Politecnico di Milano

Scuola di Ingegneria Industriale e dell'Informazione

Computer Science and Engineering

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Installation Manual

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Summary

1. Before starting

This guide will explain you how to install and configure MeteoCal and the tools needed for its correct use.
The manual only refers to a Windows OS installation, but the same steps should be easily replicated also in a Linux or Mac OS environment.
It's taken for granted that the computer on which you will perform the installation has already a Java 7 enterprise environment installed and a browser with javascript support.
The following guide will explain how to install and configure:

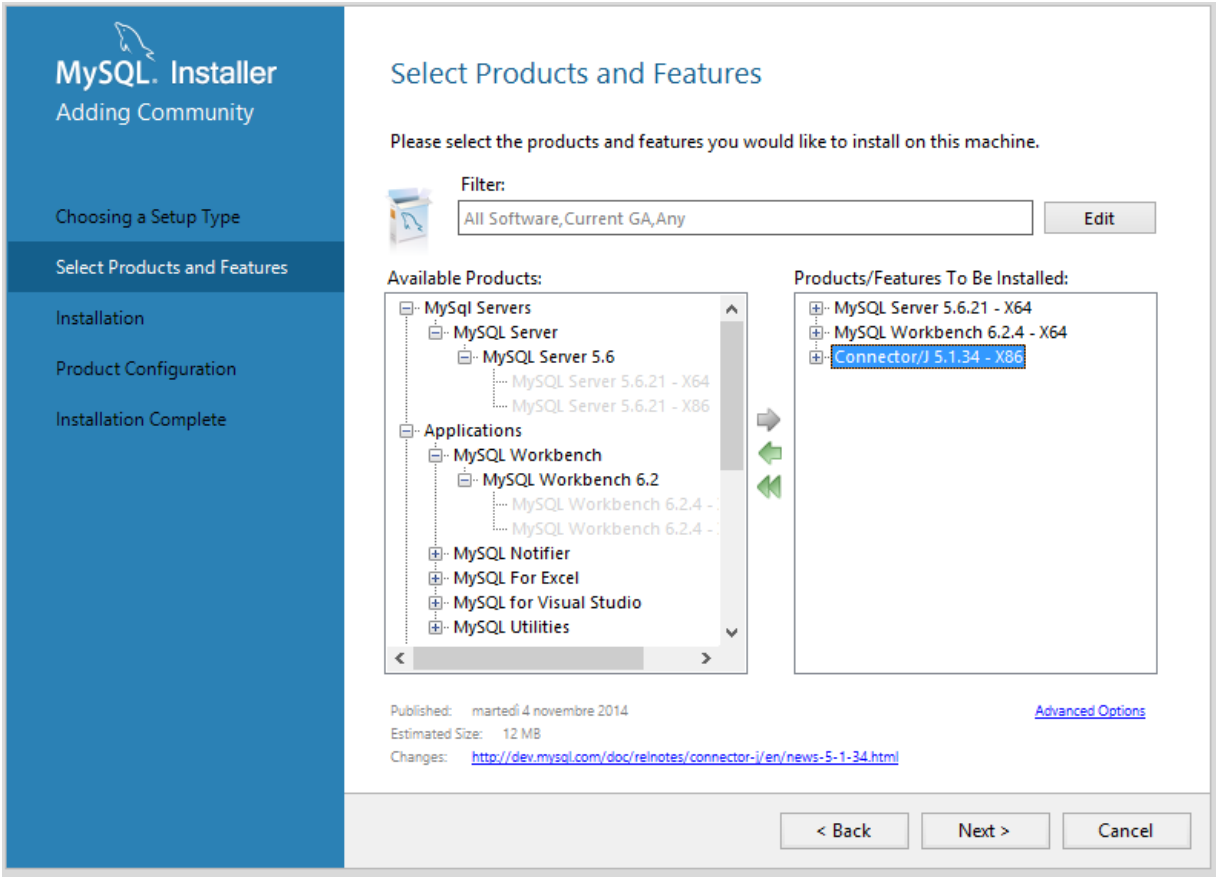
- ORACLE MySQL Community Edition (GPL) Server, Workbench and Connector/J;
- ORACLE GlassFish Application Server.

Finally, it is also important to highlight that this guide will explain how to install MeteoCal only for development, testing and validation purposes.

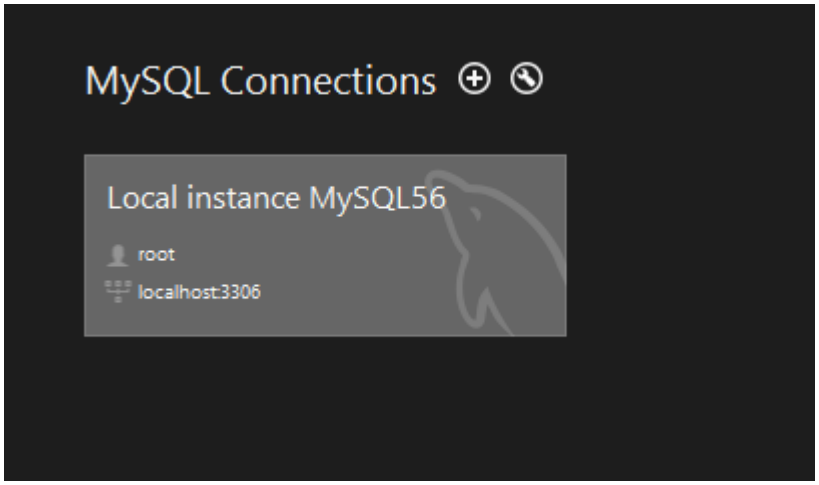
2. ORACLE MySQL Community Edition Suite

Go to http://dev.mysql.com/downloads/windows/installer/ and download MySQL Installer 5.6.22, offline or web installer.

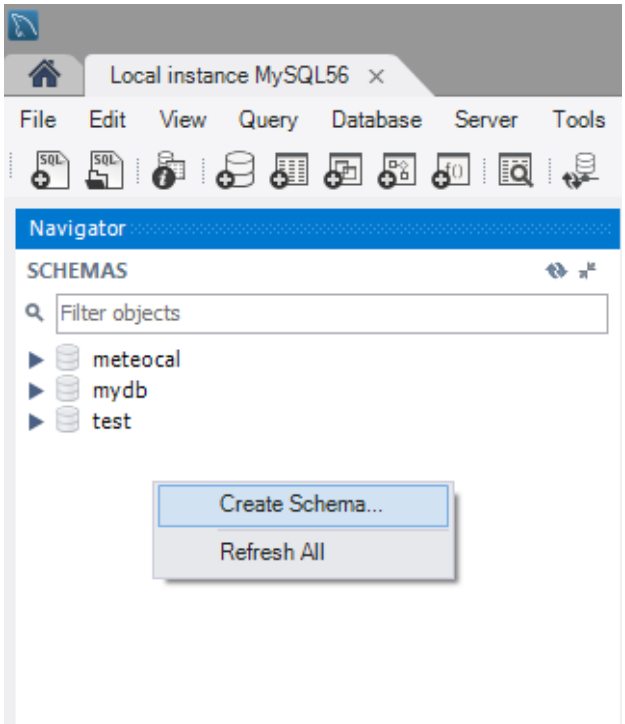
Perform a custom setup and choose only components shown in the image below or install the complete suite if you want.



If you don’t have a x64 environment, choose the 32 bit components (x86).
Wait for all products installation and when the installer asks you to configure MySQL Server, in Type and Networking leave all fields as default, while in Accounts and Roles, choose a root password. Leave everything as default in Windows Service, apply server configuration, then click the Finish button.
Open MySQL Workbench and create a new connection if it doesn’t exist yet. You can call it as you want.

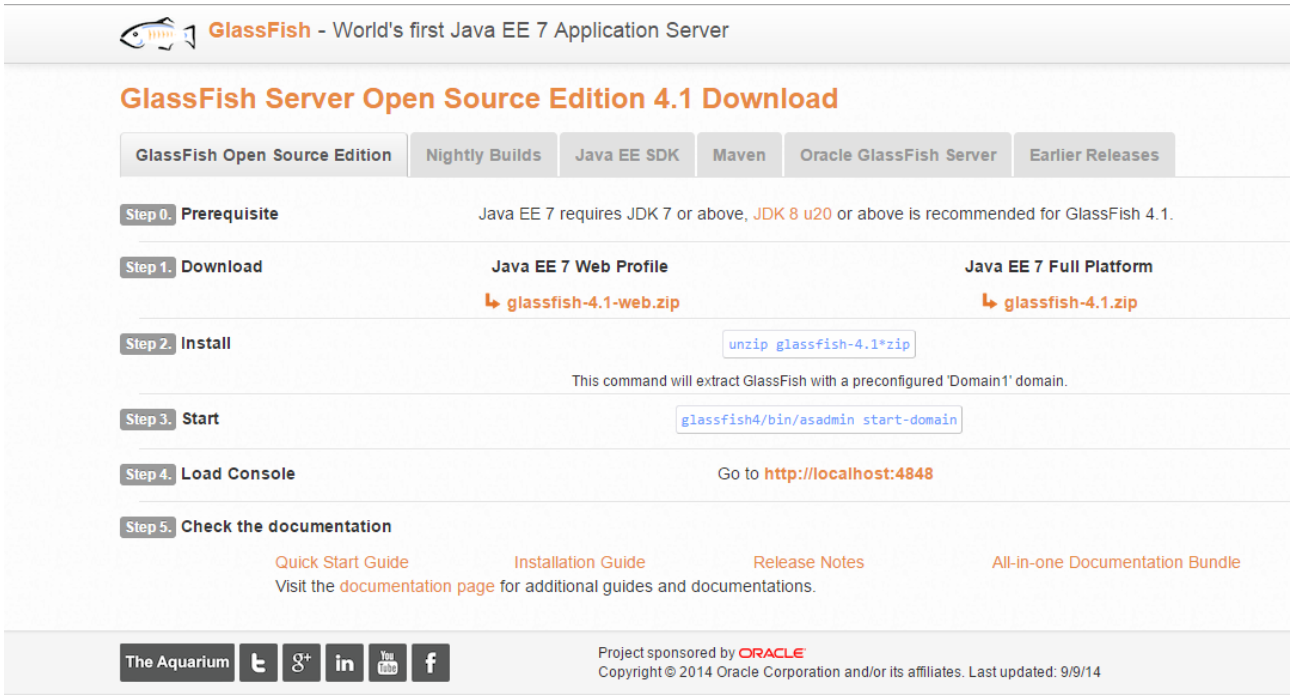


Click on it and in the next page create a new schema called “meteocal”. If you use a different name or you write it in a different way, please rember it for the following steps. After that you can close MySQL Workbench.



3. ORACLE GlassFish Application Server

Go to https://glassfish.java.net/download.html and download the full platform version. Move the archive wherever you want and extract it.



Go where you have installed MySQL Connector/J (tipically C:\Program Files (x86)\MySQL\MySQL Connector J) and copy the file "mysql-connector-java-5.1.34-bin.jar" where 5.1.34 could be a different version. Go where you have extracted GlassFish and, starting from this root, go to .\glassfish\domains\domain1\lib and paste the .jar file. Open the command prompt and using the *cd* command go where you have extracted GlassFish, then move to .\glassfish\bin and write:

asadmin start-domain

Once started, go to http://localhost:4848. Default username and password are both "admin". Now, the next steps will explain you how to properly configure the JDBC Connection Pools, Resource and Realm.

3.1 Creating a Connection Pool

1. In the GlassFish Administration Console, using the navigation tree, navigate to **Resources**, **JDBC**, **Connection Pools.**
2. In the **JDBC Connection Pools** frame click *New*. You will enter a two step wizard.
3. In the **Name** field under **General Settings** enter the name for the connection pool: **meteocalConnectionPool**.
4. In the **Resource Type** field, select **javax.sql.DataSource** from the drop-down listbox.
5. In the **Database Vendor** field, select **MySQL** from the drop-down listbox. Click *Next* to go to the next page of the wizard.
6. You can accept the default settings for General Settings, Pool Settings and Transactions for this example. Scroll down to Additional Properties.
7. In Additional Properties you will need to ensure the following properties are set:
    - ***ServerName*** - The server to connect to. For local testing this will be **localhost**.
    - ***User*** - The user name with which to connect to MySQL.
    - ***Password*** - The corresponding password for the user.
    - ***DatabaseName*** - The database to connect to, in this case **meteocal** or the different name you have chosen in the previous chapter.
    - ***URL*** - url to the db (e.g., jdbc:mysql://localhost:3306/meteocal)
8. Click *Finish* to exit the wizard. You will be taken to the **JDBC Connection Pools** page where all current connection pools, including the one you just created, will be displayed.
9. In the **JDBC Connection Pools** frame click on the connection pool you just created. Here, you can review and edit information about the connection pool. Because Connector/J does not support optimized validation queries, go to the **Advanced** tab, and under Connection Validation, configure the following settings:
    - ***Connection Validation*** - select **Required**.
    - ***Validation Method*** - select **table** from the drop-down menu.
    - ***Table Name*** - enter **DUAL**.
10. To test your connection pool click the *Ping* button at the top of the frame. A message will be displayed confirming correct operation or otherwise. If an

error message is received recheck the previous steps, and ensure that MySQL Connector/J has been correctly copied into the previously specified location.

Now that you have created a connection pool you will also need to create a JDBC Resource (data source) for use by your application.

3.2 Creating a JDBC Resource

Your Java application will usually reference a data source object to establish a connection with the database. This needs to be created first using the following procedure.

1. Using the navigation tree in the GlassFish Administration Console, navigate to **Resources**, **JDBC**, **JDBC Resources**. A list of resources will be displayed in the **JDBC Resources** frame.
2. Click *New*. The **New JDBC Resource** frame will be displayed.
3. In the **JNDI Name** field, enter the JNDI name that will be used to access this resource. You should enter **jdbc/meteocalDataSource**.
4. In the **Pool Name** field, select a connection pool you want this resource to use from the drop-down listbox. In this case **meteocalConnectionPool**.
5. Click *OK* to create the new JDBC resource. The **JDBC Resources** frame will list all available JDBC Resources.

3.3 Creating a JDBC Realm

Follow these steps for creating a JDBCRealm:

1. Using the navigation tree in the GlassFish Administration Console, navigate to **Configurations**, **server-config**, **Security**, **Realms**. A list of realms will be displayed in the **Realms** frame.
2. Click *New...* and use the following configuration:
    - **Realm Name**: authJdbcRealm
    - **Class name**: com.sun.enterprise.security.auth.realm.jdbc.JDBCRealm
    - **JAAS Context**: jdbcRealm
    - **JNDI**: jdbc/meteocalDataSource
    - **User Name Column**: email
    - **Password Column**: password
    - **Group Table**: users
    - **Group Table User Name Column**: email

- **Group Name Column**: groupname
- **Password Encryption Algorithm**: MD5
- **Digest Algorithm**: SHA-256

Restart your server.

3.4 Deploy the application

1. Using the navigation tree in the GlassFish Administration Console, navigate to **Applications**
2. Click on *Deploy...* and select the MeteoCal.war package and click *OK*.