

MySQL ODBC Tutorial

Using Bitnami's WAMPstack as a data source for FlexSim

Introduction

FlexSim can communicate with any database engine, provided the database vendor offers a Windows ODBC driver. The setup for most databases will be similar.

MySQL is a great choice for testing database connectivity with FlexSim due to its cost (free) and ease of downloading and setup.

Bitnami.org provides easy-to-install packages of the free MySQL database software, and includes the easy-to-use phpMyAdmin web interface.

Installing Bitnami's package will install the MySQL database engine, plus the Apache web server which runs the phpMyAdmin graphical web-based interface for interacting with the database.

This tutorial assumes that you aren't already running any servers on your computer.

NOTE: This is not a beginner tutorial, it is assumed you know basic FlexSim and are familiar with SQL databases and Microsoft Windows. You must also have access to install programs and drivers to your computer.

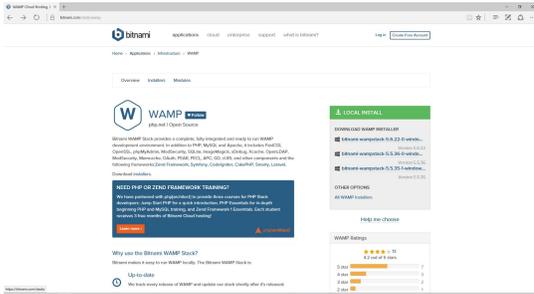
What You Will Learn

- How to setup up MySQL on your computer using Bitnami's easy to configure WAMPstack
- How to install the MySQL ODBC driver for Windows
- How to create a data source that FlexSim can use to read from and write to a MySQL database.

Approximate Time to Complete this Lesson

This lesson should take about 10-20 minutes to complete.

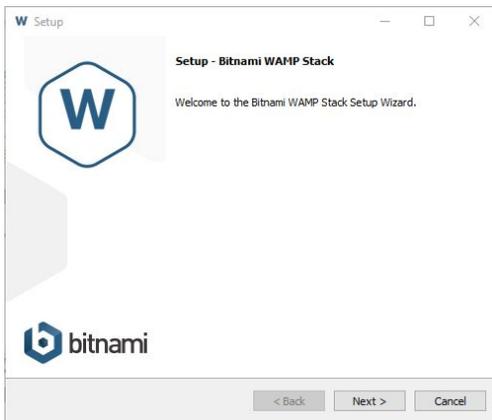
Step-By-Step Instructions



Step 1 - Download

Visit <https://bitnami.com/stack/wamp> to download the latest WAMPstack installer to your computer. As of this writing (2016-06-01) the latest Bitnami WAMPstack version is 5.6.22.

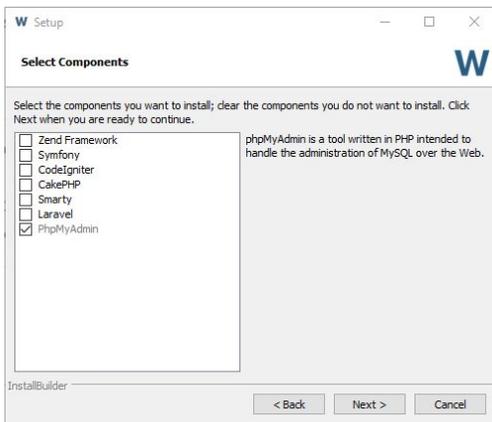
Remember where you saved the installer.



Step 2 - Installer Welcome

Double click the downloaded WAMPstack installer to begin the installation. You may need to click Yes, OK, or Allow on a Windows security prompt in order to let the installer run. You will see the installer welcome page.

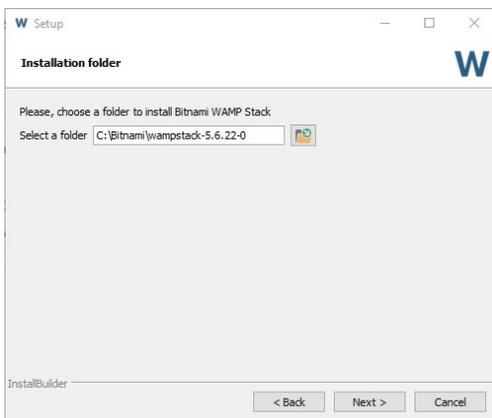
Click 'Next'.



Step 3 - Optional Components

You can uncheck all the optional components. For our purposes they are not needed.

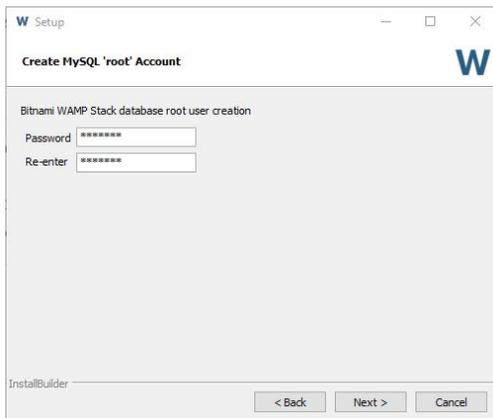
Click 'Next'.



Step 4 - Installation Location

Choose a different installation location, or keep the default file path.

Click 'Next'.



Step 5 - MySQL Password

Choose your own password for the MySQL administrator account.

DO NOT FORGET THIS PASSWORD!

Click 'Next'.



Step 6 - Cloud Hosting

For our purposes we will skip learning more about Cloud Hosting.

Uncheck the box.

Click 'Next'.

Step 7 - Ready to Install

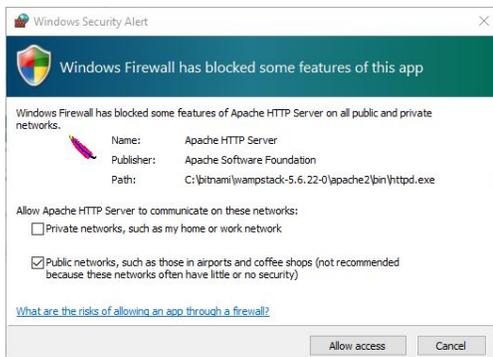
If you are satisfied with all the options that you chose for the WAMPstack installation, we're ready to move on.

Click 'Next'.

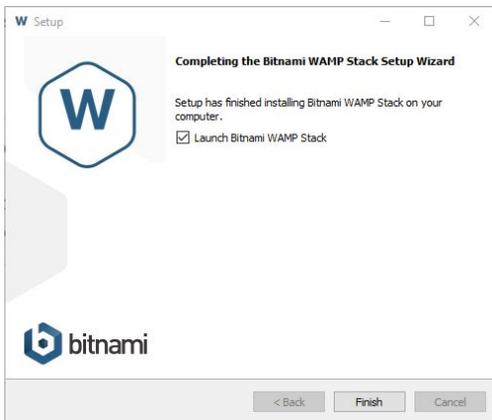
Step 8 - Windows Firewall

As the installer copies files and settings to your computer and starts the MySQL and Apache servers, Windows Firewall may prompt you to allow these servers through your firewall.

In this tutorial, we assume that FlexSim and MySQL are installed on the same machine, so no firewall exceptions are needed. Feel free to uncheck the boxes as you see fit.



Click 'Next'.



Step 9 - Installation Complete

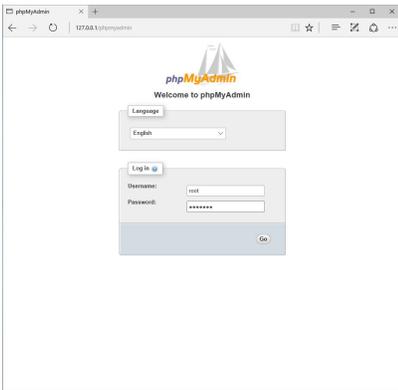
The WAMPstack installation is complete.

Click 'Finish'.

Step 10 - Log in to phpMyAdmin

We will now log in to the MySQL database engine via the phpMyAdmin web interface.

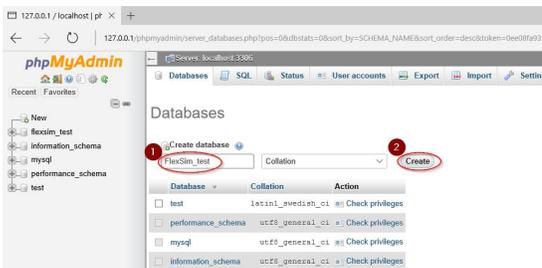
In a web browser, visit <http://127.0.0.1/phpmyadmin>. There you should enter 'root' as the username (without the quotes) and enter the password you set in Step 5 above during the WAMPstack installation.



Step 11 - Create a Database

After successfully logging in to phpMyAdmin, we need to create a database.

Click the Databases tab. Type a name for your database, then hit the 'Create' button.

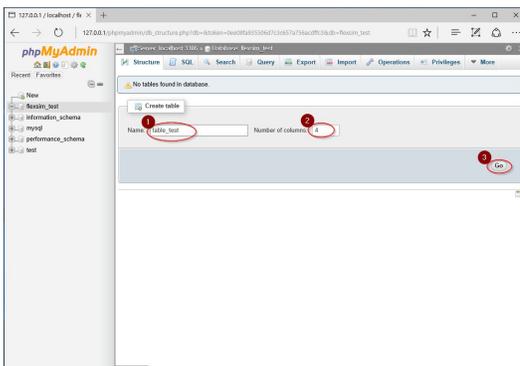


For this example, we used the name 'FlexSim_test' for our database.

Step 12 - Create a Table

Our new FlexSim_test database is currently empty. We need to create a table.

Click the 'Create Table' button, choose a name for your table (we used the name 'table_test' for this example), choose the number of columns (in this example we use 5 - you will be able to add or remove columns later as well),



then click the Go' button.

Step 13 - Define the Table

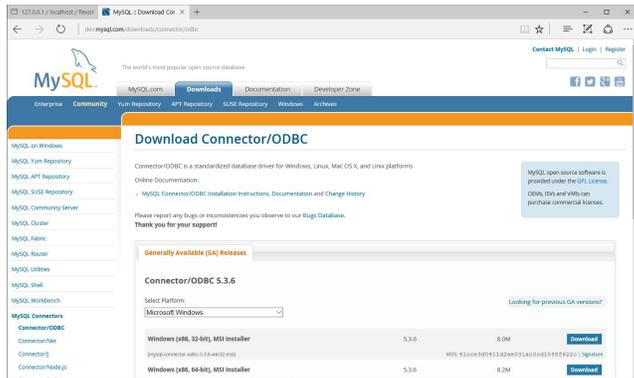
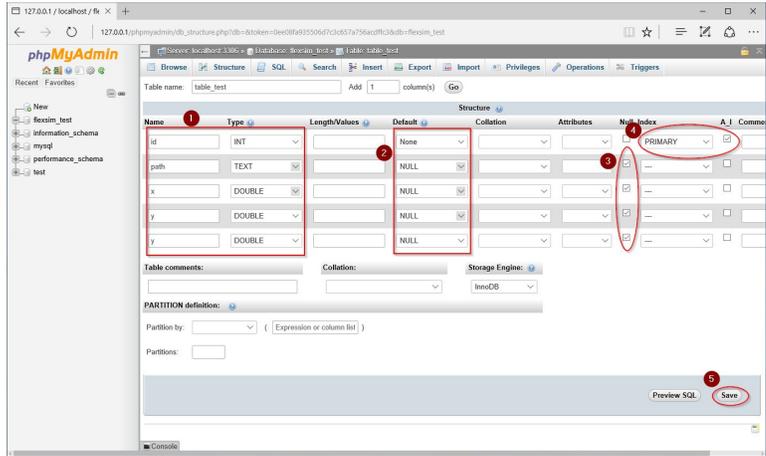
Set the column definition fields according to your needs.

In this picture, we set the 5 rows for the following attributes, which will be the columns of the database:

1. a unique ID
2. the path to the FlexSim object
3. the object's x location
4. the object's y location
5. the object's z location

You can of course define any tables and

columns that you need. We will use this example table at the end of this tutorial to test the connection with FlexSim. Follow steps 1-5 as shown in the picture to configure the table columns. Hit the Save button when finished.



Step 14 - Download the ODBC Driver

Search the web for “MySQL ODBC driver”, or visit <http://dev.mysql.com/downloads/connector/odbc/>. Download the latest ODBC driver for Windows. As of this writing (2016-06-01) the latest MySQL ODBC driver version is 5.3.6.

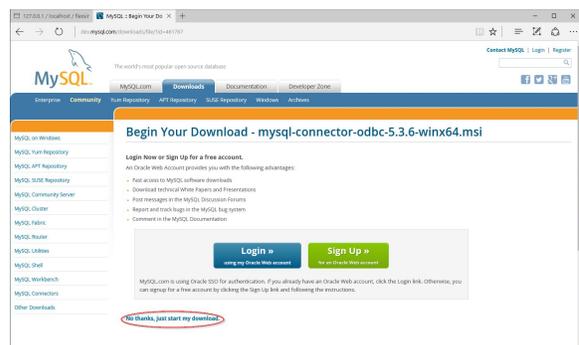
Note that the architecture (32-bit or 64-bit) of the driver you should download needs to match the architecture of your FlexSim software installation.

If you are using 32-bit Windows, then you can only be using 32-bit FlexSim, so download the 32-bit ODBC driver.

If you are using 64-bit Windows, then it's possible to have either of the 32-bit or the 64-bit versions of FlexSim installed. In this case, choose the ODBC driver version that matches the architecture of your FlexSim installation. So if FlexSim is 32-bit, be sure to choose the 32-bit MySQL ODBC driver. If your FlexSim version is 64-bit, download the 64-bit ODBC driver.

Step 15 - Skip Registration

After choosing to download, the site will prompt you to log in or sign up. You can skip this step by clicking the link labeled “No thanks, just start my download”.



Save the downloaded ODBC driver installer to your computer. Remember where you saved it.



Step 16 - ODBC Driver Installation - Welcome

Double click the downloaded ODBC driver installer to begin installation.

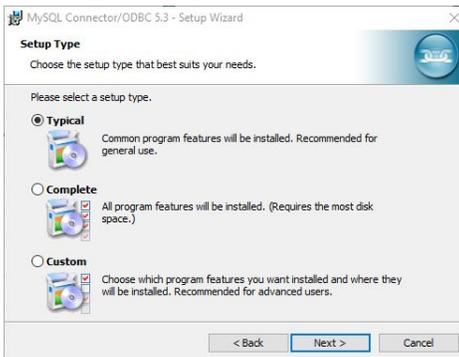
Click 'Next'.



Step 17 - License Agreement

Accept the license agreement.

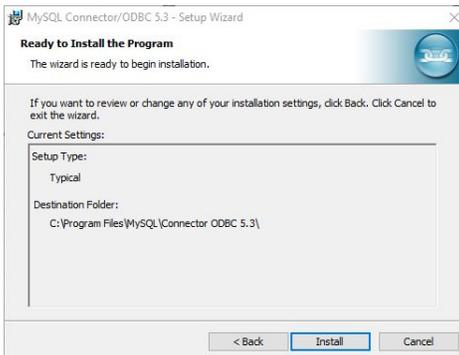
Click 'Next'.



Step 18 - Setup Type

Choose the type of installation you desire. Typical should be fine for our purposes.

Click 'Next'.



Step 19 - Ready to Install ODBC Driver

If you are satisfied with all the options that you chose for the MySQL ODBC driver installation, we're ready to move on.

Click 'Install'.

You may need to click Yes, OK, or Allow on a Windows security prompt in order for the installer to complete.



Step 20 - ODBC Driver Installation Complete

The MySQL ODBC driver is now installed.

Click 'Finish'.

Step 21 - Open Windows' "ODBC Data Source Administrator" Tool

Depending on which MySQL ODBC driver you installed (32-bit or 64-bit), you may need to open a different Windows ODBC Data Source Administrator. Follow the step 'a' or 'b' below that matches your situation.

Step 21a

applies to the following scenarios:

- 32-bit ODBC Driver on 32-bit Windows
- 64-bit ODBC Driver on 64-bit Windows

Open the ODBC Data Source Administrator by going to Control Panel>System and Security>Administrative Tools>ODBC Data Sources.

In your Windows installation, it's possible that "Administrative Tools" appears directly under the Control Panel, skipping the "System and Security" heading.

In Windows versions 8 and later, you may have both 32-bit and 64-bit "ODBC Data Sources" listed. Be sure to pick the one that matches the architecture of the ODBC driver that you installed.

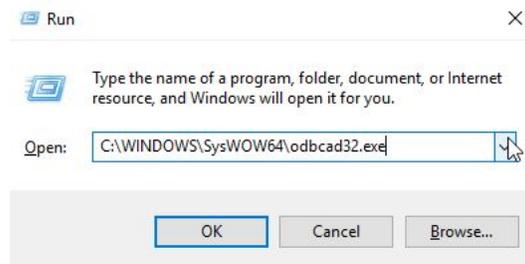
The ODBC Data Source Administrator window should now be open.

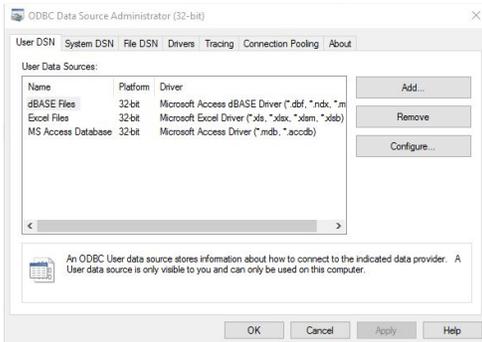
Step 21b

applies to the following scenarios

- 32-bit ODBC Driver on 64-bit Windows 7

Open the Run dialogue by pressing your Windows key and 'R' key at the same time (Win+R). Type the following path: C:\WINDOWS\SysWOW64\odbcad32.exe , then hit 'OK'.

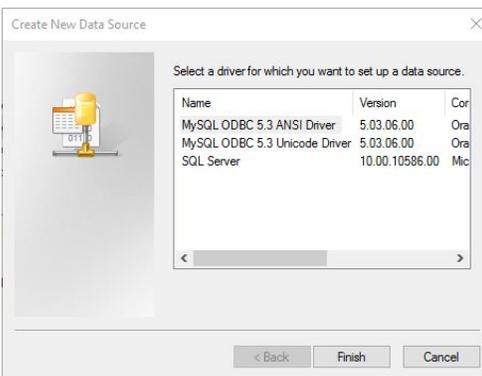




Step 22

Now that you have opened the ODBC Data Source Administrator, we need to add our new database as a data source.

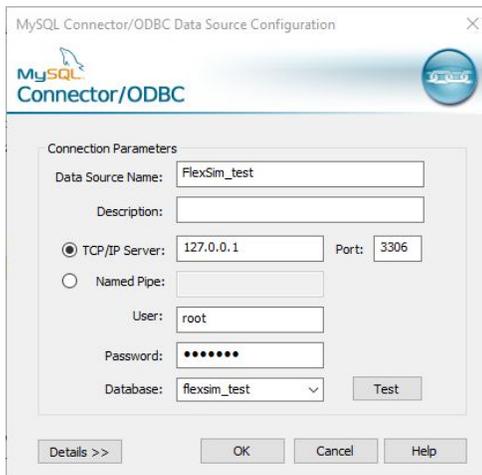
Click 'Add'.



Step 23

Select the newly installed MySQL ODBC driver from the list.

Click 'Finish'.



Step 24

Enter the required data to create the ODBC connection to MySQL.

If you press the 'Test' button, you should see the 'Connection successful' message.

Click 'OK' on the MySQL Connector window.

Click 'OK' on the ODBC Data Source Administrator window.

CONGRATULATIONS! You are now ready to use your new ODBC data source within FlexSim. You will be able to read from and write to the database you specified in Step 24. If you need to read/write with more than one database, simply add another data source (Steps 21-24).

Using the Data Source

To use your newly created data source within FlexSim, you'll need to use the database commands. You can see a complete list of the database related commands by viewing FlexSim's command documentation (Help>Commands). By default you will see will see FlexSim's commands listed in categories. All the database related comands are under the Communication category and begin with "db".

Check out this example of using the db commands to run a SQL query on your data source:

```
//Open the database in query mode with the simplest and fastest query possible, "SELECT 1"
// Throw an error message if there was any problem connecting to the data source
if(!dbopen("FlexSim_test", "SELECT 1", 0, 0)) {
    stop();
    return msg("Error001", "early bail out - error in dbopen()");
}

//Run any SQL query that you feel like to test your data source. If there is
// any problem running this query, throw an error message.
if(!dbsqlquery("INSERT INTO table_test (path,x,y,z) VALUES ('testpath',1,2,3)")) {
    stop();
    return msg("Error002", "early bail out - error in dbsqlquery() INSERT query");
}

//Our test query is complete. Close the data source.
dbclose();
```