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# Installing Koha 2.4 On Debian GNU/Linux 3.1 "stable" (sarge)

Joshua Ferraro <jmf AT liblime DOT com>

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## Revision History

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Generalized some of the language, reformatted the text. My installing on debian manual is revised a bit for Koha 2.0 but does not include 2.2 stuff as I haven't installed 2.2 on debian yet. Also, I don't cover the actual Koha install--just the dependencies. I like that format as the installation of Koha is really the same once the dependencies are taken care of. -- jmf

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XML version (prepared by Stephen Hedges) of webpage posted at <http://kados.org/LibraryScience/koha.html> for inclusion in Koha-related documents collection. Revision numbering change to conform to Koha documents standard practice.

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stalled on the server. One reason that Debian GNU/Linux is a good choice as a platform for Koha is the availability of minimal bootable CD images which allow one to install a bare-bones but functional version. The minimal CD image fits on a 8 cm (3 inch) CD-R/RW (they'll also work on 12 cm/5 inch CD-R/RW media) and can be downloaded from <http://www.debian.org/CD/netinst/>. This manual assumes that you are using this "netinst" (network install) ISO image.

A brief note about the Kernel version is in order. If you install Debian with the default 2.2 kernel (by pressing enter when booting off the minimal install CD) there will be some dependency problems later on in the install with the Perl module Net::Z3950 that I haven't taken the time to diagnose. To avoid that problem be sure to install Debian using the 2.4 kernel. To install using the 2.4 kernel press F3 when you boot off the minimal CD and follow the instructions for installing the 2.4 kernel (type **bf24** at the `boot:` prompt and press enter). Note that you may need to manually select the right drivers for your network card using this kernel version.

## Internet Connection

This guide assumes that the Koha server has a dedicated Internet connection -- a high-speed connection is best. It is possible to install Koha without a dedicated Internet connection, but this guide does not go into how to do that.

Note that if you have an Internet proxy you may have problems using the **CPAN** service (see below). Make sure that you **proxy except** the Koha server while using **CPAN**. If you don't have a proxy server setup one set up it may be your ISP. If you want to check whether there is a HTTP proxy between you and the Internet you can try out this test site: <http://www.lagado.com/proxy-test>. Running this test from any workstation on your network, you should be able to tell whether your network is being proxied (although sometimes the test won't find well configured proxies). If your Koha server is on the same LAN as your workstation, there's a good chance that it's being proxied as well.

## Selecting a Connection Method

If the machine on which you will install Koha is nearby you can log in locally to perform the install. But most folks find it more convenient to log in remotely using an **SSH** or a **Telnet** client. If you are running Windows you can start **Telnet** by clicking **Start->Run** from the start menu and typing **telnet**. Or you can download the free **SSH** program **PuTTY** from <http://www.chiark.greenend.org.uk/~sgtatham/putty/download.html>. **SSH** is a more secure and robust terminal emulator standard and is a better choice.

For many of the commands it will be necessary to have super user privileges on the Koha server. However, it's generally not a good idea to log into your server directly as the root user. It's better to use the **su** utility to allow your regular user to obtain superuser privileges. For example:

```
jmf@koha:~$ su
password:
koha:/home/jmf#
```

The # tells you that you have root privileges. If you want to return to your regular user type **exit**.

## Installing the SSH Server

In order to log in to your server via **SSH** it is necessary to install it on the server. Most of the software written for GNU/Linux (including several **SSH** servers and clients) has been packaged by the Debian project and can be installed via the Internet using packaging system utilities such as **apt-get**. To install the **SSH** server, log in to the server, obtain root privileges and type:

```
koha:/# apt-get install ssh
```

The packaging system will download the package and install and configure **SSH** on your server. Follow

the directions (default answers are fine) and select "yes" when you are asked whether you wish to install the **SSH** server as well as the client.

## Dependencies

Koha is built with a number of related open source web-based technologies which are sometimes designated with the acronym L.A.M.P. L.A.M.P. refers to Linux (the GNU/Linux operating system), Apache (a robust webserver application), MySQL (a Relational Database Management System using the SQL standard) and Perl/Python/PHP (three common scripting languages). Koha was originally designed for a GNU/Linux system running Apache and MySQL and is written almost entirely in Perl. In order to install and use Koha it is necessary first to install and configure these dependencies.

Part of the configuration of these dependencies includes installing dependencies of the dependencies.<sup>1</sup>Koha also uses several extended Perl modules not all of which are available through the Debian packaging system. So these modules must be installed using other methods. Fortunately, most of Koha's dependencies either come bundled in a standard installation of Debian GNU/Linux or can be installed via the Internet using Debian's packaging system.

## Perl

The majority of Koha is written in Perl -- a high-level programming or scripting language. Perl's functionality and usefulness has been extended and enhanced through the development and free distribution of modules (programming libraries) within the Perl community. The vast majority of these modules are available through the Perl Network **CPAN**. Others are available for download from the module developer's website or **ftp** server. Many of these modules have also been packaged directly into Debian's packaging system.

Koha relies on several of these extended module libraries for it's functions and getting all of these modules set up can be the most challenging part of the Koha installation. First though, Perl itself needs to be installed. We can do this using Debian's **apt-get** utility.

Log in to the server via **SSH** as a regular user, obtain superuser privileges and type:

```
koha:/# apt-get install perl
```

The packaging system will download and configure Perl for your system. You can safely answer any questions the packaging system asks with the default answers.

## Installing Perl modules available through apt-get

Several of Perl's extended module libraries are available via the Debian packaging system. We can install those using the **apt-get** utility as follows:

```
koha:/# apt-get install libdbi-perl
koha:/# apt-get install libdbd-mysql-perl
koha:/# apt-get install libdate-manip-perl
koha:/# apt-get install libhtml-template-perl
koha:/# apt-get install libmail-sendmail-perl
```

## Preparing to use CPAN

One of the advantages to using Debian's packaging system is that all the dependencies of a program are automatically installed and configured -- this even applies to the Perl modules we just installed. However, the remaining Perl modules are not available via Debian's packaging system. But they are

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<sup>1</sup>and the dependencies of the dependencies of the dependencies, and the...

available on the Perl network **CPAN**. Perl has a utility that can be run to automatically install modules from **CPAN** and it's pretty good about keeping track of dependencies within Perl itself,<sup>2</sup> but it cannot handle dependencies outside the Perl base. So before we can install these modules we need to install their dependencies which are outside of Perl.

Fortunately all of the dependencies for the Perl modules (and for the Perl **CPAN** utility) can be installed using Debian's packaging system. Type the following after logging in and obtaining superuser privileges:

```
koha:~# apt-get install unzip
koha:~# apt-get install make
koha:~# apt-get install lynx
koha:~# apt-get install wget
koha:~# apt-get install ncftp
koha:~# apt-get install ftp
koha:~# apt-get install less
koha:~# apt-get install gcc
```

It's also a good idea to make sure that the server has the correct time as Perl's **CPAN** utility sometimes gets cranky when the time is wrong. One way to do this is to install a utility called **ntpdate**. **ntpdate** will query any of a number of accurate time servers around the world and reset the machine's clock to the correct time. You can install **ntpdate** using **apt-get**:

```
koha:~# apt-get install ntpdate
```

During the configuration of **ntpdate** you will be asked to enter a time server to query for the correct time information. There is a list of time servers on the Internet at <http://www.eecis.udel.edu/~mills/ntp/clock2a.html> You can find the time server closest to you and enter either its IP address or domain name when prompted. If you misstype you can always run the **ntpdate** utility from the command line. For instance, I run

```
koha:~# ntpdate 198.82.162.213
```

periodically to set the time on my computer.<sup>3</sup>

## Configuring Perl's CPAN utility while installing Event

The first time you use Perl's **CPAN** utility it will configure itself. So we can start that process by telling Perl to install the Event module from the **CPAN** network:

```
koha:~# perl -MCPAN -e 'install "Event"'
```

You should get the following message:

```
/usr/share/perl/5.6.1/CPAN/Config.pm initialized.
```

CPAN is the world-wide archive of perl resources. It consists of about 100 sites that all replicate the same contents all around the globe. Many countries have at least one CPAN site already. The resources found on CPAN are easily accessible with the CPAN.pm module. If you want to use CPAN.pm, you have to configure it properly.

If you do not want to enter a dialog now, you can answer

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<sup>2</sup>i.e., some modules in Perl rely on other modules and Perl will make sure they are installed correctly.

<sup>3</sup>You can also run **ntpdate** and other periodic server tasks automatically using a utility called **cron**. For more information see the **man** page for **cron**.

'no' to this question and I'll try to autoconfigure. (Note: you can revisit this dialog anytime later by typing 'o conf init' at the cpan prompt.)

Are you ready for manual configuration? [yes]

The setup process will take a while. It should be safe to answer all the questions with the default answers. You can safely ignore the utilities' attempts to get you to upgrade or install other Perl modules but you should allow it to prepend prerequisites. You can also set it to automatically build Perl prerequisites without asking by typing **f**ollow at the following prompt:

The CPAN module can detect when a module that which you are trying to build depends on prerequisites. If this happens, it can build the prerequisites for you automatically ('follow'), ask you for confirmation ('ask'), or just ignore them ('ignore'). Please set your policy to one of the three values.

Policy on building prerequisites (follow, ask or ignore)?  
[ask]

Eventually you may get the following message:

Please check, if the URLs I found in your configuration file () are valid. The urllist can be edited. E.g. with 'o conf urllist push ftp://myurl/'

Could not fetch MIRRORED.BY  
CPAN.pm needs at least one URL where it can fetch CPAN files from.

Please enter your CPAN site: []

You can enter the following sites thusly:

Please enter your CPAN site: [] ftp://archive.progeny.com/CPAN/  
Enter another URL or RETURN to quit: [] ftp://cpan.cse.msu.edu/  
Enter another URL or RETURN to quit: [] ftp://cpan.pair.com/

## The Yaz Toolkit

As long as everything went smoothly with the **CPAN** installation, Perl should finish the install and return you to the command prompt. We're almost ready to install the remaining Perl modules but one of them, namely Net::Z3950, has a non-Perl dependency that we need to install first called Yaz.

Unfortunately, Yaz was not packaged into the version of Debian we are using. However, the folks at Indexdata (<http://indexdata.dk>) have provided a package feed wherby it can be downloaded. But we have to do some configuration of our packaging system to use their feed. As root (use **su**) open the `/etc/apt/sources.list` file using the **vim** editor (or the editor of your choice; for a manual on using the **vi** editor see <http://www.eng.hawaii.edu/Tutor/vi.html>).

```
jmf@koha:/~$ su
Password:
koha:/home/jmf# vim /etc/apt/sources.list
```

This file contains a list of all the feeds that we are using for our packaging system. You will want to add the following lines to the top of the file:

```
# for Yaz Toolkit
deb http://ftp.indexdata.dk/debian indexdata/sarge released
deb-src http://ftp.indexdata.dk/debian indexdata/sarge released
```

Now save the file and run

```
koha:/# apt-get update
```

If you get an error message try running **apt-get update** again. If you keep getting errors check the spelling of the lines you just added in the `sources.list` file.

Now run the following commands to install the Yaz toolkit:

```
koha:/# apt-get install libyaz-dev
koha:/# apt-get install yaz-doc
```

## Installing the MARC::Record module

We have to install the MARC::Record module manually from SourceForge now as the **CPAN** version of MARC::Record isn't up-to-date.

```
cvs -z3 -d:pserver:anonymous@marcpm.cvs.sourceforge.net:/cvsroot/marcpm co -P marc
cvs -z3 -d:pserver:anonymous@marcpm.cvs.sourceforge.net:/cvsroot/marcpm co -P marc
cvs -z3 -d:pserver:anonymous@marcpm.cvs.sourceforge.net:/cvsroot/marcpm co -P marc
cvs -z3 -d:pserver:anonymous@marcpm.cvs.sourceforge.net:/cvsroot/marcpm co -P marc

cd marc-record
perl Makefile.PL
make
make install
```

Repeat the last three commands in the `marc-charset`, `marc-lint`, and `marc-xml` directories to install the remaining modules.

## Installing the remaining Perl modules

At this point we can install the other Perl modules:

```
koha:/# perl -MCPAN -e 'install "Net::Z3950"'
koha:/# perl -MCPAN -e 'install "Digest::MD5"'
koha:/# perl -MCPAN -e 'install XML::SAX'
koha:/# perl -MCPAN -e 'install Class::Accessor'
koha:/# perl -MCPAN -e 'install Business::ISBN'
```

That should take care of the Perl installation and configuration as well as all the modules. If we left any Perl modules out Koha will warn us when we run the install script and will give instructions on how to install them.

## MySQL

For a database Koha uses MySQL—a free SQL-query-based Relational Database Management System.

The installation and basic configuration of MySQL on a Debian system is quite simple. More advanced topics such as database optimization and MySQL administration are documented online at <http://www.mysql.com/doc/en/index.html>. It would be well worth your while to familiarize yourself with the basic functionality and behaviour that you can expect from MySQL. Chapter 5, *Database Administration*, is especially relevant for using Koha.

## Installing and configuring MySQL

Not surprisingly MySQL is available from Debian's packaging system:

```
koha:/# apt-get install mysql-server-4.1
```

You can safely answer all the questions with the default answers. But you may want to select **yes** when prompted as to whether MySQL should start upon boot.

It's a good idea to set the MySQL administrator password right away. You will need to have this password handy later in the installation so make sure you write it down. You can set the password from the command line thusly:

```
koha:/# mysqladmin password [type your new password here]
```

but leave out the brackets.

## Apache

According to the Apache website, Apache has been the most popular web server on the Internet since April of 1996. Additionally, the October 2003 *Netcraft Web Server Survey* found that over 64% of websites on the Internet use Apache, making it more popular than all other web servers combined. You can see the survey at <http://news.netcraft.com/>. Additionally, you can find out more about the Apache Software Foundation on their website at <http://www.apache.org/>.

## Installing Apache

Apache can also be installed using **apt-get**:

```
koha:/# apt-get install apache2
```

We will have to configure Apache for Koha later on in the install, but for now you should know that Apache's configuration files are kept in `/etc/apache/httpd.conf` and Apache's log files are in `/var/log/apache`.

Well, that's it, we've installed all the dependencies for Koha. The hardest part of the installation is over. Now you are ready to download Koha from <http://www.koha.org> and install it following the directions in the `INSTALL` file.