installation is not required on the server since the module and JDBC datasource have already been configured by your professor.

Go to `WILDFLY_HOME\modules\system\layers\base\com` and create the folder **mysql** and then create the folder **main** inside of mysql (i.e. mysql\main).

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Place the mysql...jar file you downloaded in the mysql\main folder.

Create the file **module.xml** (see content) and place it in the mysql\main folder.



```
<?xml version="1.0" encoding="UTF-8"?>
<module xmlns="urn:jboss:module:1.1" name="com.mysql">
  <resources>
    <resource-root path="mysql-connector-java-5.1.32-bin.jar"/>
  </resources>
  <dependencies>
    <module name="javax.api"/>
    <module name="javax.transaction.api"/>
  </dependencies>
</module>
```

In module.xml, change the name of the resource-root to reflect **the appropriate version** of the .jar file you downloaded:

```
<resource-root path="mysql-connector-java-5.1.32-bin.jar"/>
```

The “main” folder should now contain the module.xml and mysql...jar files.

Local Disk (N:) > wildfly-8.1.0.Final > modules > system > layers > base > com > mysql > main

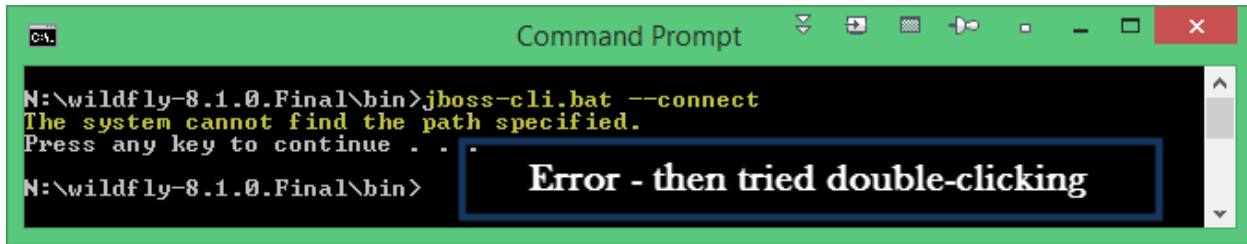
Name	Date modified	Type	Size
 module.xml	9/10/2014 12:22 PM	XML File	1 KB
 mysql-connector-java-5.1.32-bin.jar	7/22/2014 6:19 PM	Executable Jar File	947 KB

Navigate to the wildfy-8.1.0.Final\bin directory in the command window.

From the command line run: jboss-cli.bat --connect (that is 2 dashes prior to connect).

I received the error “The system cannot find the path specified.” when running the jboss-cli.bat command.

## MySQL Setup on Local WildFly



```

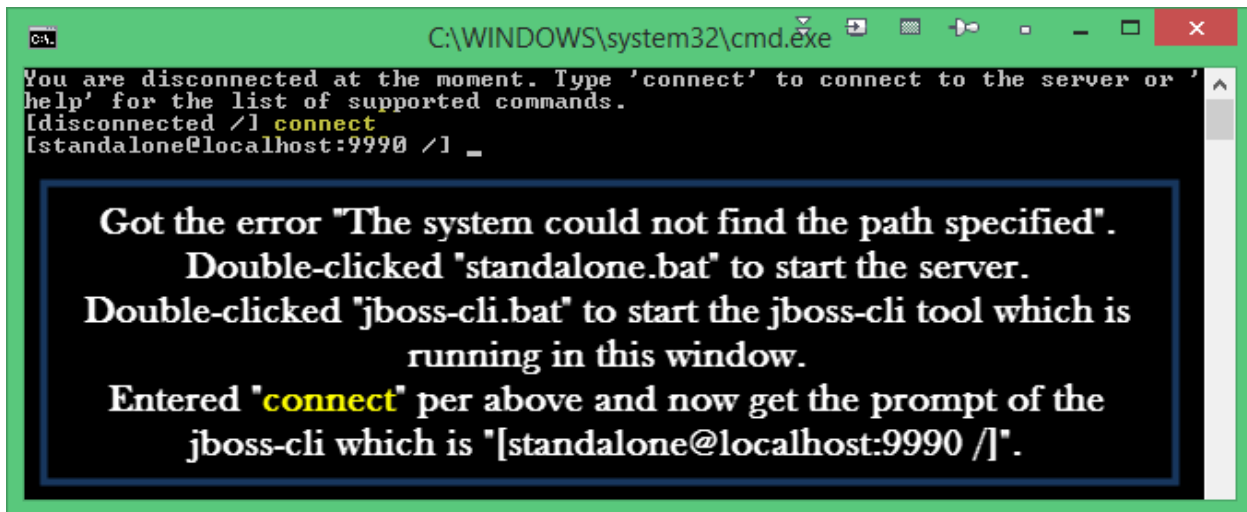
N:\wildfly-8.1.0.Final\bin>jboss-cli.bat --connect
The system cannot find the path specified.
Press any key to continue . . .
N:\wildfly-8.1.0.Final\bin>

```

**Error - then tried double-clicking**

I then double-clicked “standalone.bat” in bin to run the WildFly server. After WildFly started, I double-clicked “jboss-cli.bat”, entered “connect” and successfully received the command prompt. By the way, the instructions at the wildfly.org link do specify to start WildFly prior to running the jboss-cli tools.

[standalone@localhost:9990 /] is the jboss-cli command prompt.



```

C:\WINDOWS\system32\cmd.exe
You are disconnected at the moment. Type 'connect' to connect to the server or '
help' for the list of supported commands.
[disconnected /] connect
[standalone@localhost:9990 /] _

```

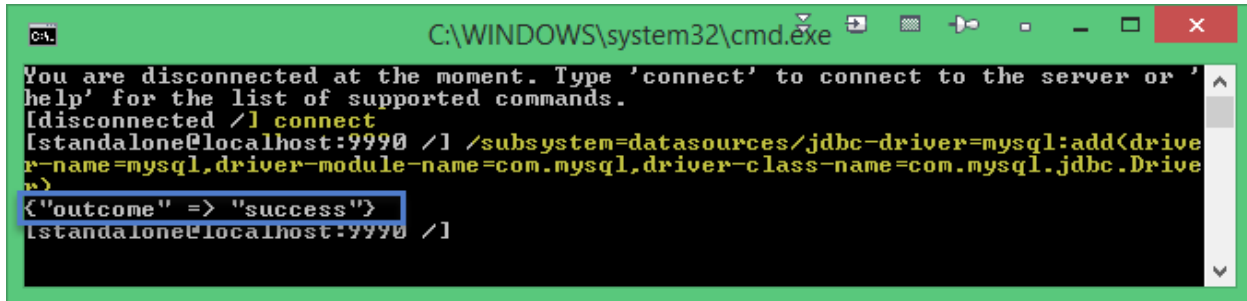
**Got the error "The system could not find the path specified".  
Double-clicked "standalone.bat" to start the server.  
Double-clicked "jboss-cli.bat" to start the jboss-cli tool which is running in this window.  
Entered "connect" per above and now get the prompt of the jboss-cli which is "[standalone@localhost:9990 /]"**

Now need to enter the string below at the jboss-cli prompt:

```
/subsystem=datasources/jdbc-driver=mysql:add(driver-name=mysql,driver-module-name=com.mysql,driver-class-name=com.mysql.jdbc.Driver)
```

After the string is at the prompt, press enter. I received “outcome” => “success”. However, I have attempted the module addition before without success. When that happened, I stopped the server, closed the command window, restarted the server, restarted jboss-cli.bat. The command was then successful.

## MySQL Setup on Local WildFly



```
C:\WINDOWS\system32\cmd.exe
You are disconnected at the moment. Type 'connect' to connect to the server or '
help' for the list of supported commands.
[disconnected /] connect
[standalone@localhost:9990 /] /subsystem=datasources/jdbc-driver=mysql:add(driver
name=mysql,driver-module-name=com.mysql,driver-class-name=com.mysql.jdbc.Drive
r)
{"outcome" => "success"}
[standalone@localhost:9990 /]
```

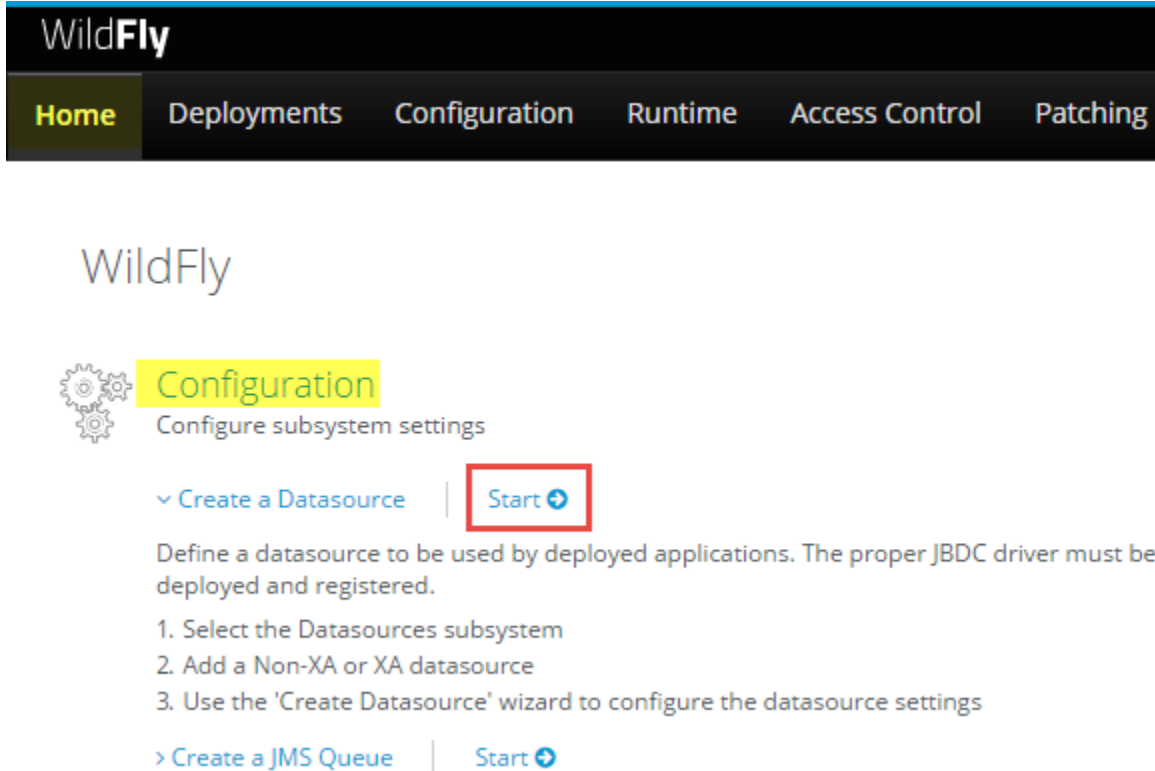
Now that the driver has been installed as a core module, we need to add a datasource for the connection to WildFly using the Admin page.

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## MySQL Setup on Local WildFly

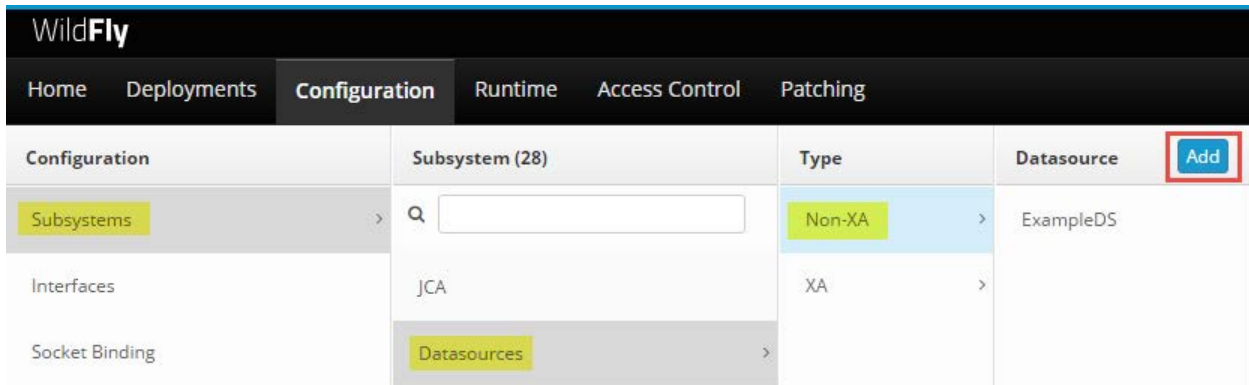
### Add a Datasource via the WildFly Admin Page

Start the WildFly **local** server if it is not running. Recall that you can start Wildfly from within NetBeans. In the browser, navigate to <http://localhost:9990> which opens the WildFly Admin page. Enter your ManagementRealm credentials to login. Select Start in window below.



The screenshot shows the WildFly Admin page. The top navigation bar includes 'Home', 'Deployments', 'Configuration', 'Runtime', 'Access Control', and 'Patching'. The 'Configuration' tab is selected. Below the navigation bar, the 'Configuration' section is highlighted. It contains a 'Start' button with a plus icon, which is highlighted with a red box. Below the 'Start' button, there is a description: 'Define a datasource to be used by deployed applications. The proper JDBC driver must be deployed and registered.' followed by three steps: 1. Select the Datasources subsystem, 2. Add a Non-XA or XA datasource, and 3. Use the 'Create Datasource' wizard to configure the datasource settings. At the bottom, there is a link to 'Create a JMS Queue' and another 'Start' button with a plus icon.

Select Subsystems | Datasources | Non-XA | Add.

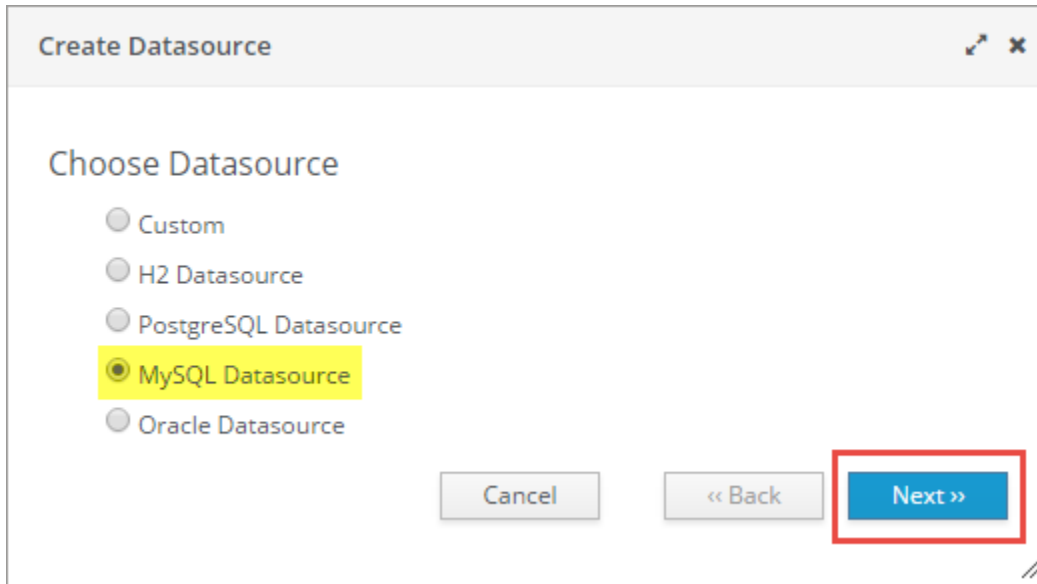


The screenshot shows the WildFly Admin page with the 'Configuration' tab selected. The 'Subsystems' section is highlighted. Below the 'Subsystems' section, the 'Datasources' section is highlighted. The 'Datasources' section shows a table with columns: 'Subsystem (28)', 'Type', and 'Datasource'. The 'Type' column has a 'Non-XA' entry. The 'Datasource' column has an 'ExampleDS' entry. An 'Add' button with a plus icon is highlighted with a red box.

Subsystem (28)	Type	Datasource
Non-XA	Non-XA	ExampleDS
XA	XA	

## MySQL Setup on Local WildFly

Choose MySQL for the type.



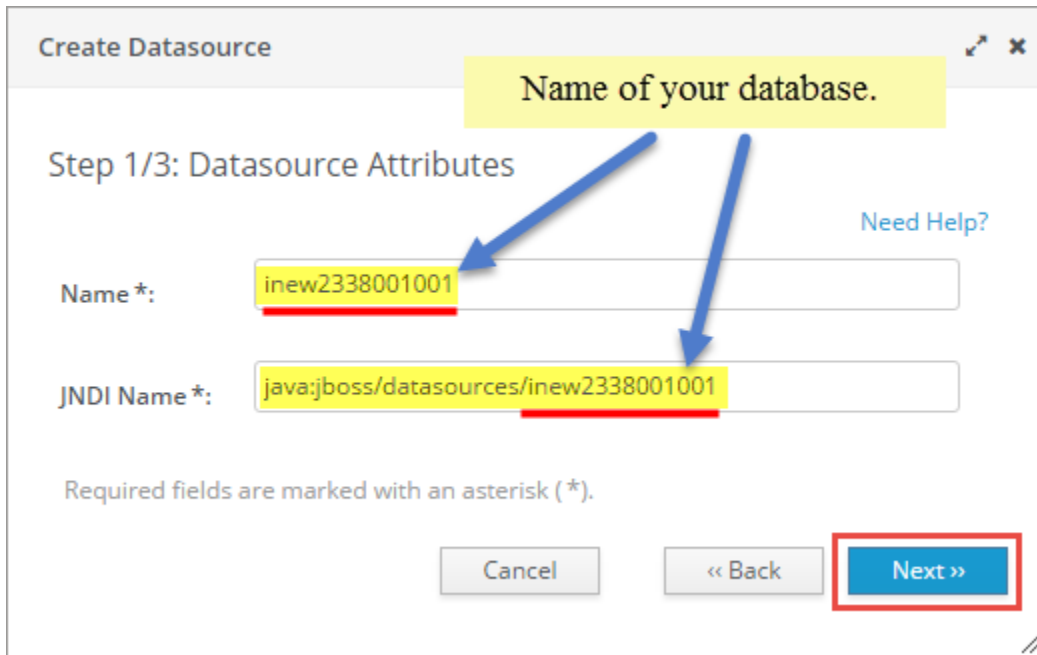
**Create Datasource**

Choose Datasource

- ☐ Custom
- ☐ H2 Datasource
- ☐ PostgreSQL Datasource
- ☒ MySQL Datasource
- ☐ Oracle Datasource

Cancel   « Back   **Next »**

Complete Step 1/3:



**Create Datasource**

Step 1/3: Datasource Attributes

Need Help?

Name \*: inew2338001001

JNDI Name \*: java:jboss/datasources/inew2338001001

Required fields are marked with an asterisk (\*).

Cancel   « Back   **Next »**

## MySQL Setup on Local WildFly

Complete Step 2/3: (MySQL should already be detected and populated as a result of the steps above to install the MySQL driver using the jboss-cli.bat tool.)

Create Datasource

Step 2/3: JDBC Driver

Select one of the installed JDBC driver. Don't see your driver? Please make sure it's deployed as a module and properly registered.

Specify Driver

Detected Driver

Need Help?

Name \*:

mysql

Module Name \*:

com.mysql

Driver Class:

com.mysql.jdbc.Driver

Major Version:

0

Minor Version:

0

Required fields are marked with an asterisk (\*).

Cancel

« Back

Next »

Complete Step 3/3:



## MySQL Setup on Local WildFly

Create Datasource

Step 3/3: Connection Settings

[Need Help?](#)

Connection URL \*:

jdbc:mysql://localhost:3306/inew2338001001

Username:

inew2338001001

Password:

.....

Security Domain:

Cancel

« Back

Next »

Use the same username and password for your local connection that you were assigned for your remote database login in your Web Credentials.

Summary.

## MySQL Setup on Local WildFly

Create Datasource

Summary

Please verify your settings. After the datasource is created you can test the connection by selecting the datasource in the configuration or runtime section and press 'Test Connection'.

Name: inew2338001001

JNDI Name: java:jboss/datasources/inew2338001001

Connection URL: jdbc:mysql://localhost:3306/inew2338001001

Username: inew2338001001

Password: \*\*\*\*\*

Cancel
« Back
Finish

You can test your connection at anytime by navigating to Runtime | Standalone Server | Subsystems | Datasources | View | Select the datasource | Test Connection

Test Connection

*i* Successfully created JDBC connection.  
Successfully connected to database ExampleDS.

OK

## MySQL Setup on Local WildFly

After the datasource has been created, select Enable | Pool | Edit and then add the following pool values.

### Selection

Attributes   Connection   Security   Properties   **Pool**   Validation

 Edit

Min Pool Size:

5

Max Pool Size:

15

The JDBC resource is maintained by the WildFly server and “injected” into our application when we specify the JNDI name in our Java class files.

---

### Reminders:

- Be sure to use the correct information for the following since those are the settings for your lineofcode.com database:
  - database
  - datasource
  - username
  - password.
- No need to deploy the MySQL **core module** remotely. The module configuration has been performed by your professor.
- No need to configure a **datasource** remotely. Your datasource has been added by your professor. However, you must use the correct configuration (more in the chapter covering the mysql-in-wildfly-setup-remote):
  - JNDI name: java:jboss/datasources/inew233800x00x (used in your Java class files for Programs 11 and 12)

## MySQL Setup on Local WildFly

The image below is from WildFly Admin Runtime | Standalone Server | Subsystems | Datasources | View which shows the JNDI (Java Naming and Directory Interface) name that should be used in your Java class files (Programs 11 and 12).

### Data Source Metrics

Datasources runtime utilisation.

This is the connection string supplied in Java class files that connect to MySQL.

Name	JNDI
ExampleDS	java:jboss/datasources/ExampleDS
inew2338001001	java:jboss/datasources/inew2338001001