OpenEMR 2.8.3 Appliance Manual

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[LINK TO MANUAL IN PDF FORMAT](#)

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OpenEMR 2.8.3 Appliance Manual Table of Contents

Introduction

The clinical benefits of computerized medical records are clear, however, the costs of current proprietary systems are large. This high cost precludes many small practices from transitioning to computerized medical records. Open Source medical record systems are quickly becoming a viable, cost effective alternative. Comprehensive open source medical practice management software suites consist of several independent software packages, which can make them more difficult to install/evaluate than their proprietary counterparts. This obstacle can easily be circumvented with a pre-installed Appliance.

The goal of this project was to build a comprehensive Open Source Medical Practice Management Software Appliance, which provides office scheduling, electronic medical records, prescriptions, insurance billing, accounting, inventory, and access controls. This appliance will have many possible applications, such as a fully functional demo, a testing/developing platform, and as the starting point in real world clinic applications. It can be run on any operating system that supports the *VMware Player*. The detailed building instructions of this appliance are also included in this manual, which will allow easy modification/updates of appliance and will allow simple transition to a native server, if required.

OpenEMR is installed, along with FreeB, SQL-Ledger, and php-GACL. They are installed on the Mandriva2006 operating system. OpenEMR is the practice management software. FreeB is the insurance billing/printing software. SQL-Ledger is the accounting software. Php-GACL is the access control software.

This manual contains instructions on downloading, starting, and using the OpenEMR Appliance, OpenEMR user manual web links, helpful tips on OpenEMR use, instructions for configuration of the Appliance, and full detailed instructions on how the Appliance was built.

The *Download the OpenEMR Appliance and VMware Player* chapter contains how and where to download software from.

The *Start the OpenEMR Appliance* chapter contains information on starting the OpenEMR Appliance.

The *Using the OpenEMR Appliance* chapter contains information on how to use the OpenEMR Appliance, web links to User Manuals, helpful tips, and all the login names and passwords that will be needed while using the appliance.

The *Configuration of the OpenEMR Appliance* chapter describes how to set up a printer, an email server, and an automated backup scheme which

incorporates encryption. This chapter also describes how to change to the newer frames look and how to add the pharmacy dispensary module.

The *Instructions for Building the OpenEMR Appliance* chapter describes in detail how this Appliance was built.

Online Demo

Here are online demos of the OpenEMR 2.8.3 appliance:

With the new frames look:
https://OpenSourceEMR.com:2086/openemr/   (Main OpenEMR program)

https://OpenSourceEMR.com:2086/sql-ledger/   (Sql-Ledger accounting)
https://OpenSourceEMR.com:2086/phpgacl/admin   (php-GACL access controls)

With the traditional look:
https://OpenSourceEMR.com:2087/openemr/   (Main OpenEMR program)

https://OpenSourceEMR.com:2087/sql-ledger/   (Sql-Ledger accounting)
https://OpenSourceEMR.com:2087/phpgacl/admin   (php-GACL access controls)

These are fully functional demos, which allows you to play around with all the software packages in the appliance. It uses all the same logins and passwords as the appliance(refer to 'Login Name and Password' section). Some simple configuration has been added for clearer demonstration of OpenEMR, Sql-Ledger, FreeB, and php-GACL. OpenEMR users were added to demonstrate the access controls:
-**Login name**------**Password**---------**Description**
1. admin_____pass_____Administrator
2. physician_____physician_____Physician(more access than clinician)
3. clinician_____clinician_____Clinician(less access than physician)
4. accountant_____accountant_____Accountant
5. receptionist____receptionist____Front desk receptionist

Don't worry about breaking it, because it resets itself to its original state every day at 5:00AM(new frames appliance) and 6:00AM(traditional look appliance) Pacific Time. Have fun. (If demo is not working email me at brady@sparmy.com)

Download the OpenEMR Appliance and VMware Player

Main TOC Link

1. Download and install the FREE VMware Player at:
   http://www.vmware.com/products/player/

2. Download the FREE OpenEMR Appliance. The file is 1019.7 MB, and will extract to 3 GB.

   1. You can download Appliance via Direct Download or Torrent:

      1. Direct Download from Sourceforge:
         http://sourceforge.net/project/showfiles.php?group_id=167832

      2. Torrent file link: http://www.bradymd.com/OpenEMR-2-8-3-Appliance-1.torrent (If you need a torrent software client, then try: http://azureus.sourceforge.net/)

Start the OpenEMR Appliance

Main TOC Link

Windows

Main TOC Link

1. Unpackage the OpenEMR-2-8-3-Appliance-1.tgz file (Use WinZip, WinRAR, or 7-Zip).

2. Run VMware Player.

3. Start up the OpenEMR Appliance by opening the OpenEMR-2-8-3-Appliance-1.vmx file in the VMware Player.

4. If this is your first time starting the OpenEMR Appliance, then a window will pop up explaining some nonsense about the changing location of a configuration file. Just click 'Create'.

5. Several windows will pop up explaining that /dev/hdc, /dev/hdd, and sound drivers are not gonna work. Just click 'ok' several times and continue.

6. Mandriva will now boot up, just give it some time. After boot up you

will see the following login screen:
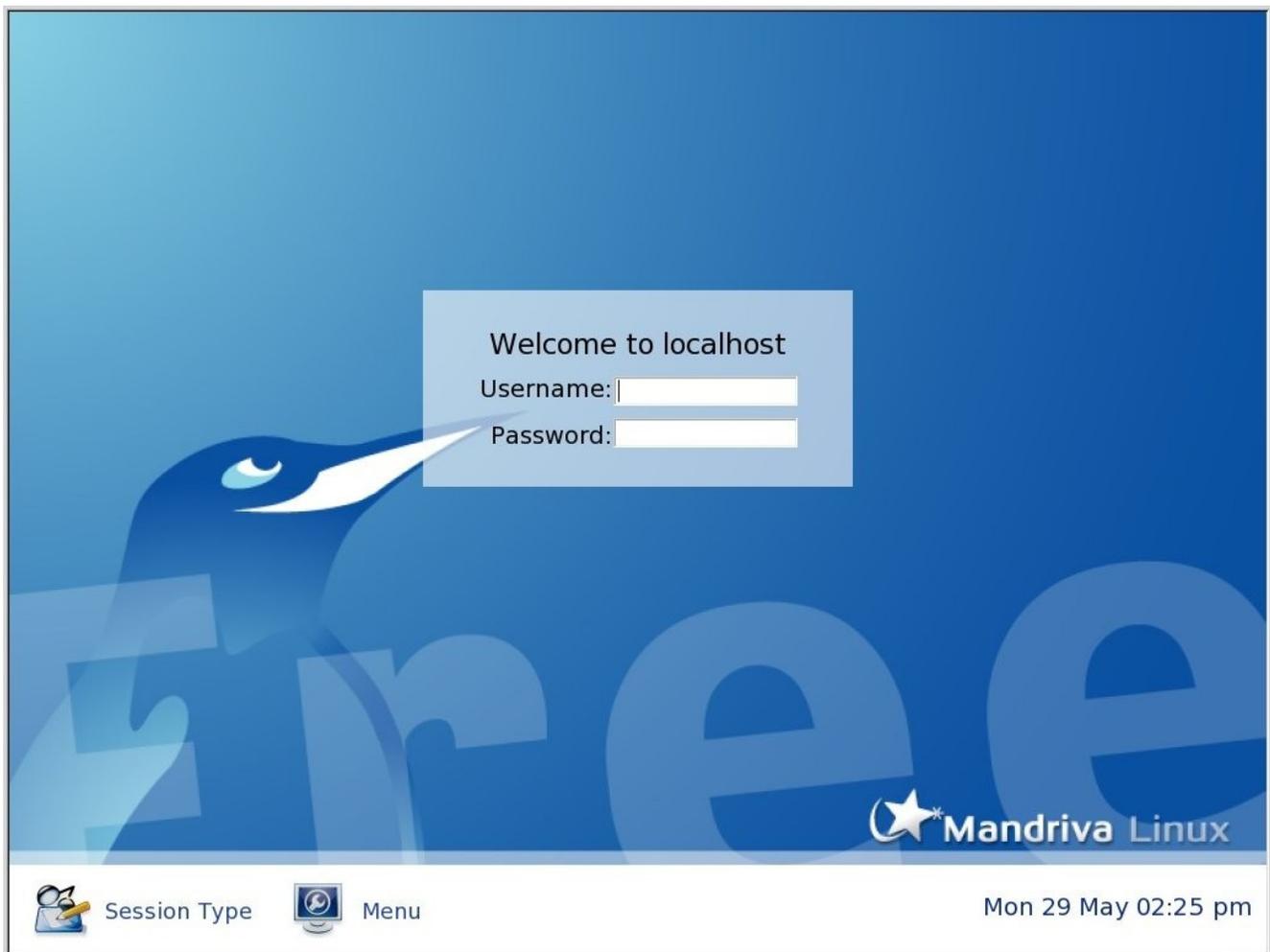
This is the login screen. To log in, proceed to the 'Log In to Appliance' section below.

Linux

1. Unpackage the OpenEMR-2-8-3-Appliance-1.tgz file.

2. Run VMware Player.

3. Start the OpenEMR appliance by opening the OpenEMR-2-8-3-Appliance-1.vmx file in the VMware Player.

4. If this is your first time starting the OpenEMR Appliance, then the below window will pop up:

The location of this virtual machine's configuration file has changed since it was last powered on.

If the virtual machine has been copied, you should create a new unique identifier (UUID). If it has been moved, you should keep its old identifier.

If you are not sure, create a new identifier.

What do you want to do?

| Keep | Always Create | Always Keep | ✗ Cancel | Create |
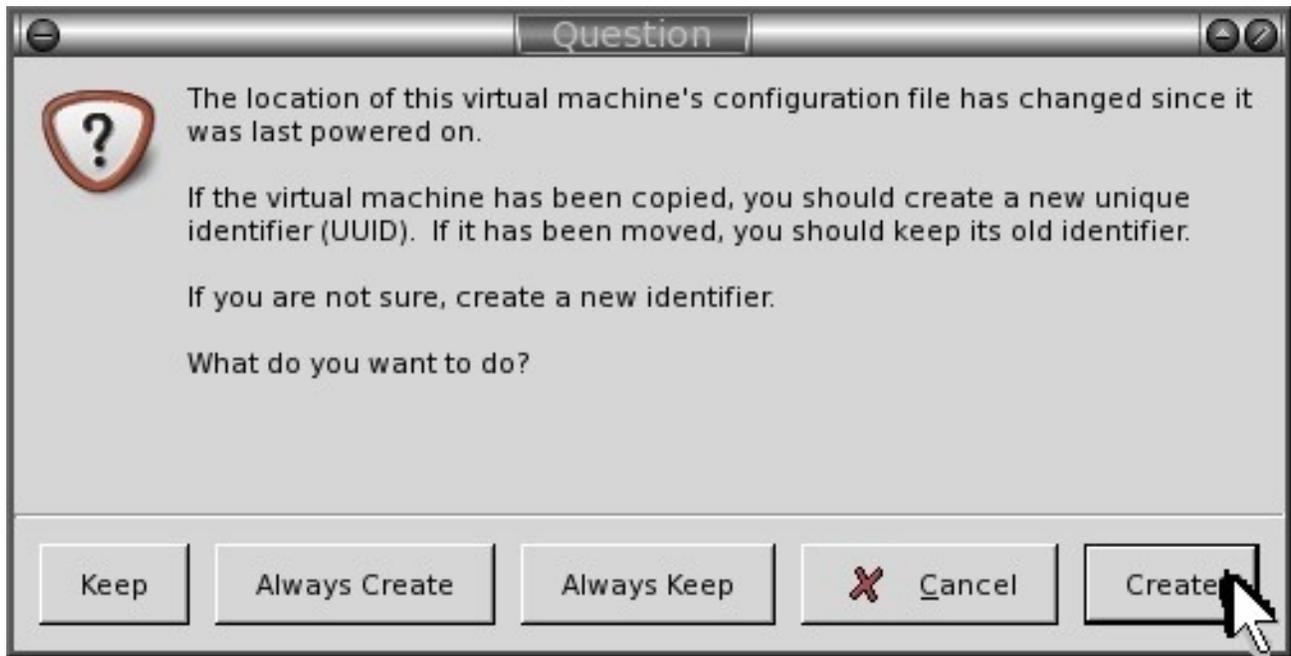
You will only see this window the first time you start the appliance. Click 'Create'.

5. Several windows may pop up explaining that /dev/hdc, /dev/hdd, and/ or sound drivers are not gonna work. Just click 'ok' several times and continue.

6. Mandriva will now boot up, just give it some time. After boot up you will see the following login screen:
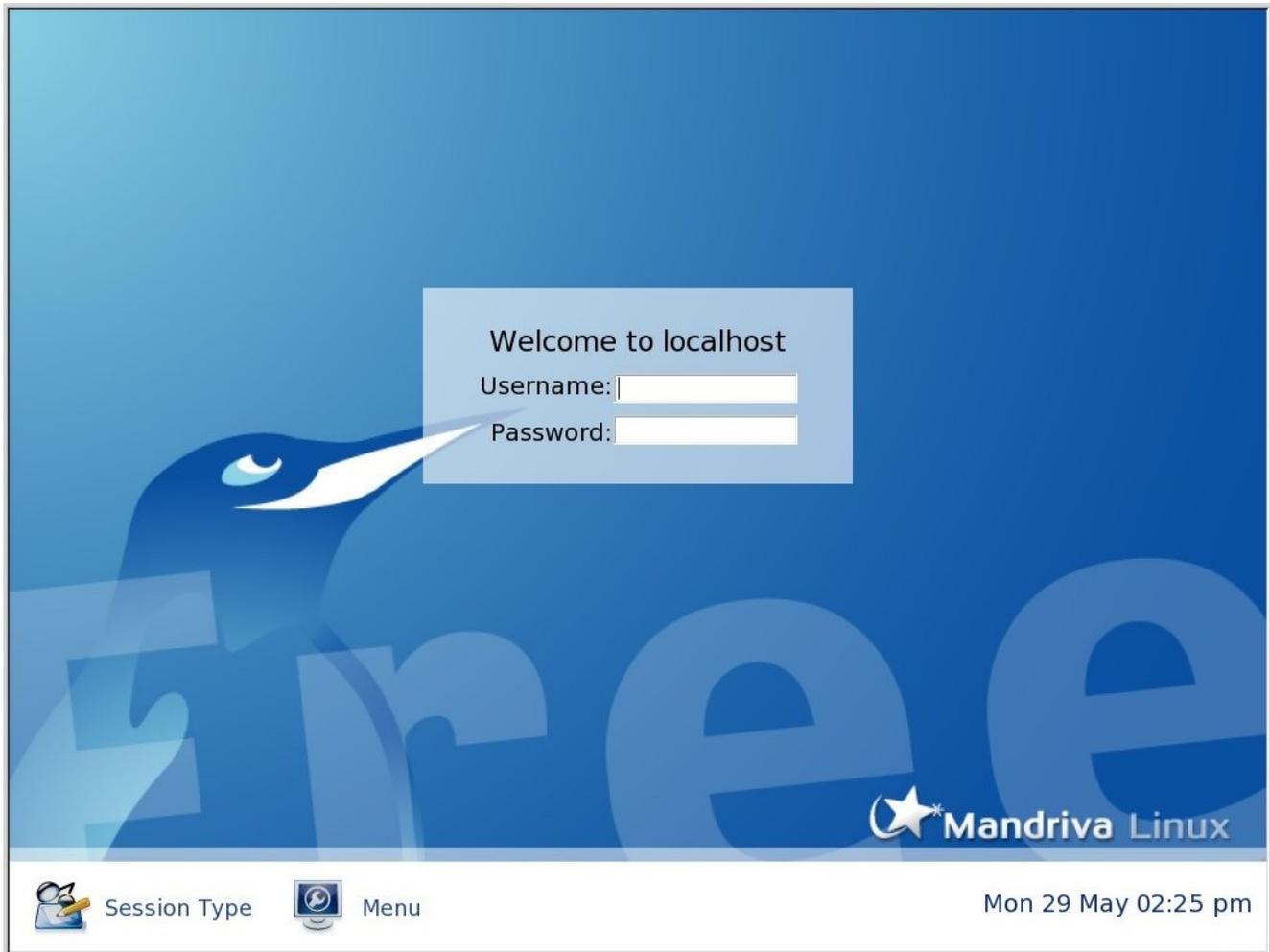
This is the login screen. To log in, proceed to the '<u>Log In to Appliance</u>' section below.

Using the OpenEMR Appliance

Main TOC Link

Log In to Appliance

Main TOC Link

1. The first time you use the appliance, you will login with user 'openemr' and password 'openemrcool'. You may be forced to change the password during your first login (detailed instructions below):
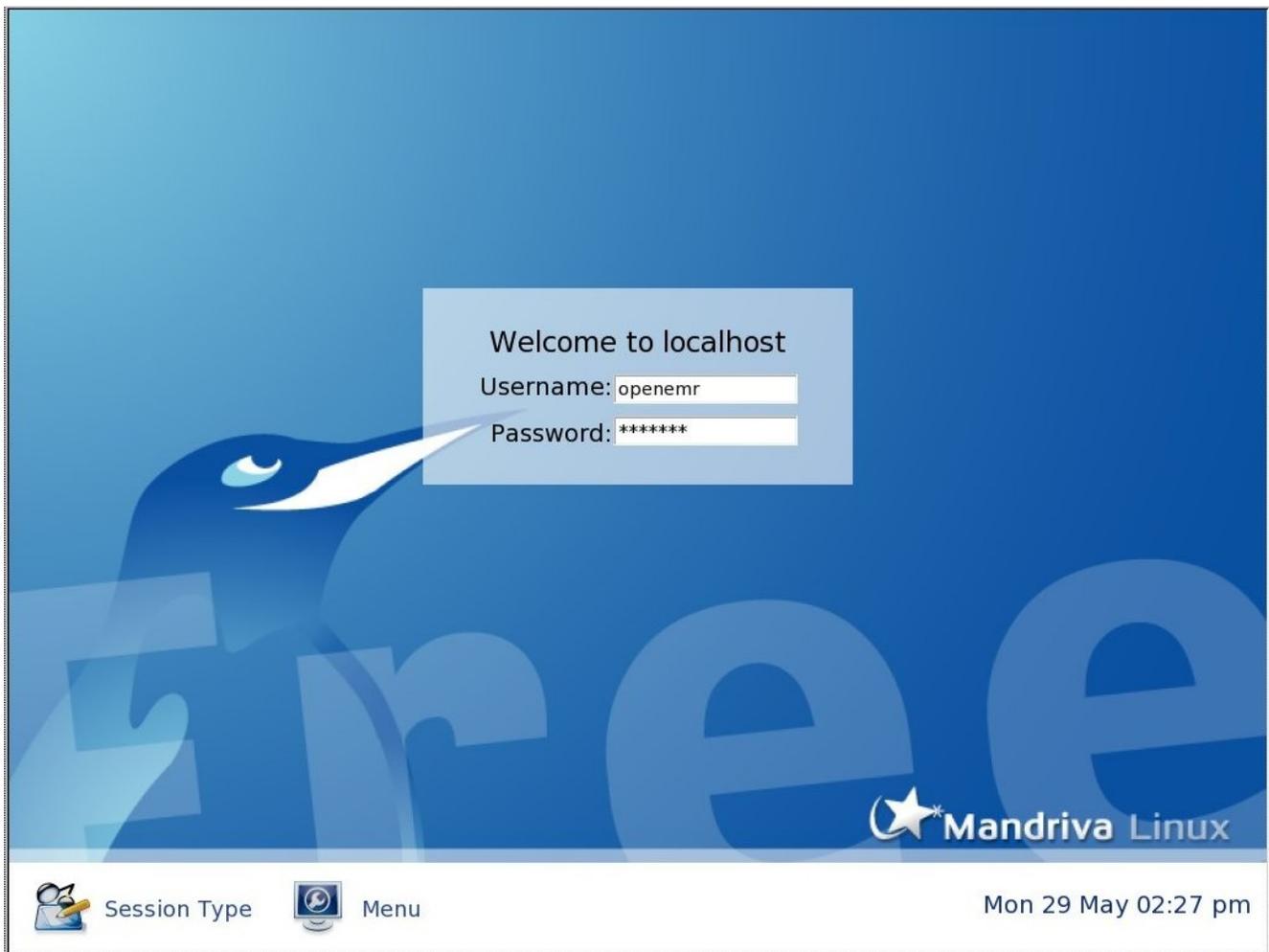
Enter 'Username' -> 'openemr'. Enter 'Password' -> 'openemrcool' (NOTE that this password may be changed after your first login). When done, hit the ENTER key.

If this is your first login, then you may be prompted to change your password:
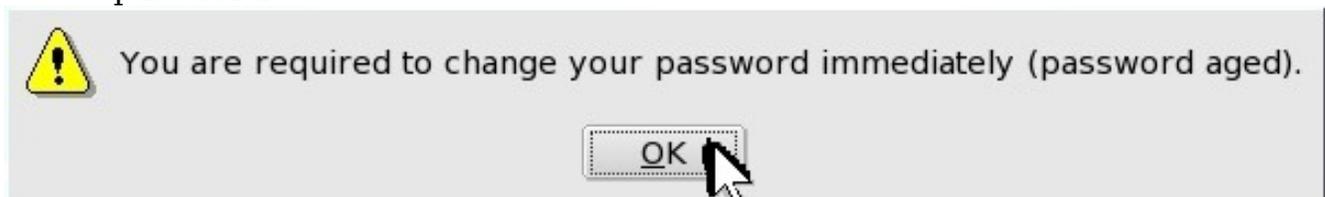
Click 'OK'.

Enter and confirm a new password. This will be your new 'openemr' user password. **REMEMBER** this password!
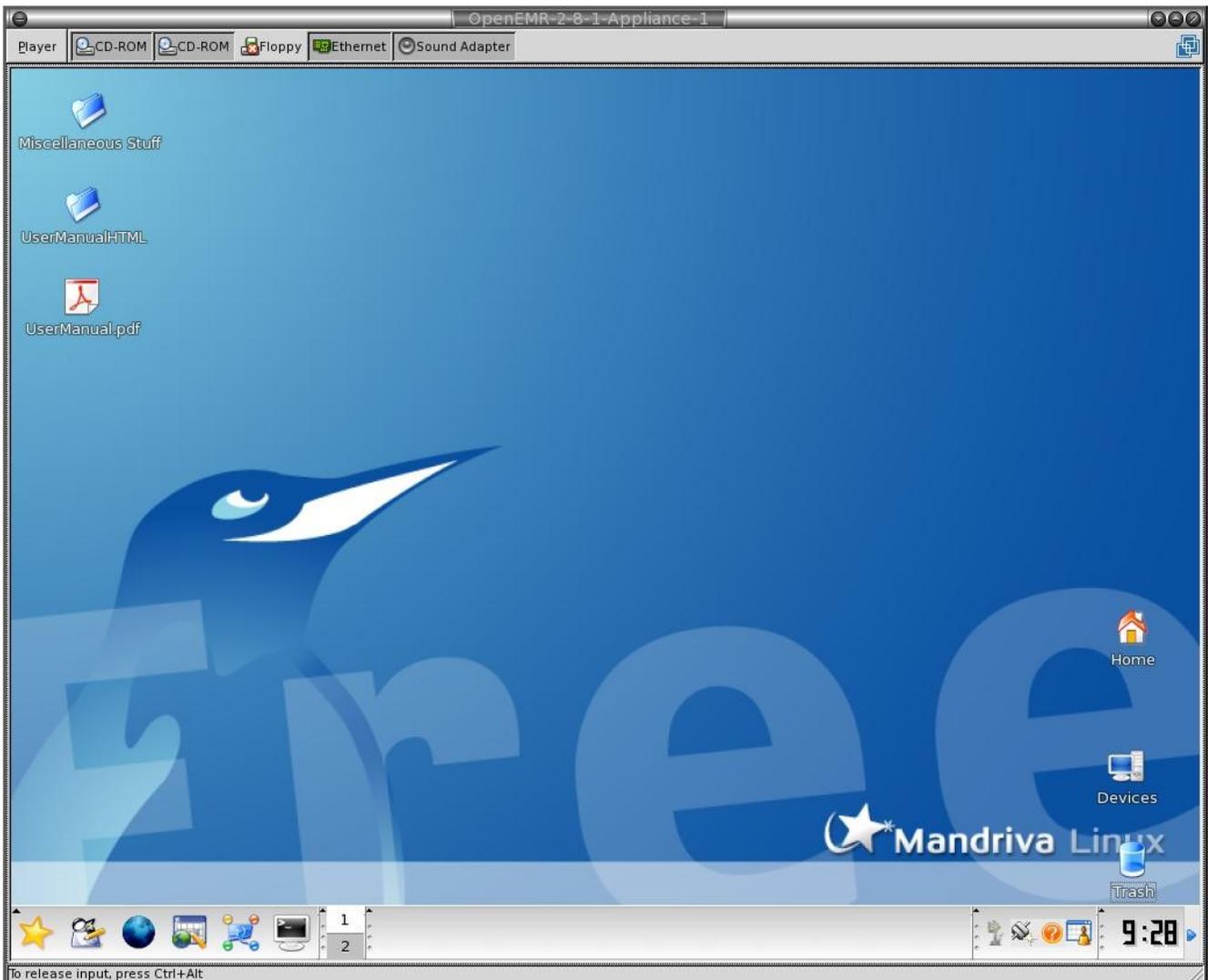
Congratulations. You successfully logged in.

Using OpenEMR in Appliance

1. Use OpenEMR with the user name 'admin' and default password 'pass' via web browser at: https://localhost/openemr
2. Use SQL-Ledger with the user name 'openemr' and password 'openemr' via web browser at: https://localhost/sql-ledger
3. Use php-GACL with user name 'admin' and password 'admin' via web browser at: https://localhost/phpgacl/admin
4. Note that the full list of application login names and passwords can be found in the 'Login Name and Password' section below.

Using OpenEMR from another/virtual computer

1. Networking with the Virtual computer over a LAN. You can get the current IP address thru Mandriva settings, and then use that IP address as the web address on another computers(including virtual) web browser.
    1. First, get your virtual server IP address:
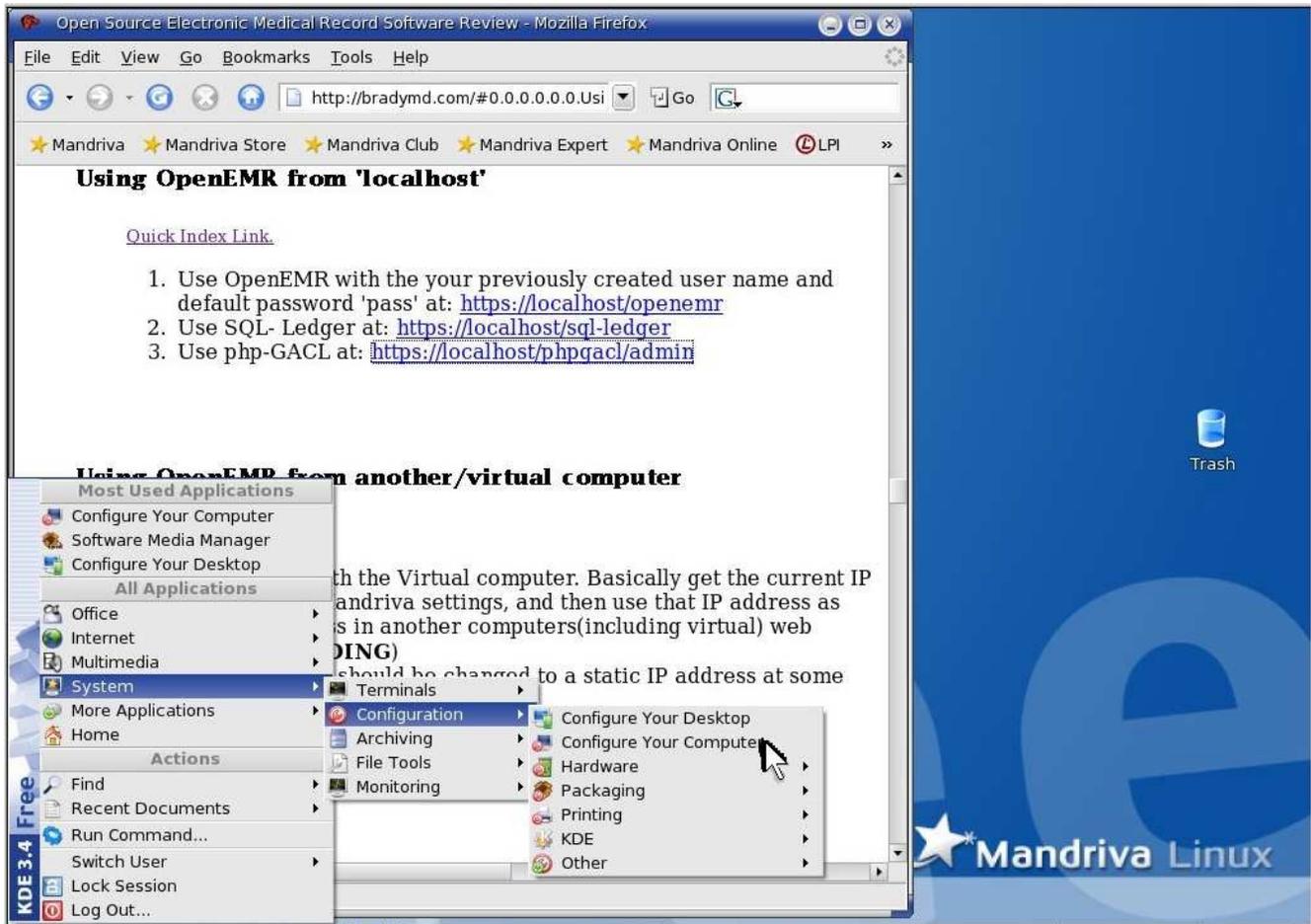
Click 'System' -> 'Configuration' -> 'Configure Your Computer'.
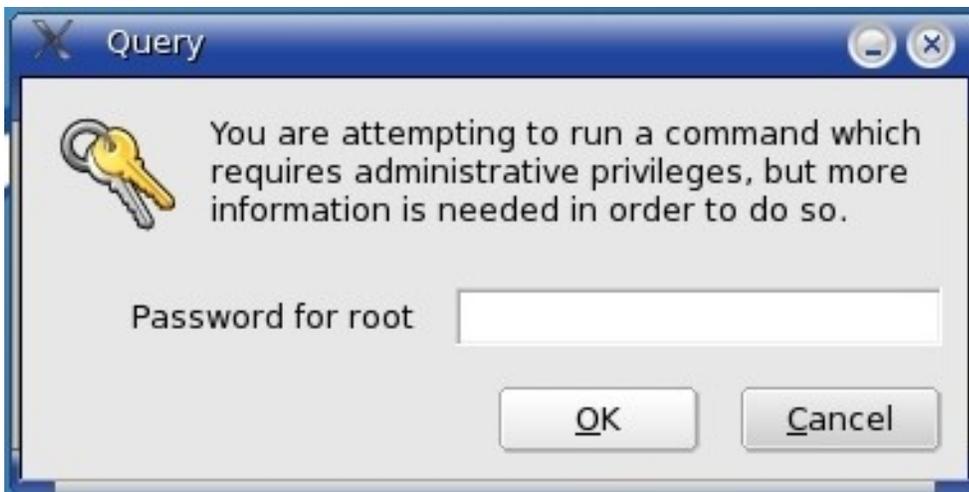
Enter 'root' user password. Then click 'OK'.

IMPORTANT, if you have not created a new 'root' user password, you need to proceed to Appendix B. 'Change Mandriva's expired 'root' user password' **NOW**. (The default 'root' password will expire at some point and will no longer work) When your done updating the

password, then type your new password here.
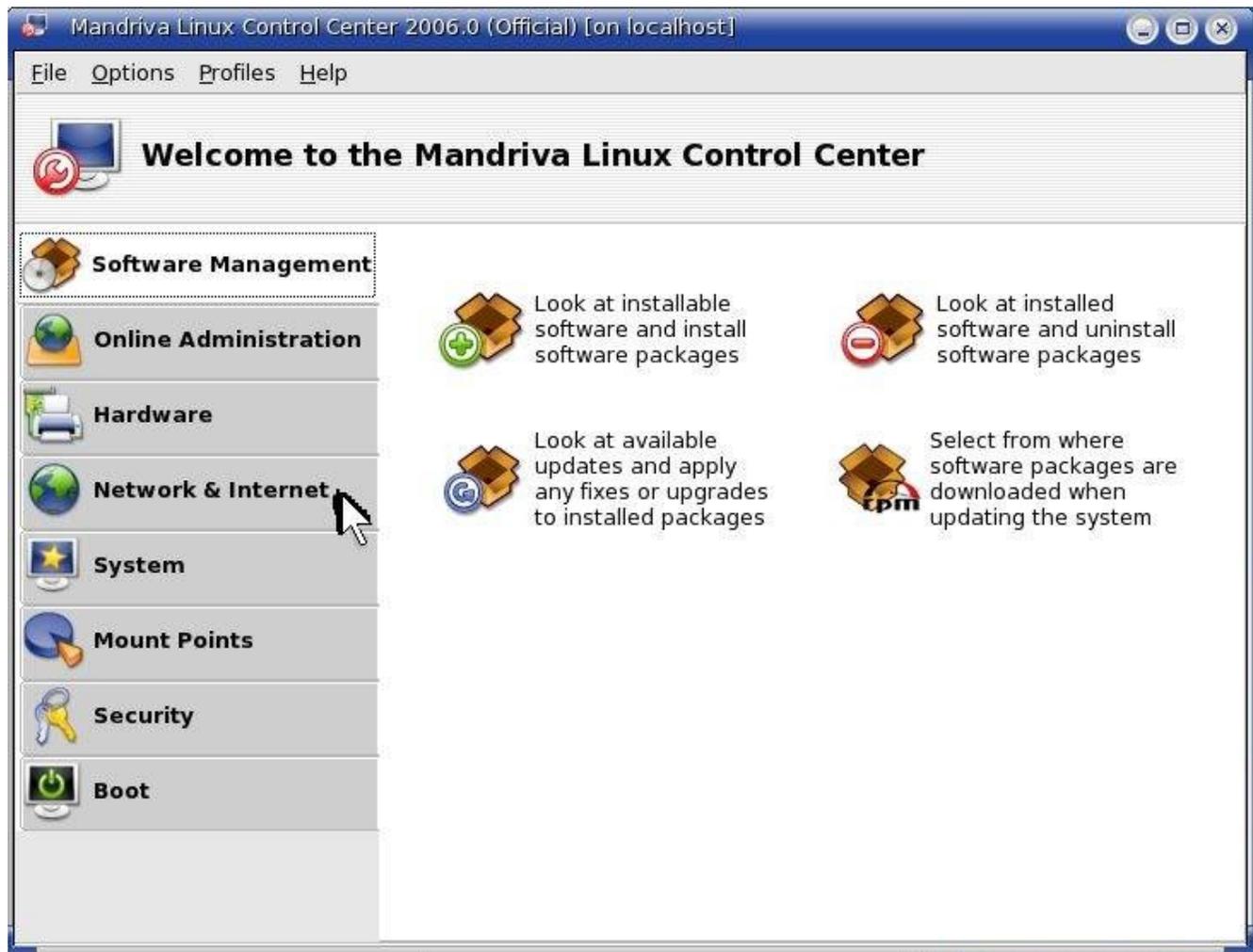
Click 'Network & Internet'.
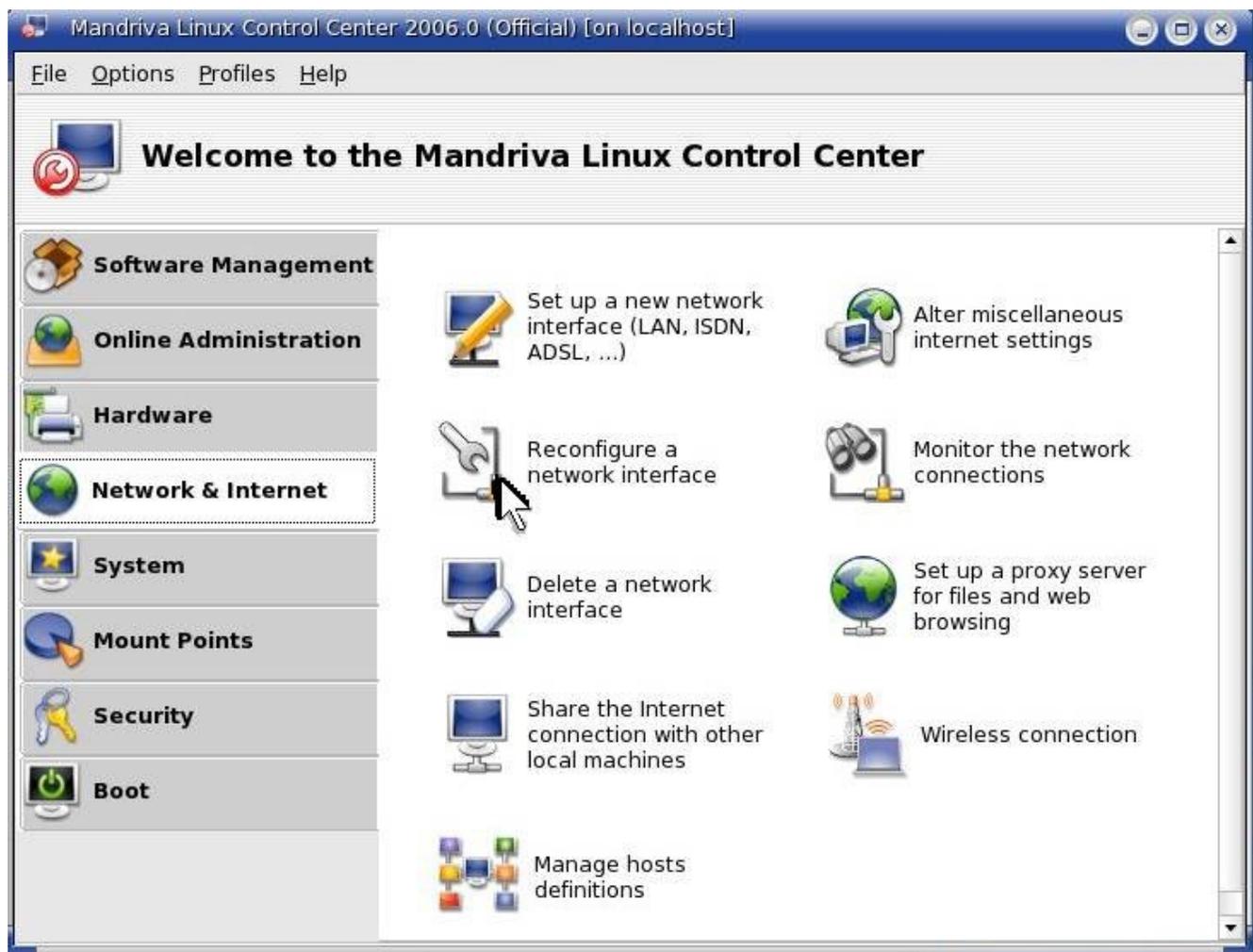
Click 'Reconfigure a network interface'.
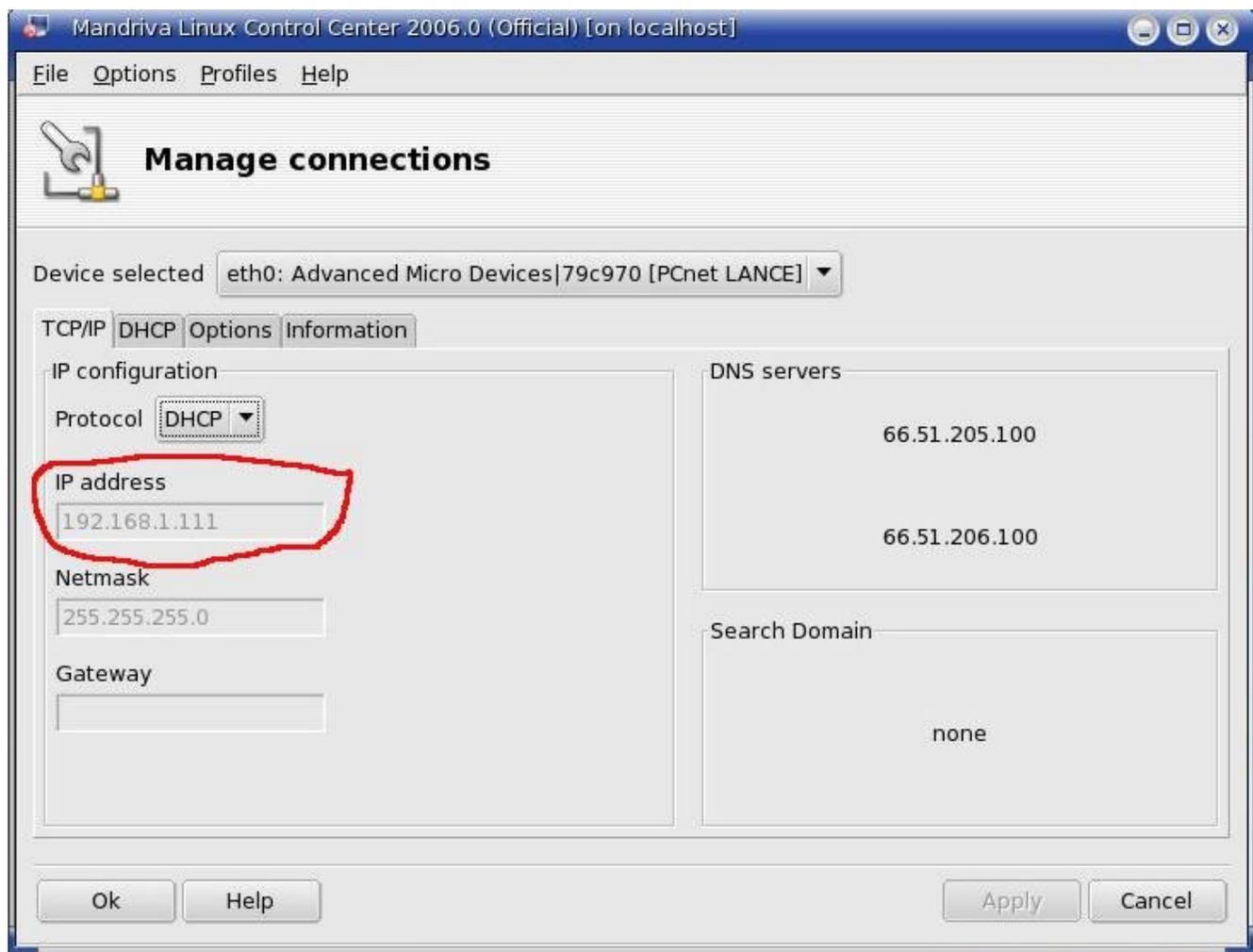
The circled number above is your *Your_Current_IP_address*.

2. Then you can use below links to connect to your virtual server
   1. OpenEMR at https://*Your_Current_IP_address*/openemr
   2. SQL-Ledger at https://*Your_Current_IP_address*/sql-ledger
   3. php-GACL at https://*Your_Current_IP_address*/phpgacl/admin
   4. For the list of application login names and passwords go to the 'Login Name and Password' section below.

2. You can also change your IP address to a static one, so it doesn't change after your virtual server is turned off or re-started. I'm out of time, so can't go thru it. You'll have to Google this one (Quickly, it can be changed in above window by clicking on the Protocol toggle and selecting static, then you can choose an IP address. However, you then need to type in DNS servers and you need to ensure your router does not assign any other computers your chosen static IP address)

OpenEMR User Training

1. There is an excellent web site for learning how to use all of the components of OpenEMR at: http://www.sunsetsystems.com/node/8
2. The above link is also mirrored at the following wiki site, which means it could theoretically contain updates: http://www.oemr.org/modules/cjaycontent/index.php?id=2
3. There is also an older user manual in the /var/www/html/openemr/Documentation directory which can be helpful.
4. You can ask question at the SourceForge OpenEMR forum at: http://sourceforge.net/forum/?group_id=60081
5. The OpenEMR home page is here with a wiki: http://www.oemr.org/
6. The most current version of this appliance user manual will hopefully always be available at: http://www.bradymd.com/appliance

Helpful Tips

1. **NEED** to mark bills as 'cleared' (even after hfca processing) on the billing menu to send data to sql-ledger.
2. N**EED** to leave the the 'Prior Authorization Form' installed and **disabled** for the hfca form printing to work.
3. **NEED** to also create your new OpenEMR users in php-GACL or strange things will happen. (I refer you to above OpenEMR User Training section on how to do this.)
4. **NEED** to ensure clock is set correctly (Virtual computer time should not differ from the host computers, or there will be cron scheduling and sql-ledger problems)
5. **NEED** to ensure your provider is authorized or you won't be able to send bills to sql-ledger. It's confusing because there are two different separate authorization options. Screenshots below go thru the process:

Click 'Administration'.

| Users & Groups | Forms | Practice | Calendar | Database | BatchCom | Language | Logs | Back |

Logged in: Administrator   **Mon March 20th 2006**

User & Group Administration

New Facility Information:

Name: [_____]   Phone: [_____]

Address: [_____]   City: [_____]

State: [_____]   Zip Code: [_____]

Country: [_____]   Federal EIN: [_____]

[Add Facility]

Edit Facilities: Your Clinic Name Here(Edit)

New User:

Username: [_____]   Password: [_____]

Groupname: [Healthy Choice ▼]   Authorized: [ ]

First Name: [_____]   Middle Name: [_____]

Last Name: [_____]   Default Facility: [Your Clinic Name Here ▼]

Federal Tax ID: [_____]   Federal Drug ID: [_____]

UPIN: [_____]   See Authorizations: [None ▼]

Additional Info:

[_____]

[Add User]

New Group: Groupname: [_____]   Initial User: [admin ▼]   [Add Group]

Add User To Group: User: [admin ▼]   Groupname: [Healthy Choice ▼]   [Add User To Group]

Username   Real Name   Info   Authorized?

admin(Edit) Administrator   yes

Healthy Choice

admin(Remove)

Click 'edit' for the user.

Ensure the 'Authorized:' toggle is on. Ensure the 'See Authorizations:' is set to 'All' or 'only mine'. Then click 'Save Changes'.

List of Login Names and Passwords

Main TOC Link

1. Mandriva2006 user -> user: 'openemr' password: 'openemrcool' (this password may need to be changed during first login)
2. Mandriva2006 admin -> user: 'root' password: 'rootcool' (this password may be changed by user also)
3. OpenEMR -> user: 'admin' password: 'pass'
4. SQL-Ledger user -> user: 'openemr' password: 'openemr'
5. SQL-Ledger admin -> password: 'admin'
6. php-GACL -> user: 'admin' password: 'admin'
7. PostgreSQL -> user: 'sql-ledger' password: 'sqlledger'
8. MySQL user -> user: 'openemr' password: 'openemr'
9. MySQL admin -> user: 'root' NO PASSWORD

Configuration of the OpenEMR Appliance

Main TOC Link

Change Display to the New Frames Look

1. Decide which look you want by looking at the [online demos](#).

2. The default look is traditional, if you want to change to the new frames look, then enter below **bolded** instructions on command line as root user:

> #log into root
> **su**
>
> #If you want to change to the new "frames look", then you will need to edit the file /var/www/html/openemr/interface/globals.php:
> **mcedit /var/www/html/openemr/interface/globals.php**
> > #edit the below **bolded** variable :
> > $GLOBALS['concurrent_layout'] = **true**;
> **TEXT EDITOR SAVE AND EXIT**

Enable Pharmacy Dispensary Module

1. The pharmacy dispensary module will allow you to dispense and keep track of your own med/herbs/supplement dispensary. It will also create bottle labels of the drugs you dispense.
2. Turn on the pharmacy dispensary module in the OpenEMR configuration file. Enter below **bolded** instructions on command line as root user:

> #log into root
> **su**
>
> #edit file /var/www/html/openemr/interface/globals.php:
> **mcedit /var/www/html/openemr/interface/globals.php**
> > #edit the following **bolded** variable :
> > $GLOBALS['inhouse_pharmacy'] = **true**;
> **TEXT EDITOR SAVE AND EXIT**

1. Here are some quick OpenEMR screenshots that show how to navigate to the pharmacy dispensary module for administrative purposes:

Click 'Administration'

Click 'Drugs'.

Click 'Add Drug', enter stuff and play around to figure out how to use.

Quick OpenEMR screenshots of prescribing drugs with the dispensary:
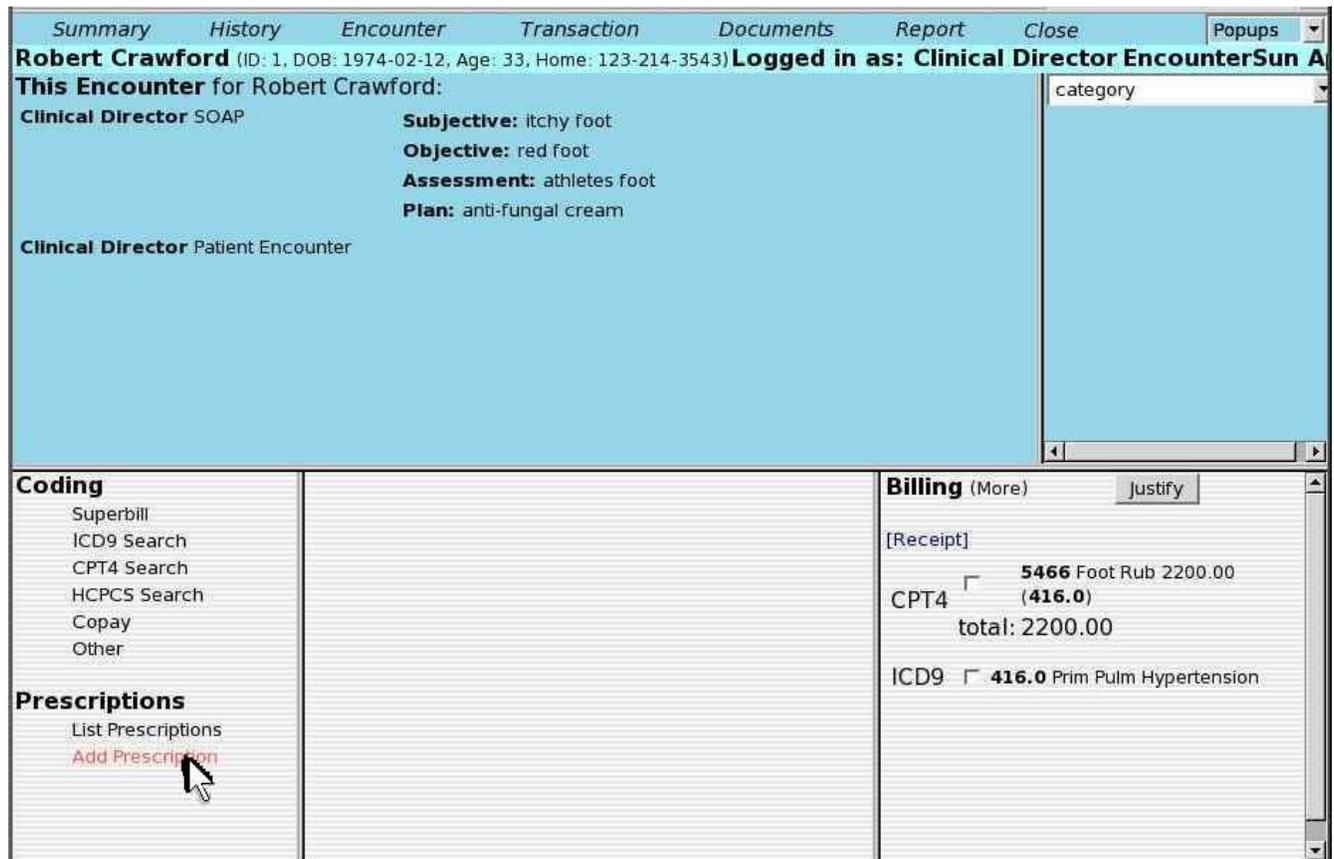
Click 'Add Prescription'.
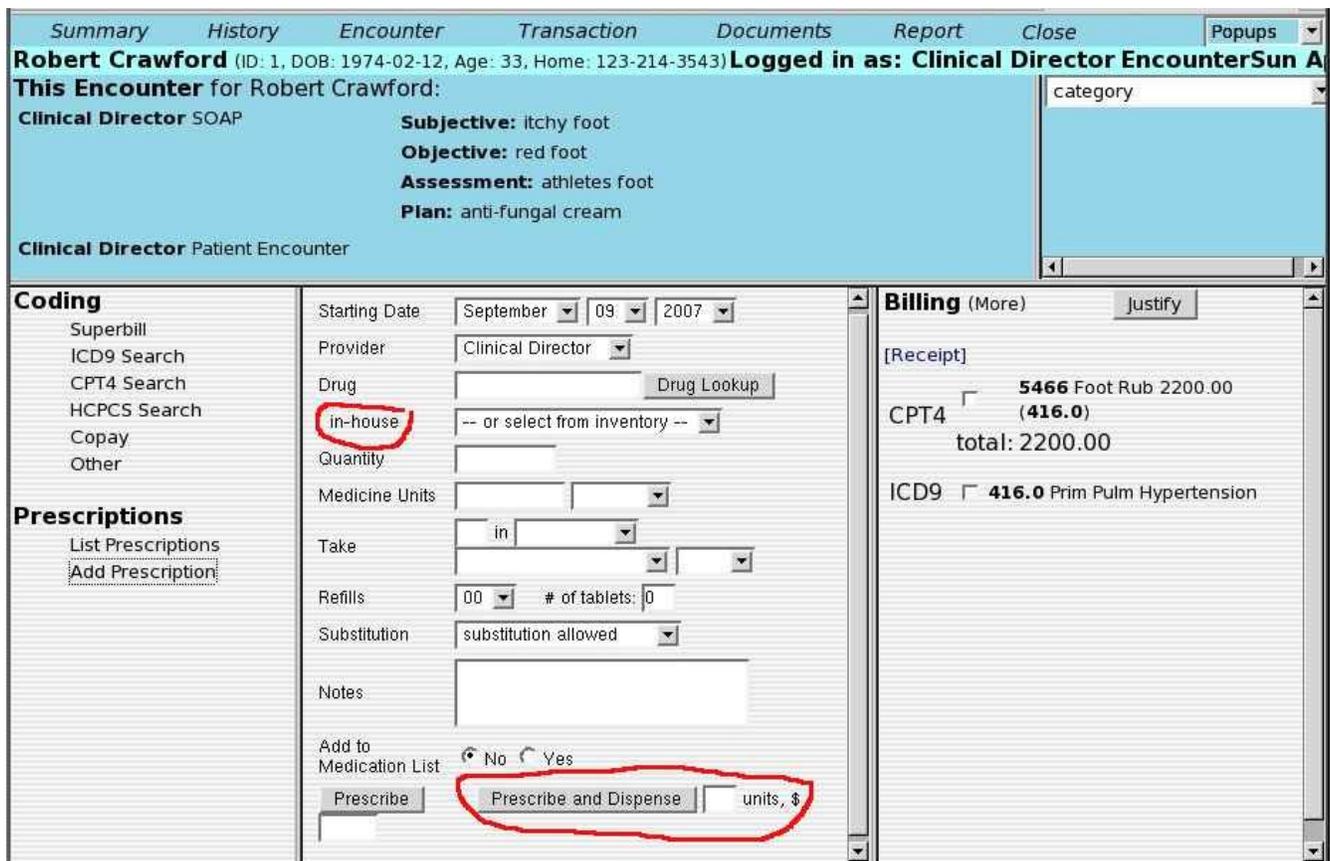
Note the things circled in red, which are part of the pharmacy dispensary module.

Printer Setup

1. For USB printers, you will need to connect the device by clicking on printer on top of window. Your host computer may no longer be able to see the printer after this step(not permanent, but can be a pain).

In my case I click on the 'Hewlett-Packard...' button at top of VMware window.

This is just to demonstrate that the 'Hewlett-Packard...' button is now shaded.

2. Then install software and printer via Mandriva Control Center, which will first install CUPS, and then look for printers. If your lucky, Mandriva will see your printer.
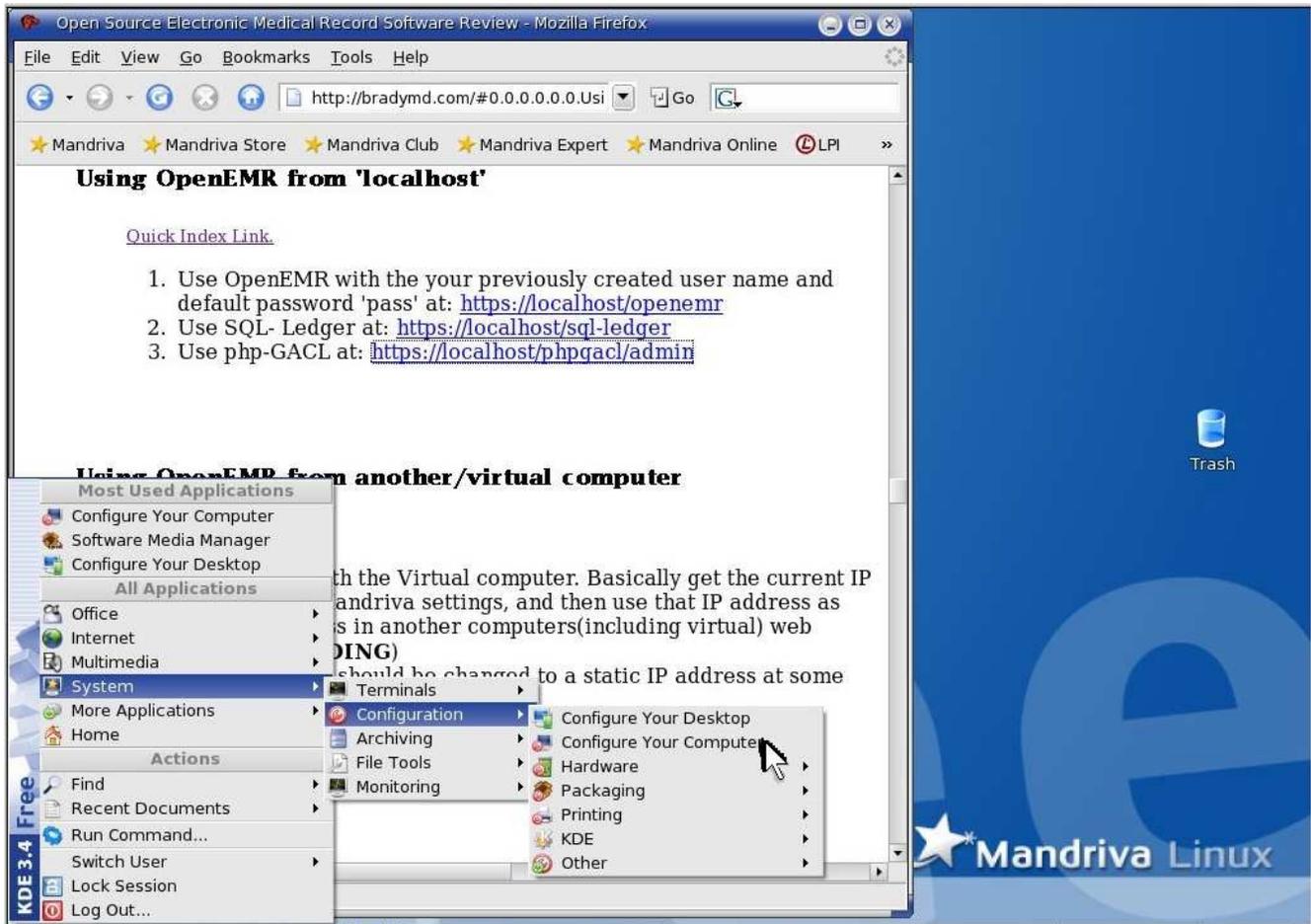
Click 'System' -> 'Configuration' -> 'Configure Your Computer'.
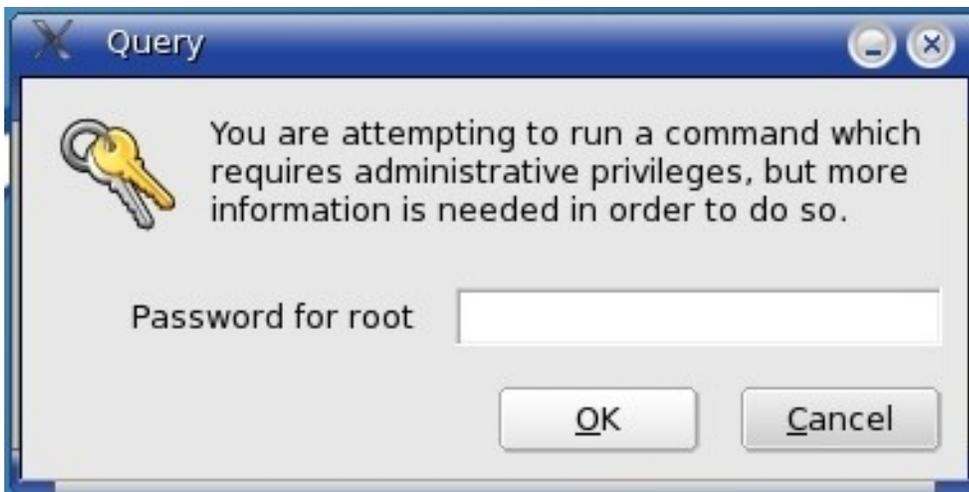
Enter 'root' user password. Then click 'OK'.

IMPORTANT, if you have not created a new 'root' user password, you need to proceed to Appendix A. 'Change Mandriva's expired 'root' user password' **NOW**. (The default 'root' password is expired and will no longer work) When your done updating the password, then

type your new password here.

Click 'Hardware'

Click 'Set up the printer(s)...'.

Printerdrake

There are no printers found which are directly connected to your machine (Make sure that all your printers are connected and turned on).

Do you want to enable printing on printers in the local network?

NOTE: Depending on the printer model and the printing system up to 80 MB of additional software will be installed.

Yes   Quit

Click 'Yes'.

Local CUPS printing system or remote CUPS server?

The CUPS printing system can be used in two ways:

1. The CUPS printing system can run locally. Then locally connected printers can be used and remote printers on other CUPS servers in the same network are automatically discovered. Disadvantage of this approach is, that more resources on the local machine are needed: Additional software packages need to be installed, the CUPS daemon has to run in the background and needs some memory, and the IPP port (port 631) is opened.

2. All printing requests are immediately sent to a remote CUPS server. Here local resource occupation is reduced to a minimum. No CUPS daemon is started or port opened, no software infrastructure for setting up local print queues is installed, so less memory and disk space is used. Disadvantage is that it is not possible to define local printers then and if the specified server is down it cannot be printed at all from this machine.

How should CUPS be set up on your machine?

- ⦿ Local CUPS printing system
- ○ Remote server, specify Name or IP here:

[   ]

[Ok]   [Cancel]

Select 'Local CUPS printing system'. Then click 'Ok'.

Installing a printing system in the high se

You are about to install the printing system CUPS on a system running in the high security level.

This printing system runs a daemon (background process) which waits for print jobs and handles them. This daemon is also accessible by remote machines through the network and so it is a possible point for attacks. Therefore only a few selected daemons are started by default in this security level.

Do you really want to configure printing on this machine?

Yes

No

Click 'Yes'.

Mandriva Linux Control Center 2006.0 (Official) [on localhost]

File   Options   Profiles   Help

Welcome to the Mandriva Linux Control Center

Please wait
stalling ...

Loading... Please wait

Cancel

Just twiddle your thumbs and wait, it takes a while.

Click 'Add Printer'.

Add a new printer

Welcome to the Printer Setup Wizard

This wizard will help you to install your printer(s) connected to this computer, connected directly to the network or to a remote Windows machine.

Please plug in and turn on all printers connected to this machine so that it/they can be auto-detected. Also your network printer(s) and your Windows machines must be connected and turned on.

Note that auto-detecting printers on the network takes longer than the auto-detection of only the printers connected to this machine. So turn off the auto-

☒ Auto-detect printers connected to this machine

☒ Auto-detect printers connected directly to the local network

Cancel   Next

Select both auto-detect options. Then Click 'Next'.

Add a new printer

Add a new printer

No printer found!

Ok

No big deal. Close the windows and we will install the printer below thru CUPS.

3. If the above step found your printer, then you can skip to the section below which will have you place the name of the printer into the openemr config file (this will allow printing while creating billing forms via freeb). If Mandriva can't find the printer, don't worry, we will install it via CUPS directly at: http://localhost:631/
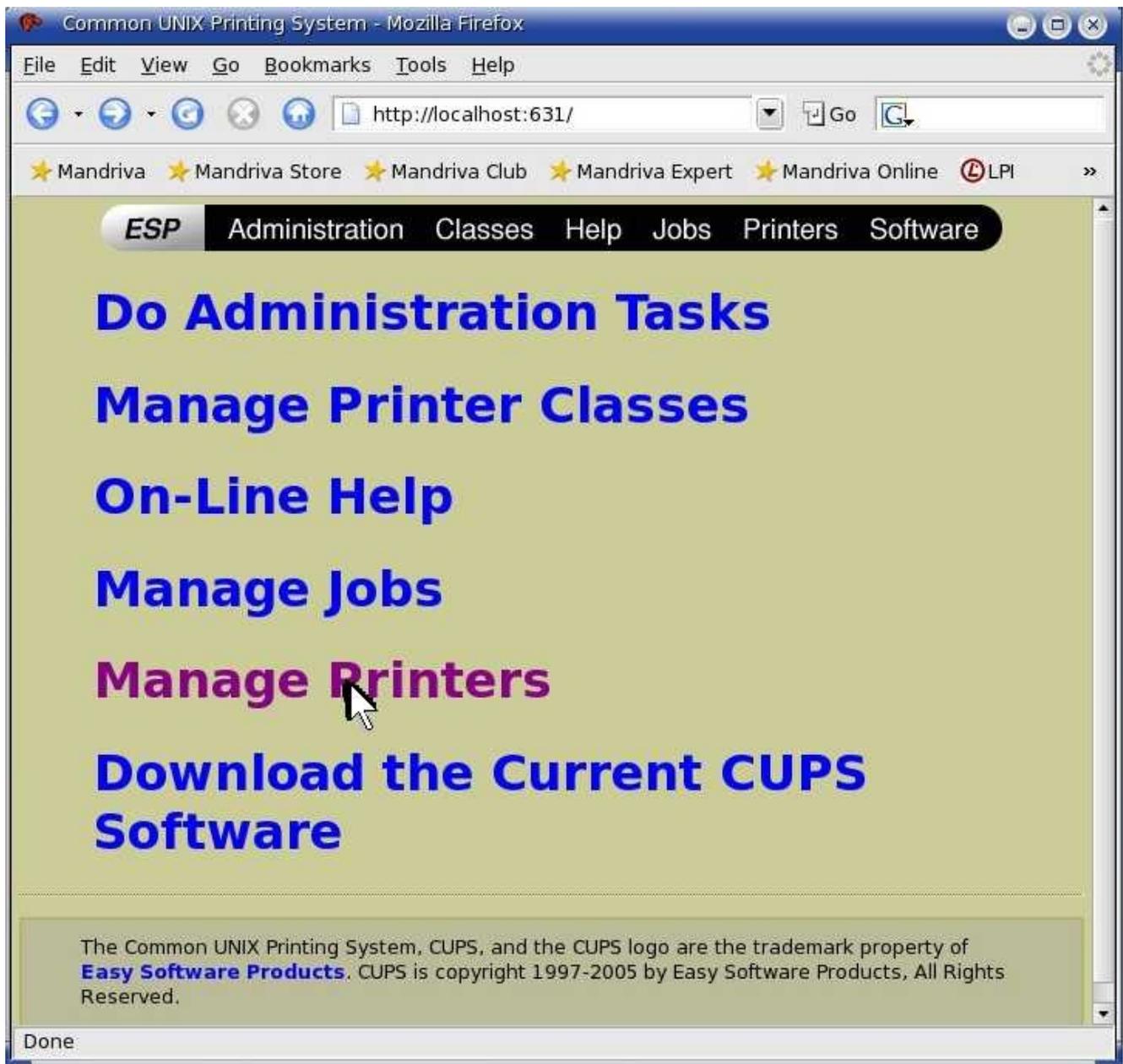
Click 'Manage Printers'.
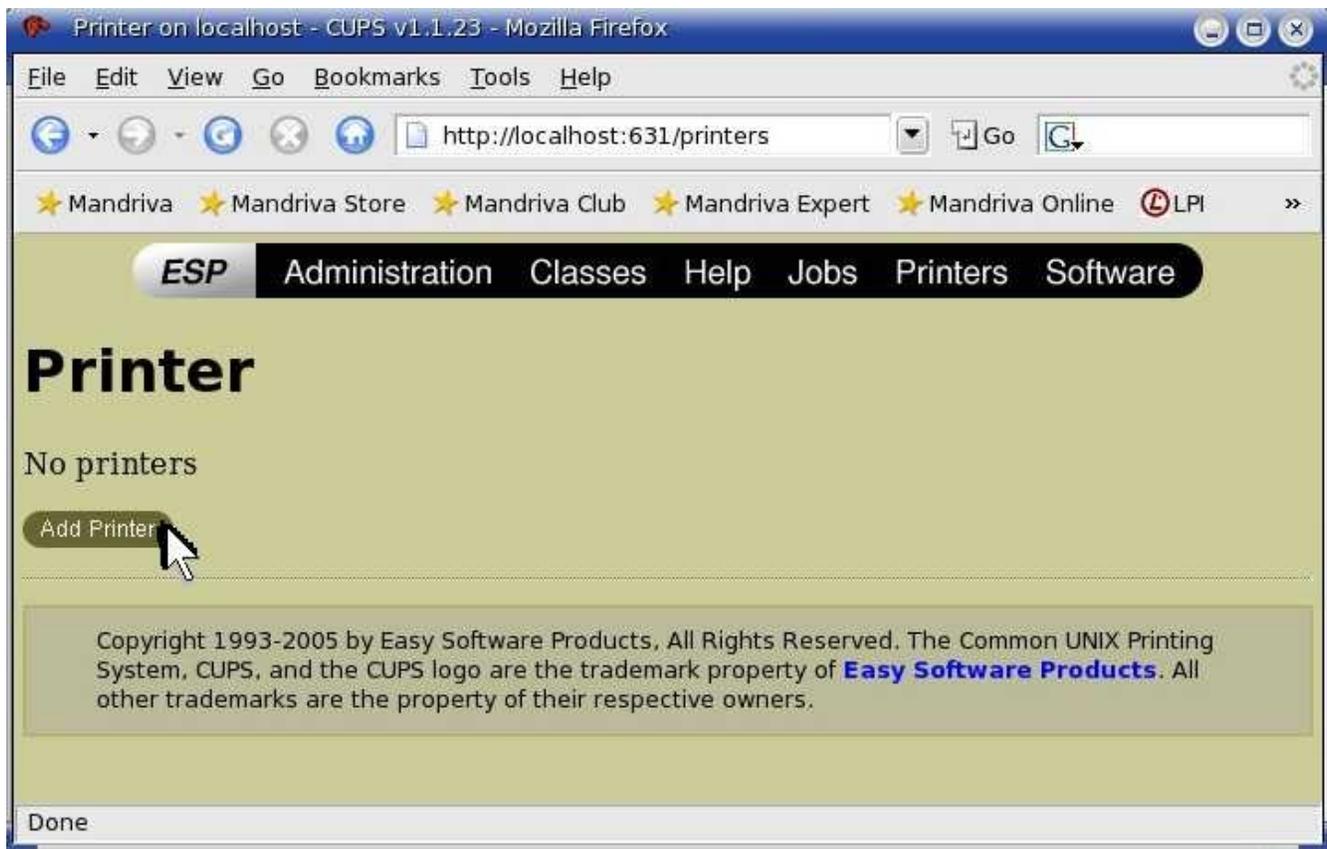
Click 'Add Printer'.

Enter 'User Name' -> 'root'. Enter the root password. Then click 'OK'.
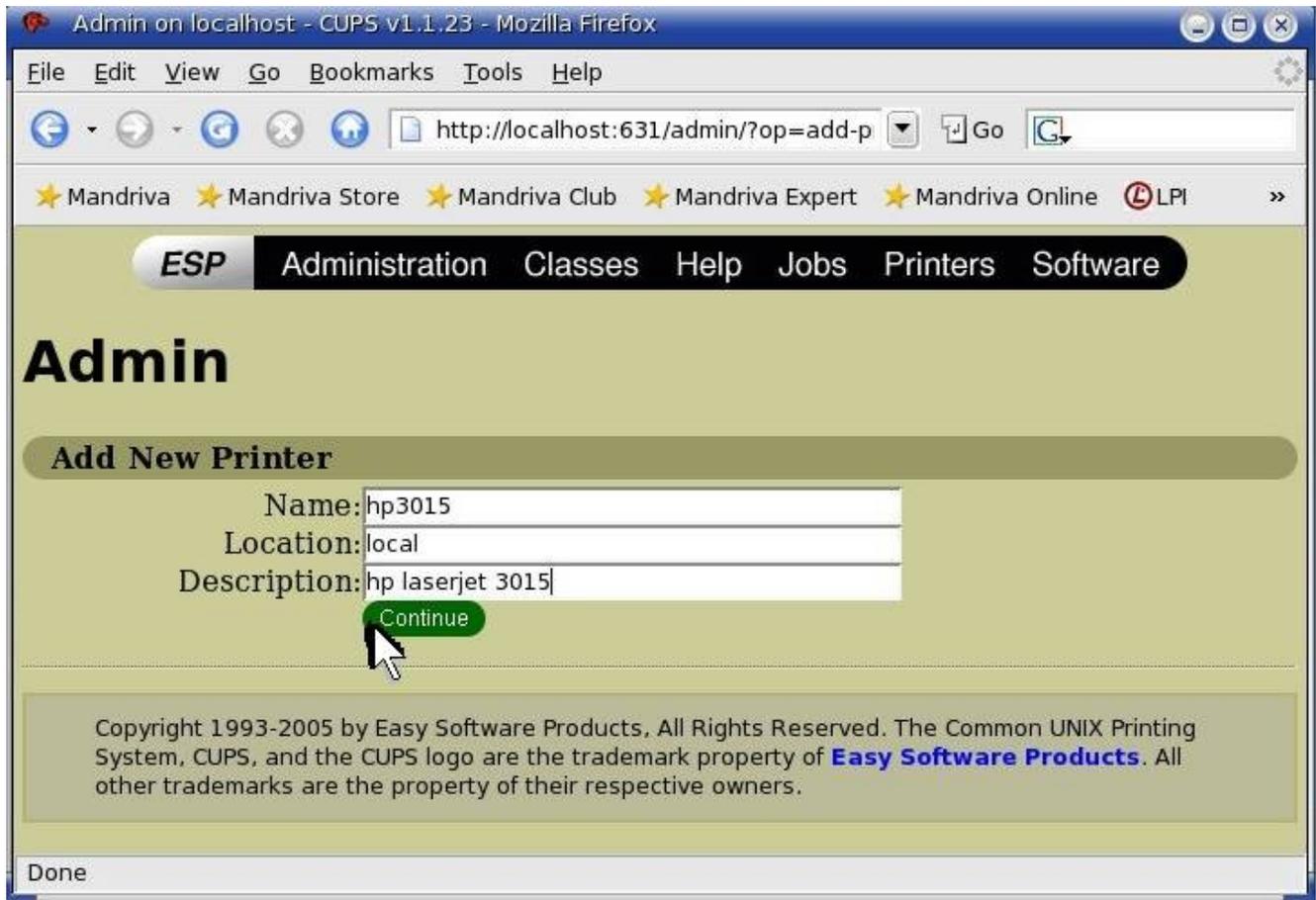
Fill in form, and then click 'Continue'. The only important field is the 'Name'. This will be used later when configuring printer for freeb/openemr.
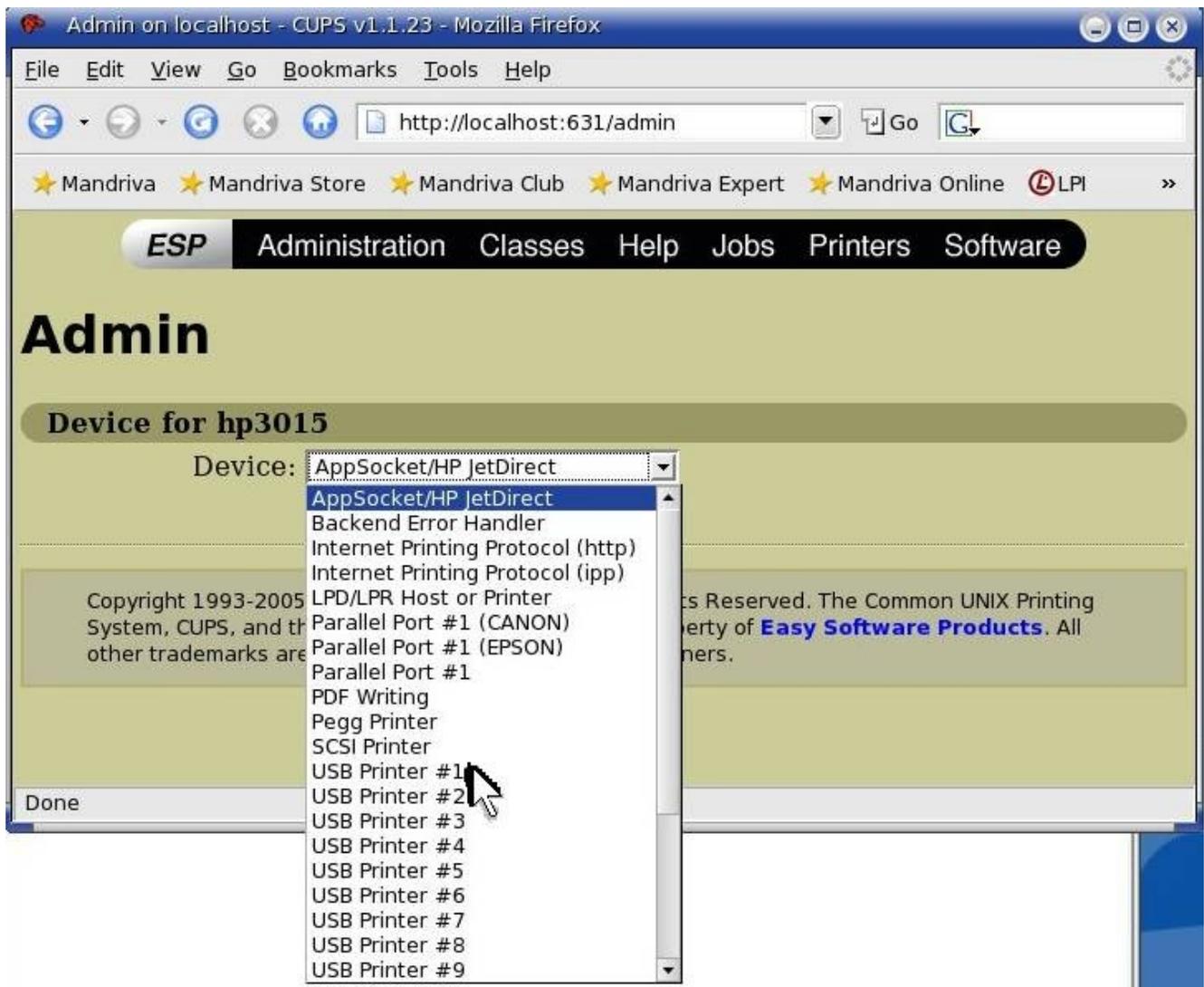
In my case I am selecting the 'USB Printer #1'. If your using a USB printer, this will likely work.

Click 'Continue'.

Select the make of your printer. Then click 'Continue'.

File   Edit   View   Go   Bookmarks   Tools   Help

http://localhost:631/admin   Go

Mandriva   Mandriva Store   Mandriva Club   Mandriva Expert   Mandriva Online   LPI   »

ESP   Administration   Classes   Help   Jobs   Printers   Software

Admin

Model/Driver for hp3015

HP LaserJet 2300 Postscript (recommended) (en)
HP LaserJet 2410 Postscript (recommended) (en)
HP LaserJet 2420 Postscript (recommended) (en)
HP LaserJet 2430 Postscript (recommended) (en)
HP LaserJet 3015 Postscript (recommended) (en)
Model: HP LaserJet 3020 3030 Postscript (recommended) (en)
HP LaserJet 3200 Postscript (recommended) (en)
HP LaserJet 3300 Series Postscript (recommended) (en)
HP LaserJet 3380 Postscript (recommended) (en)
HP LaserJet 4000 Series Postscript (recommended) (en)
HP LaserJet 4050 Series Postscript (recommended) (en)

Continue

Done

Select the model of your printer. Then click 'Continue'.
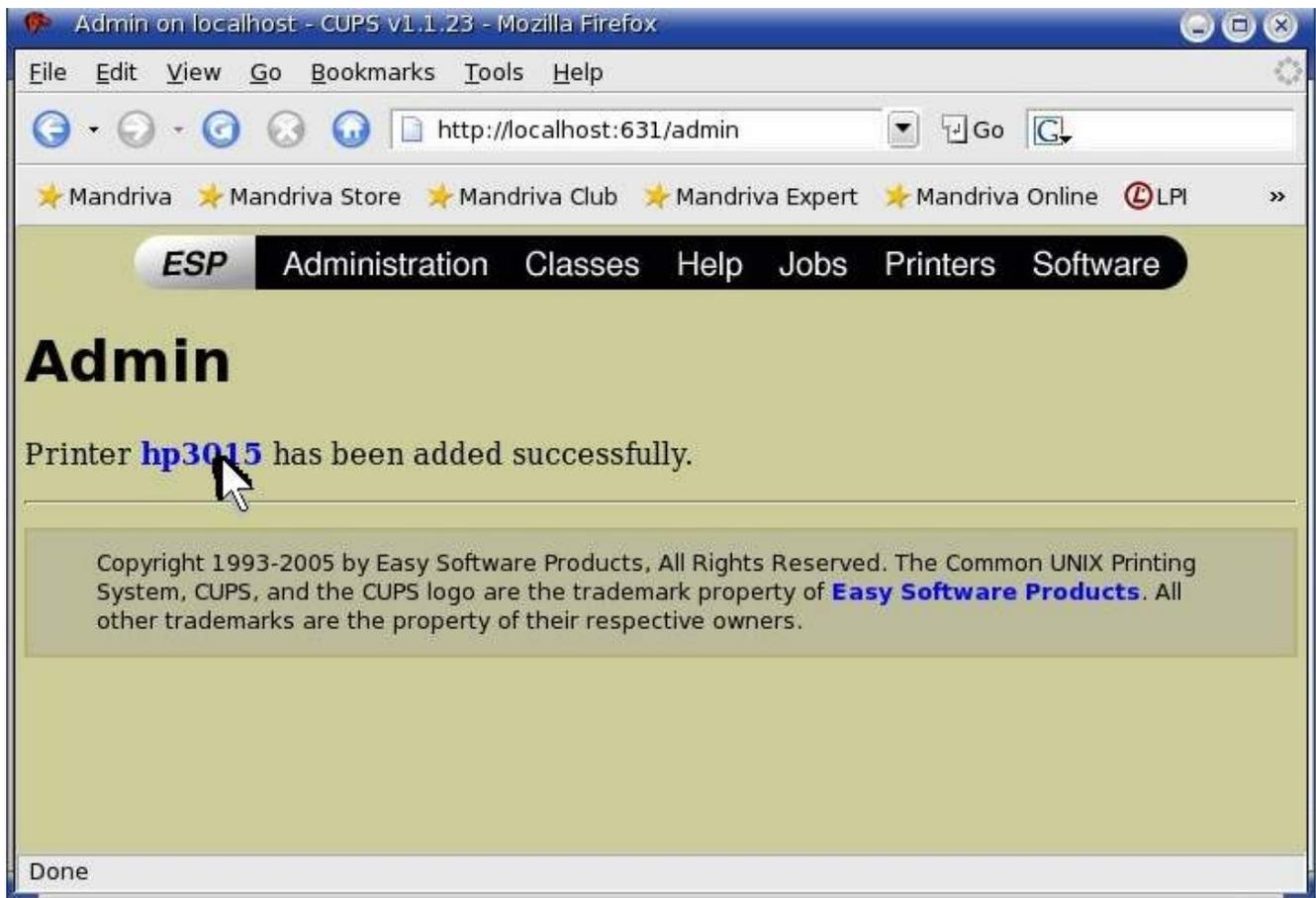
It Worked!! Click printer name to see more specifics on your newly added printer.

Done installing printer. I'd rec. testing it with 'Print Test Page'.

4. Confirm that your printer is seen by Mandriva and get your printer name:
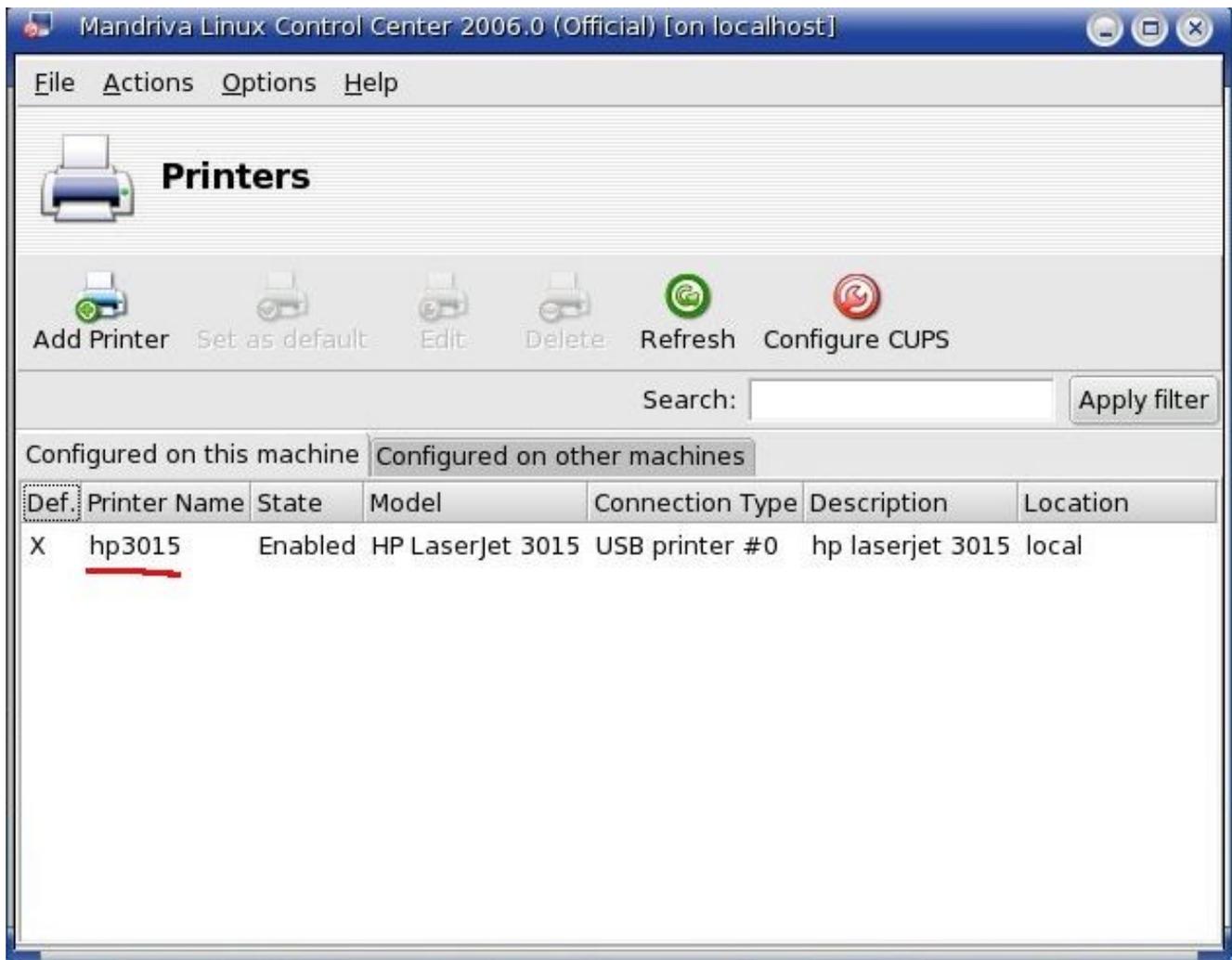
Your printer name is underlined with red line. This will be typed into the below freeb/openemr configuration file.

5. Enter below **bolded** instructions on command line as root user:

#log into root
su

#edit file /var/www/html/openemr/includes/config.php:
mcedit /var/www/html/openemr/includes/config.php
   #change **bolded** variable to the **name** of your **printer**
   $GLOBALS['oer_config']['freeb']['printer_name'] =
      "YourPrinterName";
   TEXT EDITOR SAVE AND EXIT

Email Server Setup

1. This will allow only locally produced emails (such as "status" emails during the below 'backup script', or emails originating from OpenEMR) to be sent over the internet.

2. Need to update a package called 'msec' if you want to avoid an error email every minute(not exaggerating)
    1. Enter below **bolded** instructions on command line as root user:

       #log into root
       su

       #Start MandrivaUpdate
       MandrivaUpdate

Click 'Yes'.

Click 'Yes'.

rpmdrake

Please choose the desired mirror.

▽ United States

ftp://mandrake.mirrors.pair.com/Mandrakelinux/official/current/i586/me

ftp://ftp.mandrake.ikoula.com/Mandrakelinux/official/current/i586/media

http://mandrake.mirrors.pair.com/Mandrakelinux/official/current/i586/m

http://www.mirrorservice.org/sites/carroll.cac.psu.edu/MandrivaLinux/o

ftp://ftp.ale.org/pub/mirrors/mandrake/official/current/i586/media/main/

rsync://www.mirrorservice.org/carroll.cac.psu.edu/MandrivaLinux/officia

ftp://ftp.mirrorservice.org/sites/carroll.cac.psu.edu/MandrivaLinux/offici

http://ftp.ale.org/pub/mirrors/mandrake/official/current/i586/media/mair

ftp://mirrors.secsup.org/pub/linux/mandrakelinux/official/current/i586/m

ftp://linux.ntcu.net/dists/mandrake/official/current/i586/media/main/

rsync://ftp.esat.net/ftp/pub/linux/mandrakelinux/official/current/i586/me

http://ftp.esat.net/pub/linux/mandrakelinux/official/current/i586/media/i

ftp://mirrors.ptd.net/mandrake/official/current/i586/media/main/

Cancel   Ok

Click 'Ok'. (just select the default mirror)
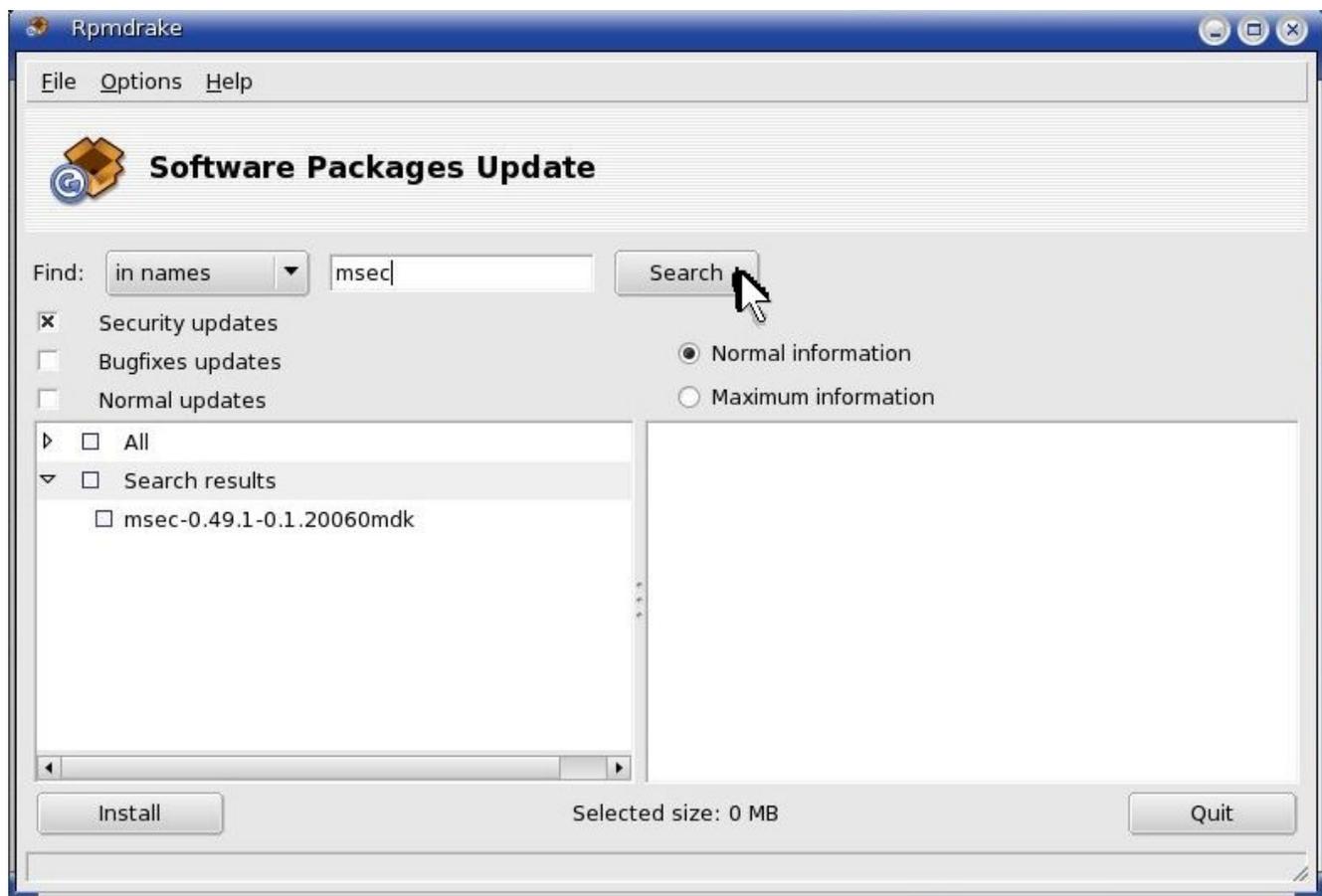
Type 'msec' and click 'Search'.
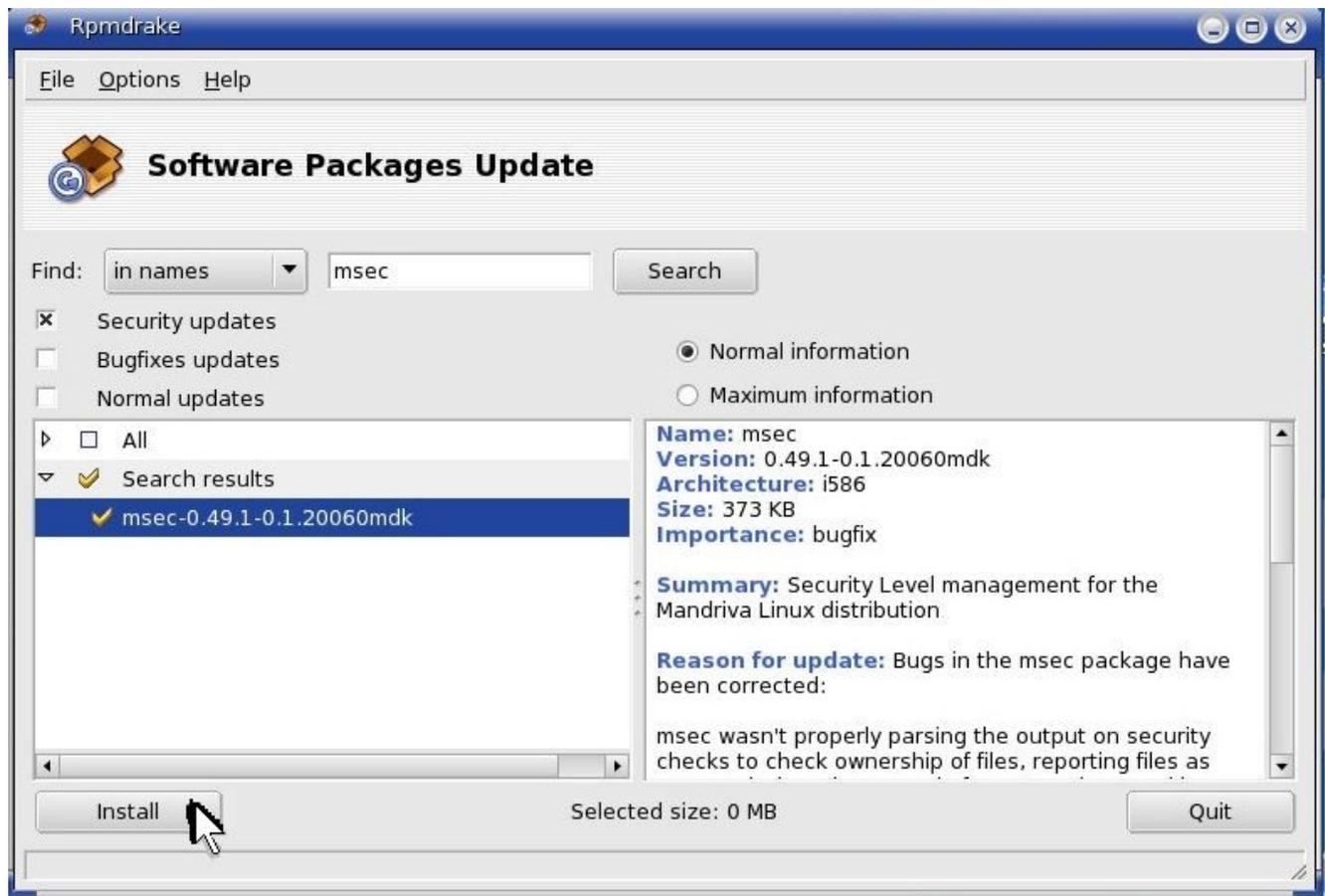
Select 'msec-0.49.1-...'. Then click 'Install'.
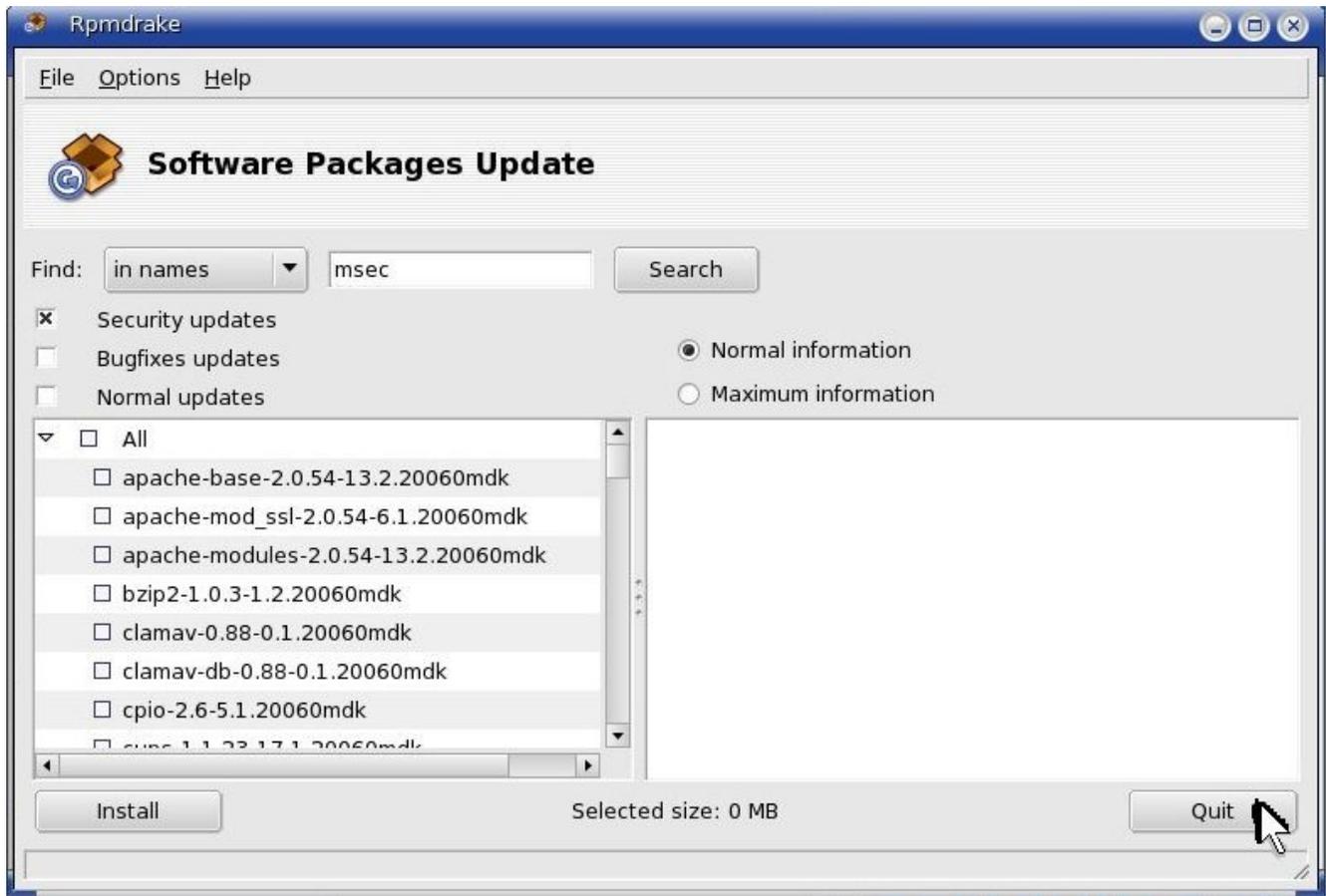
Your done. Close the window.

3. Enter below **bolded** instructions on command line as root user:

> #log into root
> **su**
>
> #This will allow outgoing mail from server.
> # Just made up virtual.org, this can be
> # anything since this is only an outgoing
> # email server. (It does not need to match
> # your domain or server name.)
> #edit config file /etc/postfix/main.cf:
> **mcedit /etc/postfix/main.cf**
>> #add to end of file
>> mydomain = virtual.org
>> myhostname = $mydomain
>> myorigin = $mydomain
>> relayhost = *YourOutgoingSMTPMailServerHere*
>
> #This will forward the root's email to

the below email address (needed to
monitor server emails such as below
backup script status)
#edit aliases file /etc/postfix/aliases:
mcedit /etc/postfix/aliases
       #edit near end of file:
       root: ***YourFullEmailAddressHere***

#start postfix service and configure to start on computer boot up
service postfix start
chkconfig --add postfix

Automatic Backup Setup

1. This will enable a full daily backup of the MySQL server, PostGreSQL server, OpenEMR patient documents directory, OpenEMR X12 billing documents directory, and FreeB billing documents directory. The script will place a non-encrypted backup in the local hard drive secured /backup directory, and will also copy an encrypted backup to a DVD. The DVD copy works via multi-session, so you basically just need to leave one DVD in the DVD writer until it fills up. Do NOT use RW DVD. This script will work and should be used with R only DVD's. The output of the automated backup script will be emailed to the person's email entered in above email server setup.
   1. The local /backup directory will have to be manually cleaned up occasionally. I'd recommend deleting old backup sub-directories on a monthly basis or so. (of course, a script could be written for this)
   2. There is no restore script yet, will have to be done manually.
   3. The MySQL and PostGreSQL are gzipped. The ...openemr/documents and .../freeb/public backups are compressed via DAR (NOT tar).

2. Download the script file fullbackup2.sh. File can be found at: http://bradymd.com/fullbackup2.sh (to download file, you may need to Right-Click the link and select 'Save Link As...')

3. Configure file encryption package:
   1. Enter below **bolded** instructions on command line as root user:

      #log into root
      su

      #Configure file encryption. If you want to be able to decrypt your encrypted files you need to remember (case sensitive) the

passphrase that you type below. I'd also remember all the other info you type below.

gpg --gen-key
-'ENTER' to default of 1 for key selection
-'ENTER' to default 2048 keysize bits
-'ENTER' to default '0' so key does not expires
-Type 'Y' to confirm above
-Type your real full name
-Type your real email address
-Type 'openemr secure backup key'
-Type 'O' to confirm
-Type a very secure and long 'passphrase' (the longer your passphrase is the more secure, go for at least 15 characters with numbers, different cases, and strange characters)

#IMPORTANT!!! You **NEED** to backup the entire contents of directory **/root/.gnupg** on the most indestructible disk(s) you can find and then keep in a secure place. This directory contains your secret key file, and without this you will be unable to restore from your encrypted data backup!!! You also need to **remember** your **passphrase**, or you won't be able to restore your backed up data.

#The decrypt command, in case you need at some point:
#gpg -o *OutputFilename* -d *InputFilename*

4. Configure backup script and automate it:
    1. Enter below **bolded** instructions on command line as root user:

        #log into root
        su

        #install the DAR backup package
        urpmi dar
        -yes to packages

        #create a secure backup directory
        mkdir /backup
        chown root:root /backup
        chmod 700 /backup

        #move the backup script to /root , secure it, and allow execution
        mv /location/to/file/fullbackup2.sh /root
        chown root:root /root/fullbackup2.sh
        chmod 700 /root/fullbackup2.sh

        #edit file /root/dailybackup2.sh:
        mcedit /root/fullbackup2.sh

#**edit** the below DVDDEVICE line to what the
#device for the DVD writer is. It is likely going to
#be /dev/hda , /dev/hdb , /dev/hdc ... A very
#**non-scientific way** to figure this out is to put
#a DVD with files in the DVD writer, go to root
#command line and then use the
#'mount /dev/hda /mnt/cdrom1'
#command then 'ls /mnt/cdrom1', and continue
#this until you get the right device,
#don't forgot to 'umount /mnt/cdrom1':
DVDDEVICE=***/dev/hdb***

#**edit** full name you entered **above** for **encryption** key:
YOURFULLNAME='***Brady Miller***'
TEXT EDITOR SAVE AND EXIT

#Automate script to cron for a daily run at 1:02 AM. WARNING:
This script needs to finish and start on the same day since it
plays around with file names using the date command.
Basically, don't start this script before midnight unless you are
sure it will finish before midnight. This is why I have it set for
1:02AM.
export EDITOR=/usr/bin/mcedit
crontab -e
#**paste** below into empty file:
02 1 * * * . /root/fullbackup2.sh
TEXT EDITOR SAVE AND EXIT

Instructions for Building the OpenEMR Appliance

Main TOC Link

LINK TO MANUAL IN PDF FORMAT

Instructions for Building the OpenEMR Appliance Chapter Index

Software

1. Apache (2.0.54), MySQL (4.1.12), and PHP (4.4.0)
2. OpenEMR (2.8.1), OpenEMR (2.8.2), and OpenEMR(2.8.3)
3. FreeB (0.11), FreeB (0.12), and FreeB (0.13) – Insurance billing software
4. PostgreSQL (8.0.3) – Database program required by SQL-ledger
5. SQL-Ledger (2.6.3) – Billing, Accounting, and Inventory software
6. php-GACL (3.3.6) – Access Control software

Important Issues Before Installation

1. **These instructions are exact instructions for building this appliance. If you are using these instructions, you have several options:**
   1. **You can follow the instructions exactly, which means installing OpenEMR 2.8.1(with FreeB 0.11) first, then upgrade to 2.8.2(with FreeB 0.12), and then upgrade to 2.8.3(with FreeB 0.13). This will guarantee getting a working version, which is identical to the Appliance.**
   2. **Or you can try to install OpenEMR 2.8.3(with FreeB 0.13) using the 2.8.1 instructions(it should work in theory) to avoid having to go thru the upgrade sections. Please note I have not tested this.**
   3. **Also, OpenEMR 2.8.3 will now work with PHP5 and MySQL5, so you could, in theory, install these instead of PHP4 and MySQL4. Please note I have not tested this.**
2. Complete all of the steps before entering any data into OpenEMR. The SQL-Ledger and OpenEMR software may communicate in strange ways if you enter data into OpenEMR before installing SQL-Ledger.
3. Passwords can be confusing during the SQL-Ledger installation. To

avoid any confusion it is helpful to know that during the installation you will create a PostGreSQL user called 'sql-ledger' with a password. This user/password combination will be used frequently, and the password will be referred to as '*sql-ledger-password*' throughout this document to avoid confusion.

Install the Mandriva 2006 Virtual Computer

1. You can use either VMware Workstation or VMware Server to build the Mandriva 2006 Virtual Computer.
2. VMware Workstation Configuration:
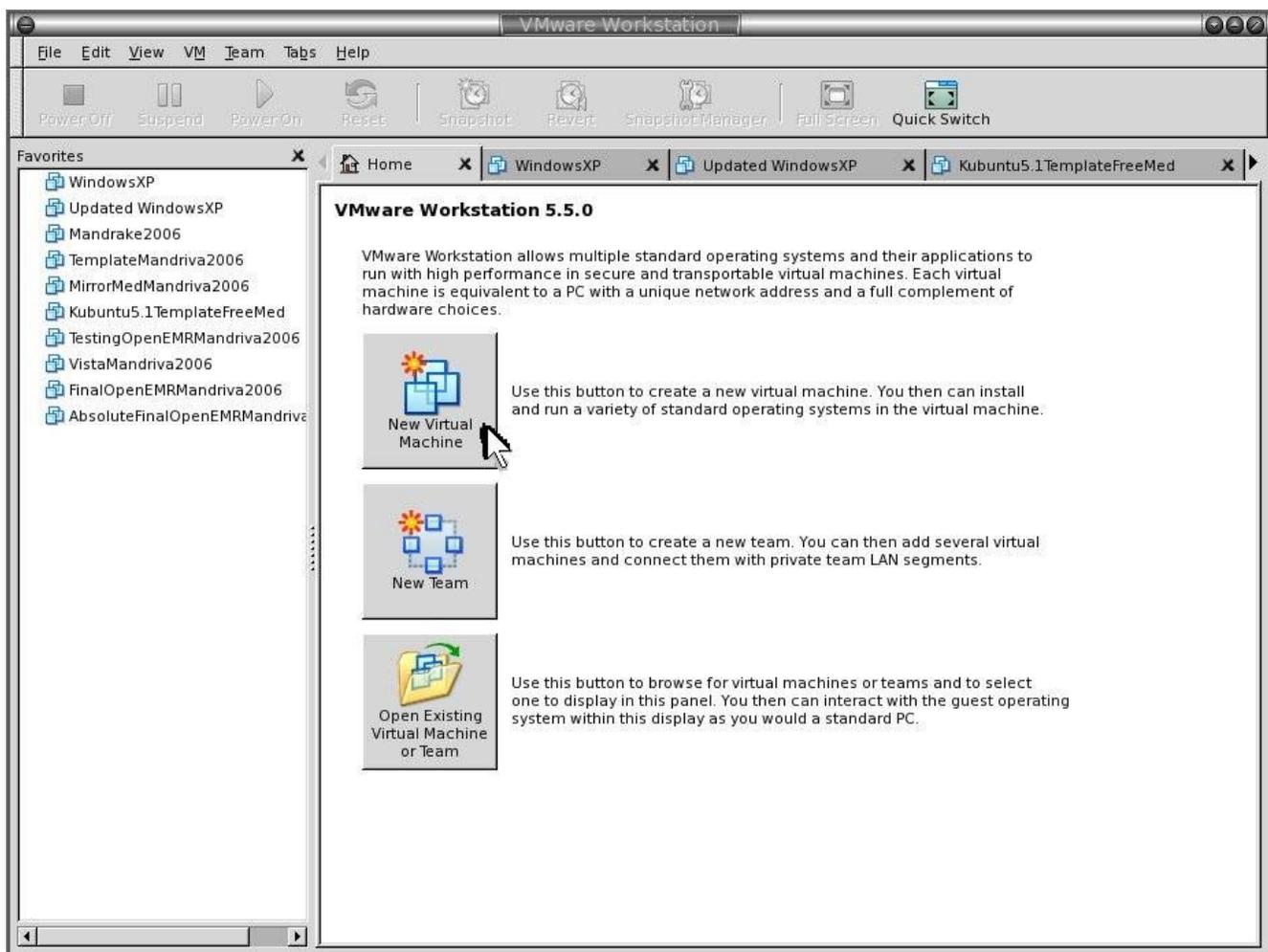
Click 'New Virtual Machine'.

Select the Appropriate Configuration

How would you prefer to configure your new virtual machine?

Virtual Machine Configuration

⦿ Typical

Create a new virtual machine with the most common devices and configuration options.

This virtual machine will not be compatible with VMware ESX Server 2.x, GSX Server 3.x, ACE 1.x or Workstation 4.x.

○ Custom

Choose this option if you need to create a virtual machine with additional devices or specific configuration options, or if you need to create a legacy virtual machine.

✗ Cancel   ⬅ Back   ➡ Next

Select 'typical'. Then click 'Next'.
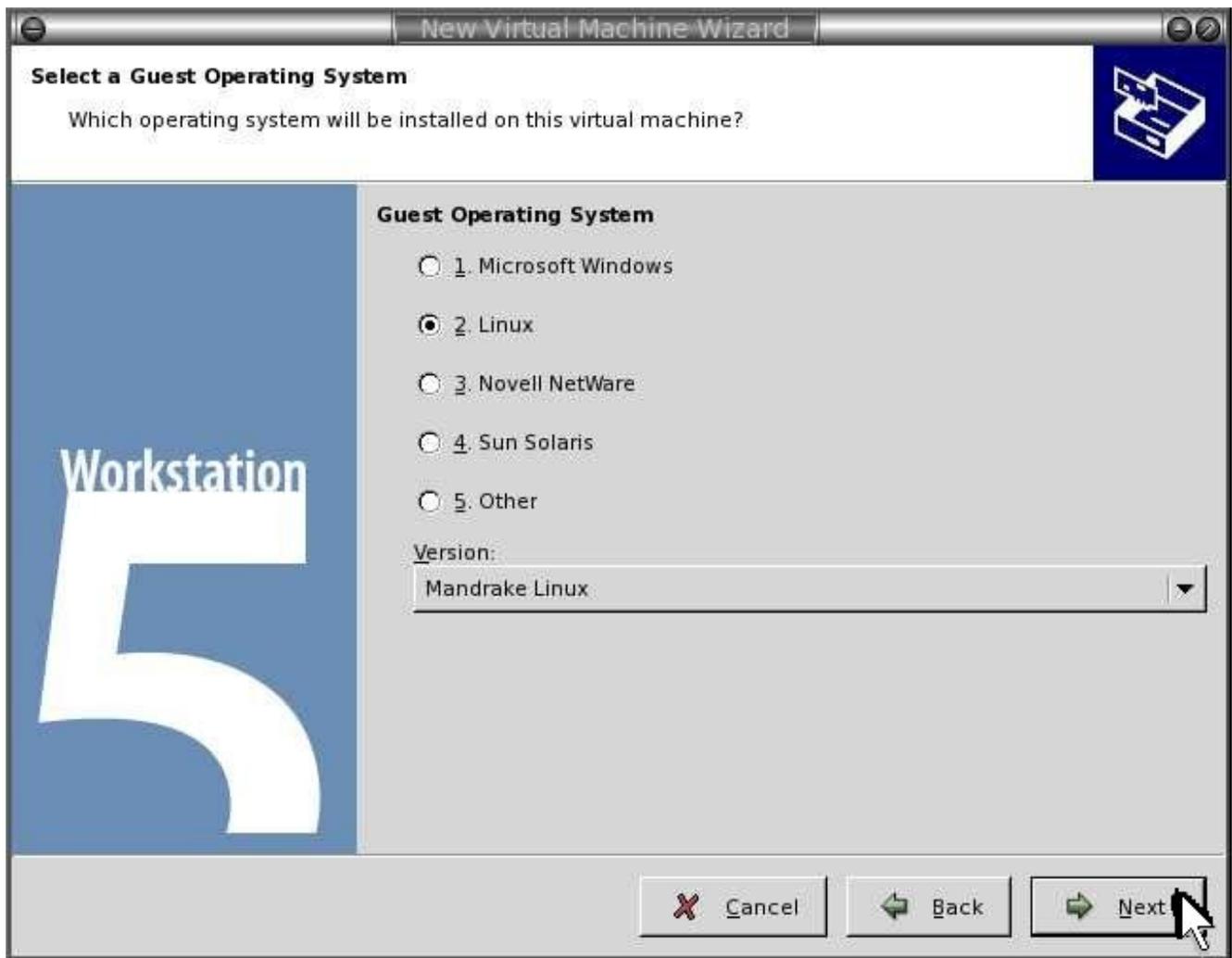
Select 'Linux' and 'Mandrake Linux'. Then click 'Next'.

Select 'Use bridged networking'. Then click 'Next'.

Enter 'Disk Size'->'20 GB'. Select 'Split disk into 2GB files'. Then click 'Finish'.

3. Insert the Mandriva2006 DVD/CD.

1. Click 'Power On' via Vmware.

1. Install Mandriva2006:

Change 'Security Level' -> 'Higher'. Type in an administrator log in name. Then click 'Next'.
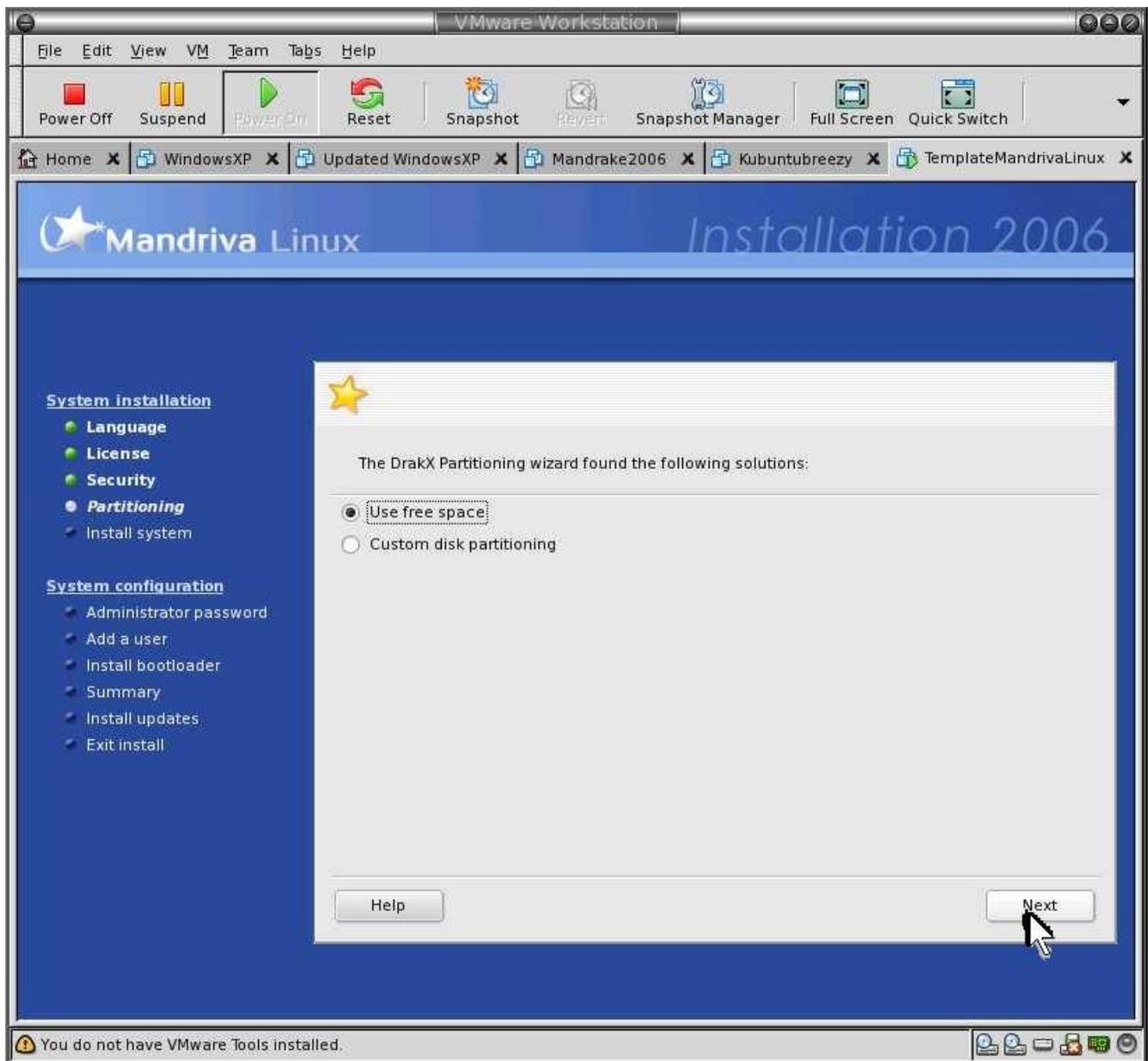
Select 'Use free space'. Then click 'Next'.

Click 'Next'.

Mandriva Linux   Installation 2006

System installation
- ● Language
- ● License
- ● Security
- ● *Partitioning*
- ○ Install system

System configuration
- ○ Administrator password
- ○ Add a user
- ○ Install bootloader
- ○ Summary
- ○ Install updates
- ○ Exit install

The following media have been found and will be used during install: Installation Free DVD.

Do you have a supplementary installation media to configure?

- ◉ None
- ○ CD-ROM
- ○ Network (HTTP)
- ○ Network (FTP)
- ○ Network (NFS)

Ok

Click 'Ok'.
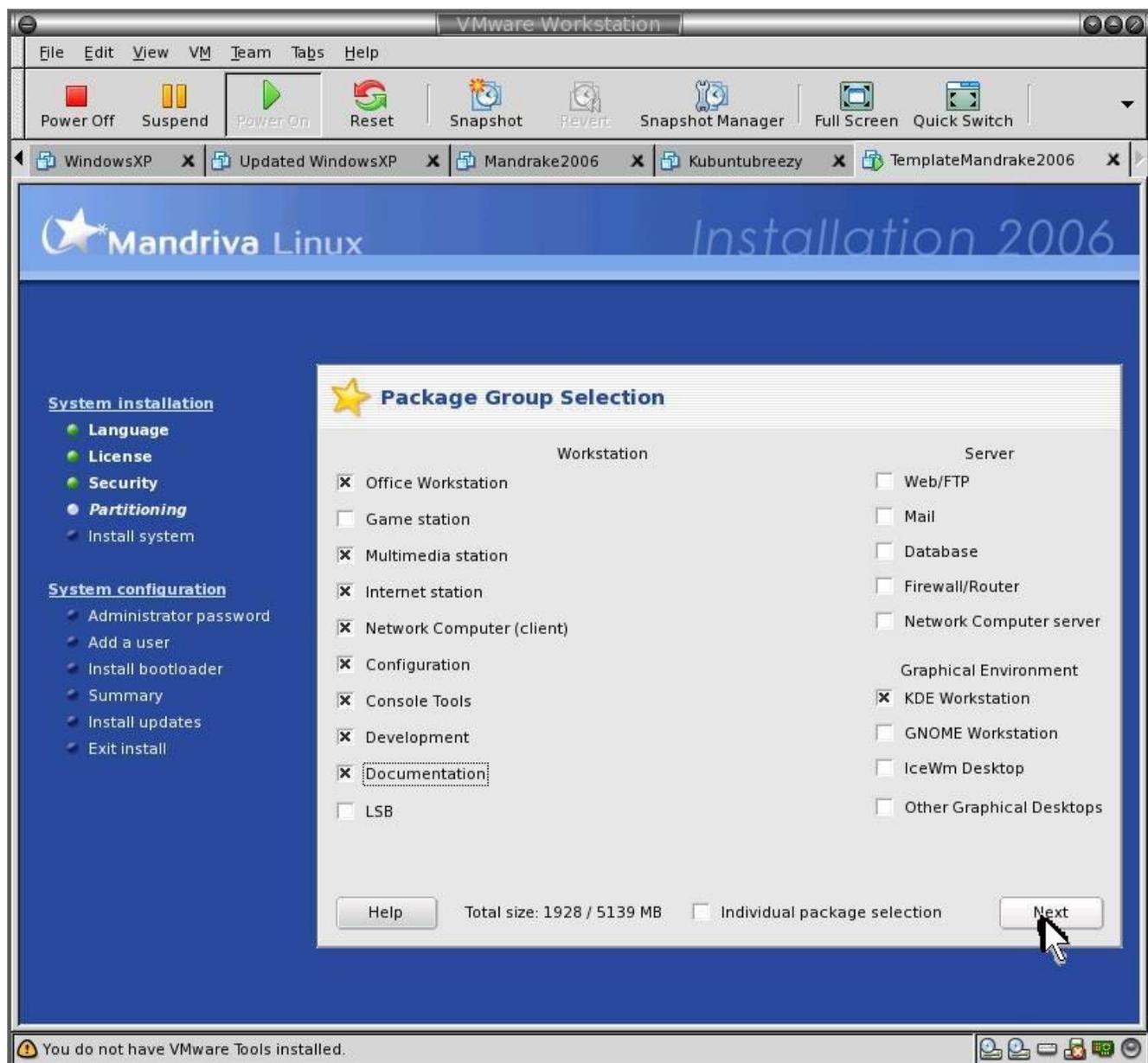
Select 'Office Workstation', 'Multimedia Station', 'Internet Station', 'Network Computer(client)', 'Configuration', 'Console Tools', 'Development', 'Documentation', 'KDE Workstation'. Do NOT select any Server selections. Then click 'Next'.

Enter a secure password. Then click 'Next'.

Type in a 'Name', 'Login name', and 'Password'. Toggle ON 'xgrp', 'rtools', and 'wheel'. Then click 'Accept user'.
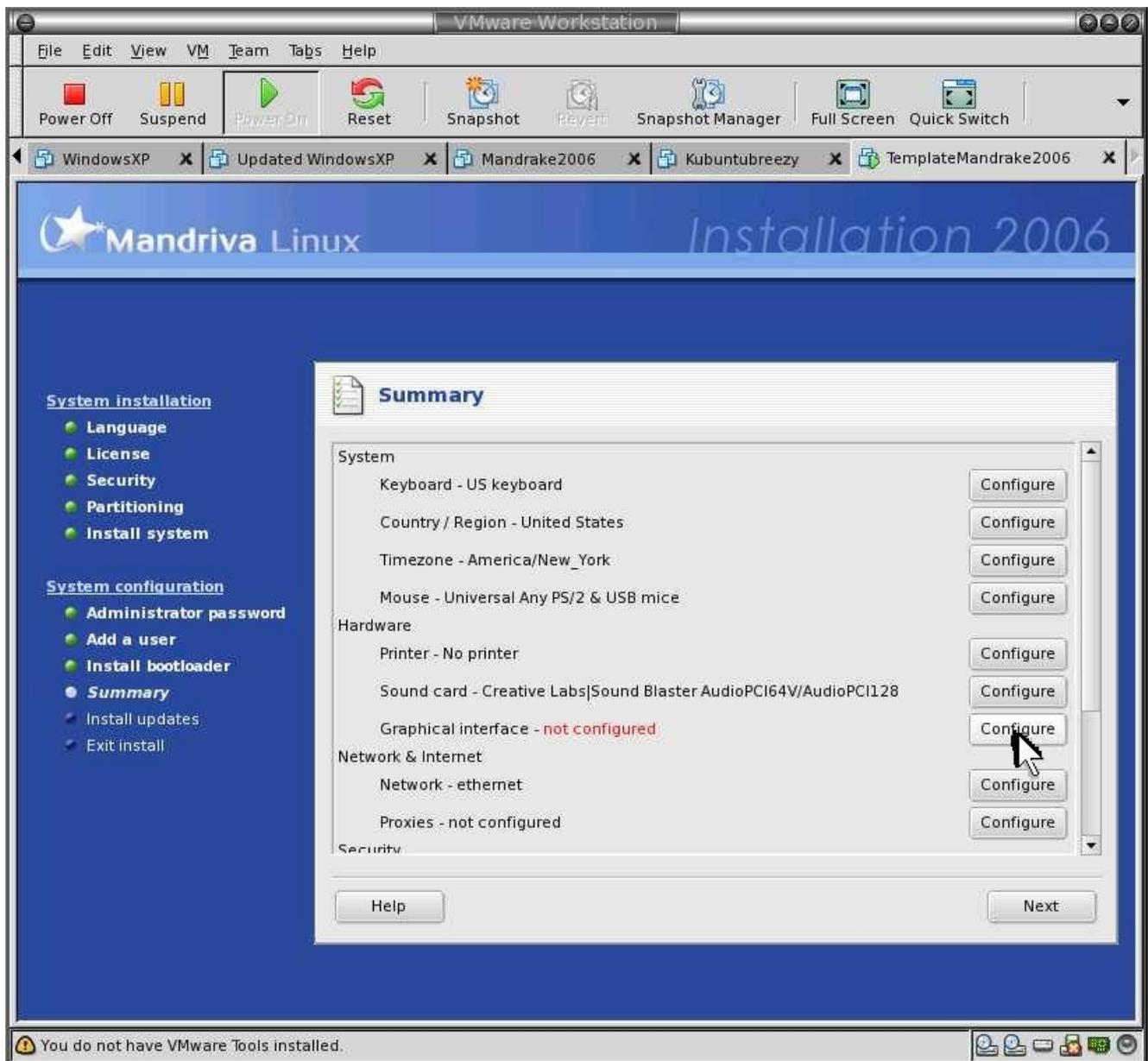
Click 'Next'.

At 'Graphical Interface', click 'Configure'.
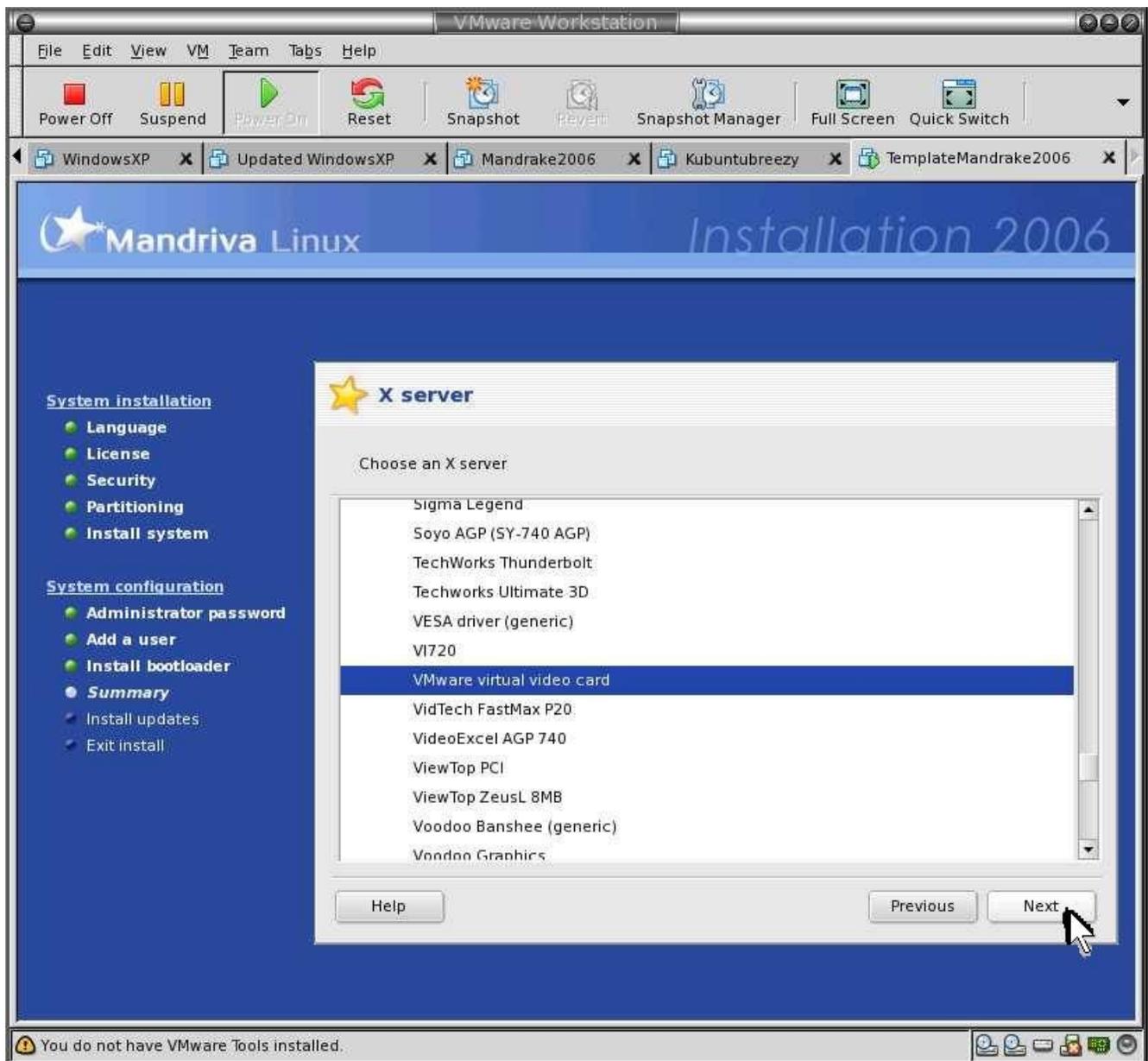
Select 'VMware virtual video card'. Then click 'Next'.
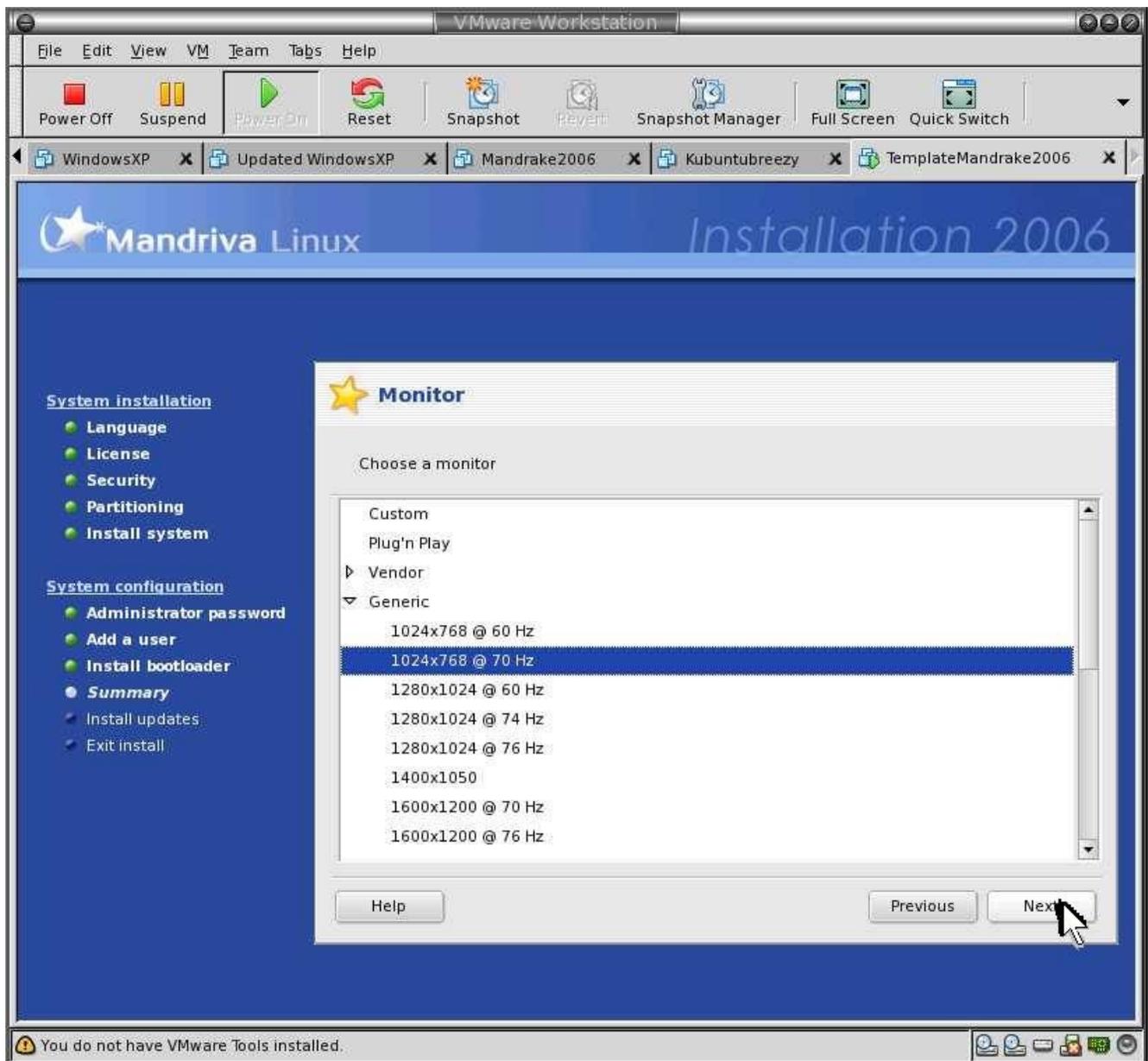
Select '1024x768'. Then click 'Next'.
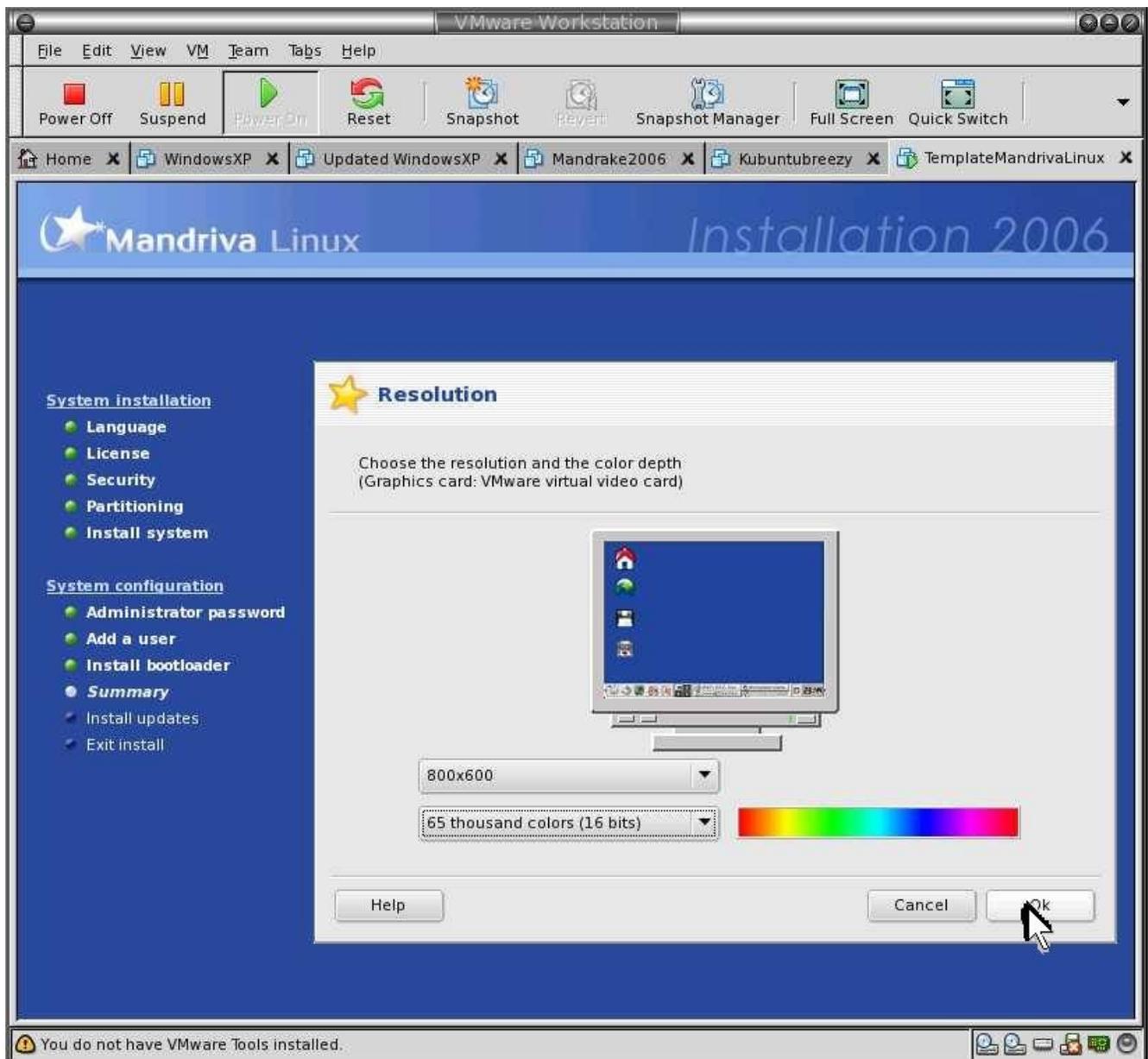
Select '800x600'. Then click 'OK'.
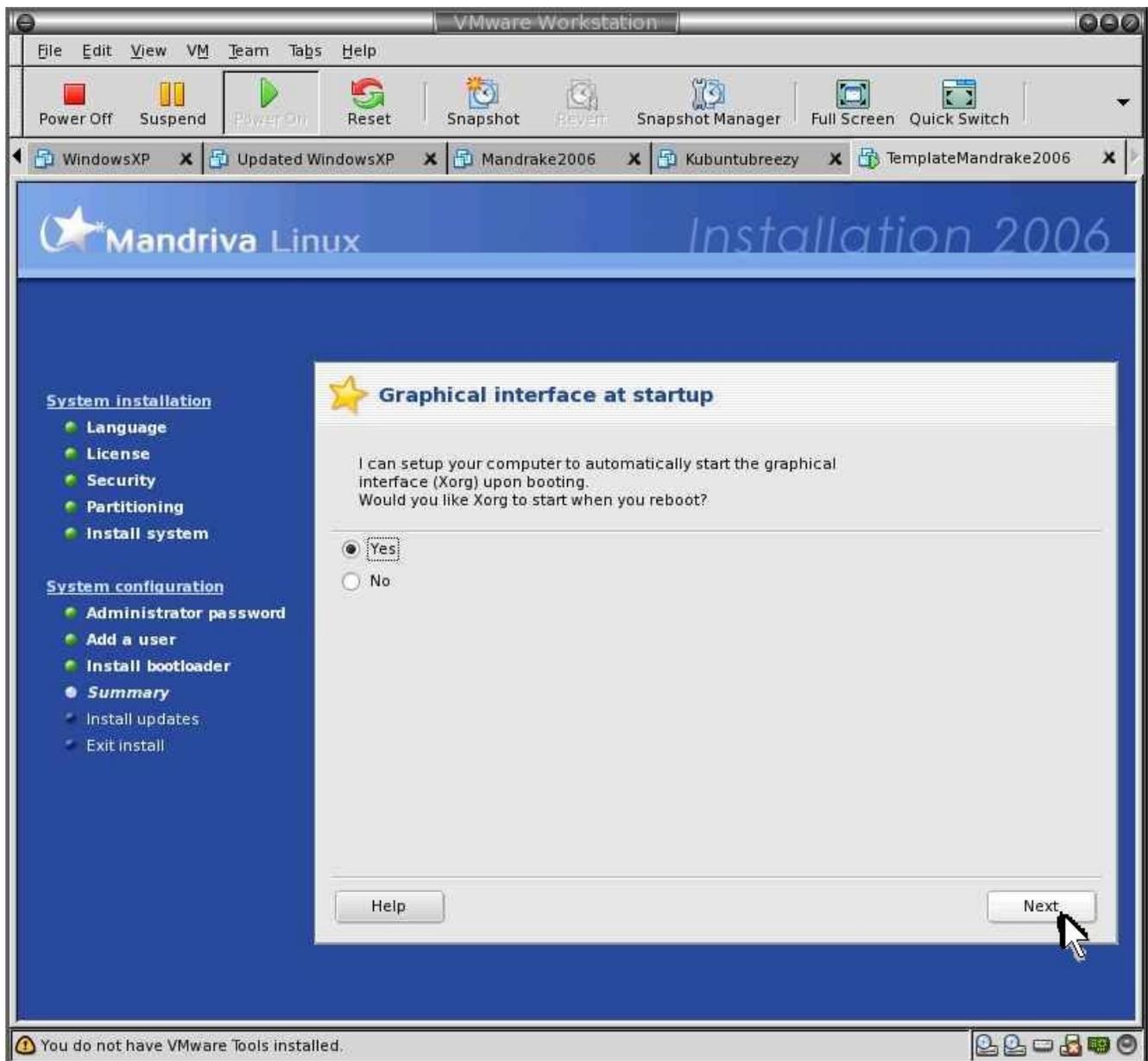
Select 'Yes'. Then click 'Next'.
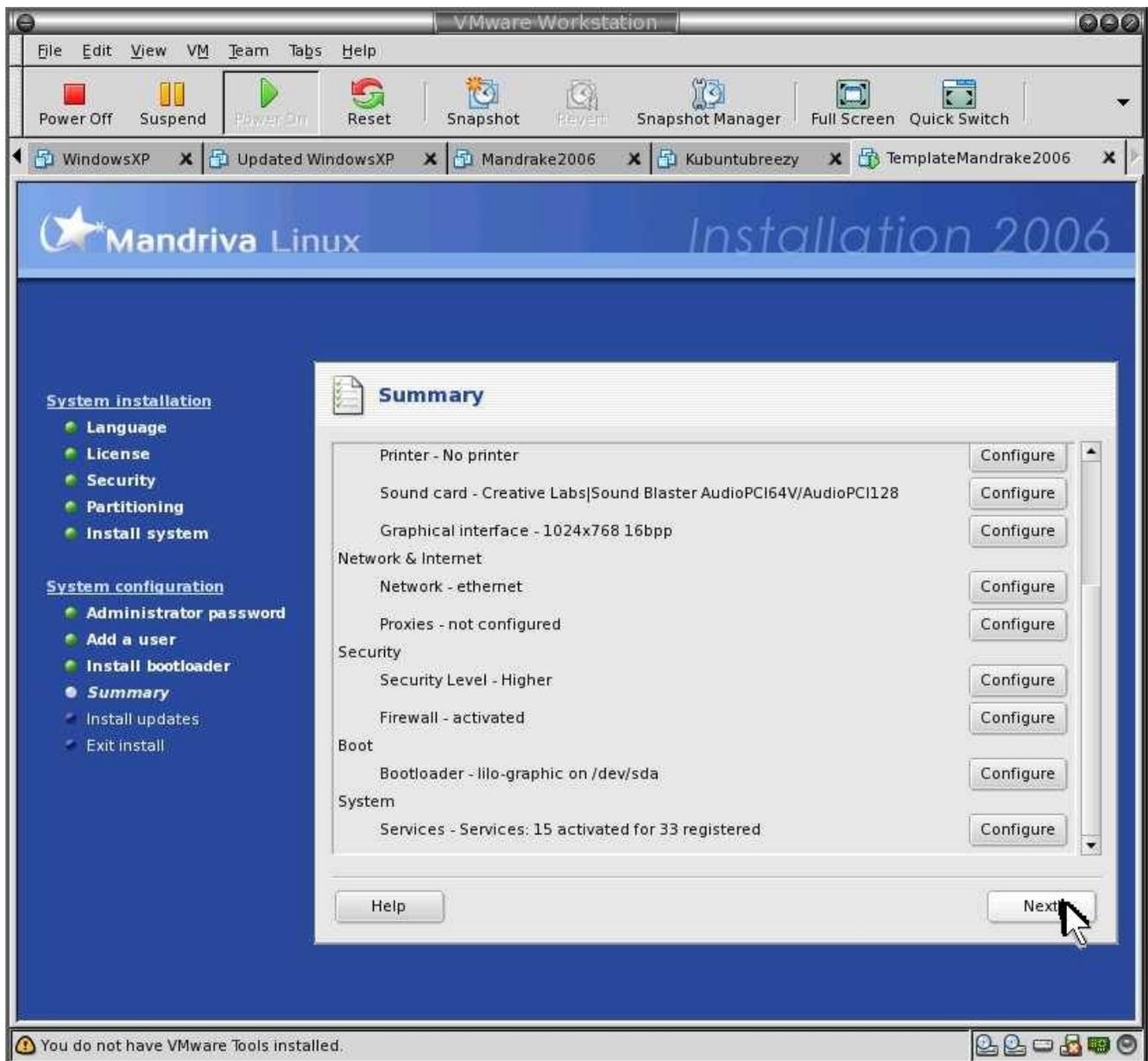
Click 'Next'.
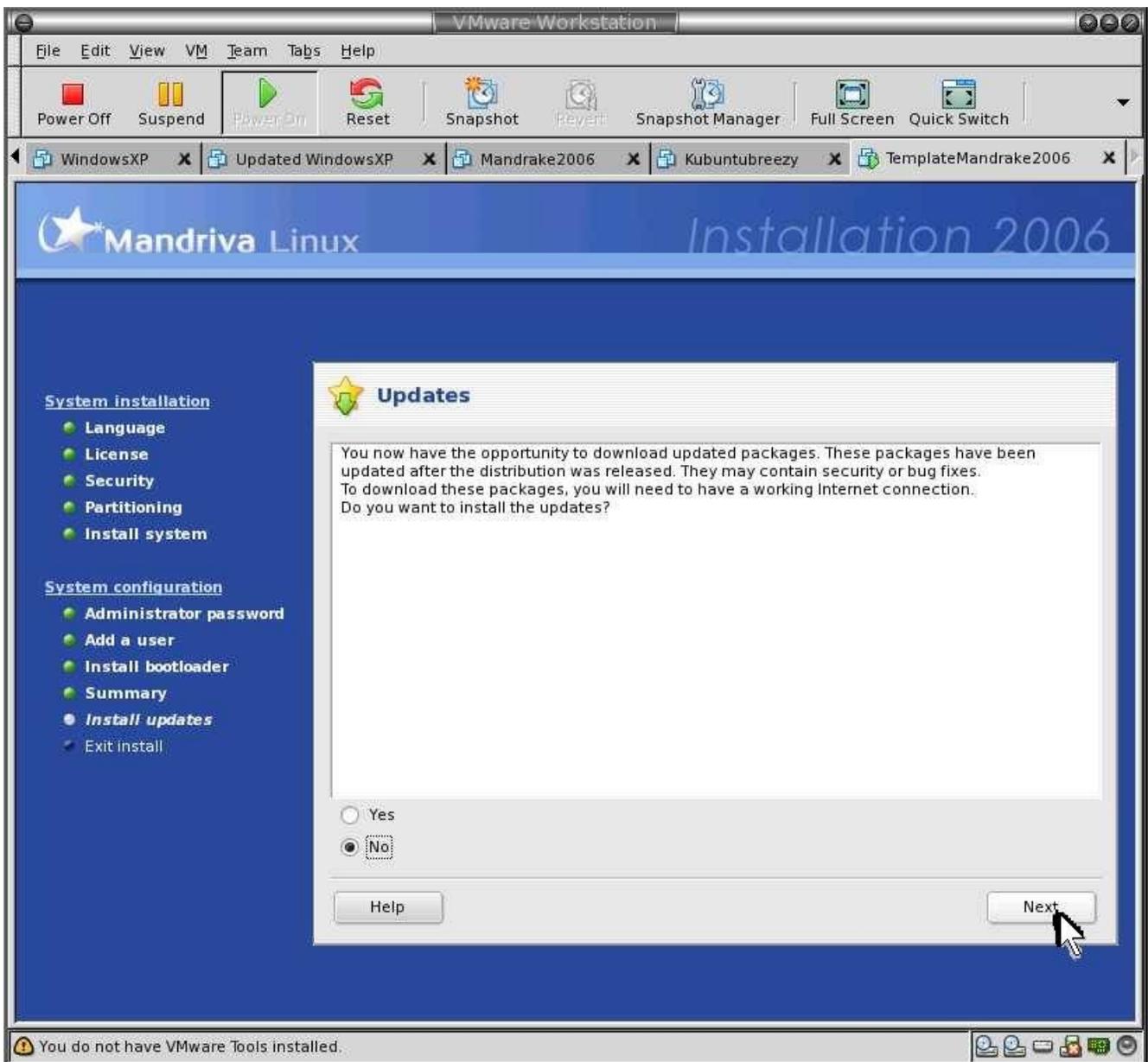
Select 'No'. Then click 'Next'.
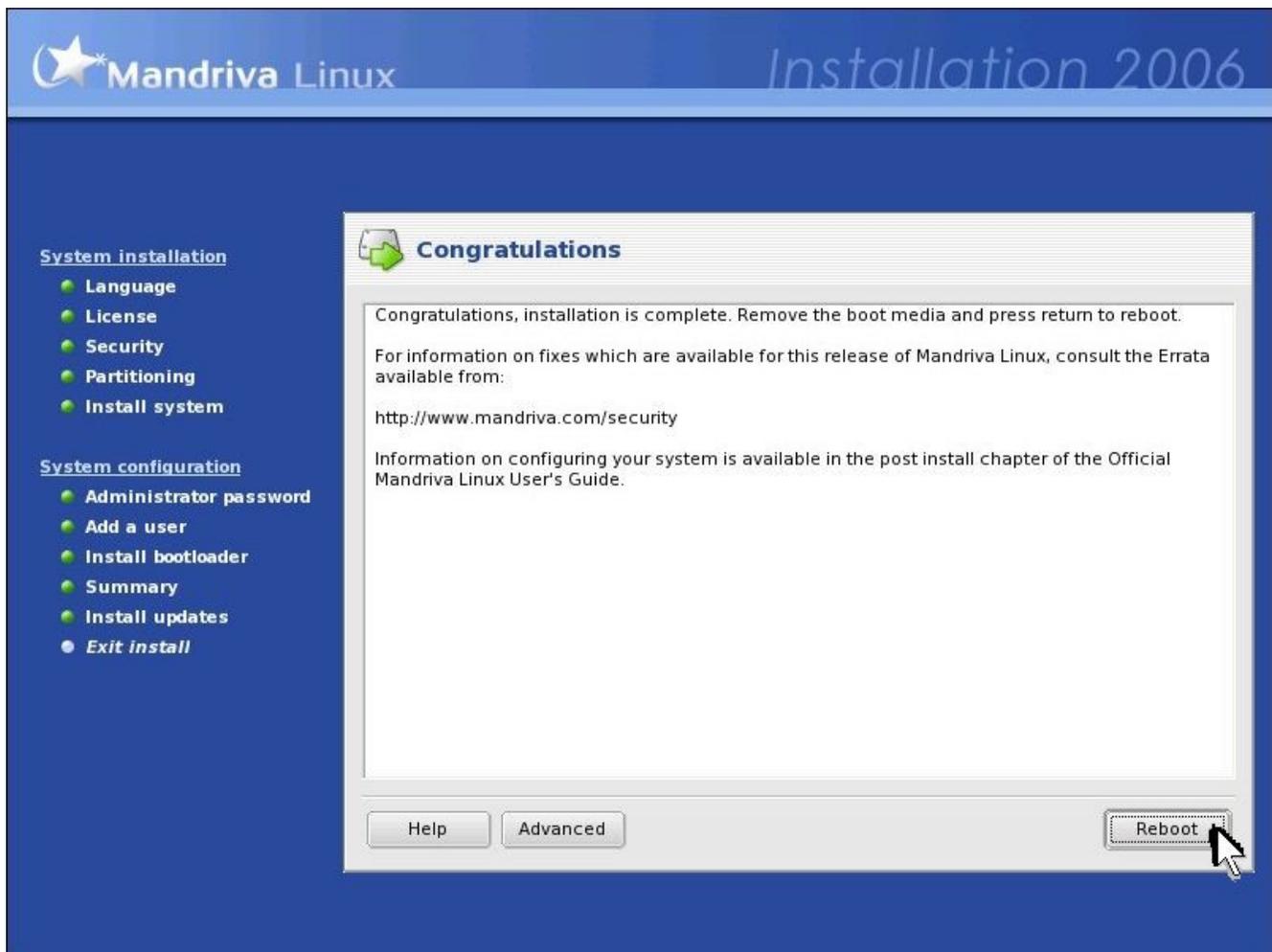
Click 'Reboot'.

2. Install VMtools (Required by VMware software)
    1. This will require installation of kernel source/headers files
    2. Re-insert the Mandriva2006 CD/DVD
    3. Install kernel source/headers files:
        1. Enter below **bolded** instructions on command line as root user

        #log into root
        su

        #install the kernel header/source files
        urpmi kernel-source

    4. Set up Vmware:
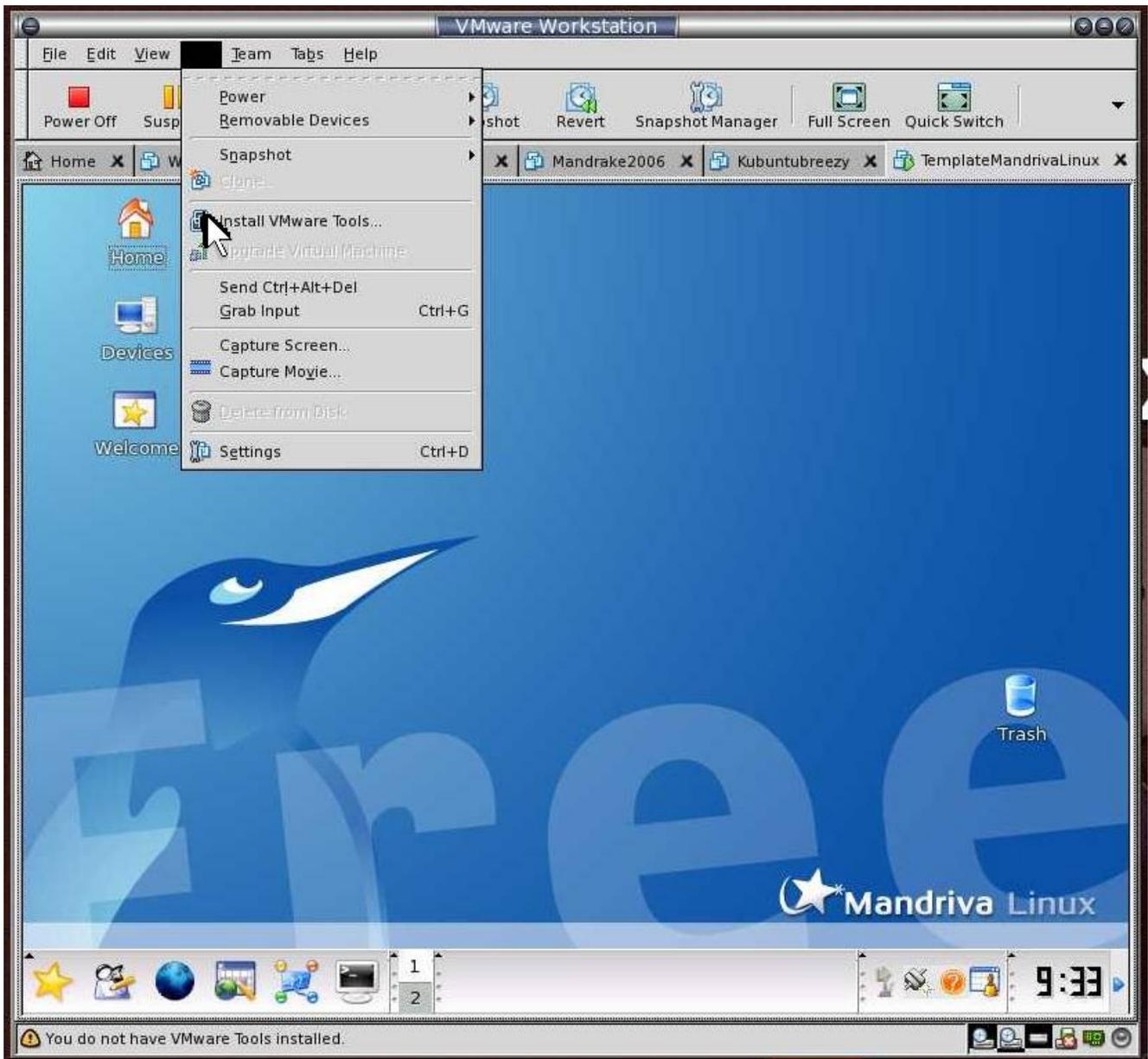
Click above 'Install Vmware Tools'.
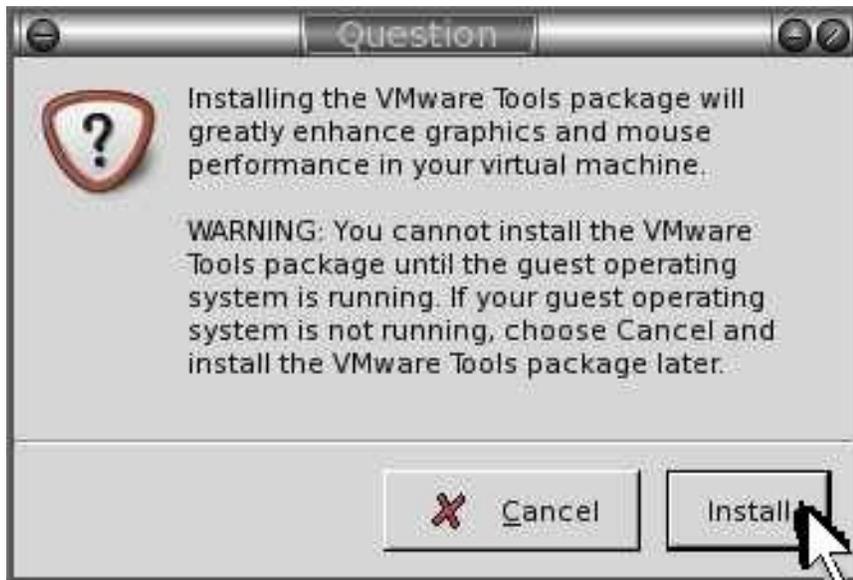
Click 'Install'.

5. Install the VMTools on Mandriva
6. Enter below **bolded** instructions on command line as root user:

> #log into root
> **su**
>
> #if below doesn't work, try replacing /dev/hda with /dev/cdrom,
>   /dev/hdb, /dev/hdc etc.
> **mount /dev/hda /mnt/cdrom**
>
> #unpack and move file
> **cd /tmp**
> **tar zxpf /mnt/cdrom/VMwareTools-5.5.0-*.tar.gz**
> **umount /mnt/cdrom**
> **cd vmware-tools-distrib**
>
> #install the software
> **./vmware-install.pl**
> *-answered all questions with defaults*
> *-answered 3 for video mode("1024x768")*
>
> #need to re-boot or else weird stuff happens
> **shutdown -r now**

8. Enable software package installation over internet:
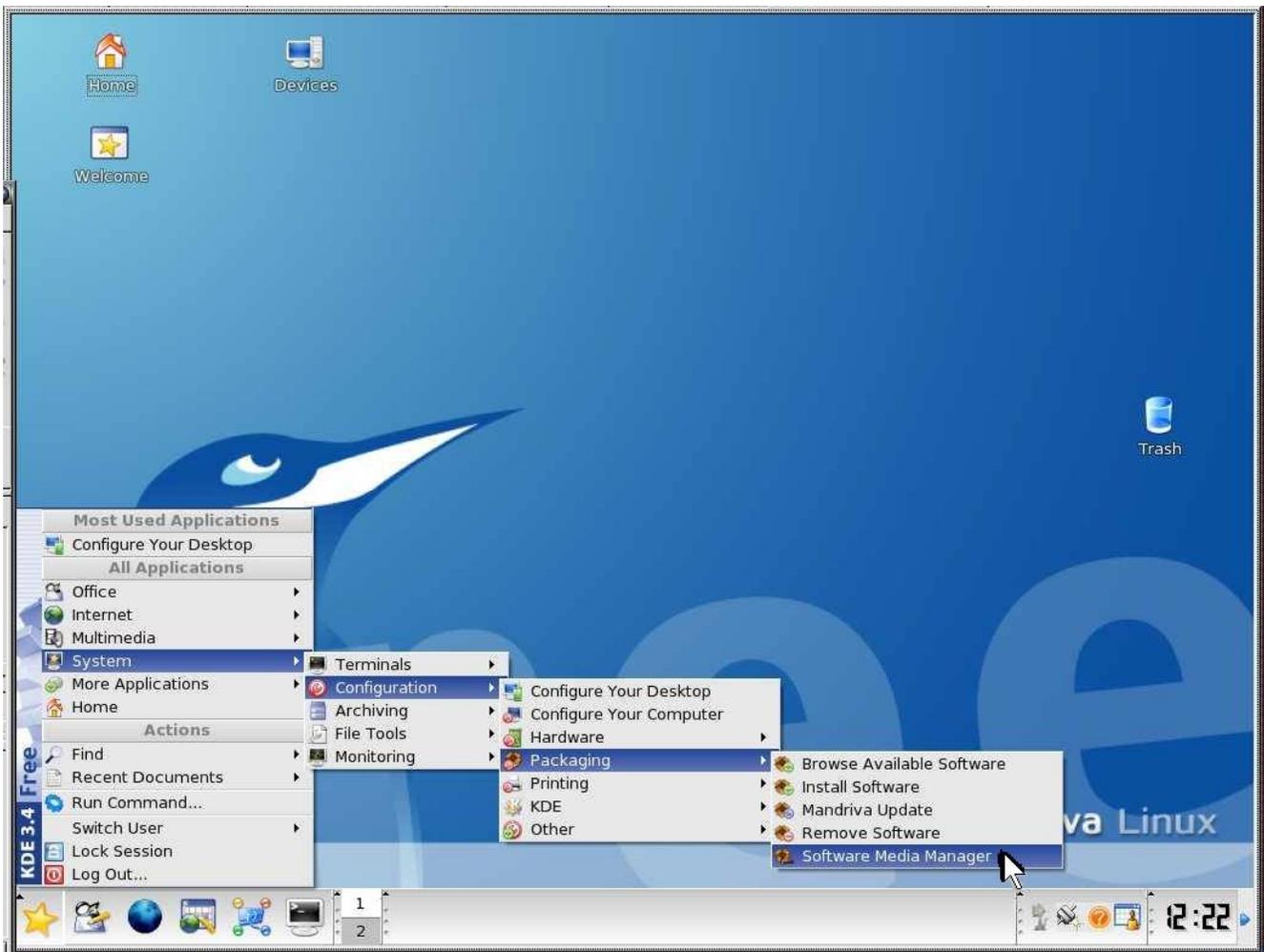
Click 'System' -> 'Configuration' -> 'Packaging' -> 'Software Media Manager'.

Enter 'root' user password. Then click 'OK'.
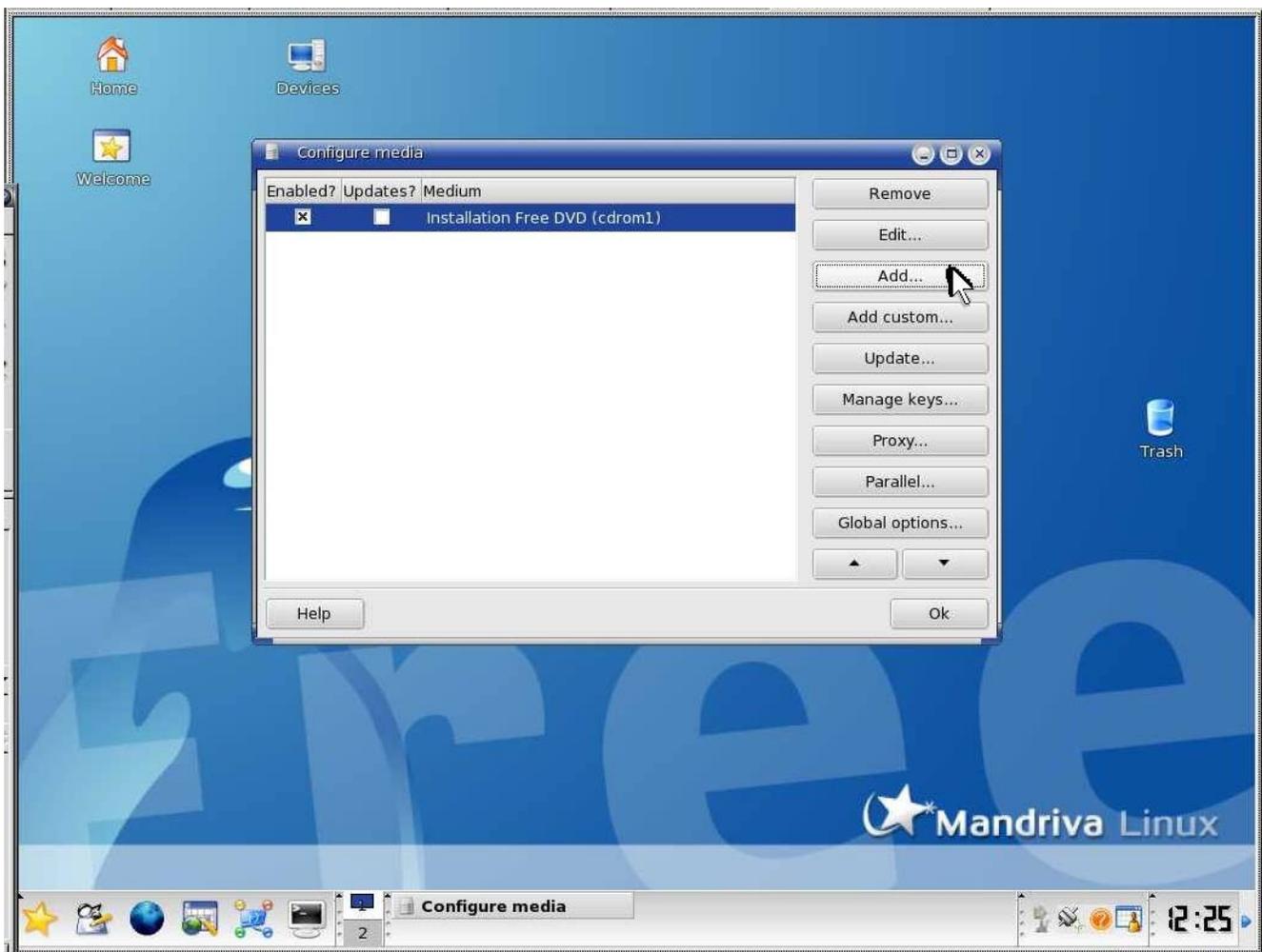
Click 'Add...'.
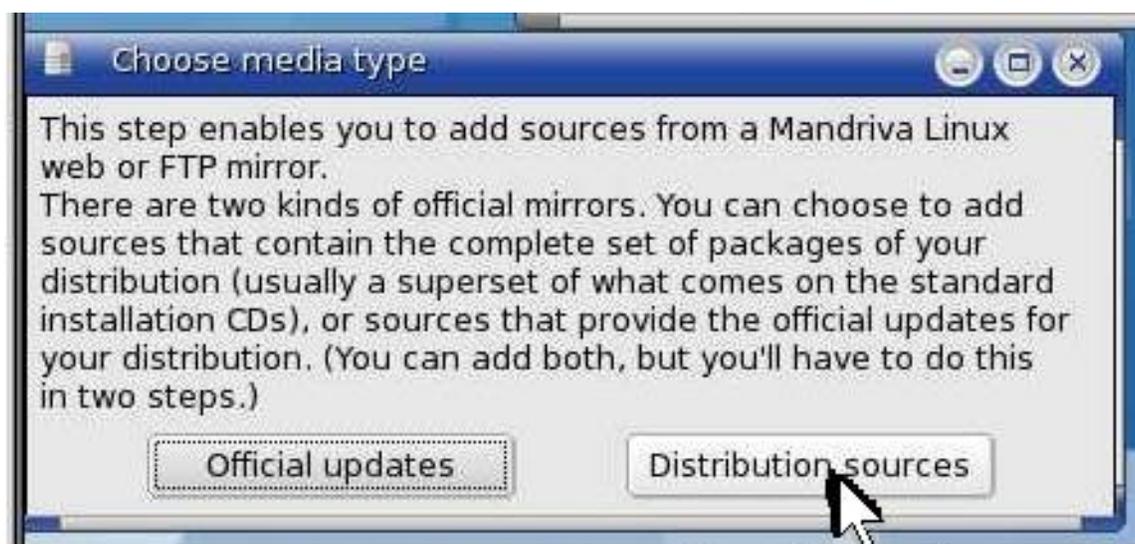
Click 'Distribution sources'.
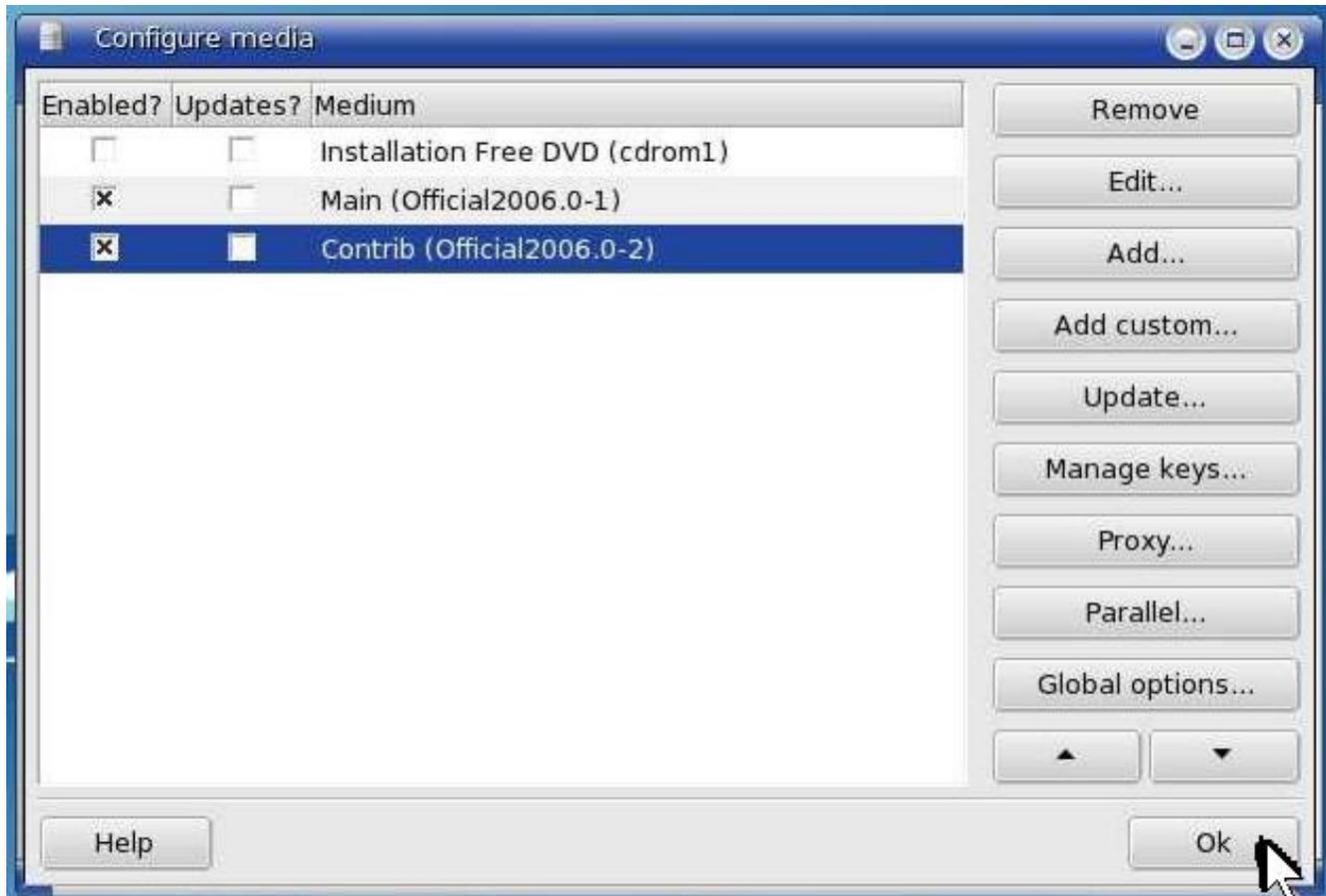
Select as above. Then click 'Ok'.

9. Disable the screensaver(it's annoying).

Install Apache, MySQL, and PHP4

Main TOC Link
Chapter Index Link

1. **OpenEMR 2.8.1 requires PHP4. If you are using version 2.8.1 then you will need to remove PHP5 on your system. If you are using 2.8.2 or greater, then PHP5 should work(in theory). Please note that I have not tested these installation instructions with PHP5.** If you want to remove PHP5 then remove it using below **bolded** instructions on command line as root user:

    #log into root
    su

    #list all the php5 packages

urpme php

#remove them all by pasting in all of the php5 packages below
urpme (paste)

2. Enter below **bolded** instructions on command line as root user :

#log into root
su

#Install apache, php, mysql. **Again, if you are installing 2.8.2 or greater then PHP5 should work, however I have not tested PHP5 with these installation instructions.(you could always try to substitute php5 for php4 in below commands, in theory, it should work).**
urpmi apache php4-cli apache-mod_php4 apache-mod_ssl php4-mysql php4-xml php4-xmlrpc htmldoc mysql
-I chose 1- apache-mpm-prefork-2.0.54-13mdk.i586
#As of version 2.8.2, MySQL 5 is now supported. You could try installing it, however, I have not tested this with these installation instructions.
-I chose 1- MySQL-4.1.12-3mdk.i586
-choose Yes to packages

#start apache and mysql
service httpd start
service mysqld start

#enables apache and mysql to start during boot-up
chkconfig --add httpd
chkconfig --add mysqld

3. Open the firewall for the web server:
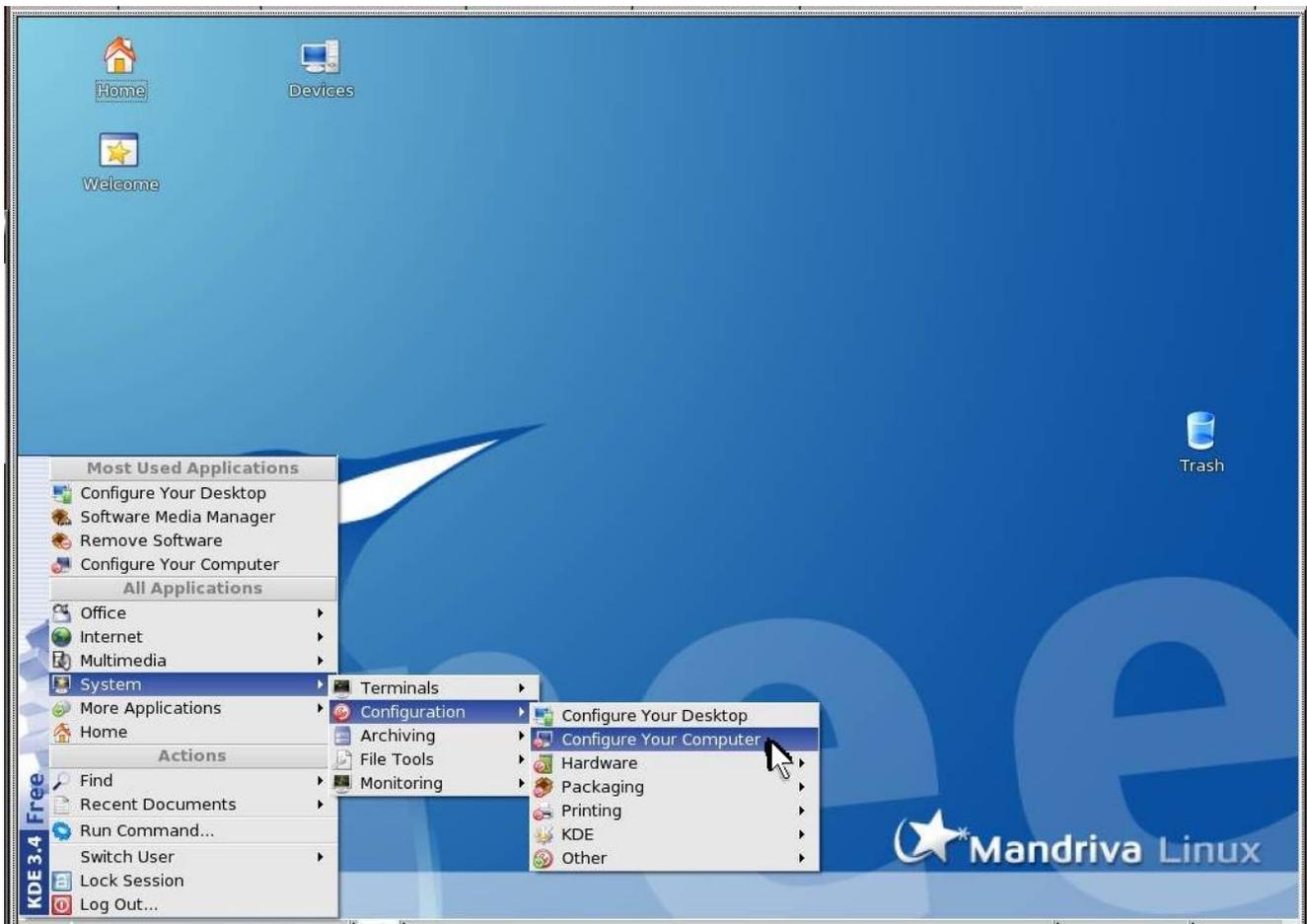
Click 'System' -> 'Configuration' -> 'Configure Your Computer'.
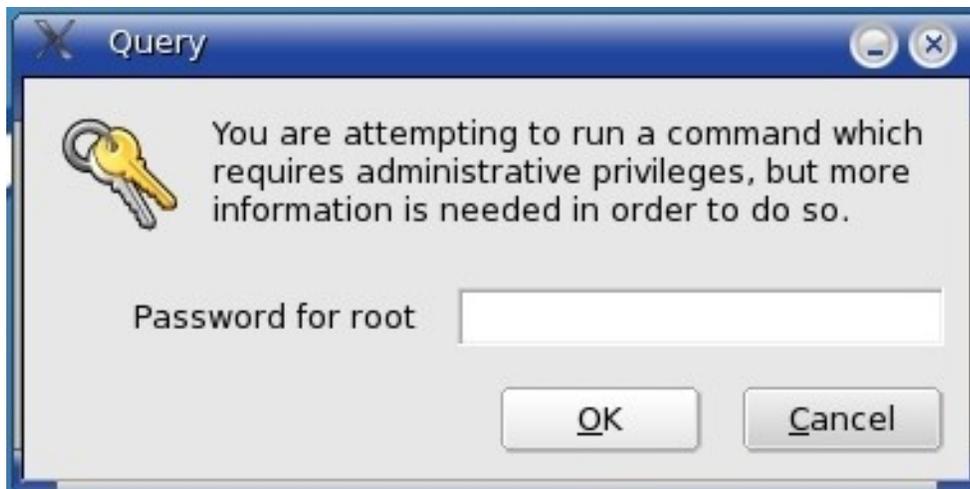
Enter 'root' user password. Then click 'OK'.

Click 'Security'.

Click 'Set up a personal firewall...'.
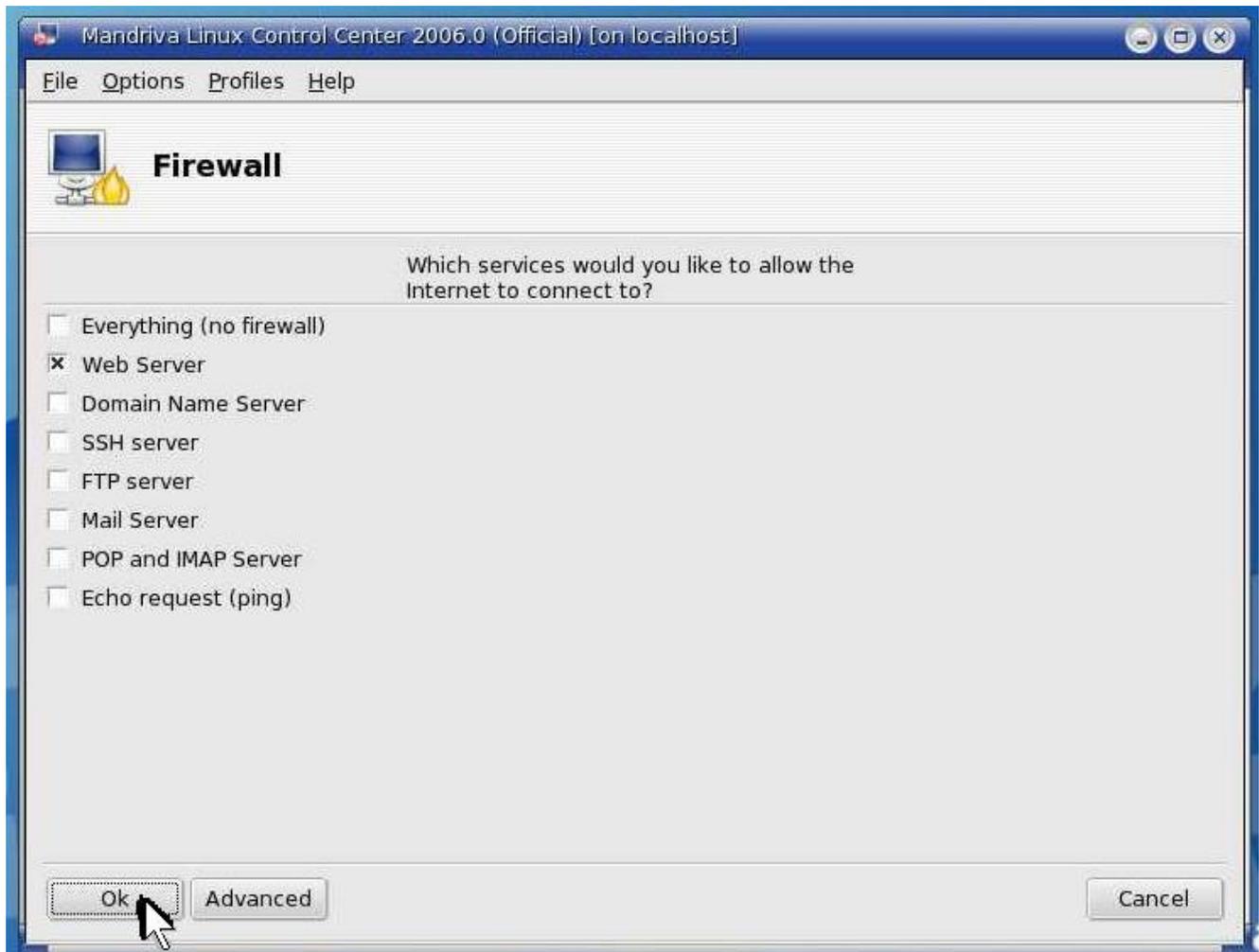
Select 'Web Server'. Then click 'OK'.

Click 'OK'.
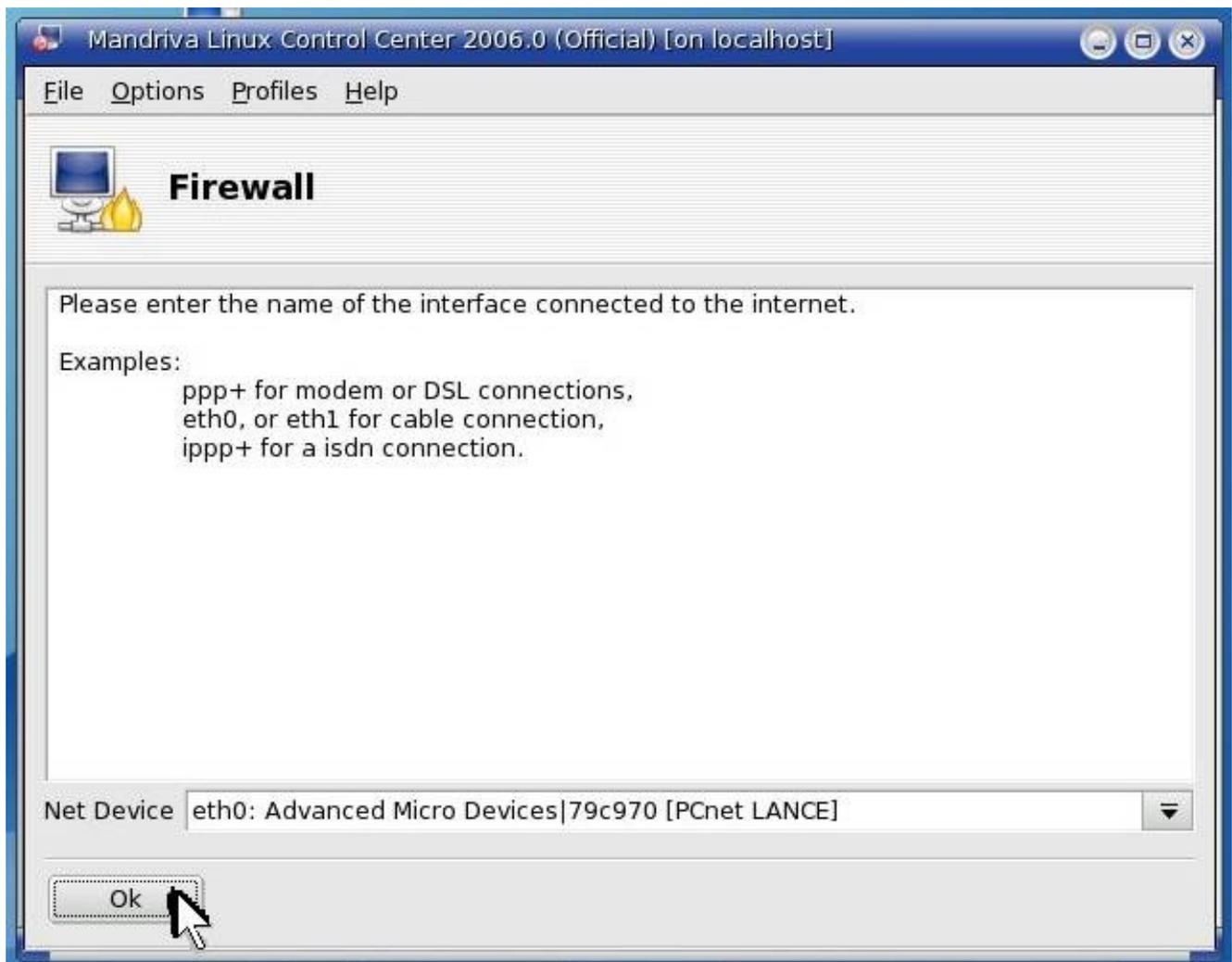
Click 'Ok'. Keep defaults.

You are done. Close the window.

Install OpenEMR 2.8.1

1. Download openemr-2.8.1.tar.gz (version 2.8.1) from sourceforge at :
   http://sourceforge.net/project/showfiles.php?group_id=60081

2. Enter below **bolded** instructions on command line as root user:

   #log into root
   su

   #edit file /etc/php4.ini.(Or if your using php5, then
       /etc/php5.ini):
   mcedit /etc/php4.ini
           #edit following variables:

post_max_size = **30M**
upload_max_filesize = **30M**
memory_limit = **128M**
max_execution_time = **45**
magic_quotes_gpc = **off**
register_globals = **off**
TEXT EDITOR SAVE AND EXIT

#Ensure the following lines are included at the end of the /etc/httpd/conf/httpd.conf file (This was not in original OpenEMR Appliance and has been listed as a security patch; it is required to not allow unauthorized access to confidential patient medical records).
mcedit /etc/httpd/conf/httpd.conf
#Ensure below is included at end of file (if not found, then paste below into end of file)
<Directory "/var/www/html/openemr/documents">
order deny,allow
Deny from all
</Directory>
<Directory "/var/www/html/openemr/edi">
order deny,allow
Deny from all
</Directory>
TEXT EDITOR SAVE AND EXIT

#restart httpd
service httpd restart

#put the OpenEMR program in its place
cd /var/www/html
tar pxzvf /location/to/tar/openemr-*.tar.gz
mv openemr-* /var/www/html/openemr
chown -Rf root:root openemr

#Prepare for install
chmod 666 /var/www/html/openemr/library/sqlconf.php

3. Then use Auto-installer at: http://localhost/openemr/setup.php
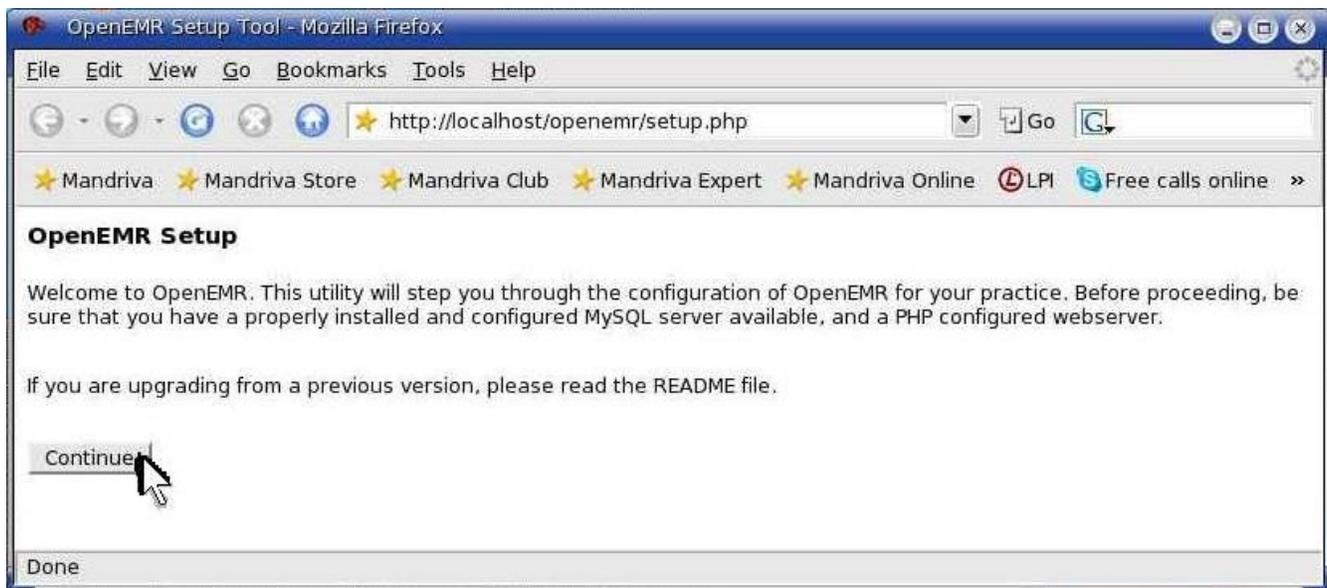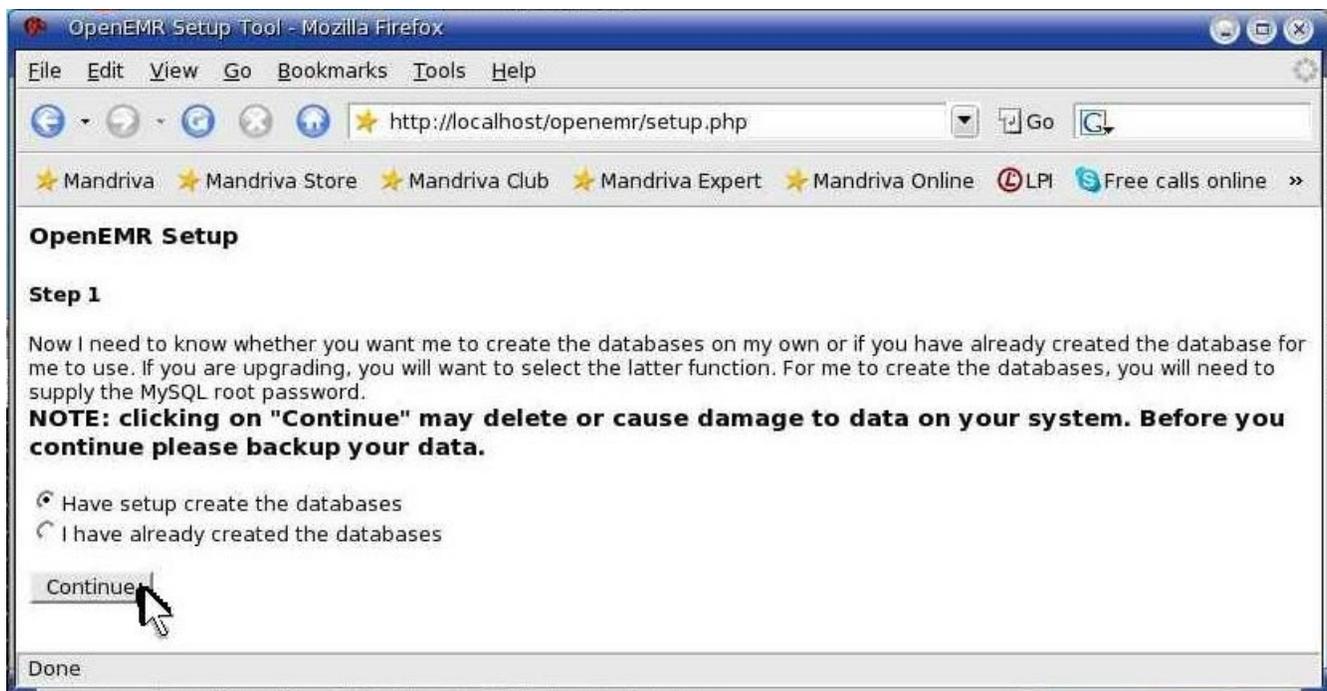
Click 'Continue'.

Select 'Have setup create the databases'. Then click 'Continue'.

OpenEMR Setup Tool - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

http://localhost/openemr/setup.php

Mandriva Mandriva Store Mandriva Club Mandriva Expert Mandriva Online LPI Free calls online Intel® Compilers

OpenEMR Setup

Step 2

Now you need to supply the MySQL server information.

SERVER:

Server Host: localhost (This is the IP address of the machine running MySQL)

Server Port: 3306 (The default port for MySQL is 3306)

Database Name: openemr (This is the name of the OpenEMR database - 'openemr' is the recommended)

Login Name: openemr (This is the name of the OpenEMR login name - 'openemr' is the recommended)

Password: ******** (This is the Login Password for when PHP accesses MySQL - it should be at least 8 characters long and composed of both numbers and letters)

CLIENT:

User Hostname: localhost (This is the IP address of the server machine running Apache and PHP - if you are setting up one computer, this is the same as the Server Host above)

Root Pass: (This is your MySQL root password. For localhost, it is usually ok to leave it blank.)

USER:

Initial User: admin (This is the user that will be created for you. It will be an authorized user, so it should be for a Doctor or other Practitioner)

Initial User's Name: Administrator (This is the real name of the initial user.)

Initial Group: The Cool Practice (This is the group that will be created for your users. This should be the name of your practice.)

Continue

Done

In SERVER section: enter 'Password' -> secure password, otherwise keep defaults. In CLIENT section: keep defaults. In USER section: enter 'Initial User' -> new user login name, Enter 'Initial User's Name' ->new user name, enter 'Initial Group' -> name of practice. (I would recommend keeping the 'Initial User' -> 'admin' and the 'Initial User's Name' -> 'Administrator' to ensure easy installation of the php-GACL software.) Then Click 'Continue'.
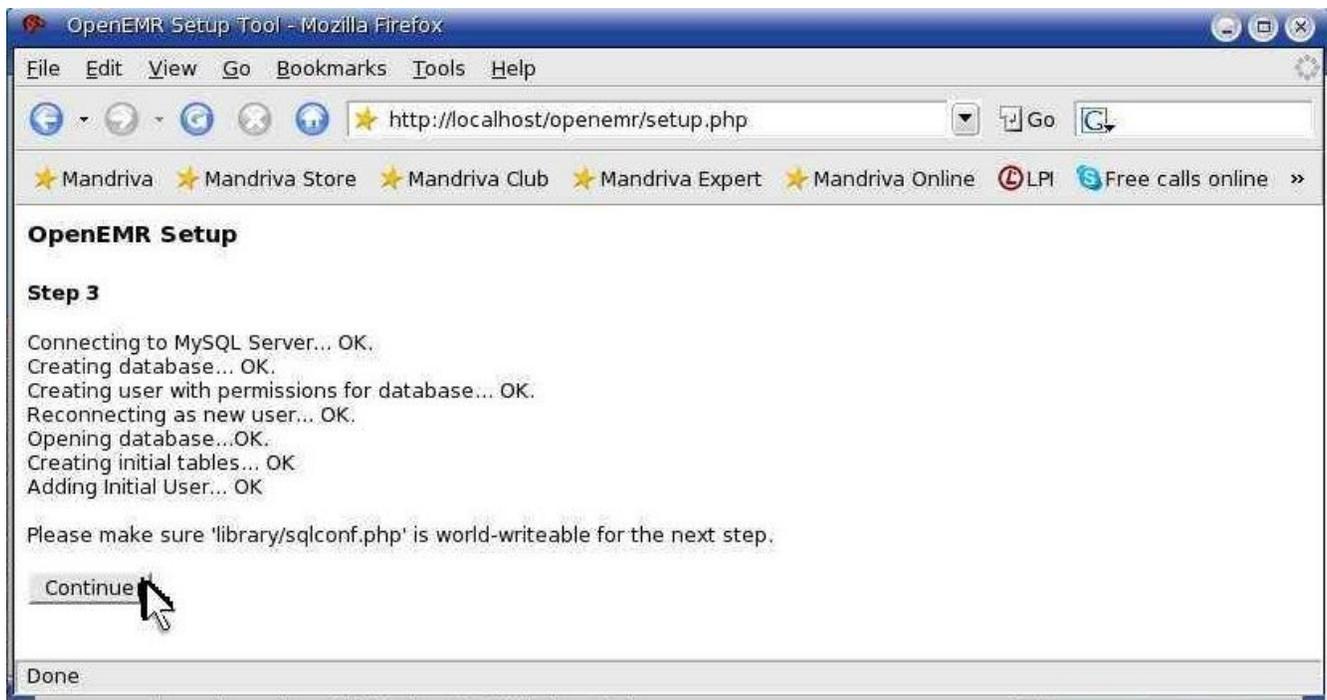
Click 'Continue'. (Don't worry, we have already made the mentioned file world-writeable)
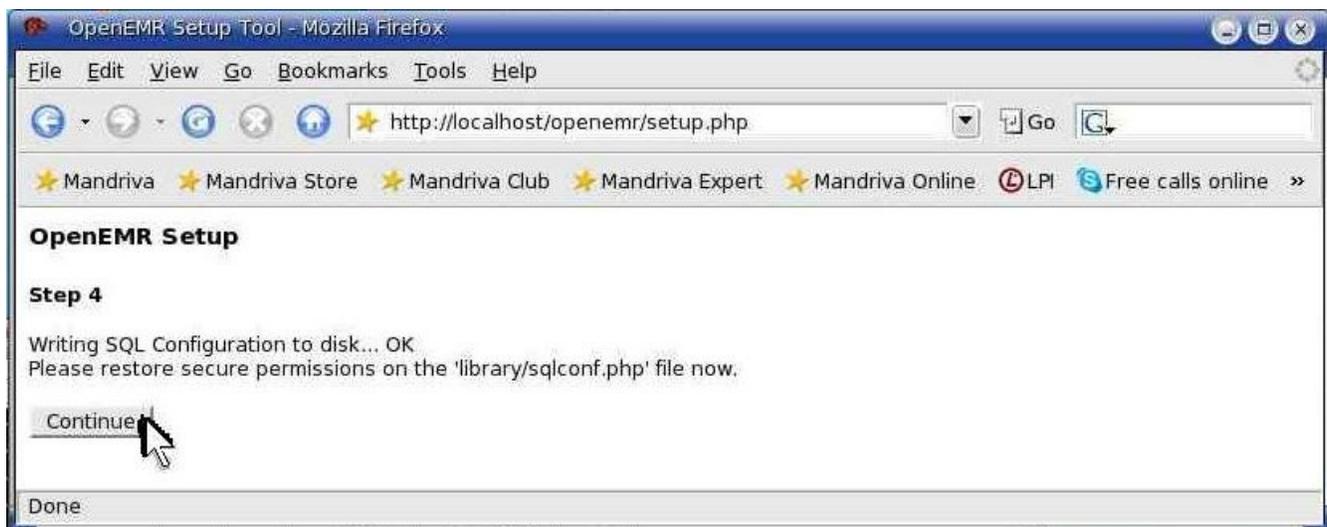
Click 'Continue'. (Don't worry, we will 'restore secure permissions' of file later)
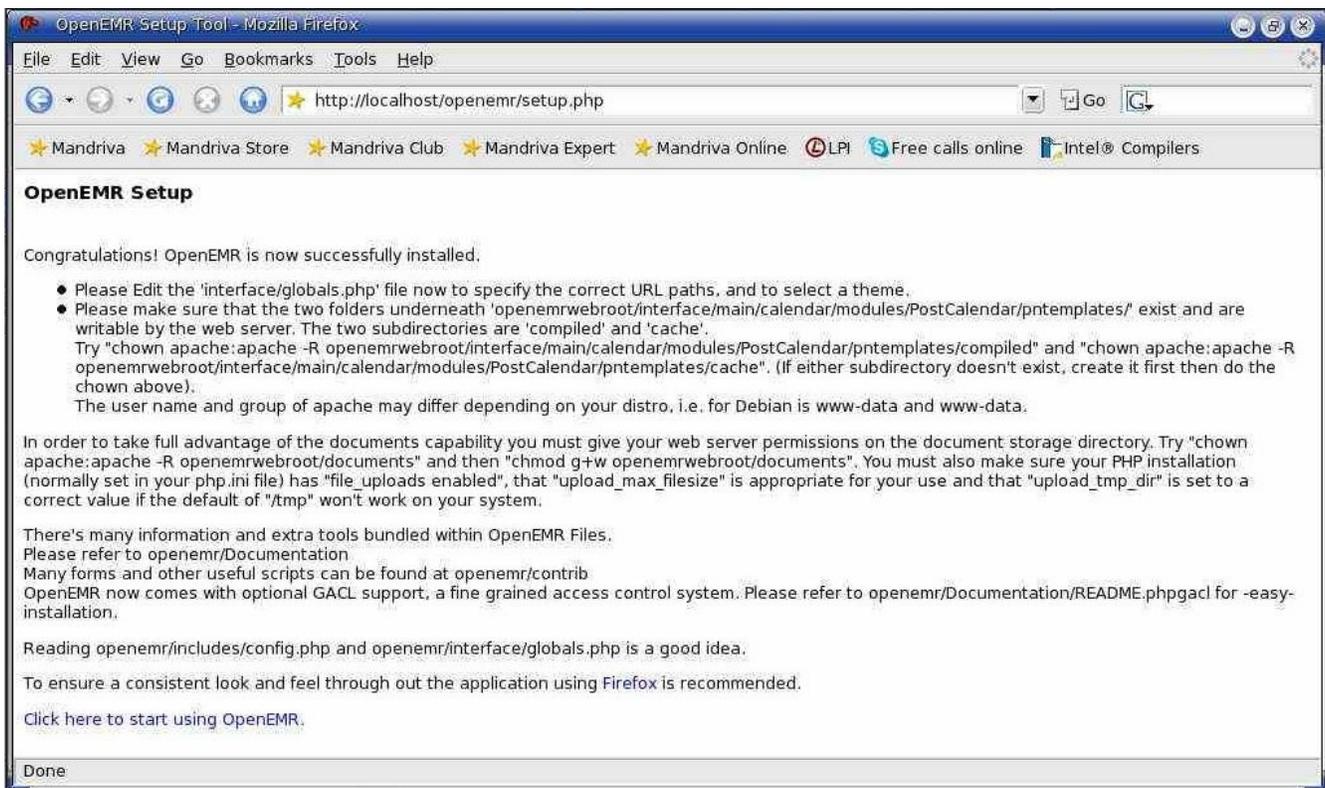
This page list some additional instructions. Again, don't worry, we will do all of this stuff in next section below. You can close your browser window now and move onto the next section.

4. Enter below **bolded** instructions on command line as root user:

#log into root
su

#Re-secure the sqlconf.php file
chmod 644 /var/www/html/openemr/library/sqlconf.php

#Need to change some file/folder ownerships
**chown apache:apache -R
/var/www/html/openemr/interface/main/calendar/m
odules/PostCalendar/pntemplates/cache**
**chown apache:apache -R
/var/www/html/openemr/interface/main/calendar/m
odules/PostCalendar/pntemplates/compiled**
**chown apache:apache -R
/var/www/html/openemr/documents**

Install FreeB 0.11

1. Download freeb-0.11.tar.gz (version 0.11) from sourceforge:
   http://sourceforge.net/project/showfiles.php?group_id=60081

2. Enter below **bolded** instructions on command line as root user :

   #log into root
   su

   #put the program in its place
   cd /usr/share
   tar xzvf /location/to/tar/freeb-*.tar.gz
   mv freeb-* /usr/share/freeb

   #secure it
   chown root:root -R /usr/share/freeb

   #install the necessary packages
   urpmi perl-Config-General perl-Date-Calc
   -choose yes to packages

   #need to install several PERL modules
   perl -MCPAN -e shell
   -Answer NO to first question, and then it will be auto-configured.
       At cpan> prompt type:
               install PDF::Create
               install ConfigFile
               install Frontier::Daemon
               exit

   #create a directory that apache can write to
   mkdir /usr/share/freeb/public
   chown apache:apache -R /usr/share/freeb/public

   #change ownership of following directory
   chown apache:apache -R
     /var/www/html/openemr/library/freeb

   #this will allow the user to use freeb while in openemr (Or if your
       using PHP5 then substitute php5 for php4)
   cp /usr/bin/php4 /usr/bin/php

3. Configure FreeB as a service
   1. Download freeb file, which is an init.d script. I wrote this file,
      and it seems to work alright. But I have to say, please use at
      your own risk. File can be found at: http://bradymd.com/freeb

(to download file, you may need to Right-Click the link and select 'Save Link As...')

2. Enter below **bolded** instructions on command line as root user :

   #log into root
   su

   #move file and change ownership/permissions
   mv /location/to/file/freeb /etc/init.d/
   chown root:adm /etc/init.d/freeb
   chmod 740 /etc/init.d/freeb

   #start service
   service freeb start
   -After 'before server setup', just hit 'enter' key once to get back to the prompt. If you saw 'before server setup', then it worked.

   #configure freeb to start automatically during computer startup
   chkconfig --add freeb

   #You are done installing service, it will now start
   #up automatically during computer start up.
   #If the above service is not working, you can
   #manually start the FreeB server by typing:
   #'/usr/share/freeb/bin/FreeB_Server.pl &'

4. Next, need to do below "work-around"(Bug in OpenEMR) in order for HCFA billing to work.

   Log in to OpenEMR with previously created username and default password 'pass' at http://localhost/openemr:

Click 'Administration'.

Click 'Forms'.

Click 'register' at 'prior_auth' entry.
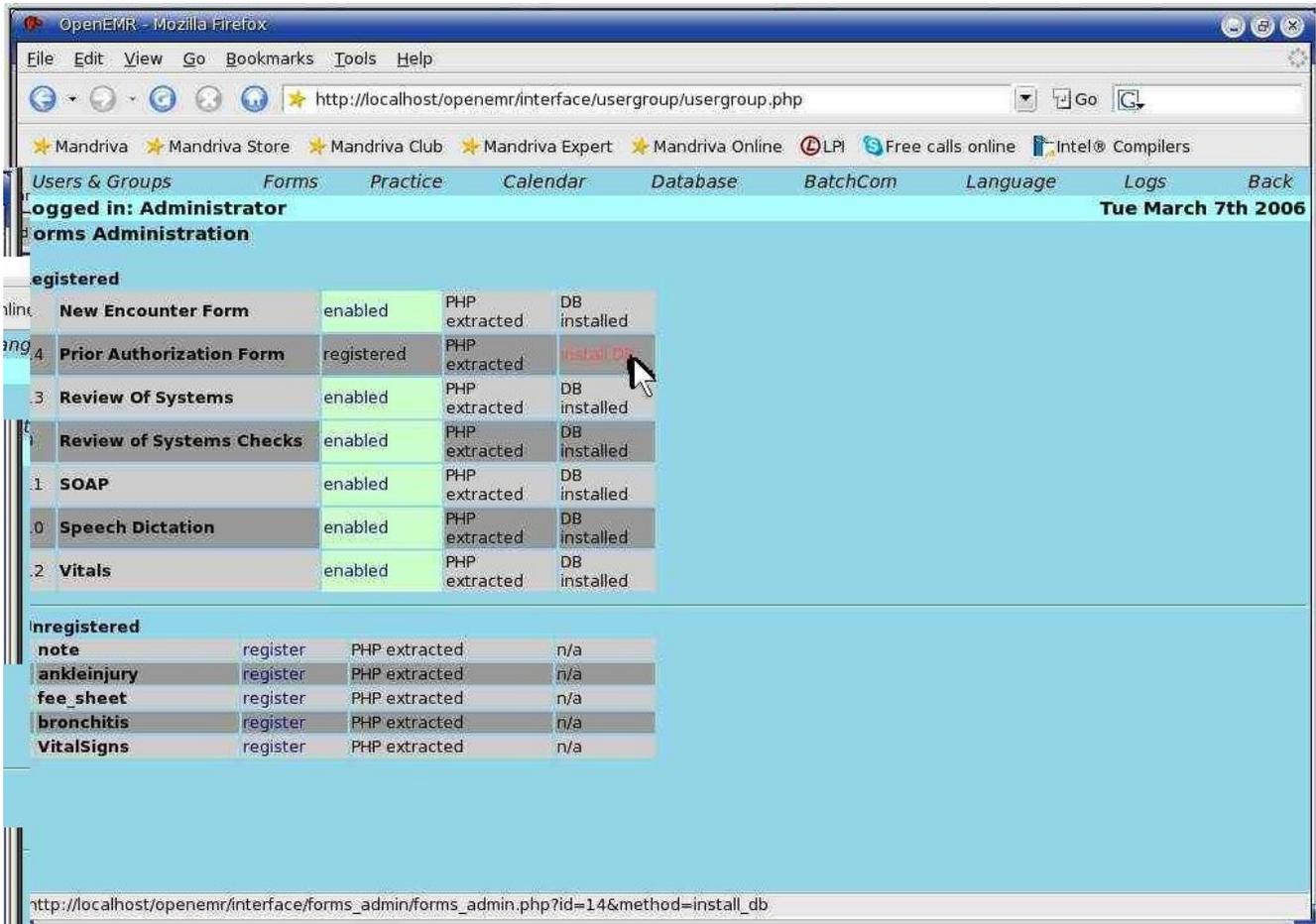
Click 'Install DB' at 'Prior Authorization Form' entry.

WARNING!! Do NOT click anything on screen below, read below the screenshot first.
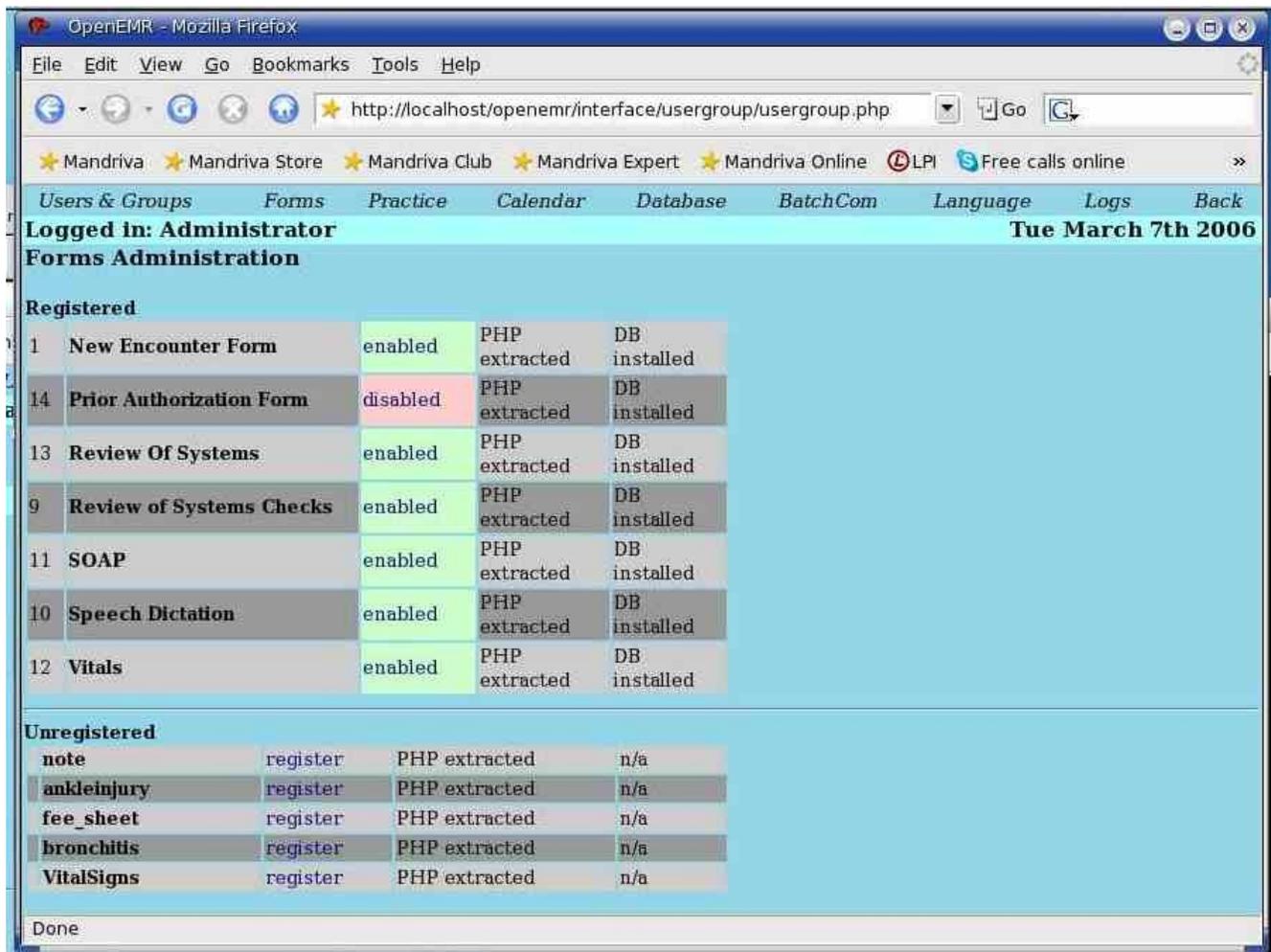
Do **NOT** click the disabled button. You are done with OpenEMR for now. Basically this 'prior_auth' form has to be in the database and **disabled** for program to function normally. Log out and move on to the next section.(continue to research)

Install PostgreSQL

1. Enter below **bolded** instructions on command line as root user :

   #log into root
   su

   #install postgresql and needed packages
   urpmi postgresql postgresql-devel postgresql-server postgresql-docs postgresql-pl php4-pg
   -yes to packages

#start service and also have it start at computer boot-up
service postgresql start
chkconfig --add postgresql

Install SQL-Ledger

1. We will do a manual install with version 2.6.3. I'd recommend installing this version also(at least 2.6.x), since we know it works.
2. Download sql-ledger-2.6.3.tar.gz file from: http://sourceforge.net/project/showfiles.php?group_id=4320

3. Enter below **bolded** instructions on command line as root user :

   #log into root
   su

   #install the needed dependencies
   urpmi perl-DBD-Pg LaTeX perl-DBI
   -yes to packages

   #put the SQL-Ledger program in its place
   cd /usr/local
   tar xzvf /location/to/file/sql-ledger-2.6.3.tar.gz
   mv sql-ledger/sql-ledger.conf.default sql-ledger/sql-ledger.conf

   #edit file /usr/local/sql-ledger/sql-ledger.conf:
   mcedit /usr/local/sql-ledger/sql-ledger.conf

   > **#add the following** to the vars section on first line of file (you must place this within the first line) For example: 'use vars qw($oemr_ar_acc ...)':

   > $oemr_ar_acc $oemr_cash_acc $oemr_due_days $oemr_username $oemr_services_partnumber

   > **#Paste the entire section below into file:**

   > #Some constants relevant to OpenEMR import.
   > #sql-ledger user
   > $oemr_username = 'openemr';
   > #acc num for acc receivable
   > $oemr_ar_acc = '1200';
   > # acc num for check/copay
   > $oemr_cash_acc = '1060';

```
# creating a services item for medical services
#  OpenEMR billing "part number" here:
$oemr_services_partnumber = 'MS';

# Num of days added to OpenEMR transaction date to
# create the invoice due date when insurance. This affects
    the
# pat. portion of outstanding balance shown in OpenEMR
# summary, and also SQL-Ledger reports and statements.
$oemr_due_days = 40;
```
TEXT EDITOR SAVE AND EXIT

#create and edit file /etc/httpd/conf/sql-ledger-httpd.conf:
mcedit /etc/httpd/conf/sql-ledger-httpd.conf

#Paste the entire section below into empty file:

```
Alias /sql-ledger /usr/local/sql-ledger/
<Directory /usr/local/sql-ledger>
AllowOverride All
AddHandler cgi-script .pl
AddDefaultCharset On
Options ExecCGI Includes FollowSymlinks
Order Allow,Deny
Allow from All
</Directory>

<Directory /usr/local/sql-ledger/users>
Order Deny,Allow
Deny from All
</Directory>
```
TEXT EDITOR SAVE AND EXIT

#edit file /etc/httpd/conf/httpd.conf:
mcedit /etc/httpd/conf/httpd.conf
#add following line to bottom of file
include /etc/httpd/conf/sql-ledger-httpd.conf
TEXT EDITOR SAVE AND EXIT

#change permissions
cd /usr/local/sql-ledger
chown -hR apache:apache users templates css spool

#restart httpd service
service httpd restart

#Set up PostgreSQL user(use 'sql-ledger'), password, and

database
su postgres
createuser -d -P sql-ledger
-type a good password for the sql-ledger user on PostgreSQL
(this password is IMPORTANT and to avoid any severe confusion
*it will be referred to as the '**sql-ledger-password**' during the*
rest of the install documentation. I mean it, this is important
to remember. This password will be typed in many times
during instructions below.)
-type y to allow user to make more users
createlang plpgsql template1
exit

1. Load your web browser and connect to: http://localhost/sql-ledger/admin.pl

There is no default password. Just click 'Login'.

Click 'Change Admin Password'.
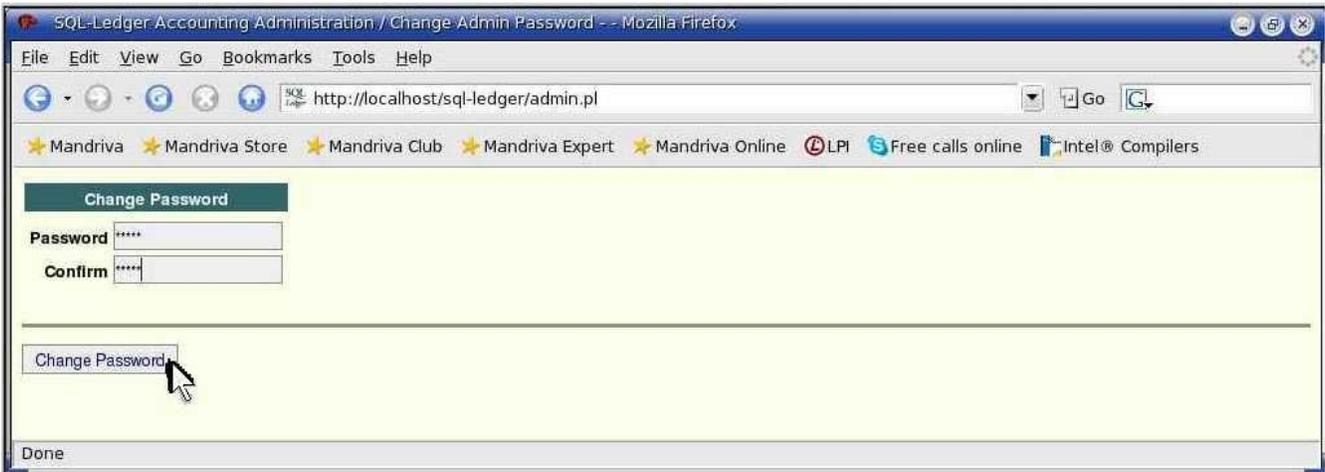
Enter a secure password. Then click 'Change Password'.

Click 'Pg Database Administration'.

Enter 'User' -> 'sql-ledger'. Enter 'Password' -> '**sql-ledger-password**'.
Otherwise keep above defaults. Then click 'Create Dataset'.
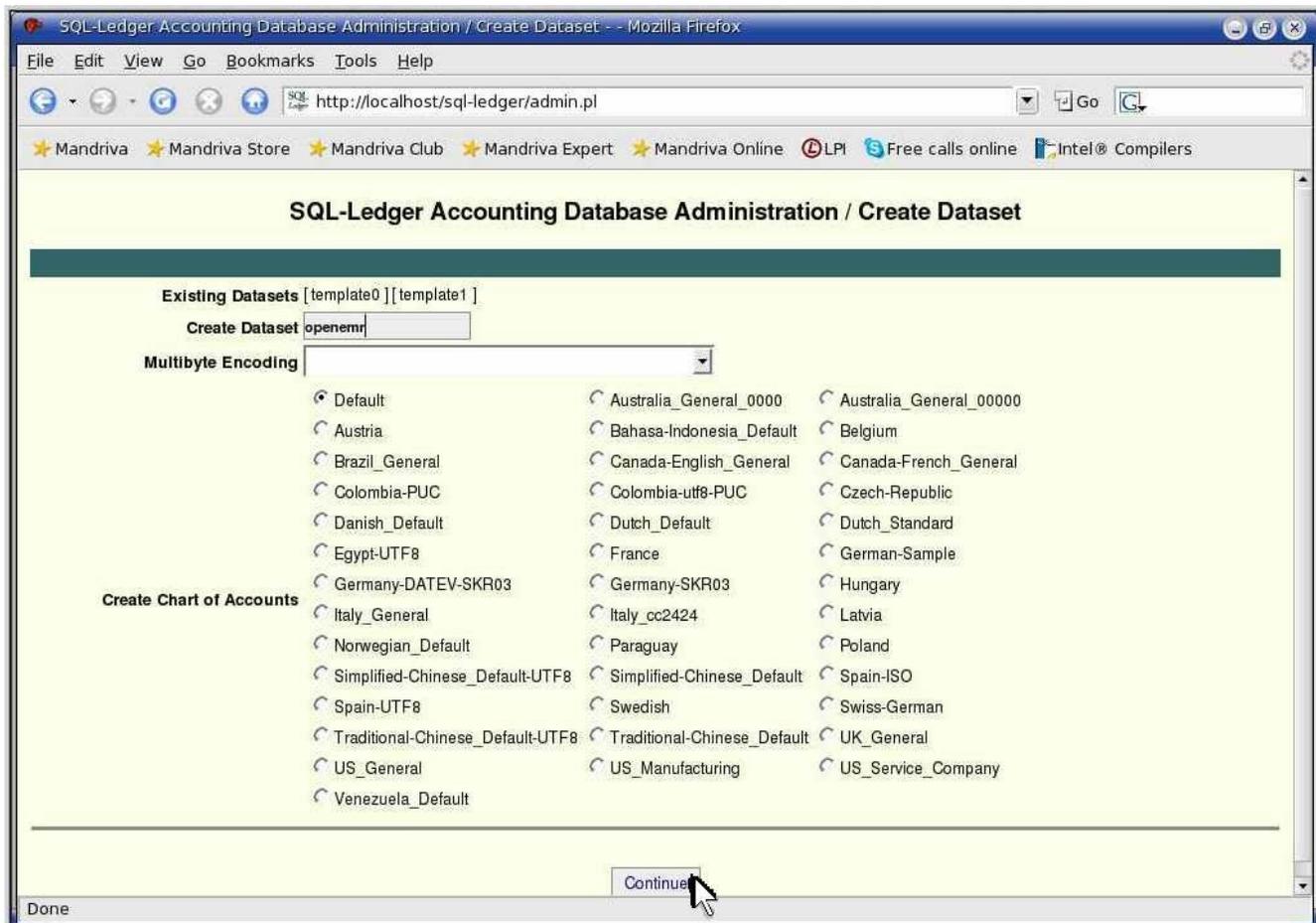
Enter 'Create Dataset' -> 'openemr'. Toggle 'Create Chart of Accounts' -> 'Default'. Then click 'Continue'.

Click 'Continue'.

Click 'Add User'.

Enter 'Login' ->'openemr'. Enter a secure 'Password'->'*openemrpassword'.*
Enter 'Name'-> 'openemr'. At the 'Database' section: ensure the 'Driver
Pg' is toggled to ON , set 'Dataset'->'openemr', set 'User'->'sql-ledger',
set 'Password'->'***sql-ledger-password***'. Keep above defaults for other
above entries. Scroll to bottom of page and click 'Save'.

Click 'Logout' and continue below.

1. Enter below **bolded** instructions on command line as root user:

#log into root
su

#Copy and rename openemr perl script to sql-ledger directory
**cp /var/www/html/openemr/accounting/ws_server_26.pl
    /usr/local/sql-ledger/ws_server.pl**

#edit file /usr/local/sql-ledger/ws_server.pl:
mcedit /usr/local/sql-ledger/ws_server.pl

#edit the following **bolded** path:
use lib qw (**/usr/local/sql-ledger)**;
TEXT EDITOR SAVE AND EXIT

#edit file /var/www/html/openemr/interface/globals.php
mcedit /var/www/html/openemr/interface/globals.php

#edit the following **bolded** variables :
$sl_income_acc = '**4320**';
$sl_services_id = 'MS';
$sl_dbname = '**openemr**';
$sl_dbuser = 'sql-ledger';
$sl_dbpass = '***sql-ledger-password***';
TEXT EDITOR SAVE AND EXIT

#edit file /var/www/html/openemr/includes/config.php:
mcedit /var/www/html/openemr/includes/config.php

#edit the following **bolded** variables:

$GLOBALS['oer_config']['ws_accounting']['enabled'] =
    true;

$GLOBALS['oer_config']['ws_accounting']['username'] =
    "**openemr**";

$GLOBALS['oer_config']['ws_accounting']['password'] =
    "***openemrpassword***";

$GLOBALS['oer_config']['ws_accounting']['income_acct']
    = "**4320**";
TEXT EDITOR SAVE AND EXIT

1. Finish up SQL-Ledger install, go to: http://localhost/sql-ledger/

Enter 'Name' -> 'openemr'. Enter password then click 'Login'.

Click 'Goods & Services'.

Click 'Add Services'.

Enter 'Number' -> 'MS'. Enter 'Description' -> 'Medical Service'. Choose 'Income' -> '4320—Consulting'. Remove checks on the three tax toggles. Otherwise, keep defaults. Then click 'Save'. Your done with SQL-Ledger install, you can log-out now.

Install php-GACL

1. Download phpgacl-3.3.6.tar.gz file from: http://sourceforge.net/project/showfiles.php?group_id=57103

2. Enter below **bolded** instructions on command line as root user:

   #log into root
   su

   #unpack and place program in its proper place
   cd /var/www/html
   tar xvzf /location/to/file/phpgacl-3.3.6.tar.gz

mv phpgacl-* phpgacl

#create the mySQL database
mysql
  At mysql> prompt type:
    CREATE DATABASE gacl;
    exit

3. Start phpGACL Installer via : http://localhost/phpgacl/setup.php
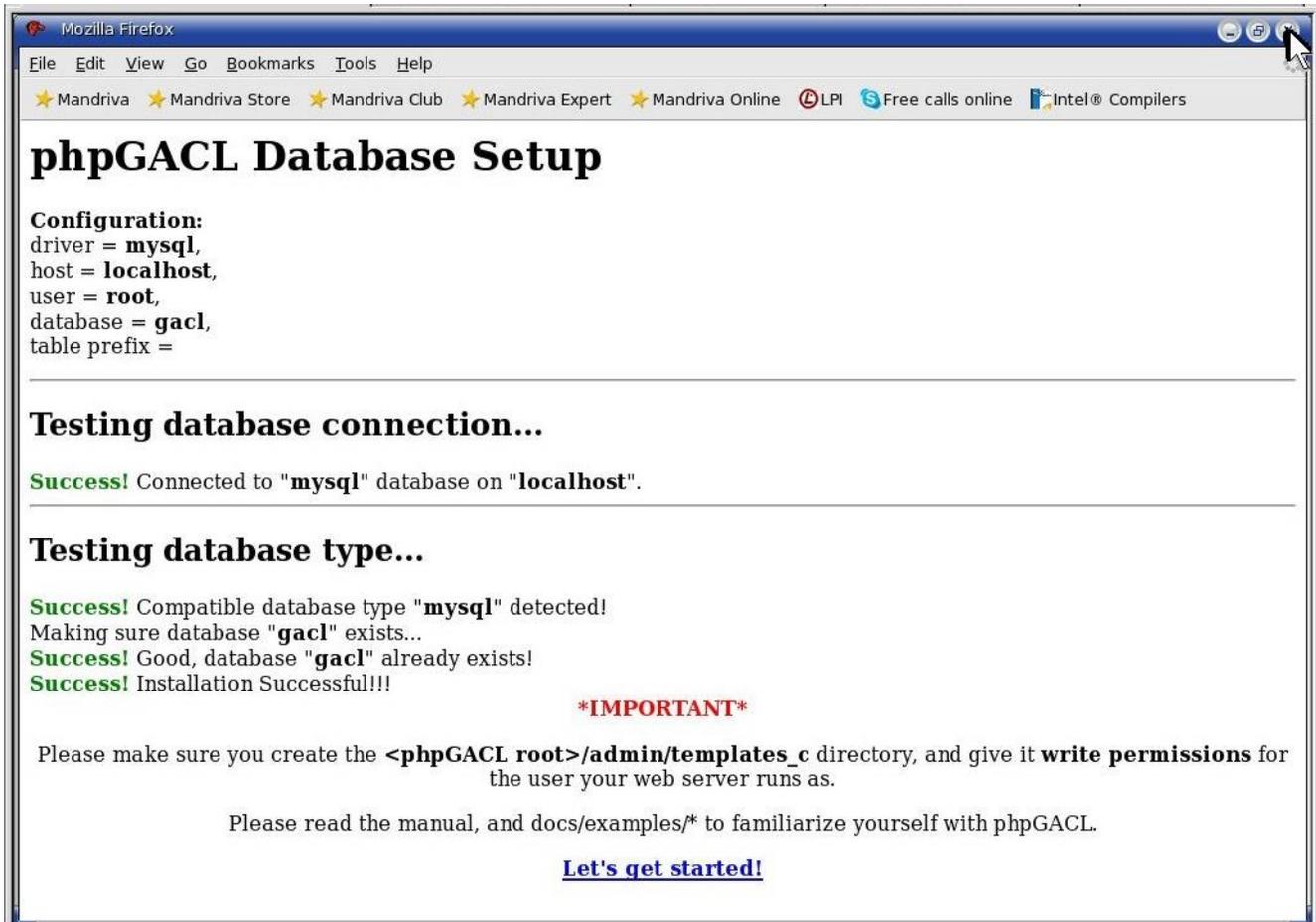
Close the window. (Don't worry, we will make the 'Important' directory below.)

4. Enter below **bolded** instructions on command line as root user:

#log into root
su

#make a phpgacl/admin/templates_c directory, and change owner
mkdir /var/www/html/phpgacl/admin/templates_c

chown -R apache:apache /var/www/html/phpgacl/admin/templates_c

#edit file /var/www/html/openemr/library/acl.inc:
mcedit /var/www/html/openemr/library/acl.inc
    #uncomment and **edit** following line:
    $phpgacl_location = "**/var/www/html/phpgacl**";
    TEXT EDITOR SAVE AND EXIT

#Password protect the /var/www/html/phpgacl/admin directory.
Will need to: FIRST add entry to apache2 config file,
SECOND create a password file, and THIRD re-start
apache.

#FIRST, edit file /etc/httpd/conf/httpd.conf:
mcedit /etc/httpd/conf/httpd.conf
    #paste following section at end of file:
    <Directory "/var/www/html/phpgacl/admin">
      AuthType Basic
      AuthName "ACL Administrators"
      AuthUserFile
        /var/www/html/phpgacl/admin/.htpasswd
      Require valid-user
    </Directory>
    TEXT EDITOR SAVE AND EXIT

#SECOND, create the password file(file is .htpasswd and user
is admin)
cd /var/www/html/phpgacl/admin
htpasswd -c /var/www/html/phpgacl/admin/.htpasswd
    admin
-Type in a secure password

#THIRD, Re-start apache
service httpd restart

5. Configure phpGACL to use OpenEMR via:
http://localhost/openemr/acl_setup.php
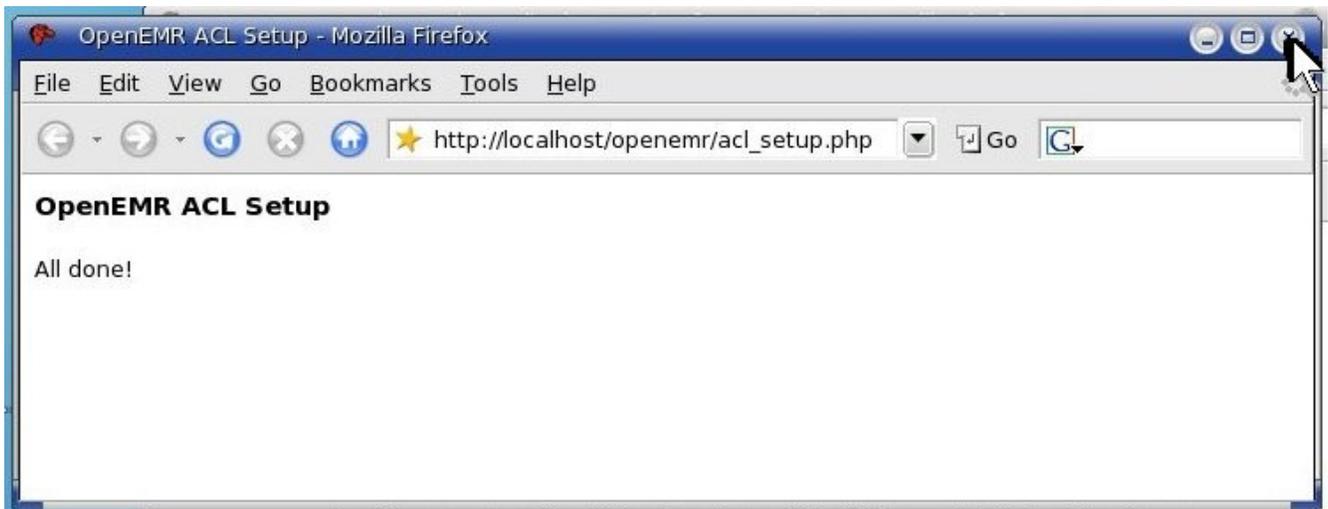
Close window.

6. Start phpGACL via: http://localhost/phpgacl/admin/acl_admin.php

Log in as 'admin', and with password created by the above *htpasswd* command.
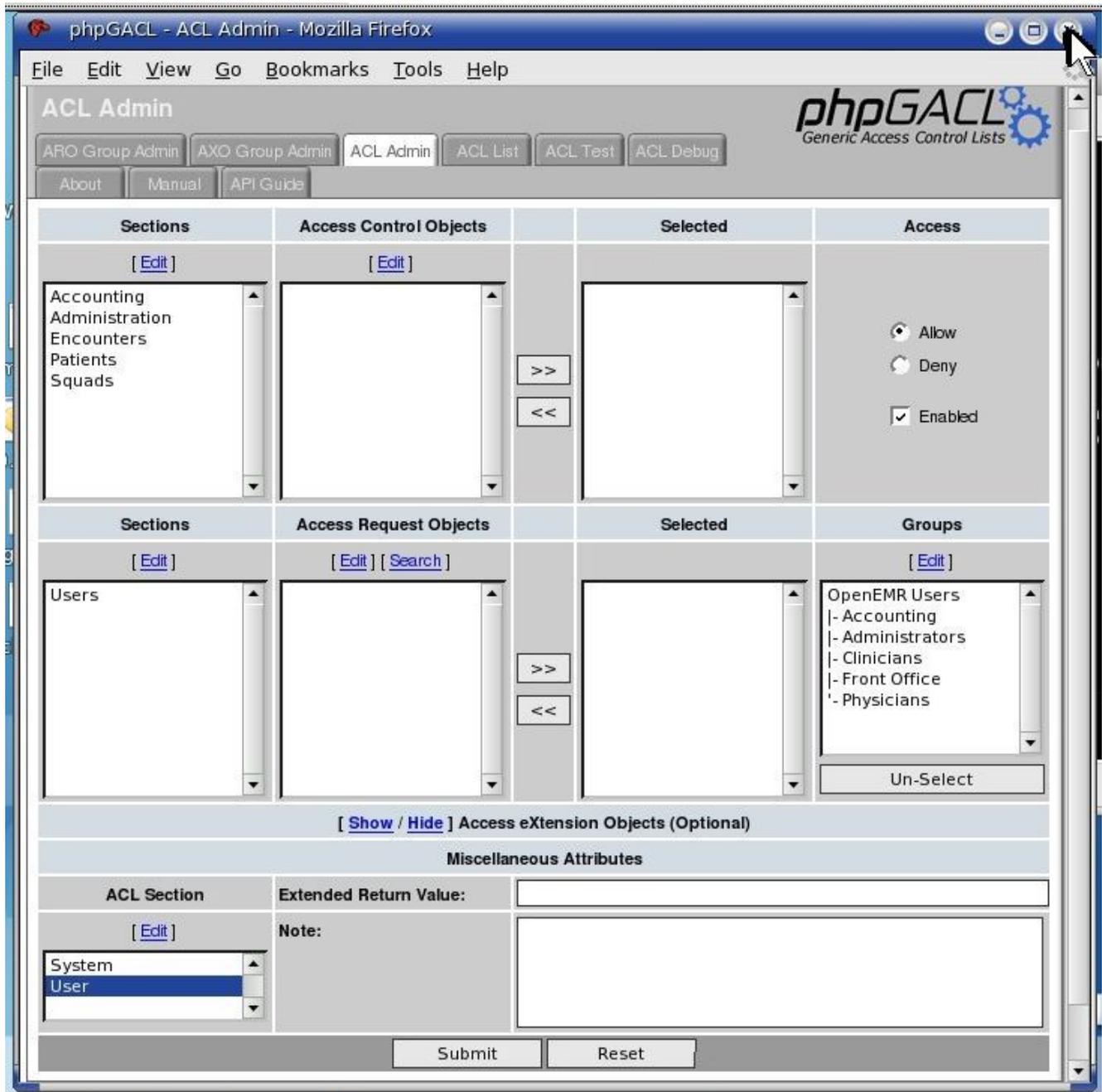
Close window. Learn how to use later. (Your OpenEMR 'admin' user is already configured as an administrator).

Configure SSL

1. SSL is very important, and will ensure encryption of all network traffic. This will allow safe use of a laptop over a wireless network. The protocol uses https instead of http and utilizes port 443 instead

of 80. Only two configuration files will need changing. We will also
firewall port 80 to ensure that the only available option will be an
encrypted connection.

2. Enter below **bolded** instructions on command line as root user:

    #log into root
    su

    #Edit file /var/www/html/openemr/includes/config.php. This will
        fix the SQL-Ledger link in the OpenEMR billing page.
    mcedit /var/www/html/openemr/includes/config.php
        #edit following line (yes, you're just adding an 's'):

        $GLOBALS['oer_config']['ws_accounting']['url_path'] =
            "**https://**" .
         $_SERVER["SERVER_NAME"] . "/sql-ledger/login.pl";
        TEXT EDITOR SAVE AND EXIT

    #Edit file /etc/httpd/modules.d/41_mod_ssl.default-vhost.conf.
        This will ensure only high level secure encryption is used.
    mcedit /etc/httpd/modules.d/41_mod_ssl.default-
        vhost.conf

        #REMOVE the entire line below:
        SSLCipherSuite ALL:!ADH:!EXPORT56:RC4+RSA:+HIGH:
            +MEDIUM:+LOW:+SSLv2:+EXP

        #PASTE all of below in place of the above removed line:
        SSLOptions +StrictRequire
        <Directory />
           SSLRequireSSL
        </Directory>
        SSLProtocol -all +TLSv1 +SSLv3
        SSLCipherSuite HIGH:MEDIUM:!aNULL:
            +SHA1:+MD5:+HIGH:+MEDIUM
        TEXT EDITOR SAVE AND EXIT

    #Re-start apache
    service httpd restart

1. Firewall port 80
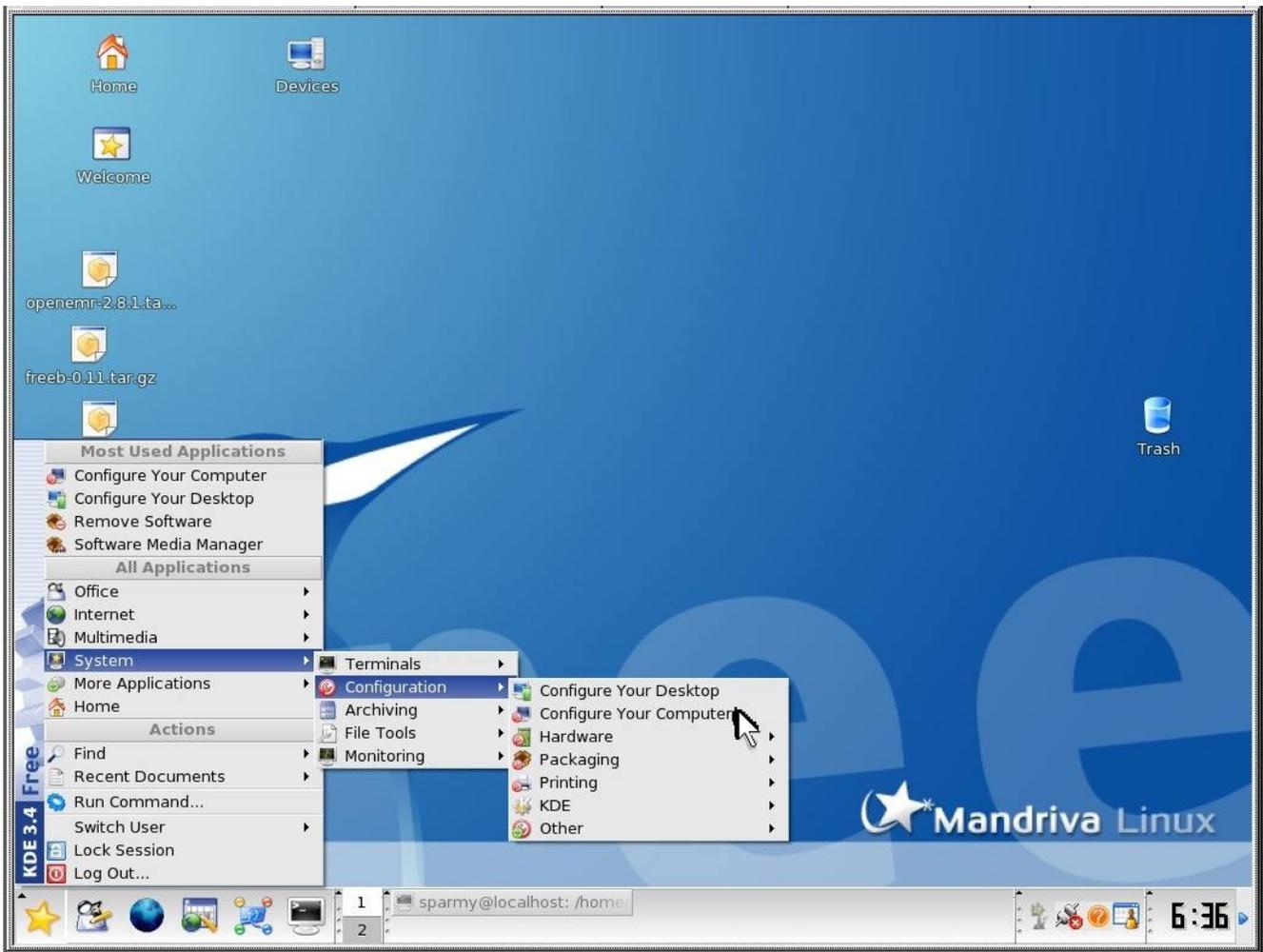
Click 'System' -> 'Configuration' -> 'Configure Your Computer'.
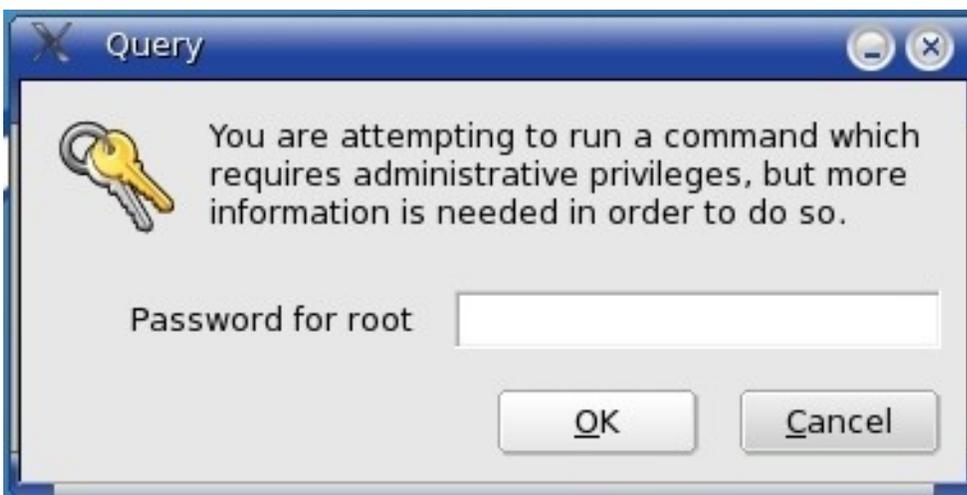
Enter 'root' user password. Then click 'OK'.

Click 'Security'.

Click 'Set up a personal...'

Ensure 'Web Server' is NOT selected. Then Click on 'Advanced'.

Enter 'Other ports' -> '**443/tcp 443/udp**'. Then click 'Ok'.
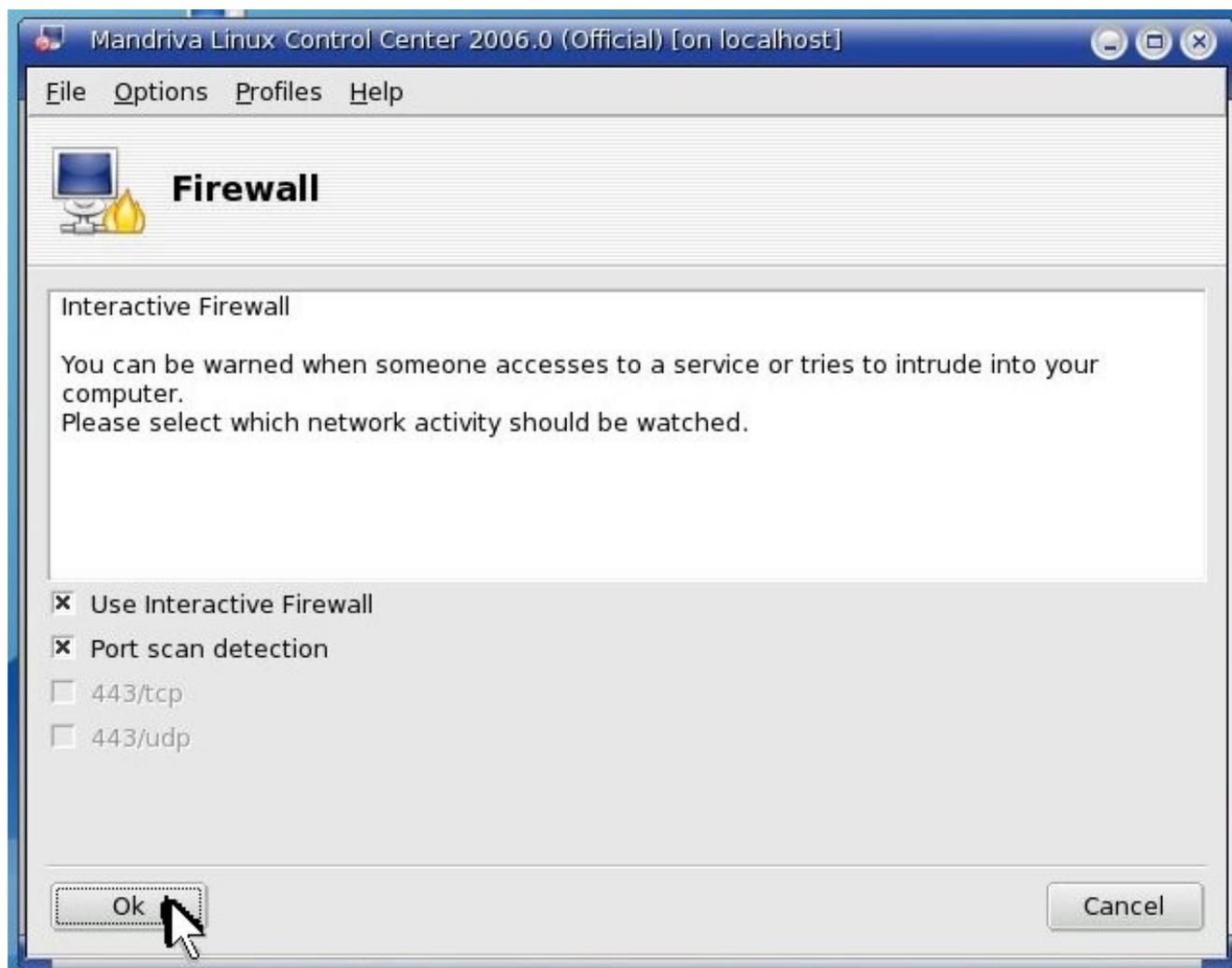
Click 'Ok'. Keep defaults.
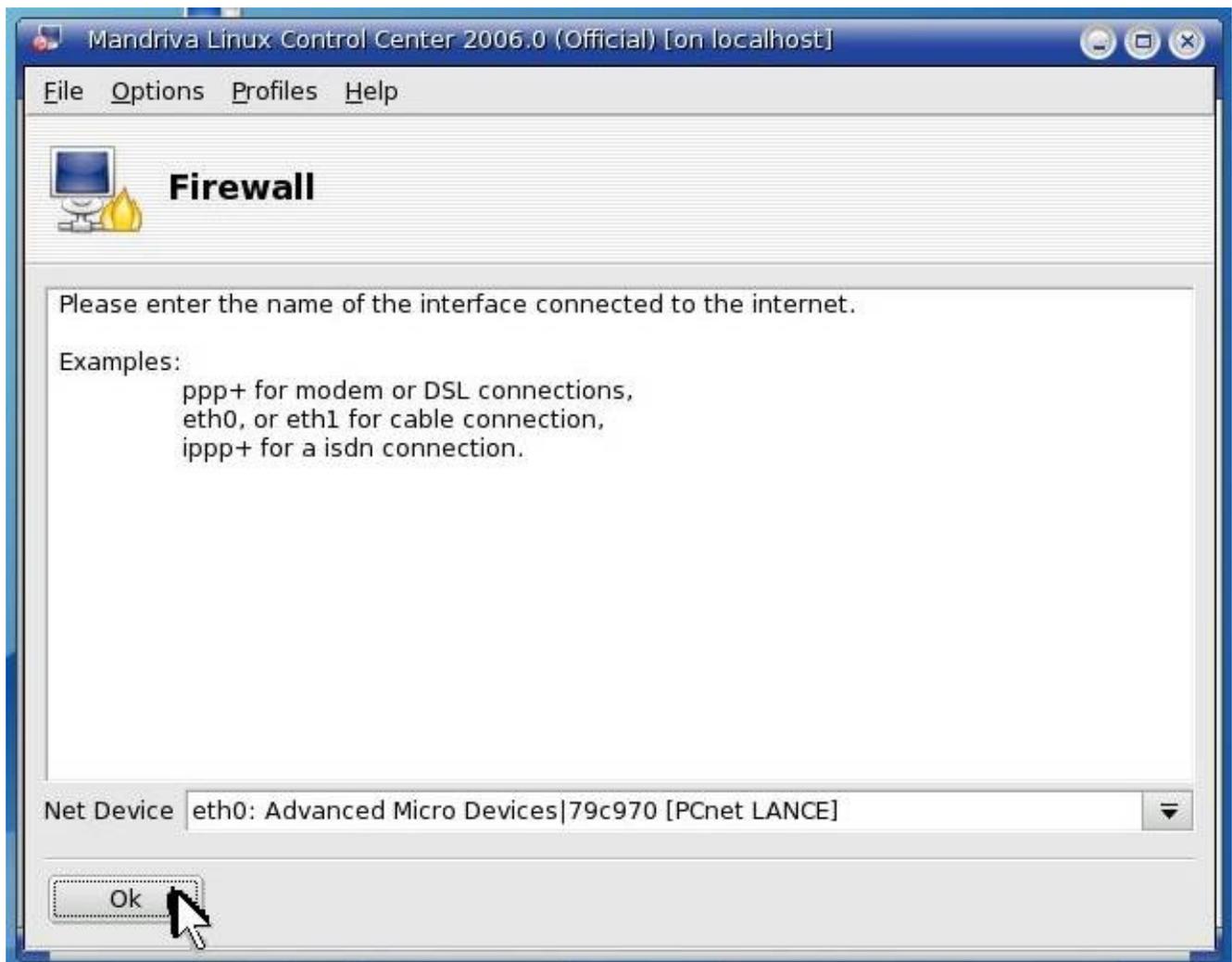
Click 'Ok'. Keep defaults.

You are done. Close the window.

Upgrade to OpenEMR 2.8.2

1. Download openemr-2.8.2.tar.gz (version 2.8.2) from sourceforge at: http://sourceforge.net/project/showfiles.php?group_id=60081

2. Enter below **bolded** instructions on command line as root user:

   #log into root
   su

   #Ensure register globals in php is turned off.
   #edit file /etc/php4.ini:
   mcedit /etc/php4.ini

> **#EDIT** the following variable:
> register_globals = **off**

TEXT EDITOR SAVE AND EXIT

#restart httpd
service httpd restart

#make backup directories
mkdir /backupopenemrandfreeb
mkdir /backupopenemrandfreeb/2_8_1

#move old OpenEMR 2.8.1 to the backup directory
mv /var/www/html/openemr
 /backupopenemrandfreeb/2_8_1/openemr

#put the new OpenEMR 2.8.2 program in its place
cd /var/www/html
tar pxzvf /location/to/tar/openemr-2.8.2.tar.gz
mv openemr-2.8.2 /var/www/html/openemr

#secure OpenEMR
chown -Rf root:root openemr

#Need to change some file/folder permissions
chown apache:apache -R
 /var/www/html/openemr/interface/main/calendar/mod
 ules/PostCalendar/pntemplates/cache
chown apache:apache -R
 /var/www/html/openemr/interface/main/calendar/mod
 ules/PostCalendar/pntemplates/compiled
chown apache:apache -R /var/www/html/openemr/library/
 freeb

#Restore the original scanned documents directory
cp -fr
 /backupopenemrandfreeb/2_8_1/openemr/documents /
 var/www/html/openemr/

#Change file-folder permissions of documents directory
chown apache:apache -R
 /var/www/html/openemr/documents

#Now for the hardest part of the upgrade; editing the new
 config files. There are five files that need to be compared to
 your old config files: **openemr/interface/globals.php**,
 openemr/library/sqlconf.php, openemr/library/sql-
 ledger.inc, **openemr/includes/config.php**, and **openemr/**
 library/acl.inc . The below instructions are specific for the

openemr 2.8.1 appliance(only the **bolded** files above require changing or copying). If you have made your own changes to the config files, then I'd recommend comparing them to ensure no other changes are needed. We will replace one file with the previous 2.8.1 config file and will edit three of the new 2.8.2 config files.

#replace new /var/www/html/openemr/library/sqlconf.php file with the old 2.8.1 file
cp /backupopenemrandfreeb/2_8_1/openemr/library/sqlconf.php /var/www/html/openemr/library/sqlconf.php

#edit file /var/www/html/openemr/interface/globals.php:
mcedit /var/www/html/openemr/interface/globals.php
  #edit the following **bolded** variables :
  $sl_dbname = '**openemr**'; // sql-ledger database name
  $sl_dbpass = '***sql-ledger-password***'; // sql-ledger database login password (click <u>link</u> for default above password, which is the PostgreSQL database password, and should be 'sqlledger')
TEXT EDITOR SAVE AND EXIT

#edit file /var/www/html/openemr/includes/config.php:
mcedit /var/www/html/openemr/includes/config.php
  #edit the following **bolded** variables :
  $GLOBALS['oer_config']['ws_accounting']['enabled'] = **true**;
  $GLOBALS['oer_config']['ws_accounting']['username'] = "**openemr**";
  $GLOBALS['oer_config']['ws_accounting']['password'] = "***openemrpassword***"; (click <u>link</u> for default above password, which is sql-ledger 'openemr' user password, and should be "openemr")
  $GLOBALS['oer_config']['ws_accounting']['url_path'] = "**https://**" .
   $_SERVER["SERVER_NAME"] . "/sql-ledger/login.pl";
TEXT EDITOR SAVE AND EXIT

#edit file /var/www/html/openemr/library/acl.inc:
mcedit /var/www/html/openemr/library/acl.inc
  #uncomment below line and edit the **bolded** variable:
  $phpgacl_location = "**/var/www/html/phpgacl**";
TEXT EDITOR SAVE AND EXIT

#Backup the mysql database into backup directory.

mkdir /backupopenemrandfreeb/2_8_1/mysqldatabase
mysqldump --opt --all-databases | gzip >
/backupopenemrandfreeb/2_8_1/mysqldatabase/mysql
_backup.gz

#Upgrade the mysql database
mysql openemr < /var/www/html/openemr/sql/2_8_1-
to-2_8_2_upgrade.sql

#**OPTIONAL** In the appliance, I left the traditional look of
OpenEMR as the default. If you want to change to the new
frames look(check out the demos to decide), then you will
need to edit the file
/var/www/html/openemr/interface/globals.php:
mcedit /var/www/html/openemr/interface/globals.php
#edit the below **bolded** variable :
$GLOBALS['concurrent_layout'] = **true**;
TEXT EDITOR SAVE AND EXIT

Upgrade to FreeB 0.12

1. Download freeb-0.12.tar.gz (version 0.12) from sourceforge:
   http://sourceforge.net/project/showfiles.php?group_id=60081

2. Enter below **bolded** instructions on command line as root user:

   #log into root
   su

   #move old FreeB 0.11 to the backup directory
   mv /usr/share/freeb
   /backupopenemrandfreeb/2_8_1/freeb

   #put the new FreeB 0.12 program in its place
   cd /usr/share
   tar xzvf /location/to/tar/freeb-0.12.tar.gz
   mv freeb-* /usr/share/freeb

   #secure FreeB directory
   chown root:root -R /usr/share/freeb

   #create a directory that apache can write to
   mkdir /usr/share/freeb/public

#restore original billing files(if they exist)
cp -fr /backupopenemrandfreeb/2_8_1/freeb/public /usr/share/freeb/

#Allow apache access to public directory
chown apache:apache -R /usr/share/freeb/public

#restart the freeb service
service freeb stop
service freeb start

Admin Authorization (bug fix)

1. This is to correct an annoying bug, which doesn't allow 'admin' to send bills to sql-ledger. It's easily corrected by below changes.

   Log in to OpenEMR with 'admin' username and default password 'pass' at http://localhost/openemr:
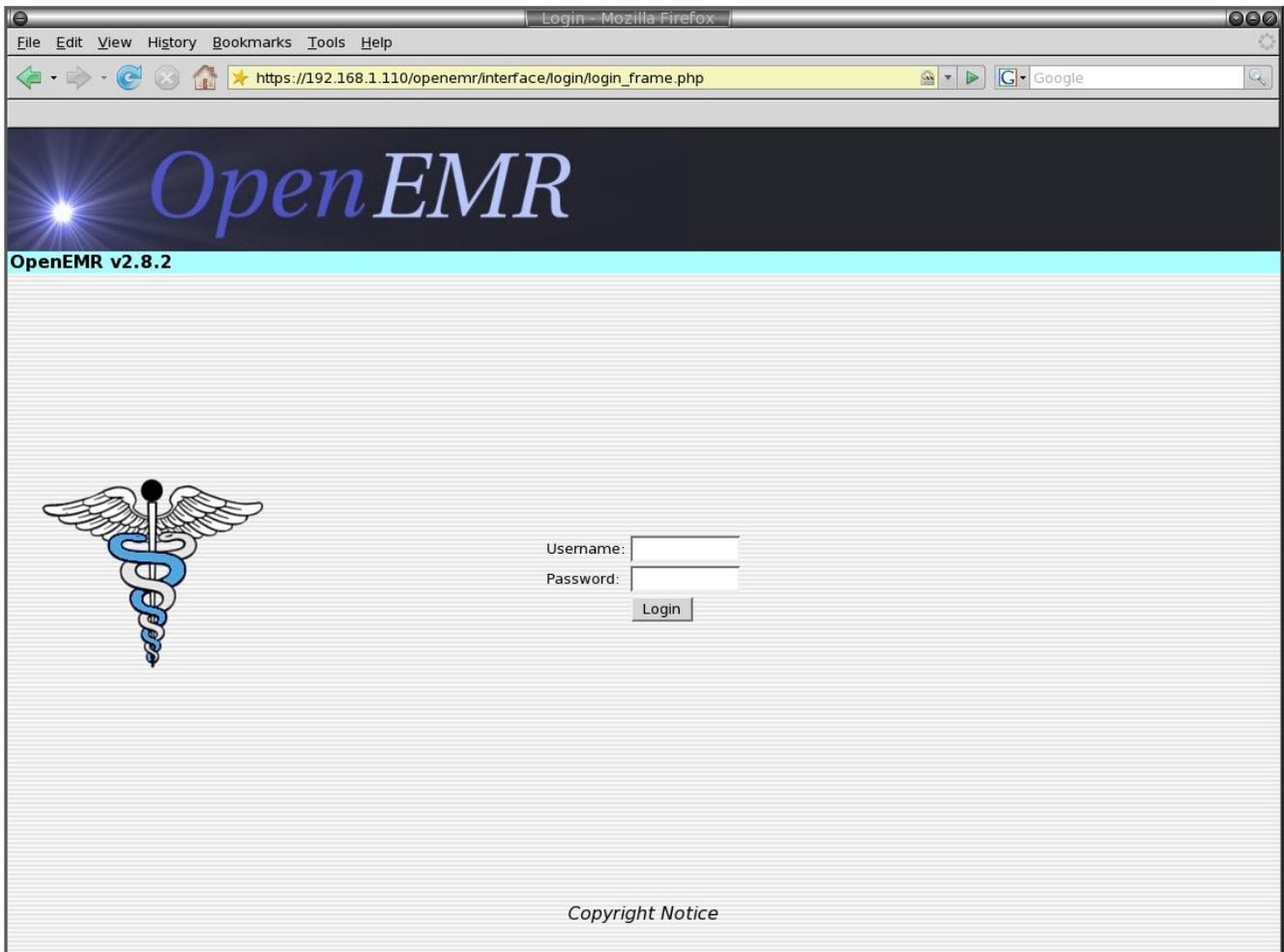
Log in with 'admin' user and default password 'pass'.

Click 'Administration'.

File Edit View Go Bookmarks Tools Help

http://192.168.1.113/openemr/interface/usergroup/usergroup.php ▼ ⓞ Go G.

| *Users & Groups* | *Forms* | *Practice* | *Calendar* | *Database* | *BatchCom* | *Language* | *Logs* | *Back* |

Logged in: Administrator   **Mon March 20th 2006**
User & Group Administration

New Facility Information: Name: [   ]   Phone: [   ]
                               Address: [   ]   City: [   ]
                               State: [   ]   Zip Code: [   ]
                               Country: [   ]   Federal EIN: [   ]

                               [Add Facility]

Edit Facilities: Your Clinic Name Here(Edit)

New User: Username: [   ]   Password: [   ]
               Groupname: [Healthy Choice ▼]   Authorized: [ ]
               First Name: [   ]   Middle Name: [   ]
               Last Name: [   ]   Default Facility: [Your Clinic Name Here ▼]
               Federal Tax ID: [   ]   Federal Drug ID: [   ]
               UPIN: [   ]   See Authorizations: [None ▼]
               Additional Info:
               [   ]

               [Add User]

New Group: Groupname: [   ]   Initial User: [admin ▼]   [Add Group]
Add User To Group: User: [admin ▼]   Groupname: [Healthy Choice ▼]   [Add User To Group]

Username Real Name Info Authorized?
admin(Edit) Administrator   yes

Healthy Choice
admin(Remove)

Click 'edit' for the 'admin' user.
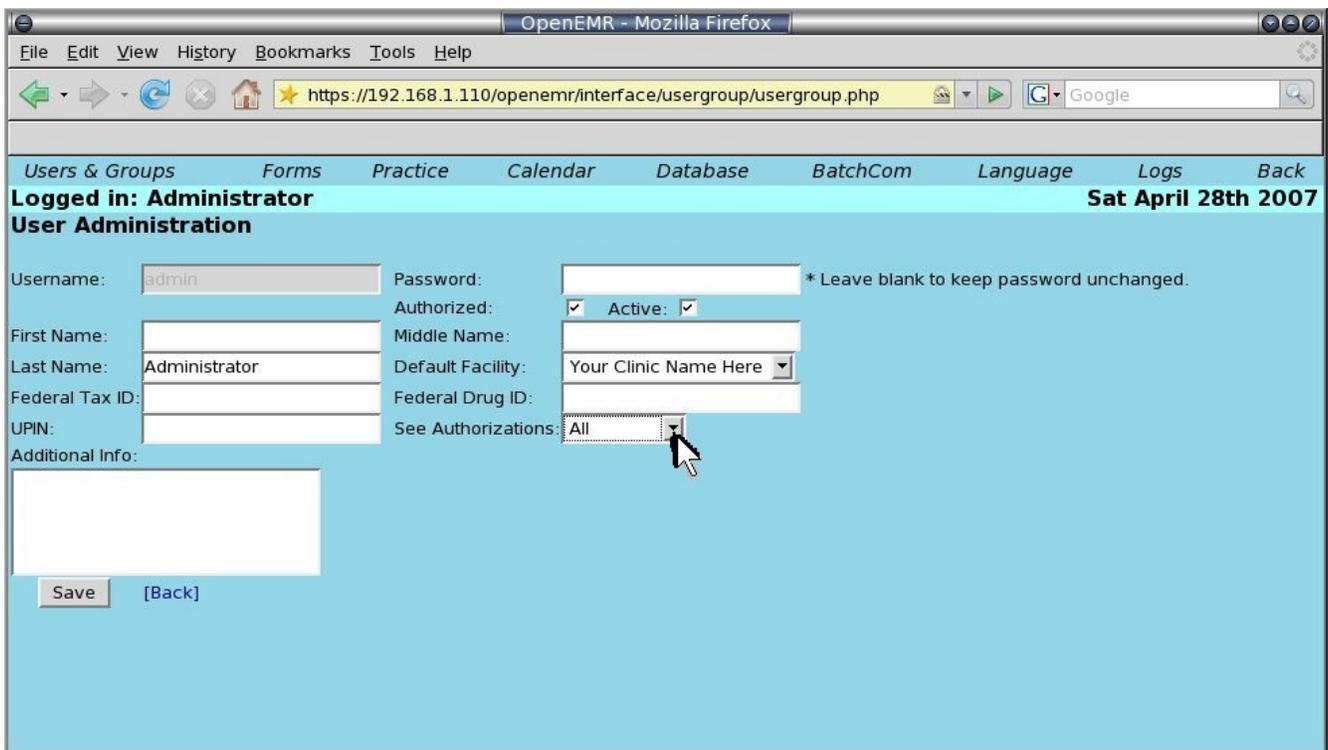
Set the 'Authorized:' and 'Active:' toggles to on. Set the 'See Authorizations:' to 'All'.
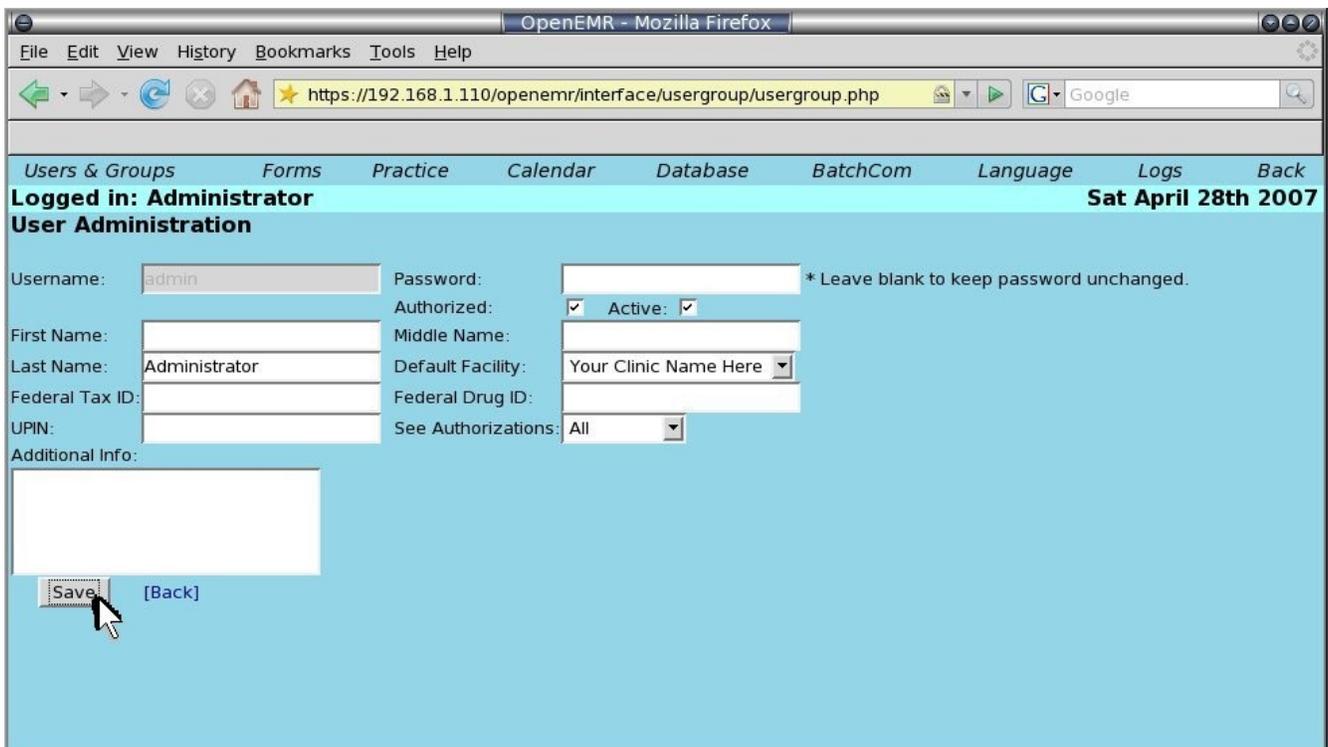
Then click 'Save'.
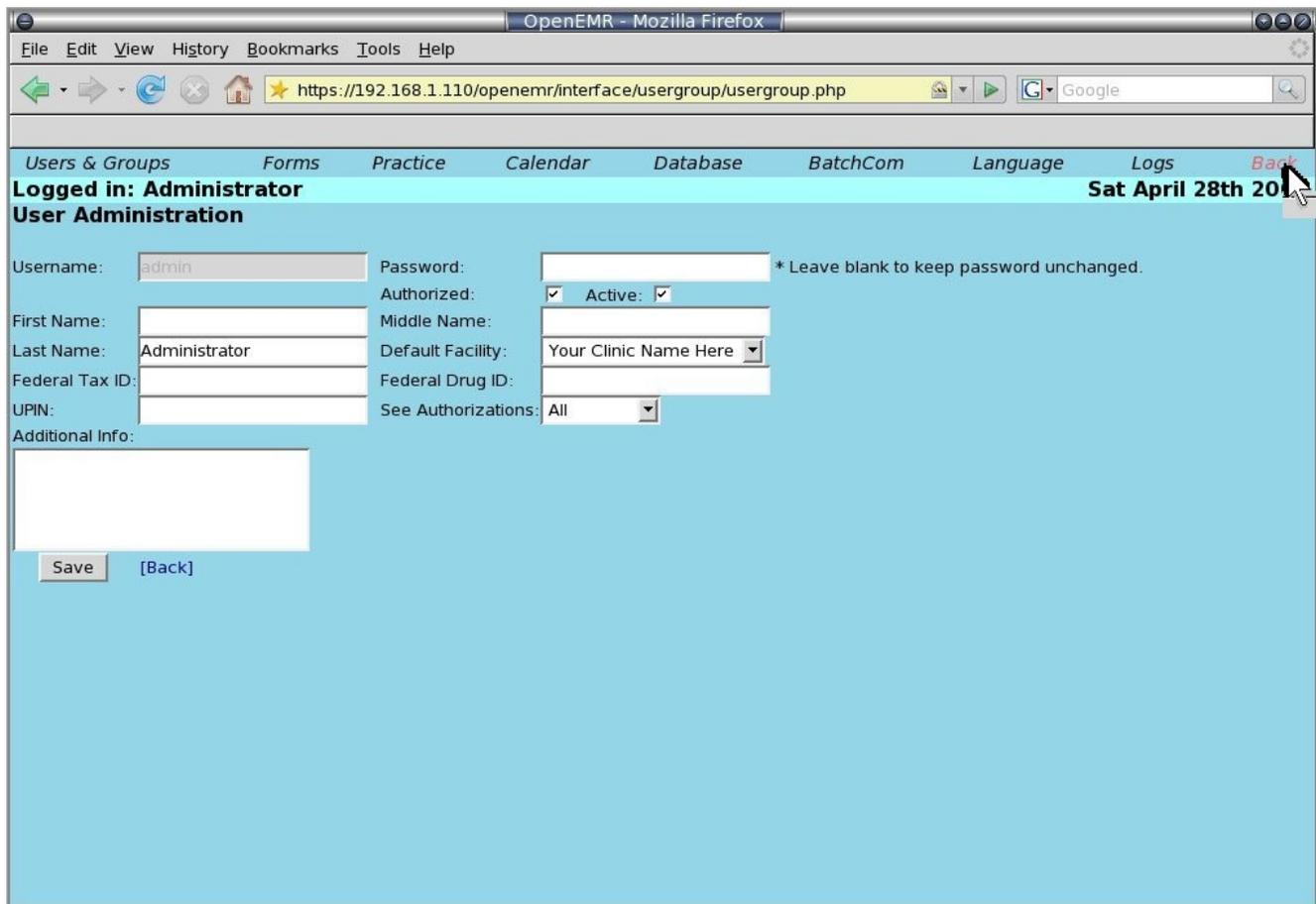
Then click 'Back'.

DONE

Upgrade to OpenEMR 2.8.3

1. Download openemr-2.8.3.tar.gz (version 2.8.3) from sourceforge at: http://sourceforge.net/project/showfiles.php?group_id=60081

2. Enter below **bolded** instructions on command line as root user:

   #log into root
   su

   #Ensure the following lines are included at the end of the /etc/ httpd/conf/httpd.conf file (this has been listed as a security patch in previous versions, and is required to not allow

unauthorized viewing of patient's medical records).

mcedit /etc/httpd/conf/httpd.conf

#Ensure below is included at end of file (if not found, then paste below into end of file)

<Directory "/var/www/html/openemr/documents">
order deny,allow
Deny from all
</Directory>
<Directory "/var/www/html/openemr/edi">
order deny,allow
Deny from all
</Directory>

TEXT EDITOR SAVE AND EXIT

#restart apache
service httpd restart

#make backup directories
mkdir /backupopenemrandfreeb/2_8_2

#move old OpenEMR 2.8.2 to the backup directory
mv /var/www/html/openemr /backupopenemrandfreeb/2_8_2/openemr

#put the new OpenEMR 2.8.3 program in its place
cd /var/www/html
tar pxzvf /location/to/tar/openemr-2.8.3.tar.gz
mv openemr-2.8.3 /var/www/html/openemr

#secure OpenEMR
chown -Rf root:root openemr

#Need to change some file/folder permissions
chown apache:apache -R /var/www/html/openemr/interface/main/calendar/modules/PostCalendar/pntemplates/cache
chown apache:apache -R /var/www/html/openemr/interface/main/calendar/modules/PostCalendar/pntemplates/compiled
chown apache:apache -R /var/www/html/openemr/library/freeb
chown apache:apache -R /var/www/html/openemr/edi

#secure the /var/www/html/openemr/edi directory
chmod -R 700 /var/www/html/openemr/edi

#Restore the original scanned documents directory
cp -fr

**/backupopenemrandfreeb/2_8_2/openemr/documents /
var/www/html/openemr/**

#Change file-folder permissions of documents directory
**chown apache:apache -R
/var/www/html/openemr/documents**

#Now for the hardest part of the upgrade; editing the new
config files. There are five files that need to be compared to
your old config files: **openemr/interface/globals.php**,
openemr/library/sqlconf.php, openemr/library/sql-
ledger.inc, **openemr/includes/config.php**, and **openemr/
library/acl.inc** . The below instructions are specific for the
openemr 2.8.2 appliance(only the **bolded** files above
require changing or copying). If you have made your own
changes to the config files, then I'd recommend comparing
them to ensure no other changes are needed. We will
replace one file with the previous 2.8.2 config file and will
edit three of the new 2.8.3 config files.

#replace new /var/www/html/openemr/library/sqlconf.php file
with the old 2.8.2 file
**cp -f
/backupopenemrandfreeb/2_8_2/openemr/library/sqlc
onf.php /var/www/html/openemr/library/sqlconf.php**

#edit file /var/www/html/openemr/interface/globals.php:
mcedit /var/www/html/openemr/interface/globals.php
    #edit the following **bolded** variables :
    $webserver_root = "**/var/www/html/openemr**";
    $GLOBALS['concurrent_layout'] = **false**;
    $sl_dbname   = '**openemr**'; // sql-ledger database
      name
    $sl_dbpass   = '***sql-ledger-password***'; // sql-ledger
      database login password (click [link] for default
      above password, which is the PostgreSQL
      database password, and should be 'sqlledger')
TEXT EDITOR SAVE AND EXIT

#edit file /var/www/html/openemr/includes/config.php:
mcedit /var/www/html/openemr/includes/config.php
    #edit the following **bolded** variables :
    $GLOBALS['oer_config']['ws_accounting']['enabled']
      = **true**;
    $GLOBALS['oer_config']['ws_accounting']['username']
      = "**openemr**";
    $GLOBALS['oer_config']['ws_accounting']['password']
      = "***openemrpassword***"; (click [link] for default

above password, which is sql-ledger 'openemr' user password, and should be "openemr")
$GLOBALS['oer_config']['ws_accounting']['url_path'] = "**https://**" .
$_SERVER["SERVER_NAME"] . "/sql-ledger/login.pl";
TEXT EDITOR SAVE AND EXIT

#edit file /var/www/html/openemr/library/acl.inc:
mcedit /var/www/html/openemr/library/acl.inc
#uncomment below line and edit the **bolded** variable:
$phpgacl_location = "**/var/www/html/phpgacl**";
TEXT EDITOR SAVE AND EXIT

#Backup the mysql database into backup directory.
mkdir /backupopenemrandfreeb/2_8_2/mysqldatabase
mysqldump --opt --all-databases | gzip > /backupopenemrandfreeb/2_8_2/mysqldatabase/mysql _backup.gz

#Fix a bug in the mysql upgrade script
mcedit /var/www/html/openemr/sql/2_8_2-to-2_8_3_upgrade.sql
#**Delete** below two lines
ALTER TABLE form_football_injury_audit
ADD `fimatchtype` int(11) NOT NULL DEFAULT 0;
TEXT EDITOR SAVE AND EXIT

#Upgrade the mysql database
mysql openemr < /var/www/html/openemr/sql/2_8_2-to-2_8_3_upgrade.sql

3. Next, need to fix the calendar bug with a patch. Download CalendarPatchMonth283.txt file, which can be found at: http://www.bradymd.com/CalendarPatchMonth283.txt (to download file, you may need to Right-Click the link and select 'Save Link As...')

   1. Enter below **bolded** instructions on command line as root user:

      #log into root
      su

      #apply the patch (note that the 'CalendarPatchMonth283.txt' file is being copied to file named 'default.html))
      cp -f /location/to/file/CalendarPatchMonth283.txt /var/www/html/openemr/interface/main/calendar/mo dules/PostCalendar/pntemplates/default/views/mont h/default.html

4. Next, need to upgrade the php-GACL access controls. Download acl_upgrade_1.txt file, which is a php script. I wrote this script, and it seems to work alright. File can be found at: http://bradymd.com/acl_upgrade_1.txt (to download file, you may need to Right-Click the link and select 'Save Link As...')

1. Enter below **bolded** instructions on command line as root user:

> #log into root
> **su**
>
> #copy upgrade script to openemr directory (note that the '.txt' is being changed to '.php')
> **mv /location/to/file/acl_upgrade_1.txt /var/www/html/openemr/acl_upgrade_1.php**

2. Run php-gacl upgrade script via :
http://localhost/openemr/acl_upgrade_1.php
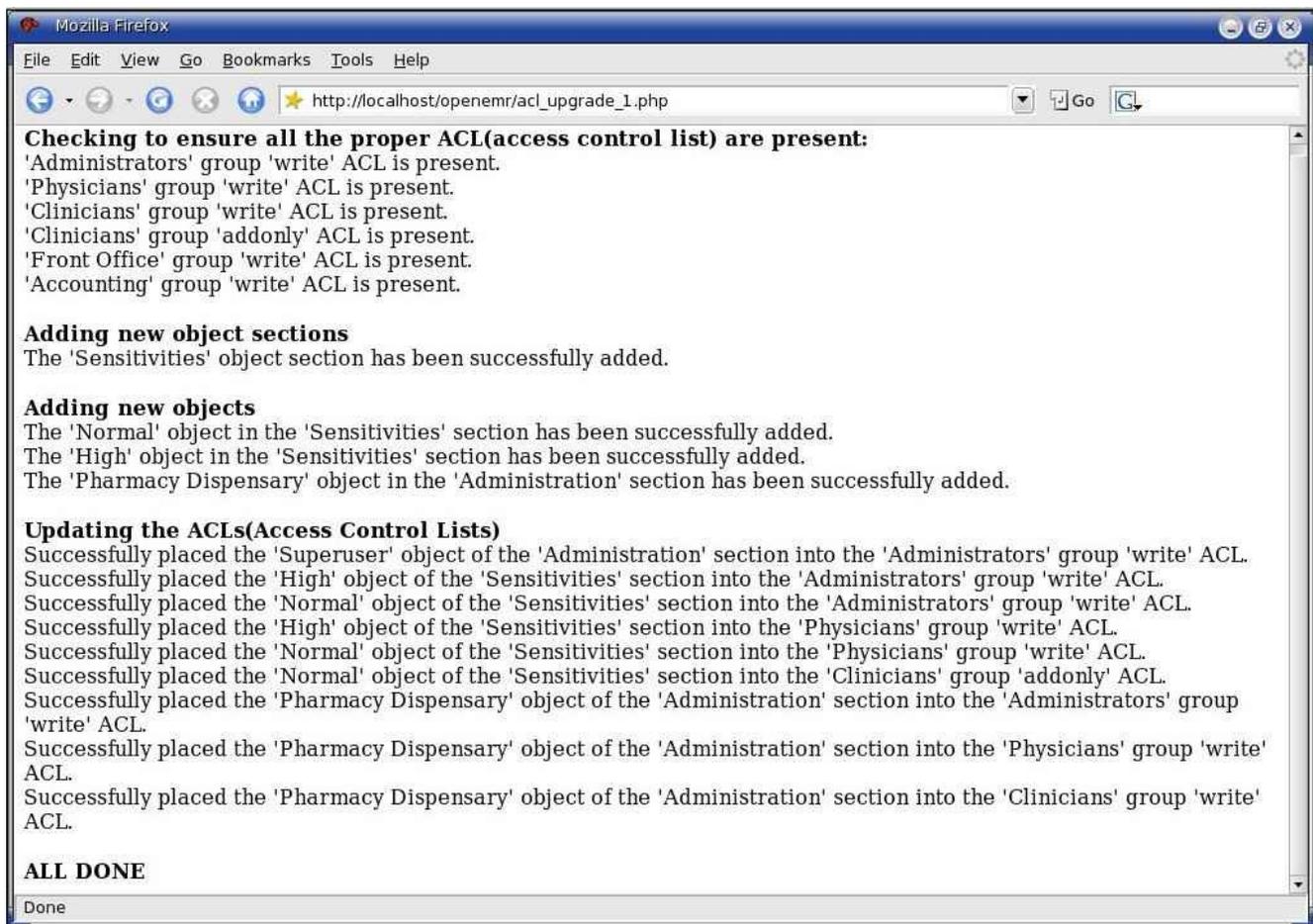
Ensure you got no 'ERRORS'. Close the window.

3. **OPTIONAL** In the appliance, I left the traditional look of OpenEMR as the default. If you want to change to the new frames look(check out the demos to decide), then you will need to follow below instructions.

>   #log into root
>   **su**
>
>   #**OPTIONAL** If you want to change to the new frames look(check out the demos to decide), then you will need to edit the file /var/www/html/openemr/interface/globals.php:
>   **mcedit /var/www/html/openemr/interface/globals.php**
>   #edit the below **bolded** variable :
> $GLOBALS['concurrent_layout'] = **true**;
>   **TEXT EDITOR SAVE AND EXIT**

Upgrade to FreeB 0.13

1. Download freeb-0.13.tar.gz (version 0.13) from sourceforge:
   http://sourceforge.net/project/showfiles.php?group_id=60081

2. Enter below **bolded** instructions on command line as root user:

>   #log into root
>   **su**
>
>   #move old FreeB 0.12 to the backup directory
>   **mv /usr/share/freeb
>   /backupopenemrandfreeb/2_8_2/freeb**
>
>   #put the new FreeB 0.13 program in its place
>   **cd /usr/share**
>   **tar xzvf /location/to/tar/freeb-0.13.tar.gz**
>   **mv freeb-* /usr/share/freeb**
>
>   #secure FreeB directory
>   **chown root:root -R /usr/share/freeb**
>
>   #fix a bug with Freeb permissions, and allow execution of the /usr/share/freeb/formatbin/ub92.pl file
>   **chmod +x /usr/share/freeb/formatbin/ub92.pl**
>
>   #create a directory that apache can write to

mkdir /usr/share/freeb/public

#restore original billing files(if they exist)
**cp -fr /backupopenemrandfreeb/2_8_2/freeb/public
    /usr/share/freeb/**

#Allow apache access to public directory
chown apache:apache -R /usr/share/freeb/public

#restart the freeb service
service freeb stop
service freeb start

Appendix

A. Bug fixes and patches

Encounter 'Sensitivity' Default Value PATCH

1. This is a minor bug, but can be really annoying for providers. When entering in a new encounter, there is a 'sensitivity' setting which can be applied. 'High' setting means only physicians can read it, while 'normal' means nurses and PA's can read it also. Default value is 'normal' in OpenEMR, however in my Appliance, I mistakenly set default to the 'high' value. So if a provider quickly clicks on encounter form without looking at all the options(likely a common occurrence), they will pick 'high' sensitivity. I've created a quick php script, which fixes the problem in php-GACL.

2. Download sensitivityPatch.txt file, which is a php script. File can be found at: http://bradymd.com/sensitivityPatch.txt (to download file, you may need to Right-Click the link and select 'Save Link As...')

3. Enter below **bolded** instructions on command line as root user:

#log into root
su

#copy upgrade script to openemr directory (note that the '.txt' is being changed to '.php')
mv /location/to/file/sensitivityPatch.txt /var/www/ html/openemr/sensitivityPatch.php

1. Run patch script via :
   http://localhost/openemr/sensitivityPatch.php

Ensure you got no 'ERRORS'. Close the window.

ALL DONE

B. Change Mandriva's 'root' user password

Main TOC Link

1. This section describes how to change the 'root' user's password. The default password is 'rootpassword'. Don't worry, this is very quick and easy.

2. We will begin by opening a console window:

Click on the Konsole icon at bottom left of Desktop.
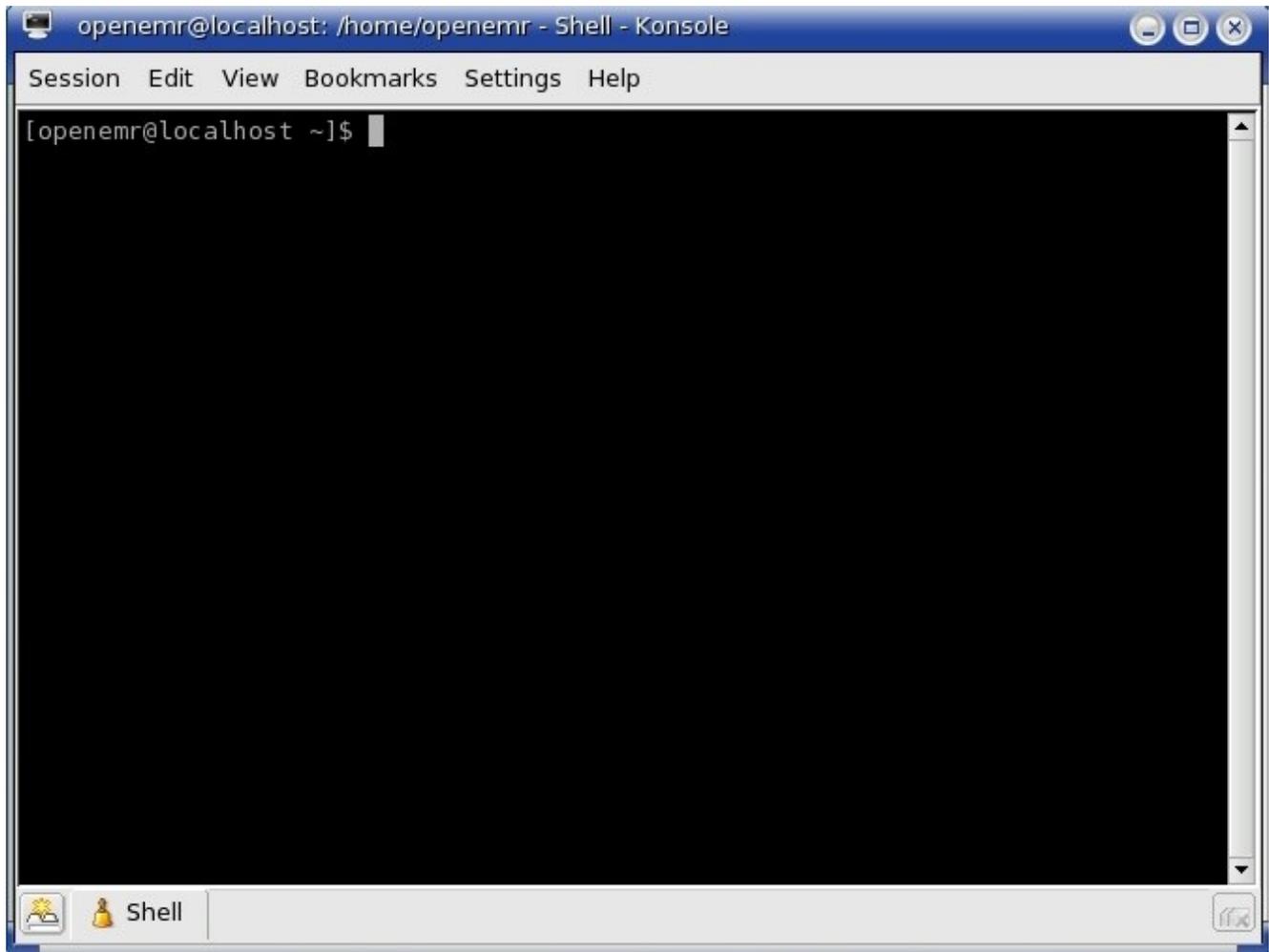
This is the console window, and where you type command line
instructions. Move on to the next step.

First, login to 'root' user. At command line type: **su**

Enter in the default 'root' password. At command line type: **rootcool**

When password is expired, it will mandate a password change. At command line type: **rootcool**

Enter a new 'root' password. At command line type: *A New Root Password*

Re-enter new password. At command line type: *A New Root Password*
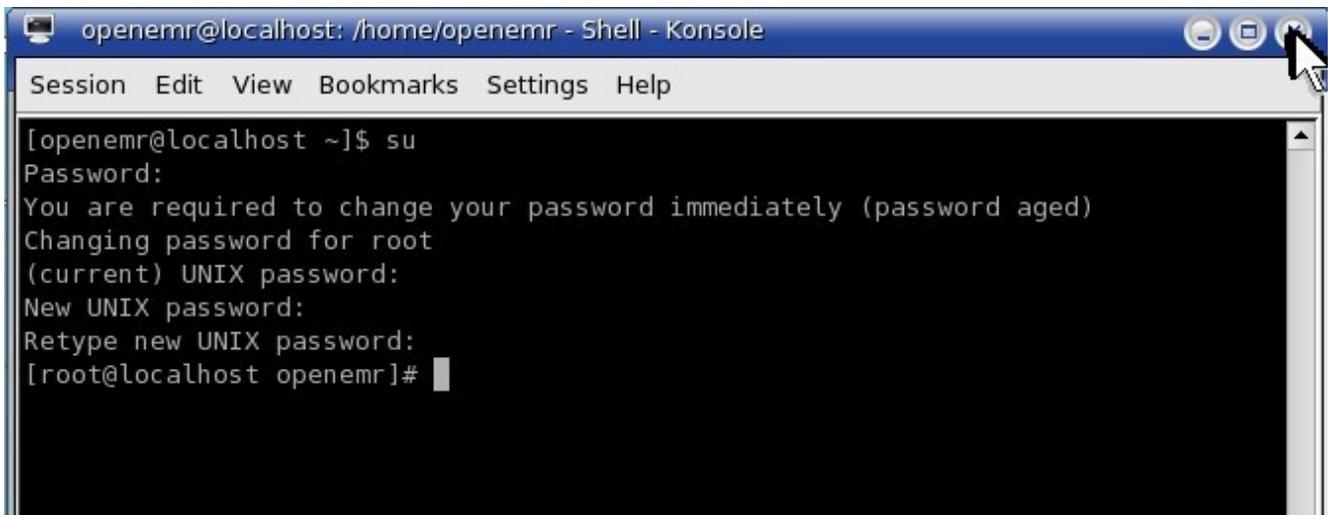
```
openemr@localhost: /home/openemr - Shell - Konsole

 Session   Edit   View   Bookmarks   Settings   Help

[openemr@localhost ~]$ su
Password:
You are required to change your password immediately (password aged)
Changing password for root
(current) UNIX password:
New UNIX password:
Retype new UNIX password:
[root@localhost openemr]#
```

Congratulations, you now have your own, secure 'root' password. This is a very important password, **DO NOT FORGET IT**. You can close the console window now.

C. Upgrade to OpenEMR Version 3.0.0

Main TOC Link

1. For instructions on upgrading to OpenEMR Appliance version 3.0.0, follow this link to the upgrade manual: http://www.bradymd/appliance/update3/

D. Useful Websites

Main TOC Link

OpenEMR links:
1. http://www.oemr.org/ (Main OpenEMR website with a good Wiki and a new forum)

2. http://sourceforge.net/projects/openemr/ (Main OpenEMR forums are here)

3. http://www.bradymd.com/appliance/ (OpenEMR 2.8.1 Virtual Machine Manual)

Virtual Machine links:
1. http://www.vmware.com/ (VMware website)

2. http://www.vmware.com/appliances/ (VMware virtual appliance explanation)

3. http://www.vmware.com/vmtn/appliances/overview.html (Another VMware virtual appliance explanation)

General EMR links:
1. http://www.linuxmednews.com/ (Open Source EMR news)

2. http://www.emrupdate.com/ (Great site and forums which discusses proprietary and open source EMRs. It also has a great actively updated price comparison for most proprietary EMR's)

3. http://ehr.gplmedicine.org/ (Great detailed reviews of OpenEMR, MirrorMed, and FreeMed)

4. http://www.bradymd.com/ (Installation instructions and quick reviews of OpenEMR, MirrorMed, FreeMed, and VistA.)

E. Author Email and License/Disclaimer

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