

The Top Free SQL Databases for Beginners

Choosing, Installing and Connecting a Database to Ignition

SQL databases are a proven and trusted information technology and are very common in business today. As a result there are several DBMSs (database management systems) to choose from in today's crowded IT marketplace.

With so many choices, determining which DBMS to choose can be very confusing for newcomers to the SQL database world. For this reason we have assembled this helpful list of the best SQL databases for beginners. Each of these databases are very commonly used and well supported, and best of all they are all free.

1. Oracle Database Express Edition

Oracle Database Express Edition is the free offering from database giant Oracle. Oracle Database Express is an entry-level database based on the popular Oracle Database Enterprise Edition.

While Express does not have all the advanced features of the full Enterprise Edition, it still boasts impressive power for a free DBMS. Oracle Express downloads quickly and has a small footprint. Express is also easy to administer and supports a wide range of formats for data import.

One of the biggest advantages for SQL database beginners in choosing Oracle Database Express Edition is that it's made by Oracle. This offers two major benefits, the first being that it's very well supported. The second benefit is that Oracle offers more advanced and powerful databases; if you outgrow the Express Edition then you can easily transition to a more advanced DBMS.

Operating System Compatibility: Windows – NT / 98 / Me / 2000 / XP / 2003 / Vista / Server 2008 / 7

2. MySQL Database Server

MySQL Database Server is one of the most widely used DBMSs in the world. One of the main reasons for its popularity is its simplicity. MySQL was designed to be very easy to set up and use, which makes it a great entry-level DBMS for SQL database beginners.

MySQL covers all the SQL database basics such as supporting data import from multiple formats including Oracle, MS SQL, Excel, CSV and XML. MySQL also has some more advanced database functionalities like stored procedures and triggers as well as support for complex transactions across multiple databases.

There is a strong MySQL community that supports the DBMS so finding help is very easy. MySQL combines user-friendly design with solid functionality to make it a great choice for beginners and advanced users alike.

Operating System Compatibility: Windows – NT / 98 / Me / 2000 / XP / 2003 / Vista / Server 2008 / 7 / 8

3. Microsoft SQL Server Express

Microsoft SQL Server Express is a very commonly used DBMS that is relied upon daily by companies all over the world. It has been around for quite some time and is very familiar to most IT professionals.

Microsoft SQL Server Express delivers a full set of features, data protection, and performance for embedded application clients, light web applications, and local data stores. It was designed for easy deployment and is available to redistribute with applications.

The familiar design and solid support of Microsoft SQL Server Express make it a good fit for SQL database beginners.

Operating System Compatibility: Windows – XP / 2003 / Vista / Server 2008

Ignition and SQL

All these database are great for SQL database beginners and they all work seamlessly with Ignition. Ignition leverages the full power of SQL databases to help you make the most of your time-series data by facilitating the easy connection of your SCADA system with the data from the rest of the enterprise.

To help you get started we have provided the following helpful technical guides about installing each of the databases listed in this article and how to connect them up to Ignition.

To try out Ignition you can download it for free at: www.inductiveautomation.com/downloads

If you need any help, our expert support team is ready and willing to lend a hand. You can contact our Ignition support team on our website: www.inductiveautomation.com/support

Appendix: Installations and Configuration Guides

A: Oracle 11g Express Edition

B: MySQL Database Server 5.5

C: Microsoft SQL Server Express 2012



Ignition is a unified HMI, SCADA, and MES software solution. It has everything you need in one powerful, integrated software package.



Oracle 11g Express Edition

Installation and Configuration Guide

1. Download Oracle 11g Express Edition

- a. Go to: <http://www.oracle.com/technetwork/products/express-edition/downloads/index.html>
- b. You must have an Oracle account to download.

2. Install Oracle 11g Express Edition

- a. Run the file `Setup.exe` inside the file `OracleXE112_Win32.zip`
- b. Press "Next", accept the license, and press "Next" again to get started.
- c. Accept the defaults for install destination, and press "Next".
- d. Choose a password for the SYSTEM account, and remember it or write it down here: _____ . Press "Next" to continue.
- e. Note that the database will listen on port 1521. Press "Install" to continue.
- f. After the installer is finished, uncheck "Launch the Database homepage" and click "Finish".
- g. TIP: Oracle uses an internal web server for configuration (much like Ignition does). To configure this database further in the future, open the "Database Homepage" item from the Start menu, or simply point a web browser to <http://localhost:8080/apex>.

3. Create a Database Connection in Ignition

- a. If you don't already have Ignition installed you can go to the following link to install it: www.inductiveautomation.com/downloads
- b. Go to the Ignition Configuration web interface by opening a web browser and navigating to the URL: <http://localhost:8088/main/web/config> and then log in.
- c. Click on the Databases > Connections link in the left-hand-side menu bar.
- d. Click on the "Create New Database Connection ..." link.
- e. Choose the "Oracle JDBC Driver" option, and press "Next".
- f. Give your connection a meaningful name, like "OracleXE".
- g. Set the Connect URL to: `jdbc:oracle:thin:@localhost:1521:XE`.
- h. Enter the username "SYSTEM" and the password that you choose in step 1.d.
- i. Press the "Create New Database Connection" button at the bottom of the form.
- j. Your connection is now created. Click on the "Database Connection Status" link to view the status of your database connection. It should say "Valid".

MySQL Database Server 5.5

Installation and Configuration Guide

1. Download MySQL Database Server 5.5

- a. Go to: <http://dev.mysql.com/downloads/mysql>
- b. Choose the 32-bit or 64-bit MSI installer that is right for your operating system.
- c. Ignore the login page, choose the “No thanks, just start my download” option at the bottom of the page.

2. Installing MySQL Database Server 5.5

- a. Run the installer file `mysql-5.5.24-Win32.msi`, press “Next” to begin.
- b. Choose “Typical” setup and press “Next”.
- c. Continue to press “Next” until the “Wizard Completed” stage. Close the popup about enterprise subscription. Check the “Launch the MySQL Instance Configuration Wizard” option, and then press “Finish”.
- d. Start the Instance Configuration Wizard by pressing “Next”.
- e. Choose “Detailed Configuration” and press “Next”.
- f. Choose “Developer Machine” and press “Next”.
- g. Choose “Multifunctional Database” and press “Next”.
- h. Accept the default settings for the InnoDB Tablespace and press “Next”.
- i. Choose “Decision Support (DSS)/OLAP” and press “Next”.
- j. Leave both options enabled on the networking options section, and use the default port of 3306. Press “Next”.
- k. Use a standard character set, and press “Next”.
- l. Choose to install MySQL as a Windows Service and start it up automatically. Press “Next”.
- m. Now for the important part. Choose a password for the “root” user, and remember it or write it down here _____ . Then press “Next”.
- n. Press “Execute” to start the installation. When it is done press “Finish”.

3. Install the MySQL Workbench

- a. Run the file `mysql-workbench-gpl-5.2.40-win32.msi`.
 - i. You may be prompted to install the .NET 4.0 framework. If so, run the file `dotNetFx40_Full_setup.exe`, and continue through the .NET Framework 4.0 installer until it is finished. After restarting your computer, run `mysql-workbench-gpl-5.2.25-win32.msi` again.
- b. Press "Next" to begin the installation process.
- c. Choose the "Complete" setup type, and then press "Next".
- d. Press "Install" to begin installation, and then press "Finish" when complete.

4. Create a Database Connection in Ignition

- a. If you don't already have Ignition installed you can go to the following link to install it:
www.inductiveautomation.com/downloads
- b. Go to the Ignition Configuration web interface by opening a web browser and navigating to the URL: `http://localhost:8088/main/web/config` and then log in.
- c. Click on the `Databases > Connections` link in the left-hand-side menu bar.
- d. Click on the "Create New Database Connection..." link.
- e. Choose the "MySQL ConnectorJ" option, and press "Next".
- f. Give your connection a meaningful name, like "MySQL".
- g. Set the Connect URL to: `jdbc:mysql://localhost:3306/test;`
("test" is the name of an empty database that MySQL creates by default.)
- h. Enter the username "root" and the password that you chose in step 1.m.
- i. Leave the "Extra Connection Properties" field at its default value of `zeroDateTimeBehavior=convertToNull;`
- j. Press the "Create New Database Connection" button at the bottom of the form.
- k. Your connection is now created. Click on the "Database Connection Status" link to view the status of your database connection. It should say "Valid".

Microsoft SQL Server Express 2012

Installation and Configuration Guide

1. Download SQL Server Express 2012

- a. Go to <http://www.microsoft.com/betaexperience/pd/SQLEXPCTAV2/enus/default.aspx>
- b. Choose the 32-bit or 64-bit installer depending on which OS system type you are using.
- c. Download the installer for "Express (database only)".

2. Installing SQL Server Express 2012

- a. Run the file: `SQLEXP32_x86_ENU.exe`.
 - i. You may be prompted to install the .NET 4.0 framework. If so, run the file `dotNetFX40_Full_setup.exe` and continue through the .NET Framework 4.0 installer until it is finished. Then run `SQLEXP32_x86_ENU.exe` again.
- b. On the "Installation" screen, choose "New SQL Server stand-alone installation or add features to an existing installation".
- c. When the "License Terms" window pops up, click "I accept the license terms", and ignore the "feature usage data" checkbox. Press "Next".
- d. On the "Feature Selection" screen, leave all the features checked and feature directories as default and press "Next".
- e. On the "Instance Configuration" screen, leave the "Named Instance" as "SQLEXPRESS", and leave "Instance ID" and "Instance Root Directory" as defaults. Press "Next".
- f. On the "Server Configuration" screen, change the Startup Type for SQL Server Browser to "Automatic", and leave the "Database Engine" under the Collation tab as default. Press "Next".
- g. On the "Database Engine Configuration" screen, change the authentication mode to "Mixed Mode", and specify a password for the "sa" account. Make sure to remember the password, or write it down here: _____. Leave the settings for the other tabs (Data Directories, User Instances, FILESTREAM) as default, and press "Next".
- h. On the "Error Reporting" page, you can choose whether to send error reports to Microsoft or not, the choice is yours. Press "Next".
- i. The installation should finish its remaining operations, and when it is done, click "Close".

3. Download SQL Server Express 2012 Management Studio

- a. Go to <http://www.microsoft.com/betaexperience/pd/SQLEXPCTAV2/enus/default.aspx>
- b. Choose the 32-bit or 64-bit installer depending on which OS system type you are using.
- c. Download the installer for "SQL Server Management Studio Express".

4. Installing SQL Server Express 2012 Management Studio

- a. Run the file: `SQLManagementStudio_x86_ENU.exe`.
- b. On the "Installation" screen, choose "New SQL Server stand-alone installation or add features to an existing installation".
- c. On the "Product Updates" screen, install any updates that the installer finds (if any). Press "Next".
- d. On the "Installation Type" screen, choose the radio button for "Add features to an existing instance", and choose the instance "SQLEXPRESS". Press "Next".
- e. On the "Feature Selection" screen, choose the checkbox next to "Management Tools – Basic". Press "Next".
- f. On the "Error Reporting" page, you can choose whether to send error reports to Microsoft or not, the choice is yours. Press "Next".
- g. The installation should finish its remaining operations, and when it is done, click "Close".

5. Enable TCP/IP Connections

- a. Open the SQL Server Configuration Manager program from the Start menu.
- b. On the left navigation panel, click on the arrow next to "SQL Server Network Configuration (32bit)", right-click "Protocols for SQLEXPRESS", and press "Open".
- c. Right click "TCP/IP", and press "Enable".
- d. Press "OK" to close the warning box about changes taking effect after restarting the service.
- e. Back on the left navigation panel, right-click "SQL Server Services" and press "Open".
- f. Right-click on "SQL Server (SQLEXPRESS)" and press "Restart" to restart the service and apply the changes.
- g. Close the configuration manager.

6. Create a database connection in Ignition

- a. If you don't already have Ignition installed you can go to the following link to install it:
www.inductiveautomation.com/downloads
- b. Go to the Ignition Configuration web interface by opening a web browser and navigating to the URL: <http://localhost:8088/main/web/config> and then logging in.
- c. Click on the Databases > Connections link in the left-hand-side menu bar.
- d. Click on the "Create New Database Connection..." link.
- e. Choose the "Microsoft SQLServer JDBC Driver" option, and press "Next".
- f. Give your connection a meaningful name, like "SQLServerDB".
- g. Set the Connect URL to: `jdbc:sqlserver://localhost\SQLExpress`.
- h. Enter the username "sa" and the password that you choose in step 1.i.
- i. Set the Extra Connection Properties to `database Name=YOUR_DATABASE` where `YOUR_DATABASE` is the name you chose in step 3.d.
- j. Press the "Create New Database Connection" button at the bottom of the form.
- k. Your connection is now created. Click on the "Database Connection Status" link to view the status of your database connection. It should say "Valid".