COALDA - Installation Manual

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April 16, 2010

Coalda needs a database and a Matlab SOM server to work properly. If you want to use the database and the SOM server provided by the department, you can skip the first two sections. You might want to read section 5.
For the installation the following files and directories found on this CD are necessary. Files with a * are needed even if you don't set up the database or the SOM server yourself:

***Code/** Contains the source code for Coalda.

Files/Database/ Create and update script for database.

Files/ExampleData/ Example data to test the visualization. You may use your own data.

Files/Somserver/ The SOM Server.

Files/Somtoolbox/ SOM Toolbox for Matlab, required for the correct functioning of the SOM Server.

We will assume in this manual that the database, Matlab SOM server and the Coalda software itself runs on the computer called `hex`. Also we assume that you have copied the contents of this CD to the directory `~/Coalda/` where `~` stands for your home directory.

1 Installation and Setup of Postgres Database

1. Download Postgres 8.1 from `http://www.postgresql.org/` and install it following the instructions.
2. Create a database `sukre`.
3. Create a user for the database (for example `coaldauser` with password `coaldapwd`) and grant him access.
4. Run the file `~/Coalda/Files/Database/createdb.sql` to create the tables in the database.

5. Import your data. You can use the example data in `~/Coalda/Files/ExampleData/` or your own data adhering to the database structure.

6. Run the file `~/Coalda/Files/Database/updatedb.sql` to run necessary updates on the data.

2 Installation and Setup of Matlab SOM Server

1. Install Matlab 7.6 following the instructions on `http://www.mathworks.com/products/matlab/` (licence required).

2. Install the Matlab Database Toolbox 3.4 following the instructions on `http://www.mathworks.com/products/database/` (licence required).

3. Install the Matlab SOM Toolbox 2.0 following the instructions on `http://www.cis.hut.fi/projects/somtoolbox/`. This toolbox is also contained in the folder `~/Coalda/Files/Somtoolbox/`.

4. Start Matlab, make sure both toolboxes are found.

5. In Matlab, change the current directory to `~/Coalda/Files/Somserver/`.

6. Edit the file `database.properties` in this folder to reflect your database settings, if we assume the settings from the previous section this would result in the following file:

```
som_server_name = hex
db_java_lib_path = /usr/share/java/postgresql-jdbc.jar
db_name = sukre
db_username = coaldauser
db_password = coaldapwd
db_driver = org.postgresql.Driver
db_url = jdbc:postgresql://hex/sukre
```

7. Change the locations in the file `somserver.m` in this folder to reflect your setup. This could affect the lines 4, 5, and 6:

```
addpath('~/Coalda/Files/Somtoolbox');
javaaddpath '/usr/share/java/postgresql-jdbc.jar';
javaaddpath '~/Coalda/Files/Somserver/somserver.jar';
```

   You should have the file `postgresql-jdbc.jar` if you have installed Postgres. If not, you will find it in `~/Coalda/Code/lib/`.

3 Adjusting Settings and Compiling Coalda

1. Go to the Folder `~/Coalda/Code/`.

2. Adjust the database settings and the location of the feature definition file in the file `~/Coalda/Code/coalda.properties` in the current folder. The property `matlabServer` refers to the computer where the Matlab SOM server is running. You have to work with Coalda on the same database as the Matlab SOM server.

   ```
   featureDefinitionsFile = ~/Coalda/Files/ExampleData/features.def
   matlabServer = hex
   db_name = sukre
   db_username = coaldauser
   db_password = coaldapwd
   db_driver = org.postgresql.Driver
   db_url = jdbc:postgresql://hex/sukre
   db_java_lib_path = /usr/share/java/postgresql-jdbc.jar
   ```

3. Use the following command on the command line to compile the sources.

   ```
   javac -classpath lib/prefuse.jar:lib/postgresql-8.1-414.jdbc3.jar:
   lib/miglayout-3.7.jar:lib/refinery.jar:lib/sukre_database.jar:
   lib/somserver.jar:.: coalda/CoaldaVis.java
   ```

   If you get compile errors about generics and enums you have to force use of Java 1.6 with the option `-6`. You have to have installed a Java compiler of course (included in JDK, but not in JRE).

4 Run Coalda

Starting in the folder `~/Coalda/Code` you can run the software with the following command:

```
java -classpath lib/prefuse.jar:lib/postgresql-8.1-414.jdbc3.jar:
lib/miglayout-3.7.jar:lib/simpleorm-dataset.jar:lib/simple-log.jar:
lib/simpleorm-sessionJdbc.jar:lib/refinery.jar:lib/sukre_database.jar:
lib/somserver.jar:.: coalda/CoaldaVis
```

5 Remote Access to DB and SOM Server

Read this section if you want to have the database and/or the Matlab SOM Server on a different computer than the one you are using to work with Coalda.
If you can access the computer where the database and the Matlab SOM Server are running from the computer you are working on, just replace `hex` with the names of the computers in the settings file (see 3). If you have to use a tunnel to connect to these computers, follow these steps.

1. Set up tunnel for the database connection. Assuming you want to connect to verb*hex* which is only accessible from `marvin`, write the following in a terminal and leave it open for the time you need the connection to the database.

   ```
   ssh <username>@marvin -L 5432:hex:5432 -N
   ```

2. Set up tunnel for matlab server connection in the same way.

   ```
   ssh <username>@marvin -L 7770:hex:7770 -N
   ```

3. Enter in the file `~/Coalda/Code/coalda.properties`

   ```
   db_url  = jdbc:postgresql://localhost:5432/sukre
   matlabServer = localhost
   ```

   It is important that you enter the port for the database, but you must **not** enter the port for the Matlab SOM Server.

6 Licence Information

Coalda uses the following Java libraries:

Library	Author	Licence	Version
prefuse	Regents of the University of California	BSD	beta
postgresql-jdbc	PostgreSQL Global Development Group	BSD	8.1-414
sukre-database	Andre Burkovski		alpha
refinery	Andre Burkovski		alpha
somserver	Andre Burkovski		alpha
simple-log	Graham Lea	Apache 2.0	2.0.1
simpleorm	Dr Anthony Berglas	Apache	v3
miglayout	MiG InfoCom	BSD/GPL	3.7

Coalda itself is available under a BSD licence: