

# SHEBANQ Installation on Ubuntu 12.04 LTS (public)

We restrict ourselves to the application specific details. For general systems management info, we recommend the [Ubuntu Server Guide for 12.04 LTS](#).

## IP and DOMAIN

Allocate a domain from a domain hoster and connect it to the IP address of your server.

Set the reverse lookup for your server to this domain.

For this manual we assume we are working with `shebanq.ancient-data.org`.

If you are setting up a shebanq outside this domain, take the appropriate actions.

## FIREWALL

We need port 80 (http), 443 (https), 22 (ssh)

## USER ACCOUNTS, SUDOer

Most things need to be installed with root access, either by root or by a sudo-er. We assume that the server can be accessed by console or ssh.

## INSTALL CONVENIENT PACKAGES

*Bring all installed packages up to date.*

```
apt-get update
apt-get dist-upgrade
```

*Install additional packages*

At some point dpkg will ask for the mysql root password.

Generate and store a strong password.

In the sequel, we refer to it as `pwd-mysql-root`.

```
apt-get install git mysql-server bzip2 man-db vim python-pip python-lxml python-
dev python-software-properties curl make g++ zlib1g-dev binutils swig autoconf automake
libtool
libmysqlclient-dev
```

```
pip install gitpython
pip install markdown
```

## Installation files

Here is a [SURFdrive](#) to a folder with the installation files.

Get them into a handy location on the server, say /root/tmp.

You should get the following content.

```
E  emdros-3.4.0.tar.gz
M  shebanq_etcbcx.mql.bz2  (for x = 4, 4b, ...)
P  shebanq_passagex.sql.bz2 (for x = 4, 4b, ...)
W  setup-web2py-ubuntu.sh
A  sites-available-default
R  web2py-routes.py
```

E = the emdros source file, as downloaded from <http://emdros.org>, more directly: <http://sourceforge.net/projects/emdros/files/emdros/3.4.0/emdros-3.4.0.tar.gz/download>

M = MQL dump of ETCBC database, as obtained by dumping the bhs4 database on the jakob server of the ETCBC institute, or by downloading is from DANS (<https://easy.dans.knaw.nl/ui/datasets/id/easy-dataset:58245>, goto datafiles, folder *sourcedata*, file *etcb4.mql.bz2*, 23,360,605 bytes). There may be several versions, they all need to be installed.

P = SQL dump of the passage database, assembled by LAF-Fabric for SHEBANQ. See <http://nbviewer.ipython.org/github/ETCBC/laf-fabric-nbs/blob/master/shebanq/laf2shebanq.ipynb>. There may be several versions, they all need to be installed.

W = modified setup script for web2py. See <http://web2py.com/books/default/chapter/29/13/deployment-recipes#One-step-production-deployment>

A = modified apache default site. First the web2py setup script works and changes the apache default. But that is for Apache 2.4.0 on Ubuntu 14.04 and we still have 12.04. So replace that by the contents of this file. See below in the appendix.

R= config file for web2py, declaring shebanq as the default application. See below in the appendix.

```
cd ~/shebanq-install
```

## **MYSQL CONFIG**

Make sure mysql works with utf8.

Set the default-character-set to utf8

```
vim vim /etc/mysql/my.cnf
```

```
====
```

```
...
```

```
[mysql]
```

```
#no-auto-rehash      # faster start of mysql but no tab completion
```

```
default-character-set=utf8
```

```
...
```

=====

```
service mysql restart
```

## MYSQL USERS AND DATABASES

There will be the following databases: (for x = 4 or 4b or 4s, or ... depending on what is present)

**shebanq\_etcbcx**, which is the emdros Hebrew Text Database version **x**,

**shebanq\_passagex**, which contains the texts that the webapp has to show;

There are two databases with content added by the users.

**shebanq\_web**, which contains the data for the shebanq web app (users, saved queries, metadata).

**shebanq\_note**, which contains the manual notes added by the users.

There will be the following user:

**shebanq** acting on behalf of the shebanq web application.

It will have readonly rights for the **shebanq\_etcbcx** and **shebanq\_passagex** databases, and read/write access for the **shebanq\_web** database.

You need to create another passwords and store it safely: **pwd-mysql-shebanq**.

Maybe the database server is not the same as the application server. If they are the same, you can replace **applicationserver** by localhost

You will need the password **pwd-mysql-root**. Or alternatively, you need a non-root user with enough grants to perform the installation of the data, e.g.

```
mysql -u root -p
```

```
GRANT ALL PRIVILEGES ON `shebanq%`.* TO shebanq_admin@applicationserver';
```

```
mysql -u root -p
```

```
CREATE USER 'shebanq'@'applicationserver' IDENTIFIED BY 'pwd-mysql-shebanq';
```

```
GRANT SELECT ON shebanq_etcbc%.* TO `shebanq`@`%`;
```

```
GRANT SELECT ON shebanq_passage%.* TO `shebanq`@`%`;
```

```
GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, ALTER ON shebanq_web.* TO `shebanq`@`%`;
```

```
GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, ALTER ON shebanq_note.* TO `shebanq`@`%`;
```

```
FLUSH PRIVILEGES;
```

```
exit
```

## EMDROS

Unpack the emdros software in an arbitrary directory, e.g. where you are now:

```
tar xvf emdros-3.4.0.tar.gz
```

Configure for installation in /opt/emdros, build and install

```
cd emdros-3.4.0
./configure --prefix=/opt/emdros --with-sqlite3=local --with-mysql=yes --with-swig-
language-java=no --with-swig-language-python=yes --with-sqlite=no --with-postgresql=no
--with-wx=no --with-swig-language-csharp=no --with-swig-language-perl=no --with-swig-
language-ruby=no --with-bpt=no --disable-debug
```

```
make
make install
```

## MYSQL DATA

*Static, readonly data*

**shebanq\_passagex** databases (x = 4, 4b, etc)

Have been dumped in files and then bziped2.

```
bunzip2 shebanq_passagex.sql.bz2
mysql -u root -p <shebanq_passagex.sql
(use pwd-mysql-root)
```

*Dynamic, read-write data*

Only the database *shebanq\_web*. It contains users, sessions, queries, etc.

If you are installing the real shebanq, you have to consult additional documentation to get this data.

If you are installing your own shebanq, you can start from scratch, and this step is done.

## EMDROS DATA

*Static, readonly data*

**shebanq\_etcbcx** databases.

These can be loaded as follows.

Do this for all versions that you encounter in the installation sources, such as x=4, x=4b, etc.

If updating, drop the database first:

```
mysql -u root -p
drop database shebanq_etcbcx;
exit
```

```
bunzip2 shebanq_etcbcx.mql.bz2
/opt/emdros/bin/mql -b m -u root -p 'pwd-mysql-root' <shebanq_etcbcx.mql
```

## EMDROS-SHEBANQ ADDITIONAL CONFIG

Create a file with the password of the mysql user shebanq and another file with the mysql host as follows:

```
mkdir /opt/emdros/cfg
vim /opt/emdros/cfg/mql.cfg
with contents the password pwd-mysql-shebanq.
```

```
vim /opt/emdros/cfg/host.cfg
with contents the mysql host, e.g. localhost.
```

## **WEB2PY**

Create and store a new password for the web2py admin app (max 16 chars). We refer to this password as `pwd-web2py-admin`.

Here are instructions for setting up a production site and for a test site.

The main difference is a proper certificate versus a self-signed certificate.

### ***Production site***

Take care to have a proper certificate ready.

We have put a modified version of the script in the installation sources in such a way that it does not create a self-signed certificate, but uses a proper certificate.

```
./setup-web2py-ubuntu-prod.sh
```

### ***Test site***

We will let the web2py installer create a self-signed certificate for web2py.

Follow the script in the installation sources.

```
./setup-web2py-ubuntu.sh
```

### ***Production and Test site***

Look at the lines specifying the certificate:

```
SSLCertificateFile /etc/apache2/ssl/shebanq.ancient-data.org.cer
SSLCertificateKeyFile /etc/apache2/ssl/shebanq.ancient-data.org.key
SSLCertificateChainFile /etc/apache2/ssl/CHAIN-TERENA_SSL_CA_2.pem
```

and place these files in the indicated directories.

Answers to Questions:

Dialog Postfix Configuration: Internet Site

### ***Test site***

For the self-signed certificate, answer a number of questions in a way that corresponds to your situation.

### ***Production and Test site***

The script asks for admin password in the end. Take `pwd-web2py-admin` for this.

**If you want to change that later, do the following.**

```
cd /home/www-data/web2py
sudo -u www-data python -c "from gluon.widget import console; console();"
sudo -u www-data python -c "from gluon.main import save_password;
save_password(raw_input('admin password: '),443)"
```

**End change password.**

### ***Test site***

Replace the newly create default site by the prefabricated one from the dropbox:

```
cp ~/shebanq-install/sites-available-default /etc/apache2/sites-available/default
service apache2 restart
```

Do not forget to replace `shebanq.mydomain.org` by the name and domain chosen by you.

```
vim /etc/apache2/sites-available/default
```

Make changes.

```
service apache2 restart
```

### ***Production Site***

Finally save the web2py config for the apache default site as backup, assuming that `backupdir` points to the location where you store backups.

```
cp /etc/apache2/sites-available/default backupdir/sites-available-default
```

```
pushd /home/www-data/web2py/applications
rm -r welcome
rm -r examples
```

### **UPDATING WEB2PY**

In order to update web2py itself, do this:

```
=====
cd /home/www-data
cp -r web2py web2py-bak

if [[ -e web2py_src.zip ]]; then
    rm web2py_src.zip
fi

wget http://web2py.com/examples/static/web2py_src.zip

service apache2 stop
unzip web2py_src.zip
mv web2py/handlers/wsgihandler.py web2py/wsgihandler.py
chown -R www-data:www-data web2py

service apache2 start
=====
```

If all works (but maybe it does not work!)

```
rm -rf /home/you/web2py
rm -r welcome
rm -r examples
```

## **SHEBANQ**

Here comes the actual shebanq web application! We clone it from github.

For updates, we pull from github. This can be done on the command line, but also remotely, on the web2py administrative app.

We put the shebanq app next to web2py, and link to it symbolically from the web2py/applications directory.

```
pushd /home/www-data
git clone https://github.com/etcbc/shebanq
pushd web2py/applications
ln -s /home/www-data/shebanq shebanq
popd
popd
cp web2py-routes.py /home/www-data/web2py/routes.py
chown -R www-data:www-data /home/www-data/web2py
chown -R www-data:www-data /home/www-data/shebanq
service apache2 restart
```

### **(In case of updating:**

*either on the commandline:*

In order to ease updating, create a script

```
vim ~/update.sh
====
#!/bin/bash
service apache2 stop
cd /home/www-data/shebanq
if [ "$1" == "-f" ]; then
    echo clear cache
    rm -r cache
fi
git pull origin master
cd /home/www-data/web2py
python -c "import gluon.compileapp; gluon.compileapp.compile_application('applications/
shebanq')"
cd /home/www-data/shebanq
cp -R /usr/local/lib/python2.7/dist-packages/guppy modules
chown -R www-data:www-data /home/www-data/web2py
chown -R www-data:www-data /home/www-data/shebanq
sleep 2
service apache2 start
====
and give it execute permission:
```

```
chmod u+x ~/update.sh
```

Then you can update, after having logged in as root or sudoer, by just saying

```
./update.sh
```

and if you say

```
./update.sh -f
```

then the (disk) cache will also be cleared.

or use the administrative application of web2py.

### **end updating)**

Check it out:

<http://shebanq.mydomain.org> - the shebanq site

<https://shebanq.mydomain.org/shebanq/appadmin> - shebanq maintenance

<https://shebanq.mydomain.org/admin> - web2py admin app.

[or, if you are doing the real shebanq site on ancient-data.org:

<http://shebanq.ancient-data.org> the shebanq site

<https://shebanq.ancient-data.org/shebanq/appadmin> shebanq maintenance

<https://shebanq.ancient-data.org/admin> web2py admin app

]

Use the password `pwd-web2py-admin`.

### **NOTES**

Using the web2py admin app, it is possible to *compile* the application. It speeds up the application.

However, if you update views, you have to recompile, because the compilation step freezes the view inclusions. The recompile step is coded in the *update.sh* script above.

By the way, updating shebanq from git can also be done through the web2py admin app. The disadvantage is that you can't do a restart of the webserver in this way.

### **SECURITY**

Once the site is up and running, you can test the security by

<https://www.ssllabs.com/ssltest/analyze.html?d=shebanq.ancient-data.org>

It should at least get an A.

Here is a tutorial: [https://raymii.org/s/tutorials/Strong\\_SSL\\_Security\\_On\\_Apache2.html](https://raymii.org/s/tutorials/Strong_SSL_Security_On_Apache2.html) (Needs Apache 2.4)

### **BACKUP and MAINTENANCE**

It is recommended to backup the stuff that changes over time.



Or you can backup the whole server.

The important thing to back up is the database *shebanq*. In this database the user activities are consolidated.

All other databases function as data sources only.

Also backup the relevant config files, i.e. the config files that you modify with respect to the installation files below.

#### *Database backup*

- \* shebanq: at least every day, preferably every hour

- \* other databases: not needed

Write a script /root/backup.sh with contents, assuming that `backupdir` points to the location where you store backups.

```
=====
```

```
#!/bin/sh
```

```
dest="backupdir"
```

```
logdest="/var/log/mysqldump.log"
```

```
if [ ! -e $dest ]
```

```
then
```

```
    mkdir $dest
```

```
fi
```

```
echo -n MySQL dump at $(date) " ... " >> $logdest
```

```
mysqldump --defaults-extra-file=/root/mysqldumpopt shebanq_web | gzip > $dest/  
shebanq_web.sql.gz
```

```
chmod go-rwx $dest/shebanq_web.sql.gz
```

```
mysqldump --defaults-extra-file=/root/mysqldumpopt shebanq_note | gzip > $dest/  
shebanq_note.sql.gz
```

```
chmod go-rwx $dest/shebanq_note.sql.gz
```

```
if [ $? != 0 ]
```

```
then
```

```
    echo "Wrong $(date)" >> $logdest
```

```
else
```

```
    echo "OK $(date)" >> $logdest
```

```
fi
```

```
=====
```

Give it execute permission, but protect it:

```
chmod go-rwx backup.sh
```

```
chmod u+x backup.sh
```

Add the password in an optionfile

```
vim mysqldumpopt
```

====

[mysqldump]

password = 'pwd-mysql-root'

user = root

====

Protect it (because it contains the mysql rootpassword):

chmod go-rwx mysqldumpopt

*Session cleaning every hour (all expired sessions, and sessions without expiration if they are older than 600000 seconds, i.e. roughly a week)*

crontab -e

0 \* \* \* \* /root/backup.sh

10 \* \* \* \* python /home/www-data/web2py/web2py.py -Q -S shebanq -M -R /home/www-data/web2py/scripts/sessions2trash.py -A -o -f -x 600000

See /var/log/syslog to see if the cron jobs run without errors.

## **APPENDIX A: Config file for Apache default site**

We customize the /etc/apache2/ports.conf a little bit:

NameVirtualHost \*:80

Listen 80

<IfModule mod\_ssl.c>

# If you add NameVirtualHost \*:443 here, you will also have to change  
# the VirtualHost statement in /etc/apache2/sites-available/default-ssl  
# to <VirtualHost \*:443>  
# Server Name Indication for SSL named virtual hosts is currently not  
# supported by MSIE on Windows XP.

NameVirtualHost \*:443

Listen 443

</IfModule>

<IfModule mod\_gnutls.c>

Listen 443

</IfModule>

The contents of the file /etc/apache2/sites-available/default is contained in one of the installation files, either

setup-web2py-ubuntu.sh (test server) or

setup-web2py-ubuntu-prod.sh (production server)

There is also a file default-ssl there, but we leave that disabled. We only do a2ensite for default.

#### **APPENDIX D: config file for web2py**

```
routes = dict(
    BASE = dict(
        default_application='shebanq',
    )
)
```