

# How to Install OpenVigil 2.0

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**Installation procedure of OpenVigil. A full diagramm of all components, their interaction and configuration is provided on the last page.**

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## **Prerequisites: Tomcat 7 and PostgreSQL 9.2**

OpenVigil 2 can be installed on every operating system/platform, as long as it offers:

- Apache Tomcat 7
- PostgreSQL 9.2 with module fuzzystrmatch (contrib)

Other versions might work, too.

Installation: **Microsoft Windows:** Download and install the software packages from <http://tomcat.apache.org/download-70.cgi> and <http://www.enterprisedb.com/products-services-training/pgdownload#windows>

**Ubuntu Linux:** Open a terminal and execute:

```
sudo apt-get install tomcat7 postgresql-server postgresql-contrib
```

Development on Ubuntu Linux: Since Ubuntu 14 does not offer the latest Eclipse IDE, this has to be downloaded and set up manually (e.g., to /opt/eclipse4). If you want to run Tomcat from within Eclipse, you cannot use the Ubuntu packages but you have to install Apache Tomcat manually (you can do this from Eclipse).

## **Configuring Postgres**

### **Create users „pharm\_data“ and „pharm\_admin“ for database access**

You can use the commands below or the SQL-script *l-create\_users.sql* that comes with OpenVigil 2 in the directory *install* of either source or WAR file to create the required database users for OpenVigil. The default installation uses passwords that are identical to the username (cf. script or commands below). You should change this on a publicly accessible server.

```
CREATE ROLE pharm_data LOGIN
    ENCRYPTED PASSWORD 'md5f39cc7f4057119d76ecc5e9ce16e7e2d'
```

```

NOSUPERUSER NOINHERIT NOCREATEDB NOCREATEROLE NOREPLICATION;

CREATE ROLE pharm_admin LOGIN
  ENCRYPTED PASSWORD 'md513e694ecb0a49ac552ef578426f49911'
  NOSUPERUSER NOINHERIT NOCREATEDB NOCREATEROLE NOREPLICATION;

```

**Windows/Linux:** You can use `psql` to execute SQL queries and these scripts at your PostgreSQL server:

**Windows:** `psql.exe -U postgres -f *.sql`

**Linux:** `sudo -u postgres psql -f *.sql`

On Windows, the root password is set during installation of PostgreSQL. On Linux, you can use the system root password.

## Create database tables, structure and initial data

Next, execute the other two SQL-scripts `2-create_database.sql` and `3-structure_and_data.sql` (all to be found in *install*) to create all relevant data tables, indexes/constraints and some basic initial data (no FDA ISR records yet, only information like dosages/ages or codes for outcome).

## Configuring OpenVigil WAR file to access PostgreSQL

OpenVigil 2 is dependent on information how to access the database (see above) and where to write large temporary files. Both must be configured, either in the source code prior to compilation of a WAR file or within the compiled WAR-file itself which can be unpacked and repacked using ZIP (e.g. <http://www.7-zip.org/download.html>). The configuration options are located in `WEB-INF/config.properties` which can be edited with a simple text editor.

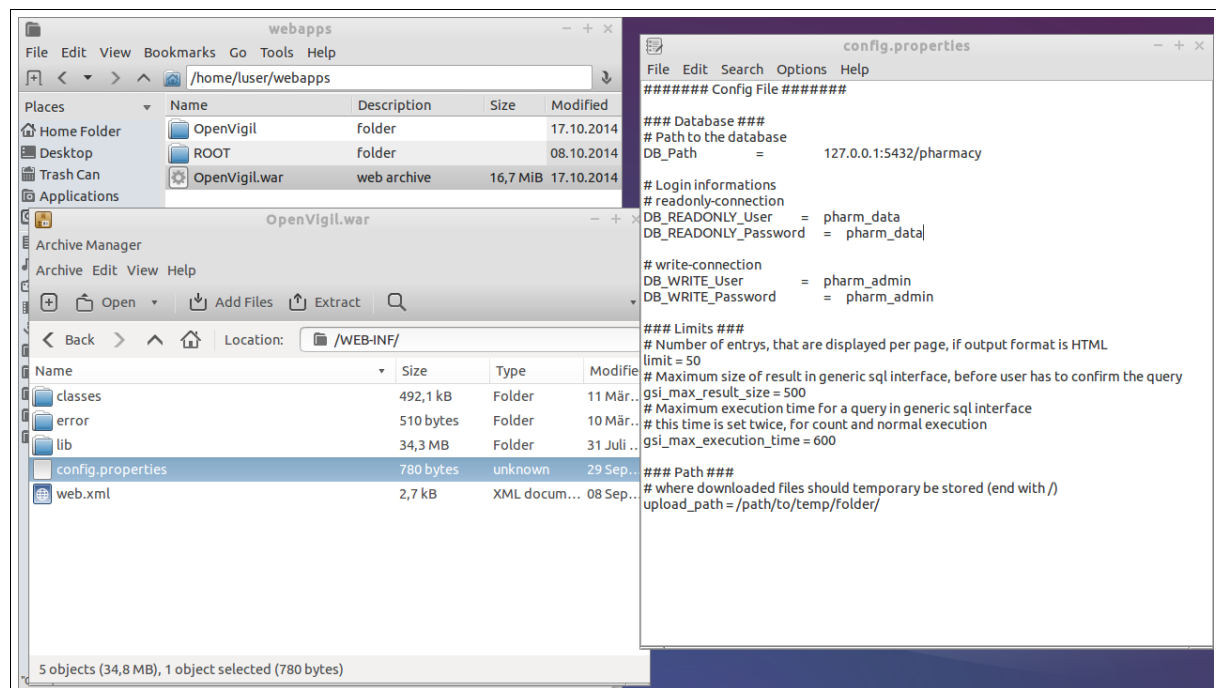


Fig. 1: How to change the config within the WAR file: The WAR file was opened in Gnome Archive Manager and the `config.properties`-file in the Leafpad editor on Ubuntu. Changes can be made, saved and re-packed to the WAR file.

## Configuring webapp access in Tomcat

### Create users for accessing the web application

OpenVigil 2 provides three “roles” (=users with certain permissions), i.e.,

- guest access without SQL (user: “openvigil”)
- guest access with SQL enabled (user: “openvigil\_sql”)
- superuser/admin access (user: “openvigil\_admin”)

Roles and users are hardcoded in OpenVigil and defined in a Tomcat configuration file called *tomcat-users.xml* which can be found in the *conf/*-directory in the Tomcat installation directory (or */etc/tomcat7/* when using **Ubuntu**). Here is an example with these roles and standard users with weak passwords (“abcd” etc.): You could either overwrite the file or just include the bold lines in the XML element <tomcat-users> (recommended):

```
<?xml version="1.0" encoding="UTF-8"?>
<tomcat-users>
  <role rolename="openvigil"/>rolename="openvigil_sql"/>rolename="openvigil_admin"/>username="admin" password="abcd"
roles="openvigil_admin"/>username="sql" password="efgh"
roles="openvigil_sql"/>username="guest" password="ijkl" roles="openvigil"/>
```

### Deploy the web application

The OpenVigil 2 WAR-file needs to be copied to the Tomcat document root (e.g., the *webapps/*-directory in the Tomcat installation directory; in **Ubuntu** this is */var/lib/tomcat7/webapps/*). Tomcat will extract the WAR file and automatically enable web access. (Cave: This will only work if the Tomcat server has write-permissions on the *webapps/*-directory).

### Intializing OpenVigil with Drugname and Pharmacovigilance data

OpenVigil 2 is ready after this and you can access it through your browser, e.g., at <http://localhost:8080/OpenVigil>. However, there is neither data in the pharmacovigilance database nor in the drugname database.

So the first step will be to import data into your installation. Since all verbatim free-text FDA drugnames are mapped to unambiguous drugnames (USAN, INN), drugname data needs to be imported prior to importing pharmacovigilance data.

### Importing data and error correction

New data on drugnames from Drugbank and Drugs@FDA or FDA AERS quarterly ASCII files can be imported by “Import new data” in the “Administration” tab (fig. 2. Broken records can be fixed manually and ambiguous drugnames can be corrected (fig. 3).

1 Upload
  2 invalid data
  3 remove duplicates
  4 automatic data cleaning
  5 automatic data transfer

## Import new data

Choose file:  No file chosen ?

Enter URL:  ?

Data source

AERS
  Drugbank
  Drugs@FDA

## Import multiple URLs (aers only)

Enter URLs (one per line):

Fig. 2: Importing new data via web or local files  
 Get URLs of datafiles from: Drugbank v3.0 XML from <http://www.drugbank.ca/downloads/archived>, Drugs@FDA from <http://www.fda.gov/Drugs/InformationOnDrugs/ucm079750.htm> and LAERS data files from <http://www.fda.gov/Drugs/GuidanceComplianceRegulatoryInformation/Surveillance/AdverseDrugEffects/ucm083765.htm>

## Drugname mapping

Drugname: multi-vitamin  
 Frequency: 24284

Corresponds to:
 

- Drug:  
No suggestions available.
- Another drug:  
Drugname:
- Product:
- Another product:  
Brandname:
- New drug:
- New product

This is not a drug nor a product  
 Show as suggestion ?

Fig. 3: Manual correction of ambiguous records

## Overview of the OpenVigil runtime environment

Fig. 4 shows you how OpenVigil is embedded in Tomcat, communicates with the database server and the client computer and how it can connect to external data sources. Some search result pages of OpenVigil contain links to the Drugbank website. The diagram also lists the places where configuration options can be changed. The user accesses OpenVigil via the webserver running Tomcat.

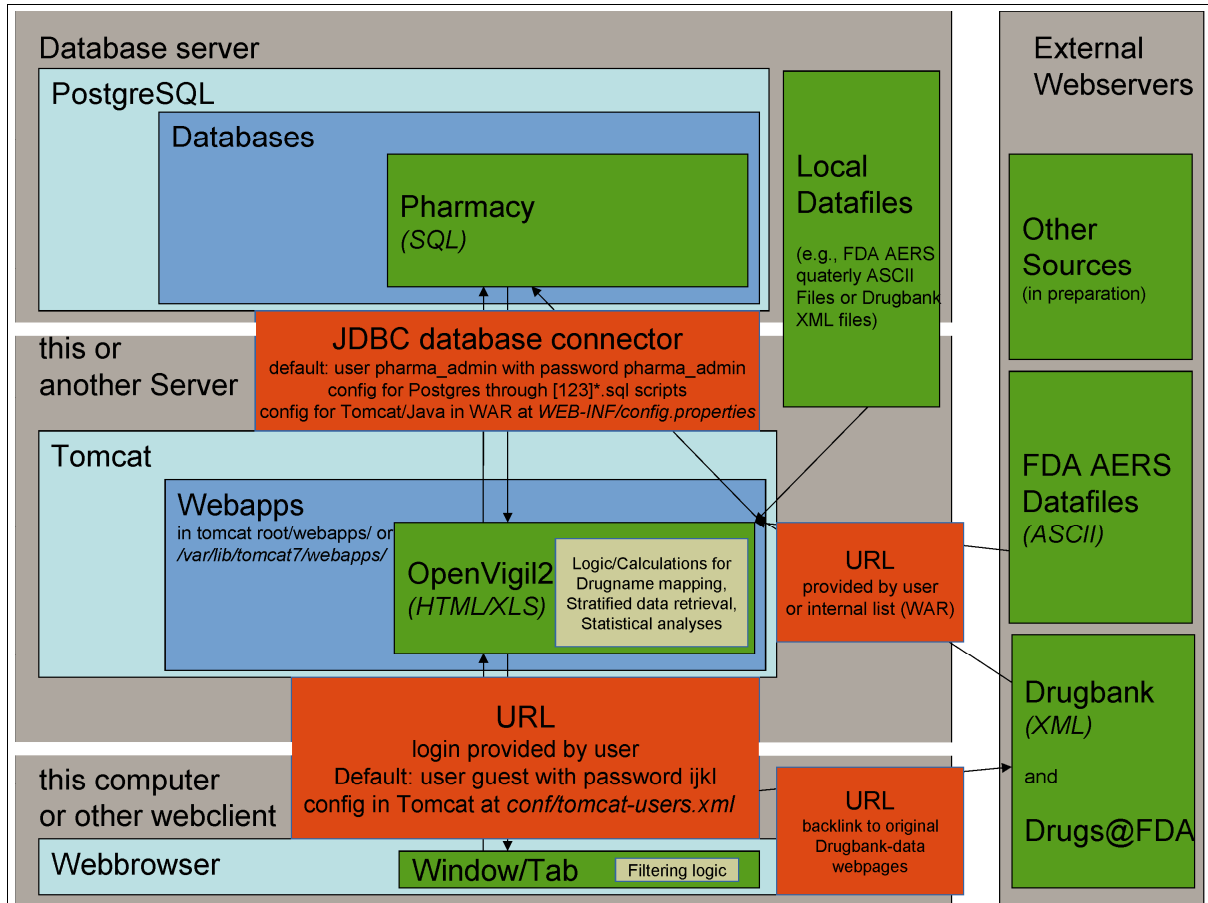


Fig. 4: OpenVigil is embedded in Tomcat and communicates via SQL (login must be configured in PostgreSQL via the provided SQL scripts and in WAR-file/*WEB-INF/config.properties*) with the database, via HTML (user/password in `tomcat_root/conf/tomcat-users.xml`) with the client computer and can connect to external data sources via HTTP, acquiring Drugbank XML or FDA AERS ASCII files.