Deployment Documentation for Koha ILS

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Base Server Installation

There are 2 modes of deployment – *Production deployment* on VM or Physical server connected to the Local Area Network for general staff access and use; and *Development deployment* for modification of Koha source code on a local desktop/laptop machine.

Apart from the base server installation (this section), all other deployment steps remain the same.

1. Production Deployment

   On a Virtual Machine or Physical Server, install Ubuntu 12.04 Precise 64bit which is a Long Term Support (LTS) version.

   The server should have the following minimum requirements: 1512 MB RAM, 20GB Hard Drive Space and 1GHZ CPU.

   Install the operating system by selecting the default settings, and upon Package Selection step, select only "OpenSSH Server"

   Select a generic username for the standard account; this guide assumes the normal account username is *sopac*.

   Upon installation and reboot, login using the standard user account.

2. Development Deployment

Setting up a Ubuntu Precise VM from scratch just for Koha testing and deployment (or any other non cross-platform or non Java based software system for that matter) can be a time consuming and tedious affair.
It is highly recommended to use Vagrant to quickly setup and provision a lightweight, reproducible and highly specific development environment on Linux, Mac OSX or Windows.

Requirements:
Download and install the following for your operating system:

- Vagrant - http://downloads.vagrantup.com/tags/v1.0.3
- VirtualBox - http://www.oracle.com/technetwork/server-storage/virtualbox/downloads/index.html

1. Create a folder in your home directory with no spaces; eg: VagrantKoha

2. Open your terminal (cmd.exe in Windows) and change directory to the empty folder.

3. Add base box by executing:
   ```
   $ vagrant box add base
   http://files.vagrantup.com/precise32.box
   ```
   This only needs to be done once, and not per project. Base boxes, once downloaded can be used for multiple projects. Even if your host system is a 64bit machine, 32bit boxes are recommended.

4. Initialize project:
   ```
   $ vagrant init
   ```

5. A Vagrantfile text file would be created in the folder. Edit the file, and add the following line:
   ```
   config.vm.customize ["modifyvm", :id, "--memory",
   1024]
   ```

6. Setup networking by uncommenting the following line:
   ```
   config.vm.network :hostonly, "192.168.33.100"
   ```
   and commenting out the line:
   ```
   # config.vm.network :bridged
   ```
   The IP address is host only (internal) and would not conflict with your LAN.

7. Boot the VM:
   ```
   $ vagrant up
   ```

8. Login via SSH:
   ```
   $ vagrant ssh
   ```
   If you are using Windows, SSH client is not available by default and extra steps are required to login to the system - http://vagrantup.com/v1/docs/getting-started/ssh.html

Set Root Password

After login into the production or development server using the normal user account, setup the root password.

```
$ sudo passwd root
```

This guide will use *<root_password>* as convention throughout this guide. Do not log in to root account directly and continue to use normal user account *sopac* for the remainder of the steps

Upgrade and Setup Base Dependencies

```
$ sudo apt-get update
$ sudo apt-get upgrade
$ sudo apt-get install git emacs
```

Fetch Koha Source Code

```
$ git clone https://github.com/sopac/spc-koha.git
$ cd spc-koha
```

Install Koha Ubuntu Precise Dependencies

```
$ sudo apt-get install $(cat sopac-precise-packages.txt)
```

Upon installation when asked for MySQL server password, ensure to use the same password as `<root_password>`

Install Perl Dependencies

Not all Perl modules for Koha is available in Ubuntu distributions and as such have to be installed from the Perl repository CPAN (Comprehensive Perl Archive Network)

First configure CPAN on the system:

```
$ sudo cpan
```

Choose default settings, apart from the Approach method, which should be sudo (and not local:lib)

Save CPAN configuration by executing the following commands in the open CPAN console:

```
> o conf commit
> quit
```

For CPAN settings to load, logout off the system and login again using the normal user account and change to the checked out Koha source code directory:

```
$ cd spc-koha
```

Enter cpan console again and execute the following installation commands:

```
$ sudo cpan
> install Template::Plugin::HtmlToText
> install Data::Pagination
> install Data::Paginator
> quit
```

Verify that all Koha Perl dependencies are installed by executing:

```
$ ./koha_perl_deps.pl –m –u
```

The script should report that all modules are installed.

Change Apache and MySQL Server CharSets

Koha assumes that Apache and MySQL charsets is UTF-8, and this is needed to be enabled in two servers.

To configure Apache charset, edit the following file –

```
$ sudo emacs /etc/apache2/conf.d/charset
```

and add the following lines to it:

```
AddCharset UTF-8 .utf8
AddDefaultCharset UTF-8
```

To configure MySQL Server charset, edit the following file –

```
$ sudo emacs /etc/mysql/my.cnf
```

and add the following line under [mysqld] section:

```
character-set-server=utf8
```

Restart mySQL Server:

```
$ sudo service mysql restart
```

Create Database

Login to MySQL server using `<root_password>` and create empty database named koha -

```
$ mysql –u root –p
mysql> create database koha;
mysql> quit;
```

Fix SAX Parser

Be default, there are two different XML parsers for Perl configured which conflicts with Koha's requirement. To verify if there is a conflict, execute –

```
$ ./misc/sax_parser_print.pl
```

If the output ends with "Looks Bad", execute –

```
$ sudo apt-get purge libxml-sax-expat-perl
```

and verify that sax_parser_print.pl now reports "Looks Good"

Compile and Install Koha Source

```
$ perl Makefile.PL
```

A series of questions would be asked, choose the defaults for all apart from the following:

User account: root
Group: root
Database name: koha
Database user: root
Database password: <root_password>
Zebra database user: root
Zebra database password: <root_password>

Compile and install Koha by executing the following:

```
$ make
$ sudo make install
```

Koha Environment Variables

Setup Koha environment variables by editing the following files in order –

```
a.) sudo emacs /etc/environment
b.) sudo emacs /etc/rc.local
c.) sudo emacs /etc/bash.bashrc
```

and append the following lines to each:

```
export KOHA_CONF=/etc/koha/koha-conf.xml
export PERL5LIB=/usr/share/koha/lib
```

Execute the following for the environment variables to take effect:

```
$ source /etc/environment
$ source /etc/rc.local
$ source /etc/bash.bashrc
```

Configure Apache Server for Koha

Enable Koha site by executing:

```
$ sudo ln -s /etc/koha/koha-httpd.conf /etc/apache2/sites-
available/koha
```

Edit Apache Ports configuration:

```
$ sudo emacs /etc/apache2/ports.conf
```

and add the following lines to the file:

```
Listen 80
Listen 8080
```

Also, comment out these lines from the ports.conf file:

```
#NameVirtualHost *:80
#NameVirtualHost *:8080
```

Enable Koha site and required modules by executing the following:

```
$ sudo a2enmod rewrite
$ sudo a2enmod deflate
$ sudo a2ensite koha
$ sudo a2dissite default
```

Edit `/etc/apache2/sites-enabled/koha` and change the following lines:

```
<VirtualHost 127.0.1.1:80> to <VirtualHost *:8080>
<VirtualHost 127.0.1.1:8080> to <VirtualHost *:80>
```

Reload Apache settings:

```
$ sudo service apache2 reload
$ sudo service apache2 restart
```

Setup Zebra (Search/Index) Configuration

```
$ sudo ln -s /usr/share/koha/bin/koha-zebra-ctl.sh
/etc/init.d/koha-zebra-daemon
$ sudo update-rc.d koha-zebra-daemon defaults
$ sudo /etc/init.d/koha-zebra-daemon start
```

Zebra service would now automatically restart on system reboots.

Setup Zebra Re-indexing Background Daemon Schedule

```
$ sudo emacs /etc/cron.d/koha
```

and paste the following:

```
*/5 * * * *    koha
$KOHAPATH/bin/migration_tools/rebuild_zebra.pl -a -b -z &>
/dev/null
```

Zebra service would now check for any new and changed records every 5 minutes and re-index them.

To clean and rebuild the whole index from scratch, change directory to the source folder and execute:

```
$ ./rebuild-index
```

Web Install

Open a web browser, preferably on another system, and browse to the following web address of the server – http://<ip_address>/

Login to the web console using root username and <root_password>

Follow the installation wizard, and choose the defaults, apart from the following:

MARC Type: Marc21
Sample Z39.50 Servers: Check Yes.

Setup SPC Defaults

Initialize Koha database with SPC defaults such as Item Types, Libraries and Groups:

```
$ mysql -u root -p < setup-spc-defaults.sql
```

Setting up a Super librarian

Login to the web console again using root username and <root_password>

Click on Patrons and create a Patron Category called Admin with type Staff.

Click on Patrons again, and setup a patron of type Admin.

After creating the defaut patron, click on the More button, select Set Permissions and check the "Super Librarian" box and save.

Logout, and login again using the newly created Super librarian account. It is not recommended to use the root account to login to Koha Intranet.

Import SOPAC Catalogue

SOPAC records have been converted to Koha-compatible MARC standard from the CDS/ISIS legacy system, and the binary file can be found at https://github.com/sopac/spc-koha/blob/master/sopac_conversion.mrc?raw=true

To modify or change the conversion, look at the Python script `Convert_SOPAC_MRK.py` in your checked out source folder.

In Koha intranet, go to Tools, "Stage MARC records for Import", and upload the sopac_conversion.mrc file. After the staging process, choose defaults, and click on the "Import Catalouge" button.

Field 952 specifies which library will the records go under, and as SOPAC library is already defined as per Setup SPC Defaults step, no further step is necessary to specify individual libraries for the import.

After import is complete, clean and rebuild the Zebra search index by changing to the source directory (eg: /home/sopac/spc-koha) and executing:

```
$ ./rebuild-index
```

Import SPC Catalogue

SPC Item Types, Libraries and Groups have already been setup in a previous step. To import (migrate) existing koha.spc.int catalogue into the new system, follow the following steps:

1. Login to koha.spc.int web console as a super librarian.
2. Click on Tools and then "Export Biblographic and Holdings"
3. Leave default selections and export catalogue as MRC file.
4. Follow the same steps as "Import SOPAC Catalogue" to upload, stage and import SPC catalogue
5. Clean and rebuild Zebra search index from the source folder (`./rebuild-index`)

Import Patrons

TBD

Upgrading

Fixes and modifications would be pushed to the public SPC Koha Github repository as and when required, and existing Koha installations can be upgraded by changing to spc-koha directory in after login into the normal user account and fetching latest code branch:

```
$ git pull
```

Find the path to install log file, recompile and install upgrade:

```
$ sudo find /usr/share/koha -name 'koha-install-log'
$ perl Makefile.PL --prev-install-log /path/to/koha-
install-log
$ make
$ sudo make upgrade
```

Edit /etc/apache2/sites-enabled/koha and change the following lines:

```
<VirtualHost 127.0.1.1:80> to <VirtualHost *:8080>
<VirtualHost 127.0.1.1:8080> to <VirtualHost *:80>
```

Reload Apache settings:

```
$ sudo service apache2 reload
$ sudo service apache2 restart
```

END