

Koha 3.22.x on Ubuntu 16.04 (with MySQL version 5.7.12)

Parthasarathi Mukhopadhyay,
Department of Library and Information Science,
University of Kalyani, Kalyani, WB, India
(psmukhopadhyay@gmail.com)

Preamble

Installation of Koha 3.22.06 (the latest stable release) on the basis of Koha Wiki instructions as given in (https://wiki.koha-community.org/wiki/Koha_on_ubuntu_-_packages) **fails on Ubuntu 16.04**.

This step-by-step process to install Koha 3.22.06 on Ubuntu 16.04 LTS (shipped with MySQL 5.7.12) is principally written for my students and obviously **requires to be authenticated by Koha developers/domain experts** as I'm no expert in MySQL and only an enthusiastic end user of Koha right from 2004.

Possible reasons for failure

MySQL 5.7.12 (rather 5.7.x) release has lot of new security features on the basis of SQL 1999. The kohastructure.sql is not quite compatible with it (Bug 16402 reported through https://bugs.koha-community.org/bugzilla3/show_bug.cgi?id=16402). Early birds those who tried installing Koha 3.22.x on Ubuntu 16.04 got the following error.

```
OS: Ubuntu 16.04
Type: Ubuntu package installation
Koha: Current Stable Version on 29th April 2016

Blank Database creation was successful.
Very first login prompted for password.
At Step 3 persistent error:

The following error occurred while importing the database structure:

mysql: [Warning] Using a password on the command line interface can be
insecure. ERROR 1171 (42000) at line 1385: All parts of a PRIMARY KEY must be
NOT NULL; if you need NULL in a key, use UNIQUE instead

Please contact your system administrator
```

Apart from non compatible kohastructure.sql, another reason is **sql_mode** in MySQL 5.7.12. The default is

sql_mode=ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION

```
mysql> SELECT @@sql_mode;
+-----+
| @@sql_mode |
+-----+
| ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION |
+-----+
1 row in set (0.00 sec)

mysql> █
```

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Steps followed to install in local machine

1. Followed Koha Wiki instruction (https://wiki.koha-community.org/wiki/Koha_on_ubuntu_-_packages) upto:

sudo koha-create --create-db <instance name>

- 2 I wish to run named Koha instance (here as psm) in port 8001 (opac) and port 8002 (staff)

sudo gedit /etc/apache2/ports.conf

using 8007/8008 ports for another

named instance of Koha (lflkoha)

Run

sudo service apache2 restart

to get ports change effect

Get password for Koha named
instance psm

sudo xmlstarlet sel -t -v 'yazgfs/config/pass' /etc/koha/sites/psm/koha-conf.xml

Result is zUCehN4EYXfBRbnX

```
# If you just change the port or add more ports here, you will likely also
# have to change the VirtualHost statement in
# /etc/apache2/sites-enabled/000-default.conf

Listen 80
Listen 8001
Listen 8002
Listen 8007
Listen 8008

<IfModule ssl_module>
    Listen 443
</IfModule>

<IfModule mod_gnutls.c>
    Listen 443
</IfModule>

# vim: syntax=apache ts=4 sw=4 sts=4 sr noet
```

```
prosenjit@prosenjit-Inspiron-3420:~$ sudo xmlstarlet sel -t -v 'yazgfs/config/pass' /etc/koha/sites/psm/koha-conf.xml
zUCehN4EYXfBRbnXprosenjit@prosenjit-Inspiron-3420:~$
```

- 3 Changed ports in psm.conf >>

sudo gedit /etc/apache2/sites-
available/psm.conf

sudo service apache2 restart

```
# Koha instance psm Apache config.

# OPAC
<VirtualHost *:8001>
    <IfVersion >= 2.4>
        Define instance "psm"
    </IfVersion>
    Include /etc/koha/apache-shared.conf
    # Include /etc/koha/apache-shared-disable.conf
    # Include /etc/koha/apache-shared-opac-plack.conf
    Include /etc/koha/apache-shared-opac.conf

    ServerName psm.myDNSname.org
    SetEnv KOHA_CONF "/etc/koha/sites/psm/koha-conf.xml"
    SetEnv MEMCACHED_SERVERS ""
    SetEnv MEMCACHED_NAMESPACE ""
    AssignUserID psm-koha psm-koha

    ErrorLog /var/log/koha/psm/opac-error.log
    # TransferLog /var/log/koha/psm/opac-access.log
    # RewriteLog /var/log/koha/psm/opac-rewrite.log
</VirtualHost>

# Intranet
<VirtualHost *:8002>
    <IfVersion >= 2.4>
        Define instance "psm"
    </IfVersion>
    Include /etc/koha/apache-shared.conf
    # Include /etc/koha/apache-shared-disable.conf
    # Include /etc/koha/apache-shared-intranet-plack.conf
    Include /etc/koha/apache-shared-intranet.conf

    ServerName psm.myDNSname.org
    SetEnv KOHA_CONF "/etc/koha/sites/psm/koha-conf.xml"
    SetEnv MEMCACHED_SERVERS ""
    SetEnv MEMCACHED_NAMESPACE ""
    AssignUserID psm-koha psm-koha
```

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4 Collected login and password from /etc/koha/sites/psm/koha-conf.xml file

```
<config>
  <db_scheme>mysql</db_scheme>
  <database>koha_psm</database>
  <hostname>localhost</hostname>
  <port>3306</port>
  <user>koha_psm</user>
  <pass>zUCehN4EYXfBRbnX</pass>
  <biblioserver>biblios</biblioserver>
  <biblioserverchadown1</biblioserverchadown1>
```

5 Altered database koha_psm to make it unicode compatible

enter mysql >> mysql -u root -p

mysql> ALTER DATABASE `koha_psm` CHARACTER SET utf8 COLLATE utf8_unicode_ci;

```
mysql> ALTER DATABASE `koha_psm` CHARACTER SET utf8 COLLATE utf8_unicode_ci;
Query OK, 1 row affected (0.00 sec)

mysql> █
```

6 Started web installer

Start Koha Web Installer

>> Browser >>

localhost:8002 (staff interface)

(at this time opac will show under maintenance notice if you access localhost:8001)



The image shows the Koha web installer login page. At the top is the Koha logo with the text "OPEN-SOURCE INTEGRATED LIBRARY SYSTEM". Below this is the heading "Welcome to the Koha web installer". A paragraph of text instructs the user to verify credentials and log in with the username and password from the koha-conf.xml file. Below this text is a prompt "Please enter your username and password:". There are two input fields: "Username:" with the value "koha_psm" and "Password:" with masked characters. A "Login" button is at the bottom right.

koha
OPEN-SOURCE INTEGRATED LIBRARY SYSTEM

Welcome to the Koha web installer

Before we begin, please verify you have the correct credentials to continue. Please log in with the username and password given to you by your systems administrator and located in your koha-conf.xml configuration file.


Please enter your username and password:

Username:

Password:

Login

7 Next step comes with no problem:

 Web installer › Step 1

You are about to install Koha.

Please pick your language from the following list. If your language is not listed, please inform your systems administrator.

en ▾

Click 'Next' to continue [Next >>](#)

8 Clicked Next to start Step 1:



All required Perl modules appear to be installed.

All dependencies installed.

Please click 'Next' to continue [Next >>](#)

9 Then comes Step 3 (where is Step 2? **Step 3 comes after step 1 may be typo error)

 Web installer › Step 3

Now we're ready to create the database tables and fill them with some default data.

Click 'Next' to continue [Next >>](#)

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- 10 Click next, produced the following error message occurs:



The following error occurred while importing the database structure:

mysql: [Warning] Using a password on the command line interface can be insecure. ERROR 1171 (42000) at line 1385: All parts of a PRIMARY KEY must be NOT NULL; if you need NULL in a key, use UNIQUE instead

Please contact your system administrator

Realization

1. The default enabled sql_mode >> mysql> SELECT @@sql_mode; shows

sql_mode=ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION

```
mysql> SELECT @@sql_mode;
+-----+
| @@sql_mode |
+-----+
| ONLY_FULL_GROUP_BY,STRICT_TRANS_TABLES,NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION |
+-----+
1 row in set (0.00 sec)

mysql>
```

2. The kohastructure.sql is incompatible with MySQL 5.7.12 security settings (mysql error 1171)

Homegrown Solution

Step 1

Change default sql_mode in MySQL 5.7.12

Edit `sudo gedit /etc/mysql/mysql.conf.d/mysqld.cnf`

At the end **add** following line:

`sql_mode=NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION`

It will **off** two default modes - `ONLY_FULL_GROUP_BY` and `STRICT_TRANS_TABLES`

Now restart mysql (`sudo service mysql restart`) and see `sql_mode` in mysql prompt:

```
mysql> SELECT @@sql_mode;
+-----+
| @@sql_mode                                     |
+-----+
| NO_ZERO_IN_DATE,NO_ZERO_DATE,ERROR_FOR_DIVISION_BY_ZERO,NO_AUTO_CREATE_USER,NO_ENGINE_SUBSTITUTION |
+-----+
1 row in set (0.00 sec)
```

There are **no** `ONLY_FULL_GROUP_BY` and `STRICT_TRANS_TABLES` now.

Step 2

Change tables **letter** and **permissions** in `kohastructure.sql` (available under `/usr/share/koha/intranet/cgi-bin/installer/data/mqsql/kohastructure.sql`) to nullify mysql error

****Pl take a backup of original kohastructure.sql first**

Original table *letter*

-- Table structure for table `letter`

--

`DROP TABLE IF EXISTS `letter`;`

`CREATE TABLE `letter` (-- table for all notice templates in Koha`

``module` varchar(20) NOT NULL default "", -- Koha module that triggers this notice or slip`

``code` varchar(20) NOT NULL default "", -- unique identifier for this notice or slip`

``branchcode` varchar(10) default NULL, -- the branch this notice or slip is used at
(branches.branchcode)`

``name` varchar(100) NOT NULL default "", -- plain text name for this notice or slip`

``is_html` tinyint(1) default 0, -- does this notice or slip use HTML (1 for yes, 0 for no)`

``title` varchar(200) NOT NULL default "", -- subject line of the notice`

```

`content` text, -- body text for the notice or slip
`message_transport_type` varchar(20) NOT NULL DEFAULT 'email', -- transport type for this notice
PRIMARY KEY (`module`,`code`,`branchcode`,`message_transport_type`),
CONSTRAINT `message_transport_type_fk` FOREIGN KEY (`message_transport_type`)
REFERENCES `message_transport_types` (`message_transport_type`) ON DELETE CASCADE ON
UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;

```

—

Changed table *letter* (note bold lines – only one statement requires change)

```
-- Table structure for table `letter`
```

--

```

DROP TABLE IF EXISTS `letter`;
CREATE TABLE `letter` ( -- table for all notice templates in Koha
  `module` varchar(20) NOT NULL default "", -- Koha module that triggers this notice or slip
  `code` varchar(20) NOT NULL default "", -- unique identifier for this notice or slip
  `branchcode` varchar(10) NOT NULL default "", -- the branch this notice or slip is used at
(branches.branchcode)
  `name` varchar(100) NOT NULL default "", -- plain text name for this notice or slip
  `is_html` tinyint(1) default 0, -- does this notice or slip use HTML (1 for yes, 0 for no)
  `title` varchar(200) NOT NULL default "", -- subject line of the notice
  `content` text, -- body text for the notice or slip
  `message_transport_type` varchar(20) NOT NULL DEFAULT 'email', -- transport type for this notice
PRIMARY KEY (`module`,`code`,`branchcode`,`message_transport_type`),
CONSTRAINT `message_transport_type_fk` FOREIGN KEY (`message_transport_type`)
REFERENCES `message_transport_types` (`message_transport_type`) ON DELETE CASCADE ON
UPDATE CASCADE
) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;

```

--

Original table *permissions*

-- Table structure for table `permissions`

--

```
DROP TABLE IF EXISTS `permissions`;
```

```
CREATE TABLE `permissions` (
```

```
  `module_bit` int(11) NOT NULL DEFAULT 0,
```

```
  `code` varchar(64) DEFAULT NULL,
```

```
  `description` varchar(255) DEFAULT NULL,
```

```
  PRIMARY KEY (`module_bit`, `code`),
```

```
  CONSTRAINT `permissions_ibfk_1` FOREIGN KEY (`module_bit`) REFERENCES `userflags`  
  (`bit`)
```

```
    ON DELETE CASCADE ON UPDATE CASCADE
```

```
) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
```

Changed table *permissions* (note bold line – only one statement requires change)

--

-- Table structure for table `permissions`

--

```
DROP TABLE IF EXISTS `permissions`;
```

```
CREATE TABLE `permissions` (
```

```
  `module_bit` int(11) NOT NULL DEFAULT 0,
```

```
  `code` varchar(64) NOT NULL DEFAULT "",
```

```
  `description` varchar(255) DEFAULT NULL,
```



```
PRIMARY KEY (`module_bit`, `code`),  
CONSTRAINT `permissions_ibfk_1` FOREIGN KEY (`module_bit`) REFERENCES `userflags`  
(`bit`)  
ON DELETE CASCADE ON UPDATE CASCADE  
) ENGINE=InnoDB DEFAULT CHARSET=utf8 COLLATE=utf8_unicode_ci;
```

—

Step 3

Now start web installer again: <http://localhost:8002> (to be on the safe side Clear History in your browser)

At step 3 now you can see **only one** error (rather **warning no error**):



Web installer › Step 3

The following error occurred while importing the database structure:

mysql: [Warning] Using a password on the command line interface can be insecure.

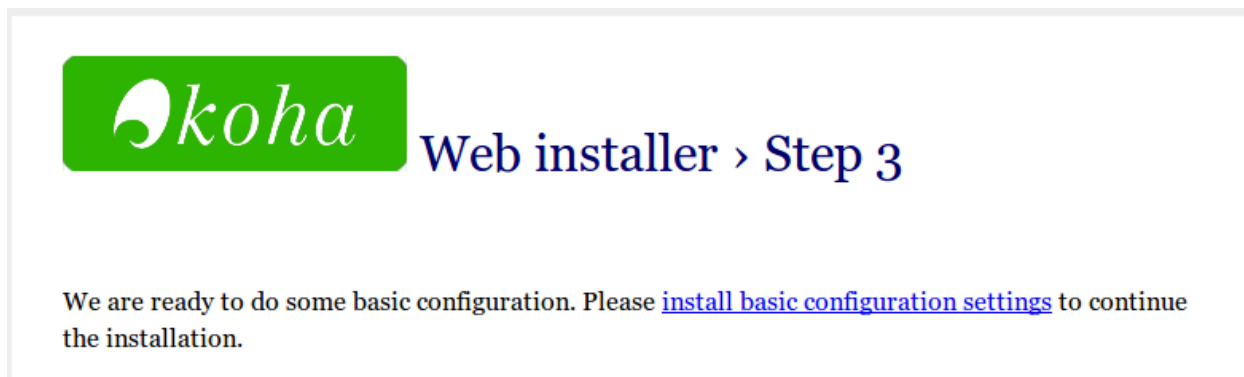
Please contact your system administrator

At this moment kohastructure.sql cannot be imported through web installer (needs revision and the bug [number 16402] is under active consideration by Koha community).

We need to think some out-of-the box solution. What I followed I'm describing here but needs to be authenticated by developers.

- A **Empty** koha_psm (in your case database name will be different obviously) already populated by Koha installer. You can use phymyadmin or sqlyog to empty database if you are not DBMS expert. I am no expert for mysql and used sqlyog happily to empty koha_psm database.
- B **Import** kohastructure.sql (as modified in step 2 of the solution) to koha_psm. You can use phymyadmin or sqlyog to populate database if you are not DBMS expert. I am no expert for mysql and used sqlyog happily to populate koha_psm database.

C **Start** Web installer again and this time after step 1 it will show



Now you know, **what to do**. Install basic configuration with additional / optional values and after a while it will show:

All done!

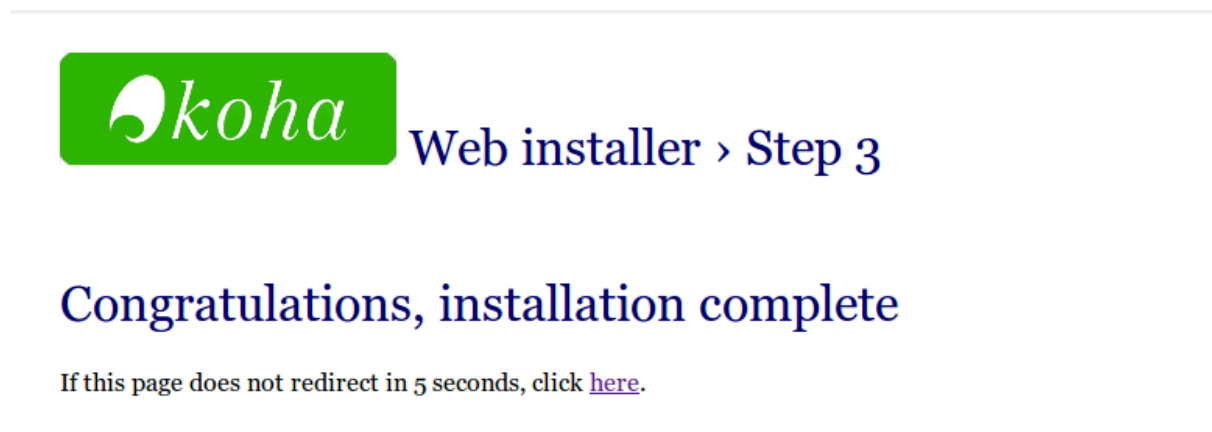
Installation complete.

Click on 'Finish' to complete and load the Koha Staff Interface.

Finish

Click Finish and

now comes the moment of truth:



All the best.....