Politecnico di Milano

Master of science in computer science and engineering

MeteoCal

A WEATHER BASED ONLINE CALENDAR

Installation Manual

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1 Introduction

This document is intended to provide the necessary information to accomplish the installation of our web application on a GlassFish server.
We have managed to minimize the process of configuration coming up with an xml configuration file that avoids the user to deal with JDBC and REALM configurations.
In this delivery, in addition to this manual, you can find the following files:

- The archive *meteocal.war* containing the executables of our application
- The two files *domain.xml* and *domain-passfree.xml*
- The file *meteocal.sql* containing the definition of a populated DB
- The driver *mysql-connector-java-5.1.34-bin.jar*

2 Setup

2.1 System

- **Operating System**: the application can be executed on any operating system that is able to run Glassfish 4.1, including Windows, MacOSX and Linux (for further details see `https://blogs.oracle.com/theaquarium/entry/glassfish_supported_platforms`). We have tested it on Mac OS X Yosemite, Windows 8.1 and Ubuntu 14.04.1 LTS.
- **Application Server**: Glassfish 4.1 (Open Source project by Oracle) , compatible with Java EE 7 specifications.
- **DBMS**: MySQL Community Server 5.6.22

2.2 Client

The application as it presents to the client is developed according to the HTML5 paradigm (HTML5, CSS3, JAVASCRIPT) and uses some external libraries such as JQuery Bootstrap-Calendar and GoogleMaps.
Therefore a modern browser is required and cookies and javascript must be enabled.
The major compatibility is obtained using the latest version of Google Chrome (it works on Firefox and Safari as well).

3 Downloading and installing software components

In this paragraph we provide the information required to install the components previously listed. If your server already fulfills the requirements you can skip to the next paragraph.

The following instructions should be considered for a basic installation, intended for development, testing and evaluation of the product.
For real deployment it would be necessary to consult the detailed manuals provided by each component producer in order to correctly address the issues related to security and performance of the product.

3.1 MySQL

Download and install MySQL Server Community Edition from the official website (`http://dev.mysql.com/downloads/mysql/`), where you can find the installation package for all the major operating systems (Mac OS, Windows, Linux).

If you are using a GNU/Linux distribution you can instead download and install it using the shell command:

```
apt-get install mysql-server
```

Mac OS 10.1: If the installation procedure fails you may need to retry the installation deselecting "Startup Item" during the step "Installation Type" clicking the button "Customize".

Windows: we recommend to select the component "server data files" during the guided installation procedure.

3.2 JDK7+

JAVA EE 7 requires the installation of JDK 7 or above (JDK 8 u20 or above is recommended for GlassFish 4.1.). If you don't have it installed you can download the package from the oracle website: `http://www.oracle.com/technetwork/java/javase/downloads/index.html`
Install the package following the guided procedure.

3.3 Glassfish 4.1

Download one of the two versions (Java EE 7 Web Profile | Java E 7 Full Platform) from the link below: `https://glassfish.java.net/download.html`.
You will get a compressed package named "glassfish-4.1.zip", decompress it using your unarchiver or using the shell command

```
unzip glassfish-4.1*zip
```

The result is the folder named "*glassfish4*". Place this folder where you retain more proper (e.g. under "/Server") .

4 Database configuration

In this paragraph we provide the instructions to correctly setup the database for the application. If you have not configured a password for your MySQL server you will need to do the following:

4.0.1 Setting password on Mac OSX/Linux

Stop the server:

```
sudo /usr/local/mysql/support-files/mysql.server stop
```

Skip access tables:

```
sudo /usr/local/mysql/bin/mysqld_safe - skip-grant-tables
```

Run console:

```
sudo /usr/local/mysql/bin/mysql mysql
```

Set password:

```
UPDATE user SET Password=PASSWORD('YOUR_PASSWORD')
WHERE Host='localhost' AND User='root';
```

Where YOUR_PASSWORD is replaced by the password you want to set (in our configuration file we used root as password).
If you get some problem, follow the full guide (`http://innovativethought.net/2007/05/17/resetting-your-forgotten-mysql-password/`)

4.0.2 Setting password on Windows

You can follow the guide (`http://dev.mysql.com/doc/refman/5.0/en/resetting-permissions.html`)

4.0.3 Create the database

The application requires the existence of a database named "meteocaldb".
Open mysql console using in the same way you did before to change the server password.
Once you are in, type :

```
mysql> create database meteocaldb;
```

In alternative you can do it using MySQL Workbench

4.1 Start and stop MySQL

4.1.1 Windows

Start

```
shell> "C:\Program Files\MySQL\MySQL Server 5.0\bin\mysqld"
```

Stop

```
shell> "C:\Program Files\MySQL\MySQL Server 5.0\bin\mysqladmin" -u root s
```

4.1.2 MAC OSX

Simply go to System preferences / MySQL and use the start/stop button.

5 Server configuration

In this paragraph we provide the information required to properly configure Glassfish to run the application.

5.0.3 Install MySQL connector

Simply copy the file *mysql-connector-java-5.1.34-bin.jar* into the folder *glassfish4/glassfish/domains/domain1/lib*
The file is included in the archive we provided, on alternative you can download it from (`http://dev.mysql.com/downloads/connector/j/`)

5.0.4 Setup: the easy way

Go to *glassfish4/glassfish/domains/domain1/config* and make a backup copy of the file *domain.xml*. Copy the file *domain.xml* included in the package we provided and put it in place of the file you just backed-up. **That's all!** Once you start the server, JDBC resources and REALM will be correctly set-up.

We remind you that in our configuration we used "root" as MySQL password, if you use another password you will need to change the entry "Password" you find under "Additional Properties" of the JDBC Connection pool named "mysql_meteocaldb_rootPool".

5.1 Start the server

5.1.1 MAC OSX/Linux

```
glassfish4/bin/asadmin start-domain
```

5.1.2 Windows

```
asadmin start-domain -verbose
```

If the server successfully starts up you will be able to access the control panel connecting to `http://localhost:4848`

5.1.3 Setup: the hard way

In alternative you can manually configure JDBC resource, JDBC Connection pool and REALM, using the following guide:

- Start the server, if you didn't before, and access the control panel.
- Configure JDBC Connection Pool: Follow these instructions (`http://dev.mysql.com/doc/connector-j/en/connector-j-usagenotes-glassfish-config.html`) until step 6. In additional properties you will need to ensure the following properties are set: **URL**: `jdbc:mysql://localhost:3306/meteocaldb?zeroDateTimeBehavior=convertToNull`
  Password: your password (we used "root")
  portNumber: 3306
  databaseName: meteocaldb
  User: root
  serverName: localhost
- Create JDBC Resource In the control panel, under JDBC/JDBC Resources, press "New.." to create a newJDBC Resource. You must set the JNDI Name to "MeteoCalDB" and select the Pool you created in the previous step.
- Realm Under Configurations/server-config/Security/Realms press "New.." to add a new Realm configuration.
  Set the following:
  Name: jdbcRealmRegistration
  Class Name: com.sun.enterprise.security.auth.realm.jdbc.JDBCRealm
  JAAS Context: jdbcRealm
  JNDI: MeteoCalDB
  User Table: USERS
  User Name Column: EMAIL
  Password Column: PASSWORD
  Group Table: USERS
  Group Table User Name Column: EMAIL
  Group Name Column: groupname
  Password Encryptation Algorithm:MD5
  Digest Algorithm: SHA-256

Leave blank the remaining fields and save. Now you can restart your server and pass to the next paragraph.

5.2 Application Deployment

Access the GlassFish control panel an open "Applications" and make sure that your MySQL Server is running. Click on "deploy.." and then under Location select the file "meteocal.war" from the archive we provided.
Make sure that the Context Root is set to meteocal. A different context root may affect the correct behavior of the application.
Click "ok" to deploy the application.
If everything has been correctly set up, you will see "meteocal" application in the list of your applications. At that point RESTART the server (otherwise some functionalities will not work!).
Once restarted go again to the application list, click "launch" on meteocal and finally connect to http://localhost:8080/meteocal.
Now you are ready to use the application.

5.3 Getting Admin Privileges

Once you have created your user account you can get admin privileges in the following way:

- Open MySQL console using terminal or use a tool such us Sequel Pro or MySQL Workbench
- Update the table USER where EMAIL = yourEmail and set TYPE = "admin"

5.4 Importing the SQL script

If you wish to populate the DB with some existing entities you can run the script provided in the zip. Perform this action after the application is deployed.
Once you open MySQL console you can run the *source* command followed by full path where the .sql script is located:

```
mysql> source /home/andrea/meteocal/meteocal.sql
```

If you are using MySQL Workbench, use the command File -> Open SQL Script... instead of using the command *source*. All the already existing accounts have as default password: "password", except for the admin user "meteocalpoli@gmail.com" which password is "Administrator1"
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