
**Institute of Mathematics and Computer Science
European Bioinformatics Institute**

**SIMS
Installation Guide**

Version 2.10

Pre-requirements

To install Sample Information Management System the following software needs to be preinstalled on your system:

- **Apache Tomcat** suitable for your OS. Tomcat version 6.0 or higher is recommended, although in principle Tomcat versions 5.x *might* work. Tomcat installation will also require a JRE compatible with a particular Tomcat version (JDK is required if Tomcat versions 5.x is used).
- **PostgreSQL** database. The current version of SIMS is tested with PostgreSQL version 8.3 and use of this version is recommended. Alternatively, you can also use another relational database of your choice, however in this case it is likely that you will need to make some modifications in database initialization scripts. In principle SIMS has been successfully tested on MySQL and Oracle databases.

Installation procedure

SIMS installation requires the following steps:

- Creation of SIMS database schema. Since several SIMS instances could be run on the same server, it is assumed that an empty PostgreSQL database has already been created and initialization script will create the required tables in already existing database. There are at least two simple ways how initialization script can be used:
 - if you use **pgAdmin** tool for PostgreSQL management, select the schema of the currently empty database where you wish to install SIMS (by default this will be called *public*), open *Execute arbitrary SQL queries* window, paste the contents of installation script here and press *Execute query*.
 - insert the line `\connect <your database name>` as the first line in installation script and run the command `psql -U postgres -f <name of initialization script file>`. You may need either to place script file in a directory visible to `psql`, or give the full path of initialization script file.
- Deployment of SIMS software. The simplest way to do this is to unzip Tomcat deployment file in directory `$CATALINA_HOME/webapps` (`$CATALINA_HOME` will be defined by your Tomcat installation). The name of deployment directory can be freely chosen and/or changed. The SIMS then most likely will be accessible via web addresses **`http://your.server.name:8080/<your SIMS directory>`** (if Tomcat is installed on default port 8080) or **`http://your.server.name/<your SIMS directory>`** (if Tomcat is installed on port 80). Other ports can also be used, but if the SIMS is intended to be accessed remotely the use of standard ports 80 or 443 (if you wish to use secure HTTPS protocol for accessing SIMS). The other alternative is to recompile the software (for this you will need both Tomcat deployment and Java sources archives).
- SIMS configuration. Currently all configuration settings are accessible in configuration file `WEB-INF/web.xml` located in directory in which you deployed your SIMS application. The content of this file is described in details in a separate section of this guide.

In addition you might want (or need) to change some settings in file `WEB-INF/classes/hibernate.properties` (this will need to be modified if you use other database engine instead of PostgreSQL) and/or other `.properties` files in the same directory.
- Initialization of SIMS instance. This includes two tasks:
 - To access SIMS you need a login name and password. If no users are defined as yet (table *Users* is empty) a new user will be created the first time when you attempt to log in the system. The *login name and password for this user will be those which you will provide for this first login* (thus it is important not to lose them!), the informal description of this user will be *First user* and the user will be given full administrator rights. Also one user group, called *default group* will be created and the first user will be made member of this user group. If for some reason you lose the login name and/or password to access your SIMS instance, a possible solution is to delete all entries from tables *Users* and *User groups*, the *First user* then will be recreated when you will try to access the system.
 - For SIMS to work correctly all metadata fields must be configured in tables *Person metadata*, *Sample metadata* and *Aliquot metadata*. In current version this task is simple: in **AdminTables** click on link *Import metadata and vocabularies*, select the right *Metadata file* for your SIMS version (the file should be in XML format – unzip it first) and click on *Import* button. This will fill all metadata files, as well put entries in controlled vocabularies (if they are used). Re-importing the same file in already initialized system will have no

effect. There is an "intentional bug" in SIMS system, likely making it crash if metadata configurations are incomplete or incorrect.

It is possible to install several SIMS databases on PostgreSQL and it is possible to install several SIMS instances on Tomcat.

SIMS configuration

The configurable parts of WEB-INF/web.xml file is described below:

Specify URL to your SIMS database. This should include database location (in example below it is assumed that PostgreSQL is being run on the same server as Tomcat) and your database name (in example below it is assumed that database name is *sims*).

```
<context-param>
  <param-name>sample.url</param-name>
  <param-value>jdbc:postgresql://localhost/sims</param-value>
</context-param>
```

Specify user name to access database. The example below assumes that it is *postgres*, but since this is usually the default PostgreSQL user with administrator rights, creation and configuration of a special user to access SIMS is recommended.

```
<context-param>
  <param-name>sample.username</param-name>
  <param-value>postgres</param-value>
</context-param>
```

Specify password for this database user. The example below assumes that it is *my_password*, but use of more complicated passwords is recommended.

```
<context-param>
  <param-name>sample.password</param-name>
  <param-value>my_password</param-value>
</context-param>
```

The allowed values here is *check* and *nocheck*. If *nocheck* is used, arbitrary strings can be used as person ids, if *check* is used, only strings with right checksum (mod 10) will be accepted. Generally this is intended for use, if SIMS is used together with PMT for generation of person ids.

```
<context-param>
  <param-name>personid</param-name>
  <param-value>nocheck</param-value>
</context-param>
```

Number of entries that will be shown in a single page of **List of Persons**, **List of Samples** and **List of Aliquots**. Choose that value that best suits your needs.

```
<context-param>
  <param-name>viewlimit</param-name>
  <param-value>1000</param-value>
</context-param>
```