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Install Guide

VERSION 1

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Preamble

This is the Install Guide for the Software Engineering 2 2013 internal project, named *TravelDream*. It contains the main directions for a successful installation of the program developed during the Implementation phase – called *TravelDream Agent* – at the end of which this document is being issued.

Should any issue arise during the deployment of the application, the author can be contacted at mondoedox@gmail.com or edoardo.mondoni@mail.polimi.it.

The remainder of the document is organized as follows:

- **Section 1** illustrates the environment in which the program was developed, thus indicating the ideal operating conditions for the software;
- **Section 2** details the configuration and installation procedures.

1 Environment

The following list describes the environment in which *TravelDream Agent* has been developed; it is in no way different from the one in Paragraph 2.1.2 of the Requirements Analysis and Specification Document. Installation of the following software will not be covered in this guide, and is therefore considered a pre-requirement, while every detail concerning its configuration will be provided in the following sections.

- **Java Runtime Environment (version 7 Update 45 or later).** This is necessary for Glassfish Application Server to run on the server, while no Java Virtual Machine is required on the client machines.
- **MySQL Community Server (version 5.6.14 or later).** Other database management systems might not be supported.
- **Glassfish Application Server (version 4.0 build 89 or later).** The copy of Glassfish used during development included Mojarra 2.2.0; previous versions have been reported as problematic with respect to JSF Flash Scope – which is used in *TravelDream Agent* – and their use is thus discouraged.

2 Installation

2.1 Getting started

Before you proceed, make sure every piece of software is installed and that the package you downloaded includes the following files:

- `TravelDreamAgent.ear`, which is the main package containing the Java executable files for *TravelDream Agent*.
- `db_setup.sql`, an SQL script taking care of the creation of the database schema and the appropriate MySQL user. Please note that the population of the schema with the tables is delegated to the Java Persistence APIs, which will refer to the registered Entities, so no `CREATE TABLE` statement is contained in this file.
- `create_admin.sql`, which will be run *after* the installation in order to create the first administrator for the system.

2.2 Preliminary configuration

MySQL Server and Glassfish need to be appropriately configured in order for *TravelDream Agent* to function properly.

2.2.1 MySQL Server

Open MySQL Server in your command line prompt and login with root privileges. Execute the `db-setup.sql` script by entering the `source <filename>` command, where `<filename>` is the **absolute path** to the `db-setup.sql` file. Make sure no other schema named `TravelDream` nor any user named `'TDuser'@'localhost'` are present in your database before proceeding.

This should produce the following output:

```
mysql> source …/db_setup.sql
Query OK, 0 rows affected (0,00 sec)
Query OK, 1 row affected (0,00 sec)
Query OK, 0 rows affected (0,00 sec)
```

Should you encounter any issues, try to execute the statements manually.

2.2.2 Glassfish Application Server

First off, you need to make the **MySQL Connector/J** available to Glassfish. Download it from `http://dev.mysql.com/downloads/connector/j/` if you don't have it yet, and place the jar file as it is in the `<glassfish-install-dir>/glassfish/lib` directory (where `<glassfish-install-lib>` is usually ~ in UNIX-like systems).

Secondly, you'll need to **create a connection pool**.

a. Log in to the Glassfish Administration Console (located at `http://<server-address>:4848`).
b. Reach *Resources* → *JDBC* → *JDBC Connection Pools*.
c. Click on the *New…* button.
d. Fill the form as indicated in Table 1, leaving every other field blank.
e. Proceed to the next screen by clicking on *Next*.
f. Tick the *Ping* checkbox.
g. Scroll down to the *Additional Properties* table and fill it as in Table 2 (please note that *Url* and *URL* are two distinct fields requiring the same value). Do not alter other fields!
h. Confirm the settings by clicking on *Finish*.
i. On the return page, a confirmation message should inform you that the database has been correctly pinged. If not, check your settings.

Pool name	`TravelDreamPool`
Resource type	`javax.sql.DataSource`
Database driver vendor	`MySql`

TABLE 1: CONNECTION POOL CREATION SETTINGS/1

User	`TDuser`
ServerName	`localhost`
Port	`3306`
DatabaseName	`TravelDream`
Password	`TravelDreamAgent`
Url	*`jdbc://mysql://localhost:3306/TravelDream`*
URL	

TABLE 2: CONNECTION POOL CREATION SETTINGS/2

Once created the connection pool, you need to **create the actual connections**.

a. In the Glassfish Administration Console, reach *Resources* → *JDBC* → *JDBC Resources*.
b. Click on the *New…* button.
c. Fill in the form as indicated in Table 3.
d. Click on the *OK* button.
e. Repeat the procedure to create a second JDBC connection with JNDI name *`jdbc/TDAuthConnection`*.

JNDI name	`jdbc/TDconnection`
Pool name	`TravelDreamPool`
State	*Enabled*

TABLE 3: CONNECTION CREATION SETTINGS

Lastly, **create a new security realm**.

a. In the Glassfish Administration Console, reach *Configurations* → *server-config* → *Security* → *Realm*.
b. Click on the *New…* button.
c. Fill in the form as indicated in Table 4.
d. Click *OK*.

Now Glassfish is ready to host *TravelDream Agent*. Don't log out of the Administration Console yet.

Name	`TravelDreamSecurityRealm`
Class name	`com.sun.enterprise.security.ee.auth.realm.jdbc.JDBCRealm`
JAAS context	`jdbcRealm`
JNDI	`jdbc/TDAuthConnection`
Users table	`USER`
Username column	`USERNAME`
Password column	`PASSWORD`
Groups table	`USER_CATEGORY`
Username column groups table	`USERNAME`
Groupname column	`CATEGORY`
Password encryption algorithm	`MD5`
Digest algorithm	`SHA-256`

TABLE 4: SECURITY REALM SETTINGS

2.3 Installing *TravelDream Agent*

Installing an application starting from an EAR is a simple procedure.

a. In the Glassfish Administration Console, reach the *Applications* section.
b. Click on *Deploy…*
c. In the mask, choose to load a package to the server and select the `TravelDreamAgent.ear` file you downloaded.
d. An additional form will appear below the file uploader. Make sure that the data matches what's in Table 5.
e. Click *OK* and wait for the *Applications* section to reappear.

Type	*Enterprise Application*
Application name	`TravelDreamAgent`
State	*Enabled*

TABLE 5: APPLICATION DEPLOYMENT SETTINGS

Now try and connect to `http://localhost:8080/TravelDreamAgentWeb/`. Can you see the homepage? If so, hooray! *TravelDream Agent* has been successfully installed, but don't be hasty and check out Subsection 2.4. If not, check if the *Engines* field in the *Applications* section of the Glassfish Administration Console contains the *ear*, *ejb*, and *web* values; if it doesn't, try to redeploy the application.

2.4 Post-installation procedures

Now *TravelDream Agent* is fully functional, but apart from registering as a customer and watching a wasteland-empty catalogue you'll notice you aren't able to do anything else. This is because no one is actually registered to the system. This is where the second SQL script, `create_admin.sql`, comes in handy: it contains two SQL statements creating a default system administrator with *username* = `admin` and *password* = `admin` that lets you populate the user database.

Execute the script as you did in Paragraph 2.2.1, the output should look like the following:

```
mysql> source …/create_admin.sql
Query OK, 1 row affected (0,00 sec)
Query OK, 1 row affected (0,00 sec)
```

As always, should you encounter any problem, try and execute the two statements manually. Also, if you're getting the following errors…

```
mysql> source …/create_admin.sql
ERROR 1146 (42S02): Table 'traveldream.user' doesn't exist
ERROR 1146 (42S02): Table 'traveldream.user_category' doesn't exist
```

… then it is very likely that something has gone wrong while creating the database tables. To make sure the tables have been created, type `use TravelDream;` followed by `show tables;`: you should roughly get the output on the right. If you get a miserable `Empty set (0,00 sec)` instead of the list on the right, check that the `'TDuser'@'localhost'` exists, that it is granted all privileges on the `'TravelDream.*'` tables and that the `TravelDream` schema exists. Then try redeploying the application in the *Application* section in the Glassfish Administration Console. If you still can't figure it out, contact me – you can find my e-mail addresses in the Preamble at the beginning of this guide.

```
mysql> show tables;
+---------------------------+
| Tables_in_traveldream     |
+---------------------------+
| BASIC_PRODUCT             |
-------------(……)-----------
| USER                      |
| USER_CATEGORY             |
+---------------------------+
20 rows in set (0,00 sec)
```