SQLcoach

Version 1.1

Install Guide

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1 Abstract

SQLcoach is an Open Source (LGPL) eLearning platform for the Structured Query Language (SQL). Teachers or professors can install SQLcoach to provide their own SQL training content. SQLcoach can work with different Data Sources (i.e. different databases). Techniques used to implement are Java Servlets with Struts, supported databases are MaxDB and Oracle.

For more information and a running sample application go to: *http://sqlcoach.sf.net*

There you going to find detailed and up to date information about the project. For example a tutorial video or information how to contribute in developing, if you are interested.

2 Prerequisites

2.1 MaxDB

To run the application out of the box it is necessary to install a database to hold the application data. Install scripts for MaxDB are provided. You find more Information about MaxDB at http://en.wikipedia.org/wiki/MaxDB .

If you do not want to use MaxDB you can change the Data Description Files which create the application tables. It should be not to complicated – especially if your preferred database system supports auto increment fields. Please have a look at *Appendix I* and *II* for the Entity Relationship Overview.

For installing information of MaxDB please visit http://maxdb.sap.com .

2.2 Tomcat

We have used and use also for this documentation Tomcat 5.5.X (*http://tomcat.apache.org/ download-55.cgi*). The application should also run at other application servers of course. Please use the forums (*https://sourceforge.net/forum/?group_id=190456*) for discussion/help!

Further Reading: *http://tomcat.apache.org/tomcat-5.5-doc/index.html*

3 Installation

3.1 Application

Install SQLcoach[VERSION].war or copy files to your application server by hand. If you want to check out the code from the CVS please read *Appendix III*.

3.2 Tomcat Configuration - Configuring Data Sources

„It is preferred that data connectivity be handled directly by the business classes, usually via JNDI. The Struts DataSource manager should only be used with legacy business classes that don't provide their own connectivity. When possible, we strongly recommend use of the standard DAO pattern, so that the Action classes do not need to know anything about the persitence mechanism. The DataSource manager is being retained in Struts 1.x for backward compatibility but may not be retained in Struts 2.x or later.“

source: http://struts.apache.org/1.2.9/faqs/database.html

SQLcoach uses the standard tomcat connection pool!

1. Copy all your JDBC Drivers to [TOMCAT_HOME]\common\lib directory of your tomcat installation (i.e. sapdbc-7_6_00_12_4339.jar)

HINT: Why? Because we use connection pooling and the server establishes the connections.

2. server.xml changes

a) GlobalNamingResources
Copy following Resource section to the <GlobalNamingResources> section and change [PASSWORD] to your password.

HINT: Change the database name according to your database if it is not named SQLCOACH.
Example: url="jdbc:sapdb://<DBHOST>/<DBNAME>"

```
<!-- SQLcoach  SQLCOACH_DBA Data Source -->
<Resource
      name="jdbc/SQLCOACH_DBADS"
      type="javax.sql.DataSource"
      driverClassName="com.sap.dbtech.jdbc.DriverSapDB"
      password="[PASSWORD]"
      maxIdle="2"
      maxWait="5000"
      username="SQLCOACH_DBA"
      url="jdbc:sapdb://localhost/SQLCOACH"
      maxActive="4"
/>
```

```
      <!-- SQLcoach  SQLCOACH_SCENARIO Data Source -->
      <Resource
            name="jdbc/SQLCOACH_SCENARIO_1DS"
            type="javax.sql.DataSource"
            driverClassName="com.sap.dbtech.jdbc.DriverSapDB"
            password="<MY_SCENARIO_DATABASE_PASSWORD>"
            maxIdle="2"
            maxWait="5000"
            username="SQLCOACH_USER"
            url="jdbc:sapdb://localhost/<MY_SCENARIO_DATABASE>"
            maxActive="4"
      />
```

If you use different databases for different scenarios you will have to add:

```
jdbc/SQLCOACH_SCENARIO_2DS
jdbc/SQLCOACH_SCENARIO_3DS
...
```

(In this case you also have to modify web.xml accordingly)

b) Add ResourceLink to Context

Make resource links, modify docBase and workDir to your setup:

```
      <Context
            path="/SQLcoach"
            reloadable="true"
            docBase="D:\localhost\dev\SQLcoach\public_html"
            workDir="D:\localhost\dev\SQLcoach\public_html\WEB-
            INF\classes">
        <WatchedResource>public_html/WEB-INF/web.xml</WatchedResource>
        <ResourceLink global="jdbc/SQLCOACH_DBADS"
                      name="jdbc/SQLCOACH_DBADS" type="Container"/>
        <ResourceLink global="jdbc/SQLCOACH_SCENARIO_1DS"
                      name="jdbc/SQLCOACH_SCENARIO_1DS" type="Container"/>
      </Context>
```

HINT: BEFORE it looked like that:

```
      <Context
            path="/SQLcoach"
            reloadable="true"
            docBase="D:\localhost\dev\SQLcoach\public_html"
            workDir="D:\localhost\dev\SQLcoach\public_html\WEB-
INF\classes">
      <WatchedResource>public_html/WEB-INF/web.xml</WatchedResource>
      </Context>
```

3. Changes in you public_html/WEB-INF/web.xml

HINT: These changes are already included! Just for your information or if you add additional resource link names in the server.xml you also have to make changes here !

```
<web-app>

      <!-- many other stuff -->

      <resource-ref>
            <description>
                  Resource reference to a factory for
                  sqlcoach repository data
            </description>
            <res-ref-name>jdbc/SQLCOACH_DBADS</res-ref-name>
            <res-type>javax.sql.DataSource</res-type>
            <res-auth>Container</res-auth>
      </resource-ref>

      <resource-ref>
            <description>
                  Resource reference to a factory for
                  scenario tables and data
            </description>
            <res-ref-name>jdbc/SQLCOACH_SCENARIO_1DS</res-ref-name>
            <res-type>javax.sql.DataSource</res-type>
            <res-auth>Container</res-auth>
      </resource-ref>
</web-app>
```

4 Database Setup

1. Install sqlcoach.war or copy files to your server by hand

2. modify the server.xml to fit to your files if nesessary

i.e.

```
<Context path="/SQLcoach" reloadable="true"
docBase="/home/chge0003/sqlcoach" workDir="/home/chge0003/sqlcoach/work">
            <WatchedResource>WEB-INF/web.xml</WatchedResource>
            <ResourceLink global="jdbc/SQLCOACH_DBA_DS"
name="jdbc/SQLCOACH_DBA_DS" type="Container"/>
            <ResourceLink global="jdbc/SQLCOACH_USER_DS"
name="jdbc/SQLCOACH_USER_DS" type="Container"/>
            <ResourceLink global="jdbc/SQLCOACH_USER_ORACLE_DS" name="jdbc/
SQLCOACH_USER_ORACLE_DS" type="Container"/>
      </Context>
```

3. Create DB Users

Excecute content of
de.fhkl.sqlcoach.util.dll/**Application_createDBUsers.sql**
as DBA (Database Admin; Loginname depends on the name you have choosen at the installation of you Database System) via SQL Studio. (Change passwords from "test" to a more secure passwords at this file.)

4. Create Application Tables

Excecute content of
de.fhkl.sqlcoach.util.dll/**Application_createTables.sql**
as SQLCOACH_DBA user (standard password: test) via SQL Studio (this user has been created at 3.).

5. Create SQLcoach Application Users

Excecute content of
de.fhkl.sqlcoach.util.dll/**Application_createWebUsers.sql**
as SQLCOACH_DBA user via SQL Studio via SQL Studio.

6. Add Application Example Scenario Content

Excecute content of
de.fhkl.sqlcoach.util.dll/**Application_inserts.sql**
as SQLCOACH_DBA user via SQL Studio via SQL Studio.

(7. Validation Query: *select * from scenario* should return one result!)

8. Install our sample tables for the example scenario (execute as sqlcoach_user)

a) On MaxDB
1st execute content of
de.fhkl.sqlcoach.util.dll/**Example_maxdb_Create_tabs.sql**
2nd execute content of
de.fhkl.sqlcoach.util.dll/**Example_maxdb_Create_data.sql**

b) On OracleDB
1st execute content of
src/de.fhkl.sqlcoach.util.dll/**Example_oracle_Create_tabs.sql**
2nd execute content of

de.fhkl.sqlcoach.util.dll/**Example_oracle_Create_data.sql**

5 Appendix I: Application Tables

Tables	Columns	Foreign Keys
APP_STATISTIC	(ID, TASK_ID, SUCCESS, QUERY, SESSION_ID, DATECREATE, DATELASTMOD,)	TASK_ID » **TASK**.ID
APP_USER	(ID, NICKNAME, PASSWORD, TITLE, FIRSTNAME, LASTNAME, EMAIL, ROLE, DATECREATE, DATELASTMOD,)	
SCENARIO	(ID, APP_USER_ID, DESCRIPTION, DATASOURCE, DATECREATE, DATELASTMOD,)	APP_USER_ID » **APP_USER**.ID
SCENARIO_TABLE	(SCENARIO_ID, SCENARIO_TABLE, DATECREATE, DATELASTMOD,)	SCENARIO_ID » **SCENARIO**.ID
TASK	(ID, TASKGROUP_ID, RANK, DESCRIPTION, QUERY, DATECREATE, DATELASTMOD,)	TASKGROUP_ID » **TASKGROUP**.ID
TASKGROUP	(ID, SCENARIO_ID, RANK, DESCRIPTION, DATECREATE, DATELASTMOD,)	SCENARIO_ID » **SCENARIO**.ID

Explaination: **TABLE**, PRIMARY KEY, FOREIGN KEY

6 Appendix II: Entity Relationship Diagram


Primary Key

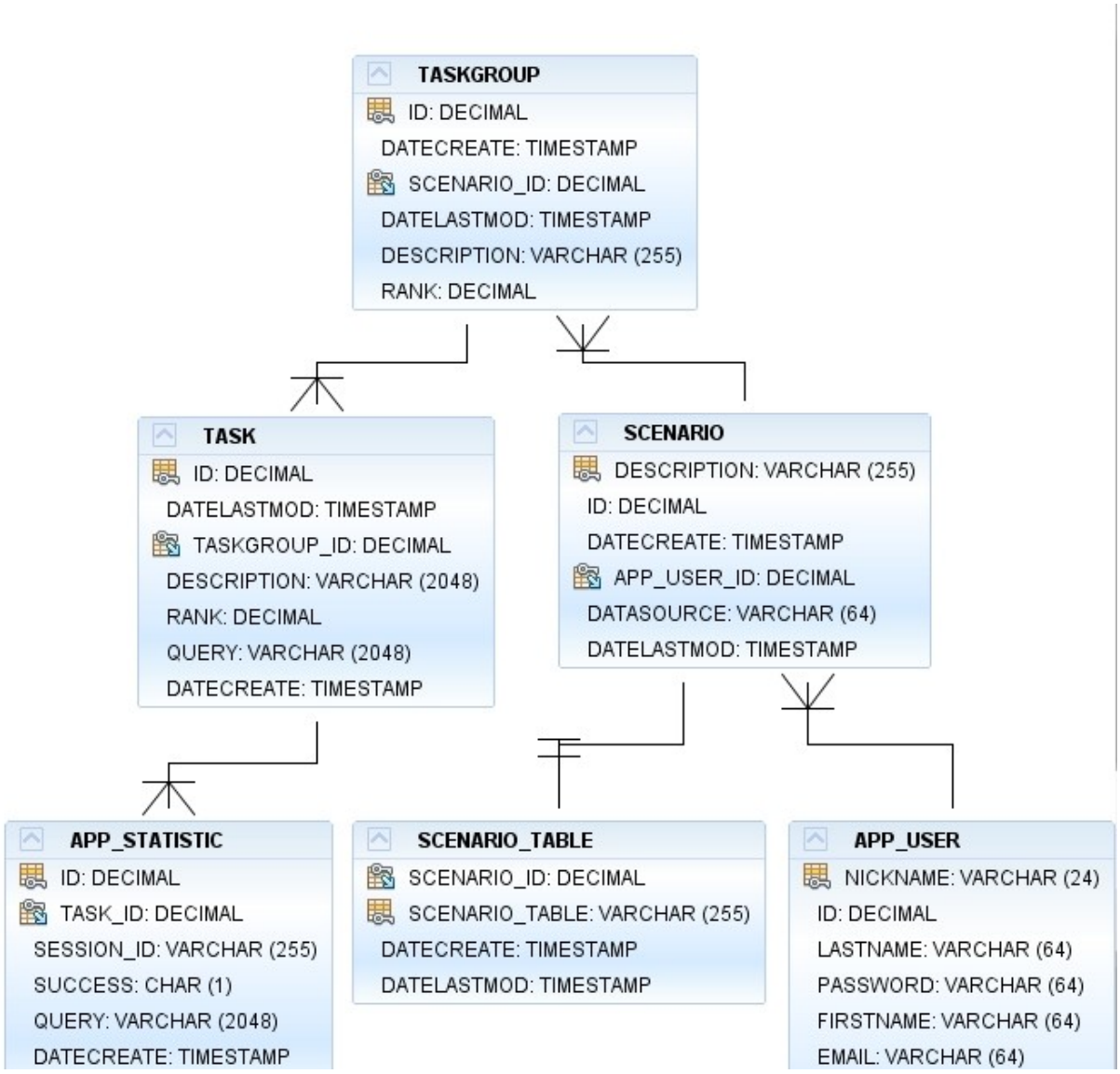

Foreign Key


Primary and Foreign Key


One to One

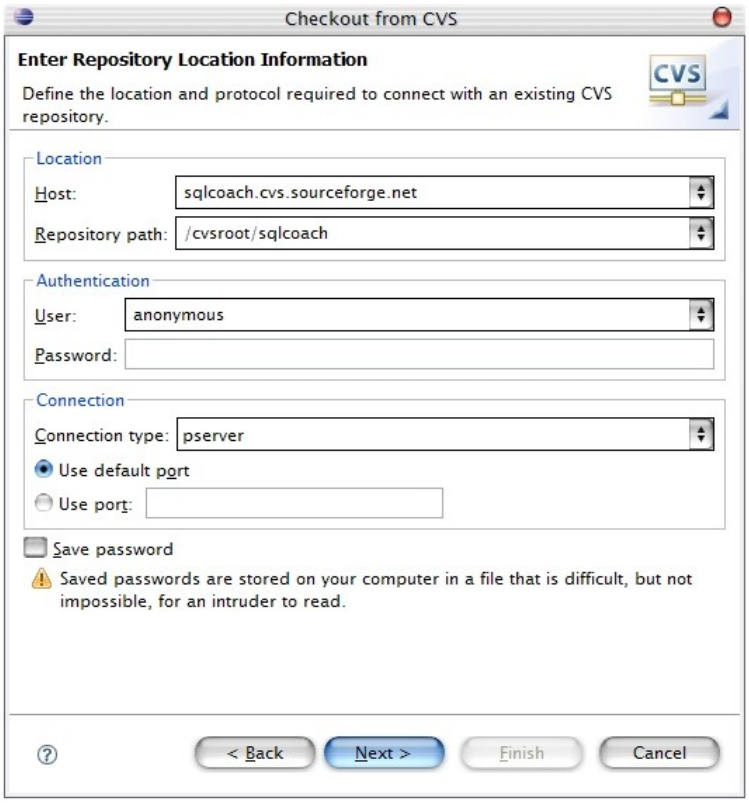

One or more to Many

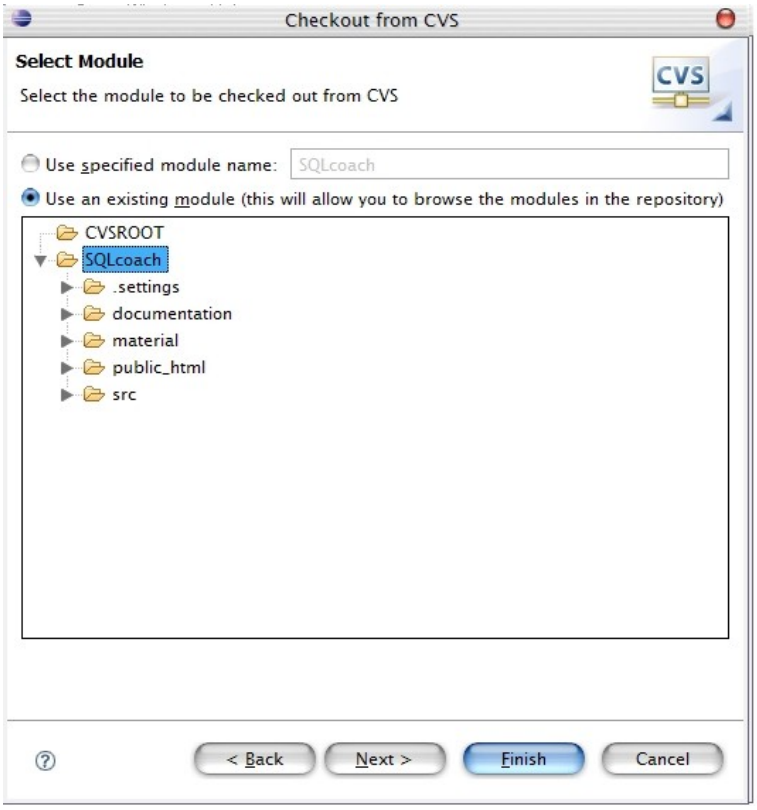

Zero or more to many



7 Appendix III: Anonymous Checkout from CVS

You find the detailed information at *http://sourceforge.net/cvs/?group_id=190456* .





8 Contact

8.1 Project Pages

Project is running on: *http://sqlcoach.sf.net* or *http://sqlcoach.sourceforge.net*

Project page for developers: *http://sourceforge.net/projects/sqlcoach*

8.2 Forums

http://sourceforge.net/forum/?group_id=190456
Please provide feedback! Thank you!

8.3 Bugs

http://sourceforge.net/tracker/?group_id=190456&atid=933432

8.4 Feature Requests

http://sourceforge.net/tracker/?group_id=190456&atid=933435

8.5 Developer

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9 Your Notes