VectorLinux Documentation

Release 7.1

VectorLinux development team

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Contents

CHAPTER 1

Introduction

Speed, performance, stability – these are attributes that set VectorLinux apart in the crowded field of Linux distributions. There are five editions to choose from. At the links below you will find information about the VL Edition best suited to your needs:

1.1 VectorLinux Deluxe Edition

1.1.1 What is the Deluxe Edition?

Vector Linux DELUXE now comes in two Editions: Deluxe SOHO and Deluxe Standard. Both are available from our CD-Store. As at March 1st, 2009 Deluxe Standard is at version 6.0 while Deluxe SOHO is still at Version 5.9, although we expect a version 6.0 of Deluxe SOHO later in 2009. The Deluxe Editions are intended for professionals, extending the SOHO and Standard editions with up to 1000 MB of additional software. The extra applications can be installed individually to build the system exactly as you need it.

The two CD package set of Deluxe Standard features a custom XFCE desktop with popular applications like Amarok, Blender, and the Gimp. Additional included applications are KDE 4.2, OpenOffice 3 and E17 amongst many others, particularly multimedia applications. Fourteen days of professional installation and configuration support included. There is automatic support for printers, scanners, USB hardware and CDRW / DVD drives. There are several new multimedia programs and libraries, the latest network applications and development programs along with their needed libraries. We have also included custom graphics only available in the DELUXE version. Click HERE for screenshots.

The second bonus CDROM is built around our own community produced VL MULTIMEDIA BONUS DISK. This is a gigantic set of multimedia orientated applications and libraries that allow you to perform anything from dvd authoring to full audio/video editing. A complete list of included programs and screenshots can be found on the VL website.

1.1.2 Support VectorLinux

CD sales and VectorLinux Goodies are the only form of revenue available to VectorLinux to help offset the costs of running this small business. We have put a great deal of time, energy and love into the formulation of this product, and your generosity and support is sincerely appreciated. In addition to the financial support, your purchase of the Deluxe Edition lets us know that you care and that you would like us to continue developing and producing a better Linux distribution for you! The purchase of either of the VectorLinux Deluxe Editions is also probably a good idea for those with a slow Internet connection, where downloading an entire ISO file is not a viable option.

1.1.3 Requirements

The requirements for the Deluxe Standard Edition can vary according to what you decide to install, however we would recommend a system that meets the following requirements so that you can enjoy even the most demanding applications:

- Processor: Pentium III compatible or better (so you may use an AMD processor).
- Hard Disk: 6.5GB for the entire 2 CD system, plus some more for your data.
- Memory: 256 MB for comfort, 512MB or more, to truly enjoy all the multimedia applications.
- Video card and Monitor capable of at least 1024x768 resolution, 24 bit color.
- Standard mouse, keyboard, sound card, CDROM, etc.

The requirements for the Deluxe SOHO Edition can vary according to what you decide to install, however we would recommend a system that meets the following requirements so that you can enjoy even the most demanding applications:

- Processor: Pentium IV compatible or better (so you may use an AMD processor).
- Hard Disk: 6.5GB for the entire system, plus some more for your data.
- Memory: 512MB or more.
- Video card and Monitor capable of 1024x768 resolution, 24 bit color.
- Standard mouse, keyboard, sound card, CDROM, etc.

1.2 VectorLinux SOHO Edition

1.2.1 What´s in the SOHO Edition?

VectorLinux SOHO, as its name implies, is a Linux distribution aimed at Small Office and Home Office users - people who want the latest fully featured desktop environment and applications but also enjoy speed! As of March 1st, 2009 the SOHO version 6.0 is still in development and release of a final version is expected by before mid 2009. In the meantime our SOHO 5.9.1 is still available for download. VL SOHO comes provides you with:

- a choice of either a graphical or text-based installer with great hardware detection. Install time is only about 15-20 minutes on modern computers.
- KDE, a great looking and comprehensive desktop environment, complete with a huge range of applications.
- Fluxbox, a lean and mean window manager, customized with the “wbar” launcher - for those wanting a less resource intensive environment than KDE.
- The VASMCC user-friendly yet powerful system administration utility.
- gslapt and slapt-get for easy, automated package downloading, upgrading, installation and maintenance.
- either HAL or *vl-hot*, for automatic mounting of external USB, Firewire and PCMCIA external storage devices.
- OpenOffice 3 productivity suite.
- Business applications for personal information, organization, finance, and databases.
- Powerful web development systems.
- Simple to advanced graphics editors.
- Complete Internet applications. In particular we have preconfigured Firefox and Opera with PDF, MPlayer, FlashPlayer and Java plugins.

- Multimedia and entertainment - for music and video and web content streaming.
- Internet, Network Neighbourhood and wireless connectivity.
- Support for peripherals including printers, scanners, digital cameras and fax/modems.

All of that comes with Vector Linux´s trademark characteristics of being fast, light, well integrated and stable. You can view screenshots of VL SOHO at our website.*We hope you enjoy it!*

1.2.2 Requirements

Vector Linux SOHO is the relative “heavy-weight” compared to the Standard version of VL, and given that it runs the KDE Desktop Environment, SOHO requires more space and memory. While better suited for today’s modern computers, SOHO is significantly faster and ‘bloat-free’ than many other Linux distributions running KDE or Gnome. That said, the following system requirements are recommended for our SOHO version:

- Processor: Pentium III compatible or better (so you may use an AMD processor).
- Harddisk: 3.6 GB for the system, plus space for swap (virtual memory) and personal files.
- Memory: 256 MB absolute minimum, 512MB or more for speed.
- Video card and Monitor capable of 1024x768 resolution and 24 bit color.
- Standard mouse, keyboard, sound card, CDROM, etc.

If you are ready to try our VL SOHO Edition it is available for purchase from our CD Store. On the other hand it is possible to add the KDE and OpenOffice packages to VL 6.0 Standard to approach closely the capabilities of VL SOHO.

1.3 VectorLinux Light Edition

1.3.1 What´s in the Light Edition?

Vector Linux Light provides a lean and mean Linux system. It is optimized for use on older computers and is surprisingly lightweight, fast and stable. Despite being “light weight”, it is a complete Linux workstation system, including compilers, multimedia and office applications. The most recent release of VL Light is still in beta development stage, up to version Beta 2 as at February 25th, 2009. It is not recommended that newbies install this system until it has been finalized.

VectorLinux Light is unlike smaller Linux distros such as Puppy, DSL, Feather and others. Instead it includes a full development environment for programming and compiling, scripting languages, man pages, documentation, a complete console based on bash (rather than busybox) and a huge array of typical Linux command line utilities and software. It also has these features:

- a fun, fast and easy installer with good hardware detection. Install time is only about 10-12 minutes on modern computers.
- the latest IceWM and JWM window managers with the PCManFM desktop manager - both are good-looking and fast window managers which consume few system resources.
- VASM: a powerful system administration utility.
- VASMCC: a user-friendly GUI interface to VASM.
- gslapt and slapt-get for easy, automated package downloading, upgrading, installation and maintenance.
- HAL or vl-hot systems, for detection and auto-mounting of USB storage devices, low resources.
- Opera browser.

- Many other Internet applications including Pidgin, XChat, gFTP, Lynx, nmapFE, pyNeighborhood.
- vcpufreq: for reducing CPU frequency on supported processors, mainly for laptops to save power.
- vwifi: a special version of WiFi manager for help configuring various wireless cards and networks.
- MPlayer, Xine and xmms for multimedia and entertainment - for music and video and web content streaming.
- vsmbmount: a Samba connectivity tool.
- vpackager: an automated system for compiling ad packaging VL packages from source code.
- CUPS Printing System

1.3.2 Requirements

It is recommended that your system meets these requirements:

- Pentium 200 or better compatible processor (i586 and up).
- minimum of 2GB of hard disk space for the entire system (less if you choose to install only certain packages), plus additional space for swap (virtual memory) and personal files.
- 64 MB of memory as an absolute minimum - but 256 MB or more will greatly improve performance.
- Suitable Video card and Monitor.
- Standard mouse, keyboard, sound card, CDROM, etc.

If you are ready to try VL Light it is free to download.

1.4 VectorLinux Live Edition

The VectorLinux Live Edition is a bootable CDROM which contain the entire VectorLinux operating system on the CD. This enables the user to test a distribution on their system without the need of re-partitioning and installing to the hard drive. This Live version also enables the user to use their favorite operating system on any computer, without affecting the computer for future users. If you wish you may install the Live Edition to your hard drive, but it is recommended you choose our Standard, SOHO or Light Edition instead if you wish to do this.

Using the VL Live CD requires the following:

- BIOS configured so that the CDROM/DVD drive is set to boot first in the list of boot devices
- an absolute minimum of 256MB of RAM, in fact you probably need 512MB for a good experience
- the password for all users, including “root” is “vector”
- patience: the entire operating system and all applications are loaded into RAM as required from your relatively slow optical drive. Optical drive read speeds are *much* slower than hard drive read speeds. Thus Live CD’s are really only used as testbeds to see whether you like the distro or as repair tools.

As at March 1st, 2009 the most recent version of VL Live is VL5.9 Standard Live. VL Live 5.9 defaults to the xfce desktop environment but you also have a choice of fluxbox and jwm window managers. A newer version 6.0 of Standard Live is expected possibly mid 2009. Stay tuned. You can check our website or our forum (links above) for release details and there you can also learn of the system requirements and included packages for the upcoming new releases.

1.5 Vlocity Linux

1.5.1 What is Vlocity?

New in version 7.0.

Vlocity is a robust x64_64 desktop-ready GNU/Linux system packed with the best breed of applications for your every day dasks.

1.5.2 Key Features

- A choice of a very intuitive graphical installer, or a traditional text-based installer. Both do great on hardware detection and install time is only about 12-15 minutes on modern hardware.
- A well customized gnome3 for your desktop environment. A great desktop offering everything you demand on a day-to-day basis.
- Vasm and VASMCC for system tuning and administration
- User friendly GUI package manager (gslapt) and it's command-line counterpart slapt-get make installing and upgrading software easy.

1.5.3 Hardware Requirements

It is recommended that your system meets or exeeds these requirements:

- Intel/AMD x86_64 processor.
- A minimum of 4GB of hard disk space for the entire system.
- 756 MB of RAM.
- Video card and monitor.
- CD-ROM drive.
- Standard mouse, keyboard, sound card, etc.

To download any version other than the Deluxe Edition please visit our download page. To obtain the VL Deluxe Edition please visit our CD Store.

Installation is quick and easy, and the end result is a system that caters to 'newbies' and Linux-gurus alike. In addition, VL provides a clean, powerful base for experts to tweak, and is an excellent distro for users who are keen to learn what goes on 'behind the scenes' of their operating system.

CHAPTER 2

Documentation Manuals

2.1 Installation Guide

2.1.1 Getting Started

For the users convenience and choice VectorLinux releases several editions - called the Standard, SOHO, Deluxe, Live and Light editions. The Standard Edition is our “foundation” distribution - a fast and stable but complete distro that fits on ~3GB of hard drive space and includes the xfce desktop environment. It will work well on most older computers and positively flies on newer ones. The SOHO Edition (Small Office, Home Office) includes the more extensive KDE desktop environment along with OpenOffice and many office and multimedia applications for today’s modern computers. The Deluxe Editions are available for purchase in Standard or SOHO CD’s along with a second CD with 1000MB of extra applications including FreeRock Gnome, KDE, Enlightenment17, Opera and others. You help support VectorLinux by purchasing our Deluxe Versions. The Live version enables you to use VL’s fast, secure operating system on any computer, or to try out VectorLinux for the first time without actually installing. The Light edition is for those with old computers, low RAM or dialup Internet. Each edition has specific hardware requirements. Please ensure you have read the requirements for the edition you are about to install before proceeding. The good news is that the installation procedure for all editions is basically the same and is fast.

2.1.2 System Requirements

The following table lists system requirements for the various editions of VectorLinux:

	Standard	SOHO	Deluxe	Live	Light
Processor	Pentium III	Pentium IV	Pentium IV	Pentium III	Pentium II
Memory (min.)	128 MB	256 MB	512 MB	512 MB	64 MB
Disk (root)	>3.4 GB	>3.8 GB	>5 GB	–	>2 GB
Disk (swap)	256 MB	512 MB	512 MB	–	128 MB
Disk (home)	as needed	as needed	as needed	–	as needed
Video	800x600x16	1024x768x24	1024x768x24	1024x768x24	800x600x16

Of course, you will also need a compatible keyboard, mouse, and a CDROM drive. Other hardware components such as a network card, modem, sound card, CD-writer, DVD, printer, etc., are optional. Linux also supports modern USB devices including pen drives, digital cameras, and scanners.

2.1.3 Understanding Hard Drive Partitions

For newbies this is probably the most difficult but also the most important concept to learn before installing *any* operating system on a computer. Before an operating system or data can be stored on a hard drive that drive must be partitioned and then each partition must be formatted for a specific filesystem. A partition is a physical or logical "part" of the hard drive. A filesystem is a storage container and "database" for storing files. For more details about partitions please read this and for details on Linux filesystems read this article.

In the Microsoft Windows or default Ubuntu Linux install process usually only one partition and one filesystem encompassing the entire hard drive is created. In MS Windows this process tends to be hidden from the user. So when you install MS Windows (or if you have a computer with only MS Windows pre-installed) it tends to wipe out any other partitions that may have existed on your drive. On the other hand VectorLinux and many other Linux distros provide you with the option and ability to delete, save, create or resize partitions and to format those partitions with different filesystems. This enables you to have more than one operating system on one hard drive (i.e. "dual boot") and enables easier and more secure backups.

If you intend to dual boot your computer with both MS Windows and VL you should install Windows first. This is because in its narcissistic presumptions Windows takes over the entire hard drive. If you intend to install Windows after VL then you will need to do the following:

1. use the "gparted" application from a Live Linux CD to reduce the size of your "/home" partition
2. install MS Windows to the now free space on your hard drive
3. re-run the lilo or grub boot loader install process from the VL Install CD to overwrite the Windows master boot record (MBR). Lilo or Grub will find the Windows partition and add it to the boot menu.

Assuming you already have only MS Windows on your hard drive the entire drive will have already been dedicated to Windows (probably denoted as C:). In order to install VL on the same hard drive which already contains a MS Windows operating system you must reduce the size of the Windows partition to give you room to install Linux. The easiest way to do this is to use the gparted application from Live Linux CD. Almost all Live Linux CD's (including VectorLinux LIVE) contain the gparted application. Documentation for gparted is available from its Help Menu or online here.

If you are simply installing VL and VL alone and you want to take over the entire hard drive for VL then you do not need to do any of the above. The VL install CD includes partitioning software that can do partitioning during the install process.

Partitions Recommended for VectorLinux

For an efficient Linux install the developers at VectorLinux recommend that when you install VL you consider creating the following partitions:

- Root partition: this is the main partition to install the Linux system and all software programs. See the table above for our recommended minimum root partition sizes for each VL version. You should also include additional space to install other applications at a later date. As a rough guideline make your root partition at least 5GB in size.
- Swap partition: required to enable virtual memory. It expands the capacity of your actual random access memory (RAM), so that you can run more programs at the same time. It should be twice the size of your actual computer's RAM, up to a maximum of about 1GB.
- Home partition: for storing your own data. Only you ca determine how large this should be. If you intend to store lots of music and video files it will need to be at least 10GB in size, probably much larger. Normally, most users use up as much of the remaining hard drive space (after creating "root" and "swap") as possible for their home partition. The advantage of having a /home partition distinct from root ("/") is that at any time you can simply image (ghost) the /home partition to preserve your data files and you can also install a new version of VL without overwriting all your setup files and data.

You may prepare these partitions prior to the installation by using partitioning software (such as gparted) or you may actually prepare your hard disk partitions during the install process (this latter method is easier and is recommended for all newbies). You should at least know the partition sizes you want for root, home and swap beforehand (see above).

Linux partition naming scheme

MS Windows presents hard drive partitions to the user as: C:, D:. E:, etc. However, Unix/Linux uses a different notation. Firstly, a computer may have more than one hard drive. Linux maps each hard drive as a device. For example:

/dev/hda primary controller Master IDE drive.

/dev/hdb primary controller Slave IDE drive.

/dev/hdc secondary controller Master IDE drive.

/dev/hdd secondary controller Slave IDE drive.

/dev/sda first SATA/SCSI device.

/dev/sdb second SATA/SCSI device.

If you have only one IDE hard drive, it is almost certainly "/dev/hda". The second hard drive could be /dev/hdb or /dev/hdc, depending on which controller it is installed. Next, each hard drive can be divided into four PRIMARY partitions. For the first hard drive (/dev/hda), they are mapped as /dev/hda1 .. /dev/hda4, respectively. But what if you want more than four partitions?

Unfortunately, four is a legacy limit you can do nothing about. The work-around is that one of the primary partitions (/dev/hda2 .. /dev/hda4) can be used as an EXTENDED partition. Inside the extended partition, you may create more LOGICAL partitions. The logical partitions are named /dev/hda5, /dev/hda6 and so on.

All SATA drives will be labelled as "/dev/sda" and for the second drive as "/dev/sdb", ... etc.

2.1.4 Obtaining VectorLinux

Each edition of VectorLinux is distributed as an ISO (.iso) "image" file. To obtain it and prepare it for installation the steps are:

- Decide which edition of VectorLinux you want. Download the ISO image file (.iso) and the corresponding md5 checksum file (.md5). The download sites are listed at the VectorLinux website, download page and also in the Overview Document.
- You should check the image file before burning it to a CD, to make sure it has not been corrupted during download transmission. For that, you need to do an "md5sum check", that means comparing the "fingerprint" of your image file (.iso) against the fingerprint stored in the checksum file (.md5).
- Note that VL allows you to install the .iso file directly without actually burning to a CD first (see Install Methods below), so if you do not wish to burn a CD you don't have to. If you do burn the image onto a CD using a CD-writer and ensure that you burn the .iso image as an IMAGE, not as a data file. If you burn the .iso as a data file you will not be able to boot your new CD. Check your CD burning software documentation on how to burn as an "image".

If you don't have a good, fast Internet connection, or a CD-writer, you may order a well-prepared CD from our store.

Checksum Tools for MS Windows

You may download the ISO image and MD5 checksum using any web browser, FTP client, or download manager. However, some web browsers (*Internet Explorer*, for instance) have a tendency to rename .md5 files as .htm or .txt. You can just rename it back to .md5.

For integrity checking, download and unzip the GUI tool md5summer. On initial use it asks permission to associate the extension .md5 with itself. If you agree, you just need to double-click on a .md5 file to check the integrity of the original file (as long as they are both in the same folder). Otherwise, you have to manually browse to the .md5 file within the md5summer interface, then click on the “Verify sums” button and select the .md5 file. If you get an OK for the VL .iso image file, you can proceed to burn it as an image (see notes above re proper burning).

After that, you may want to burn the ISO image onto a CD (but you don’t have to - see below). For this, use the program that is provided by your CD-writer (e.g: Adaptech CD Writer, or Nero Burner). Ensure you burn as an IMAGE not as a file.

Checksum Tools for Linux

Most Linux systems already have the tools so you will not have to download any utilities. Here is how to do that on Linux console/terminal in three steps:

- Downloading the ISO image and MD5: nohup wget ftp://anymirror/path-to/veclinux-6.0/iso-release/vl-6.0.???.iso nohup wget ftp://anymirror/path-to/veclinux-6.0/iso-release/vl-6.0.???.iso.md5.txt (** Replace the pathname ??? above with correct path **)
- Checking the integrity: md5sum -c vl-6.0.???.iso.md5.txt
- Burning the ISO onto a CD: cdrecord -v fs=6m speed=4 dev=2,0 vl-6.0.???.iso

Instead of the command line you can of course use “k3b” for the above jobs.

2.1.5 Installing VectorLinux

To obtain VectorLinux you need to either purchase a Deluxe CD from our CD Store or download an “iso” image from a VectorLinux mirror site. Once connected to the mirror site navigate to the ...distr/vectorlinux/veclinux-6.0 directory at the mirror site you have chosen. Within that directory you will see two subdirectories: /iso-release and /iso-soho (amongst others). The /iso-release directory is where you will find iso images for the VL 6.0 Standard and VL 6.0 Standard Live Editions. The /iso-soho directory is where you will find iso images for VL 6.0 SOHO Edition (when available). Then download your iso of choice.

Prior to starting the installation, you must know two things: 1) what type of hard drive controller your computer has and 2) which method you will use to install. Today, there are three common hard drive controllers: IDE, SCSI, SATA and Adaptec(for CDROMS). You must boot the installation using the kernel that supports your controller. The default kernel works for SATA-IDE drives (which probably includes about 95% of today’s desktop/laptop computers). The second concern is which install method to use. This depends on the capability of the target computer. VectorLinux can be installed via one of these methods:

- Direct ISO File from a Windows host.
- Direct ISO File from a Linux host.
- Bootable CD.
- from a USB device.
- from a network.
- Floppy disk and CD.

Supported controllers

VectorLinux supports and can be installed on systems using SATA/IDE/ATA hard drive controllers - the most popular ones in laptop/desktop systems. Another well known standard is a SCSI controller, but due to its high pricing, it is only common on commercial server systems.

If you are having difficulties using your SATA drives, make sure you have set the BIOS correctly. In a nutshell, set the BIOS to “*Enhanced mode SATA only*”. This is counter intuitive, but it means use enhanced mode only on the

SATA, not just use the SATA and turn off the PATA. If you set it to enhanced mode SATA+PATA, the kernel will lock as it tries to use an IDE driver for the SATA controller. Your symptoms will be that the kernel install may hang after detecting hda - hdd.

Please know your hard drive controller type because it determines the kernel required for installation. The default kernel supports the SATA/IDE controllers (this is the one for probably 99% of workstation computers on the market). Otherwise, you need to specify either "scsi" or "adaptec" kernel during the install.

Direct ISO on a Windows Host

This is a new method that will save you having to burn a CD. Assume that you already have Windows running on the computer, and the partitions have been prepared as suggested above.

- Download your iso of choice as described above. Move it to the top level directory (C:\ or D:\). Don't forget to check its integrity as explained previously.
- You MUST now rename the iso to follow DOS 8.3 filename specs (e.g. VL60.ISO, not vl60.1.24vl6.iso), and the filename should be all capital letters.
- The next files should be placed into C:\loadlin
  - **loadlin.exe** Get it from "install/loadlin/" directory within the FTP site.
  - **initrd.img** Find it as "isolinux/initrd.img" within the FTP site
  - **The kernel file that matches your system** (ide, scsi, sata, adaptec) You may select one of them from "isolinux/kernel/" directory within FTP site.

Then proceed with the installation:

- Shutdown Windows to DOS mode.
- Type "cd C:\loadlin" <enter> (without quotes)
- Type "loadlin ide root=/dev/ram rw initrd=initrd.img" <enter> (without quotes).

You should replace the "ide" with the name of the kernel that you downloaded earlier. The standard installation process will be started.

Direct ISO on a Linux Host

If you have another Linux running on the computer, this method will be easy. You need to download the following files into a directory (e.g: /home/download):

- The chosen VectorLinux ISO image file.
- **vlinstall-iso** Find it as "install/vinstall/vinstall-iso" within the FTP site

Now go to the text console (press Cntrl-Alt-F1) and login as root. Proceed as follows:

- Switch to run level 2 (or 3 in Slackware/Redhat, etc) *init 2 <enter>*
- Go to the directory where you downloaded the files, i.e.: /home/download *cd /home/download<enter>*
- Now, install using the ISO file *./vinstall-iso vl-6.0.iso <enter>*

Bootable CD

Use this method if you already have the VL install CD, and your computer is capable of booting it.

First, you may need to change the boot order. Changing the boot order allows your system to boot from different devices like your hard drive, floppy drive or CDROM drive. When you select an installation method, you might have to set up your system to boot accordingly. To do this, immediately after your computer starts up go to the BIOS options setup screen **(1)**. There should be an option for boot order (general options are C drive, A drive, CDROM drive, etc). Choose which should boot first (in this case CDROM drive), save out of the BIOS screens and restart the computer. You can change the boot order back when you are finished installing VL.

Note: Not all systems use the “Delete” key to enter the BIOS. Some systems use one of the function keys (F1-F12). Some use a combination of keystrokes. Often the initial boot screen when you turn on your computer will tell you which keystroke to use to enter the BIOS setup. If not, check your computer or motherboard manual. Failing that check your computer manufacturer’s website documentation for your specific computer model #.

After the boot order is properly set, place the VL installation CD in the CD drive and reboot the system. The boot process will give you a prompt. This is the chance for you to select the correct kernel that supports your controller. If you do NOT have a SCSI or Adaptec controller (99% of machines don’t), then simply press [enter] to use the default kernel (sata/ide) with the graphical installer. Otherwise, type the kernel you want, e.g:

boot: scsi [enter]

If you wish to use the text based install procedure (recommended if you have installed VL before, are not a newbie and/or prefer a slightly faster install process) then type “linux” at the first line install prompt.

That’s it. The chosen graphical install procedure will then be started.

USB Stick Install

Two methods for installing VL from a USB stick (pen drive) are discussed on the VL Forum. These methods have not yet been confirmed by other users but do apparently work.

Network Install

You may install VL from a network as long as your computer is capable of booting from a network (a PXE boot). This is useful for some laptops that don’t have an optical drive and are not capable of booting from a USB device. The method is explained on our HOWTO Forum.

Floppy Install

This method allows you to install VectorLinux using the VL CD (any edition) and two floppy disks. You may have to use this method if the target computer cannot boot from the CD (especially on older laptops). We assume that you already have the VectorLinux CD prepared and ready. You may use it to create the floppies on another Windows or a Linux host. Preparation on a Windows HOST is as follow:

- Insert the CD into the drive, assumed to be drive D:
- Launch a dos prompt
- Insert blank floppy #1, enter this command:

```
cd D:\install\rawrite
rawrite
Enter source file name: D:\install\floppy\bare.i
Enter destination drive: A
```

The bare.i is an kernel image file that supports IDE controller. If you have SCSI controller, use the scsi.s instead.

- Take out floppy #1, Insert floppy #2, enter this command:

```
rawrite
Enter source file name: D:\install\floppy\rootdisk.img
Enter destination drive: A
```

On a Linux host, the preparation is as follows:

- Launch a terminal
- Insert the CD and mount it.

```
mount /dev/cdrom /mnt/cdrom
```

- Insert blank floppy #1, write the kernel image into it using this command:

```
cat /mnt/cdrom/install/floppy/bare.i > /dev/fd0
```

- Take out floppy #1, Insert floopy #2, enter this command:

```
cat /mnt/cdrom/install/floppy/rootdisk.img > /dev/fd0
```

Now with the VectorLinux CD and the two floppies:

- Set the computer to boot from the floppy drive
- Insert the CD
- Insert the floppy #1
- Boot the computer
- On the boot: prompt, press [enter]
- After asked, replace floppy #1 with floppy #2
- VL install screen will appear

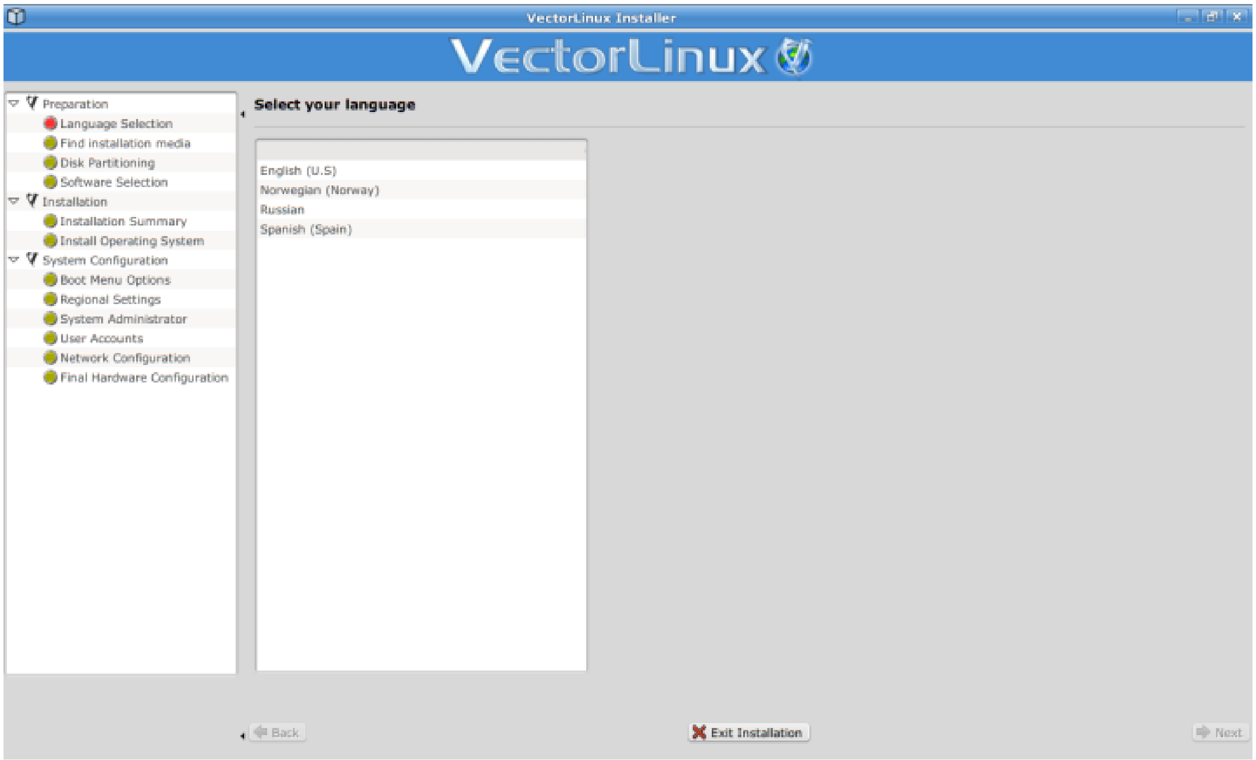
2.1.6 5a. The Graphical (GUI Based) Installation Process: Step by Step

When you launch the installation process, the first screen presented to you lets you choose either the default kernel (IDE/SATA) or another kernel (by pressing F1). Normally you just hit the enter key unless you have a SCSI or ADAPTEC hard drive. After a few seconds the graphical installer will launch. For the most part the graphical installer is intuitive and self-explanatory. However, the following sections will touch on some of perhaps the more confusing issues that may be faced by newcomers to VectorLinux.

The first GUI installer screen is seen below. For all of the installer screens to following applies:

- the leftmost rectangular panel simply shows the progress of the install, with a red dot indicating the current process
- the right panel is the area where the user may need to make input choices
- the bottom buttons will always be: “Back” to go back to the previous install process, “Exit Installation” to immediately exit the Install (however, if you have made changes to partitions these will already be made and there is no backtracking from that process) and “Next” to go to the next Install process after you have made choices in the rightmost panel.

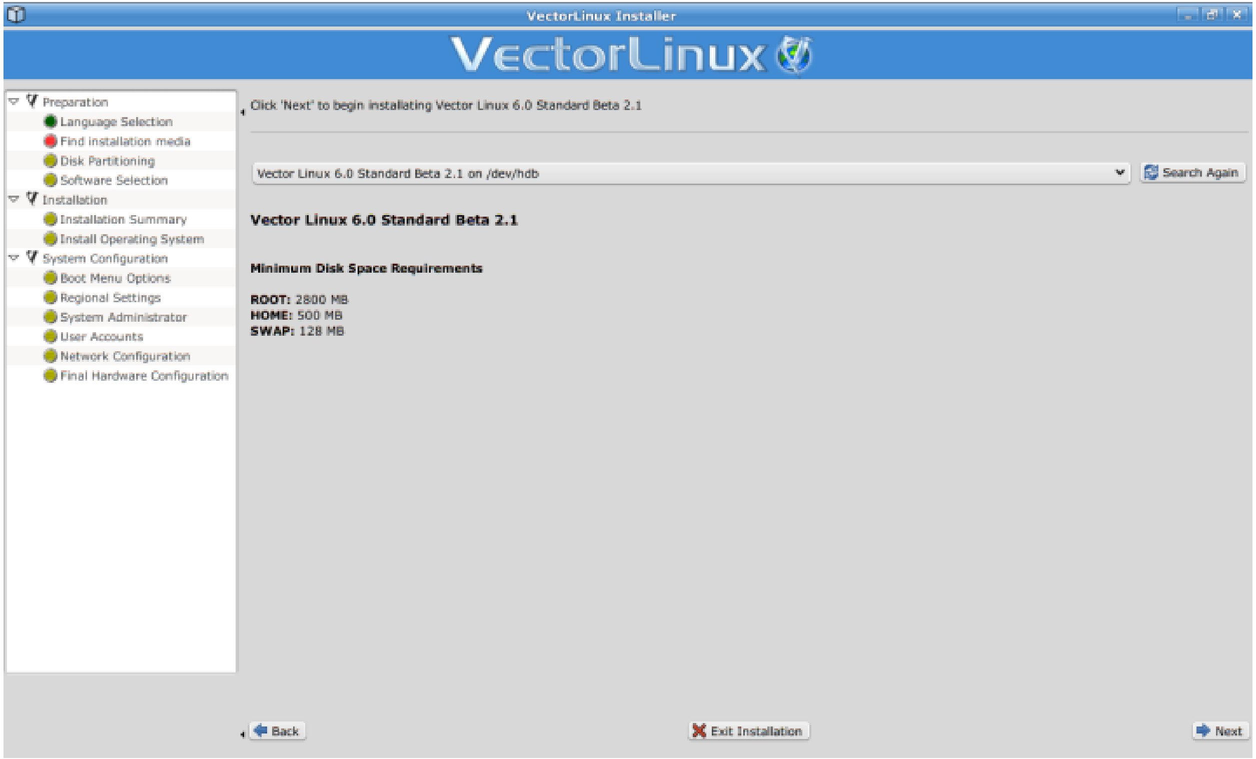
In this first process you choose the language for both the install as well as for the Linux operating system itself:



Select your language

English (U.S)
Norwegian (Norway)
Russian
Spanish (Spain)

The second GUI installer screen - "Find Installation Media" is seen below. This screen enables the user to choose a particular VL ISO that may be located on either one of your hard disk partitions, a USB device or an optical device. In the vast majority of cases it will find the VL CD you burned to install and the screen is really just for information purposes. However, if you have a number of VL ISO files on different devices then you click on the upper information widget to choose which ISO you wish to install. Information is also provided to you on absolute minimum hard drive space install requirements. Then click Next.



Click 'Next' to begin installating Vector Linux 6.0 Standard Beta 2.1

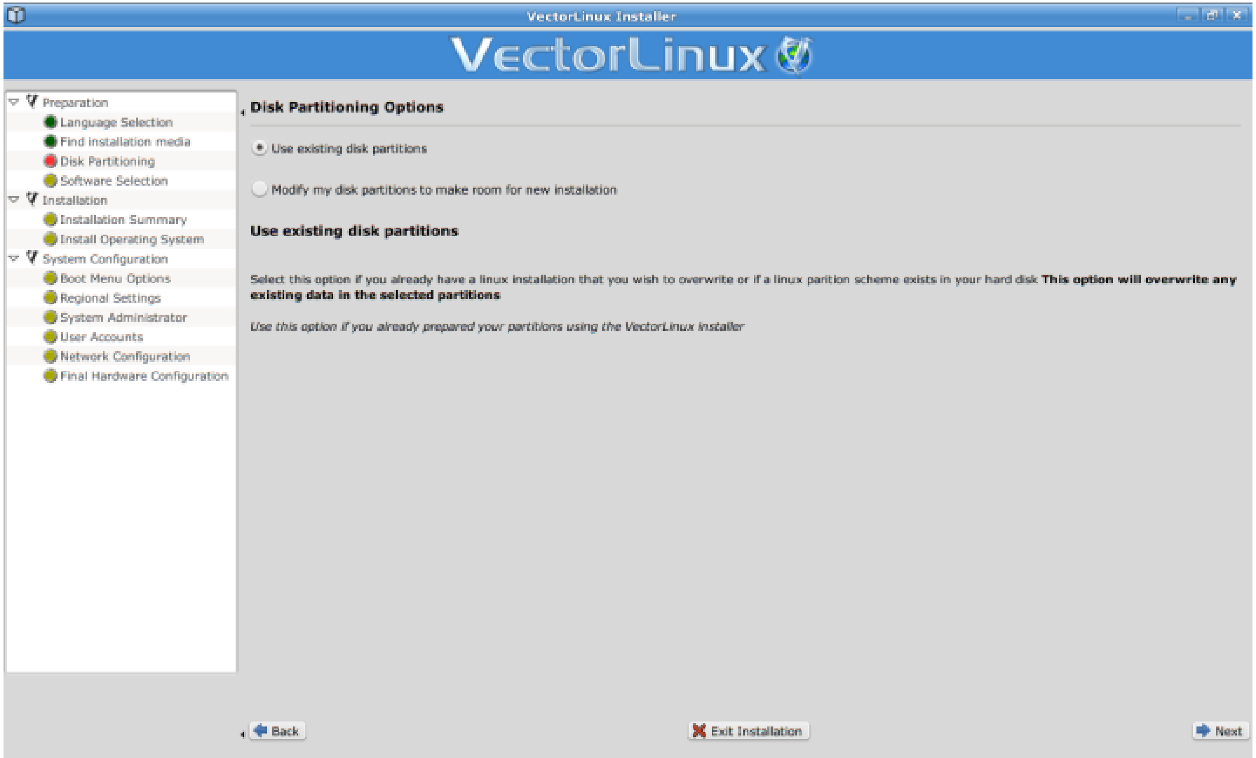
Vector Linux 6.0 Standard Beta 2.1 on /dev/hdb

Vector Linux 6.0 Standard Beta 2.1

Minimum Disk Space Requirements

ROOT: 2800 MB
HOME: 500 MB
SWAP: 128 MB

Now comes the disk partitioning process. If you are a newbie and have not already done so please ensure that you have read section 2 above concerning partitioning. At this point you are given the option to use existing disk partitions which you may have already created with other partitioning software, or to modify (and create) partitions from within the installer. The latter option is the easiest method.



Disk Partitioning Options

● Use existing disk partitions

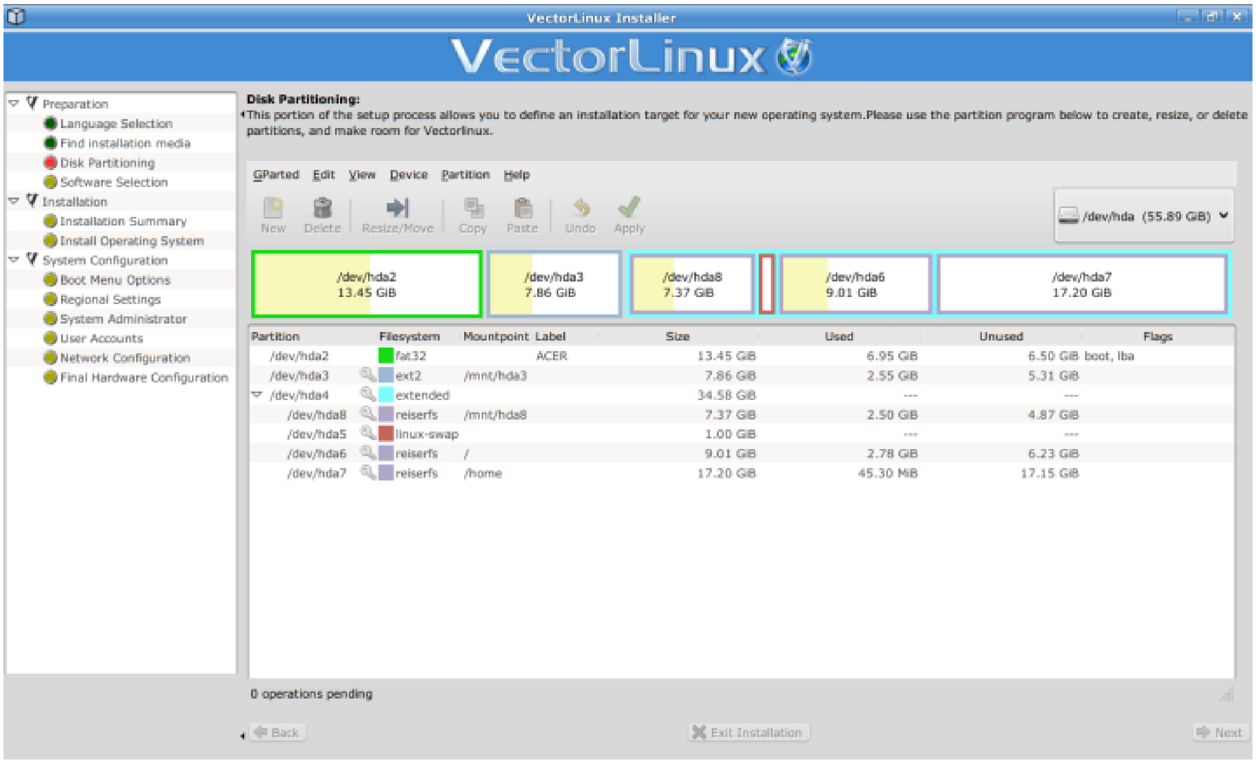
○ Modify my disk partitions to make room for new installation

Use existing disk partitions

Select this option if you already have a linux installation that you wish to overwrite or if a linux parition scheme exists in your hard disk **This option will overwrite any existing data in the selected partitions**

Use this option if you already prepared your partitions using the VectorLinux installer

If you chose the option to "Modify" above you are then presented with the "gparted" application to either delete, resize, create, format new or existing partitions. gparted documentation is available at Sourceforge so we will not reiterate that information here.



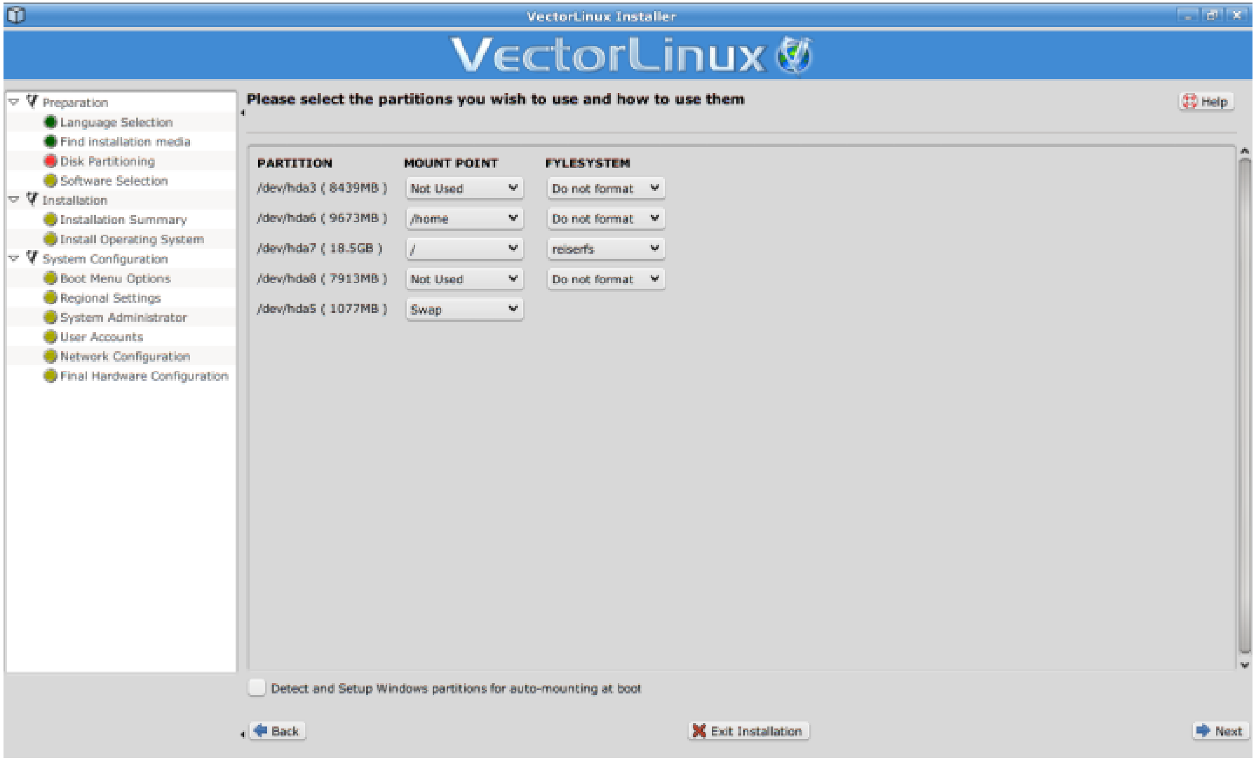
Disk Partitioning:

This portion of the setup process allows you to define an installation target for your new operating system.Please use the partition program below to create, resize, or delete partitions, and make room for Vectorlinux.

Partition	Filesystem	Mountpoint	Label	Size	Used	Unused	Flags
/dev/hda2	fat32		ACER	13.45 GiB	6.95 GiB	6.50 GiB	boot, lba
/dev/hda3	ext2	/mnt/hda3		7.86 GiB	2.55 GiB	5.31 GiB	
/dev/hda4	extended			34.58 GiB	---	---	
/dev/hda8	reiserfs	/mnt/hda8		7.37 GiB	2.50 GiB	4.87 GiB	
/dev/hda5	linux-swap			1.00 GiB	---	---	
/dev/hda6	reiserfs	/		9.01 GiB	2.78 GiB	6.23 GiB	
/dev/hda7	reiserfs	/home		17.20 GiB	45.30 MiB	17.15 GiB	

0 operations pending

The next step is to choose the partitions for the VL install and how to use them. Click the upper right Help button for more info. A complete list of partitions found on your hard drives is presented to you. We suggest you reread Section 2.1 above concerning recommended VL partitions and then proceed by selecting the "mount point" (ie: "root" / , "swap" swap and "home" /home). You should then choose a filesystem (either ext3 or reiserfs are recommended for normal home use).

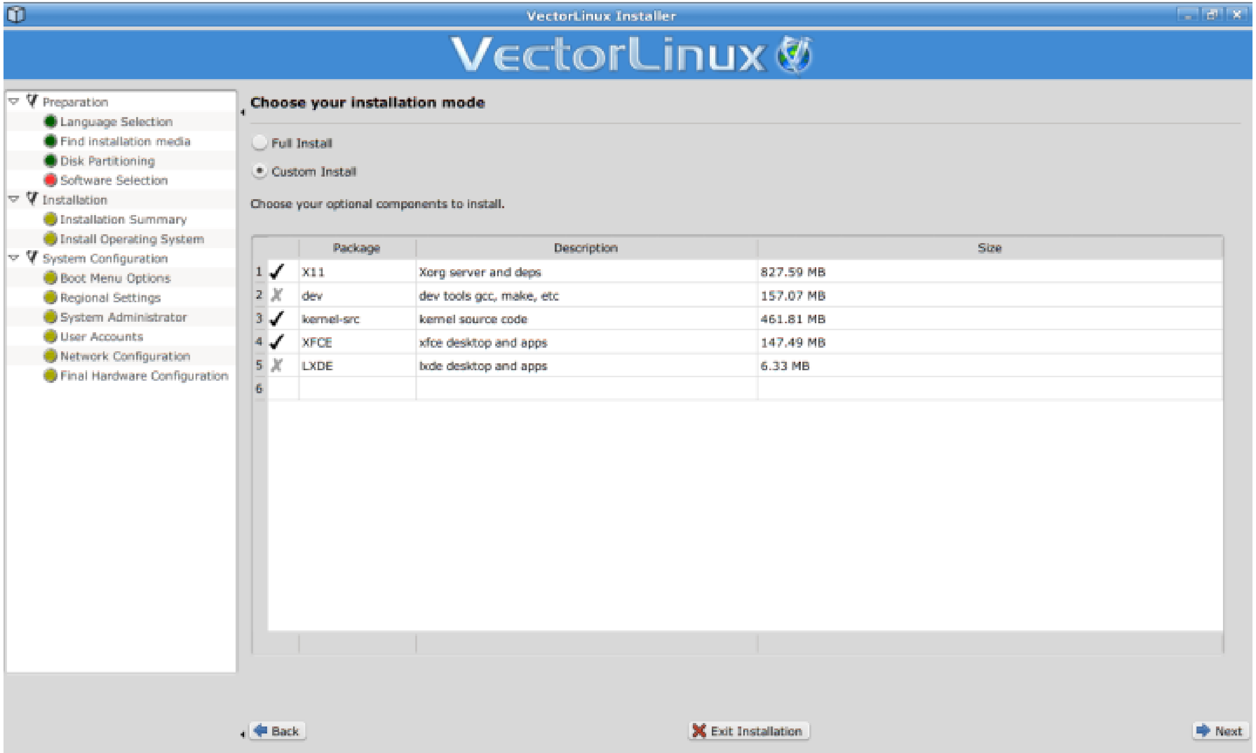


Please select the partitions you wish to use and how to use them

PARTITION	MOUNT POINT	FYLESYSTEM
/dev/hda3 (8439MB)	Not Used	Do not format
/dev/hda6 (9673MB)	/home	Do not format
/dev/hda7 (18.5GB)	/	reiserfs
/dev/hda8 (7913MB)	Not Used	Do not format
/dev/hda5 (1077MB)	Swap	

□ Detect and Setup Windows partitions for auto-mounting at boot

On the next two screens the user selects whether to do a full install (recommended) or custom install. The custom install is really only necessary where the user has hard drive space limitations. The difference between a frugal and full install is really only about 1.5GB of space. By clicking on the left side of the package name the user can choose whether or not to install a specific package. Obviously, this should only be done if the user knows what the package is actually used for!



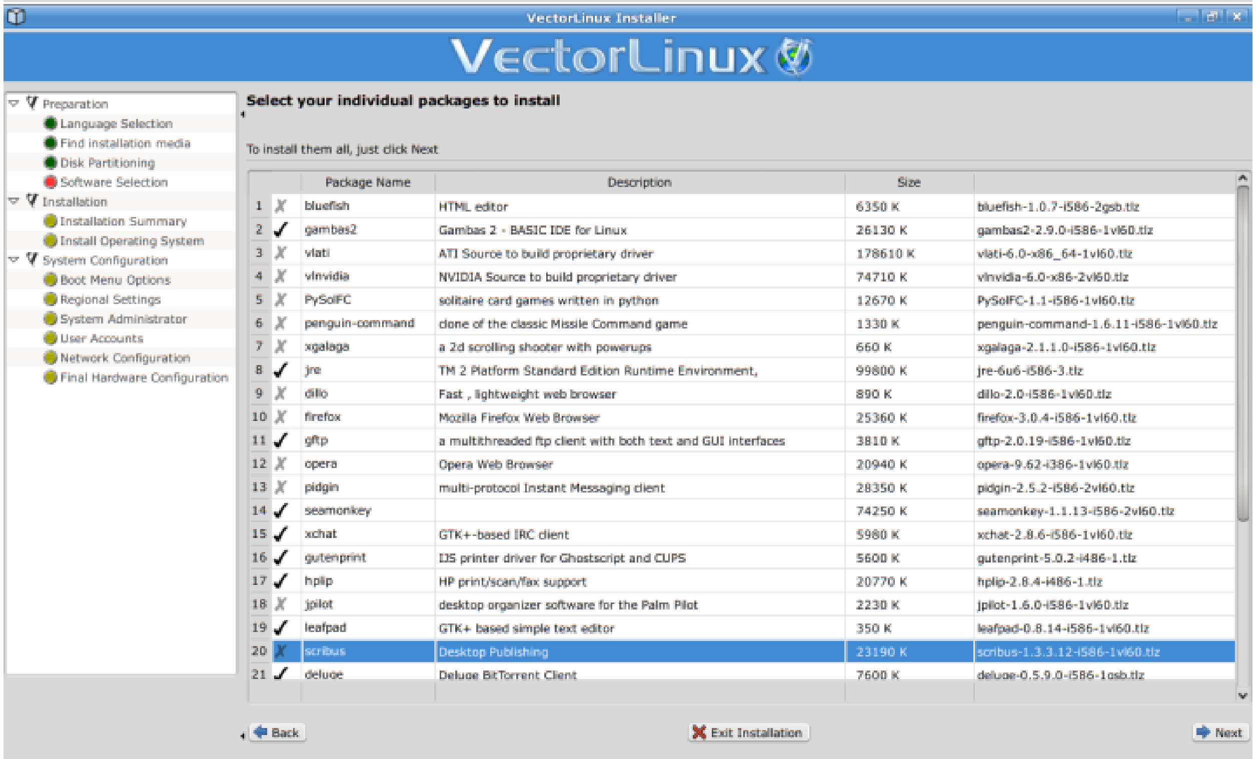
Choose your installation mode

○ Full Install

● Custom Install

Choose your optional components to install.

		Package	Description	Size
1	✓	X11	Xorg server and deps	827.59 MB
2	✗	dev	dev tools gcc, make, etc	157.07 MB
3	✓	kernel-src	kernel source code	461.81 MB
4	✓	XFCE	xfce desktop and apps	147.49 MB
5	✗	LXDE	lxde desktop and apps	6.33 MB
6				

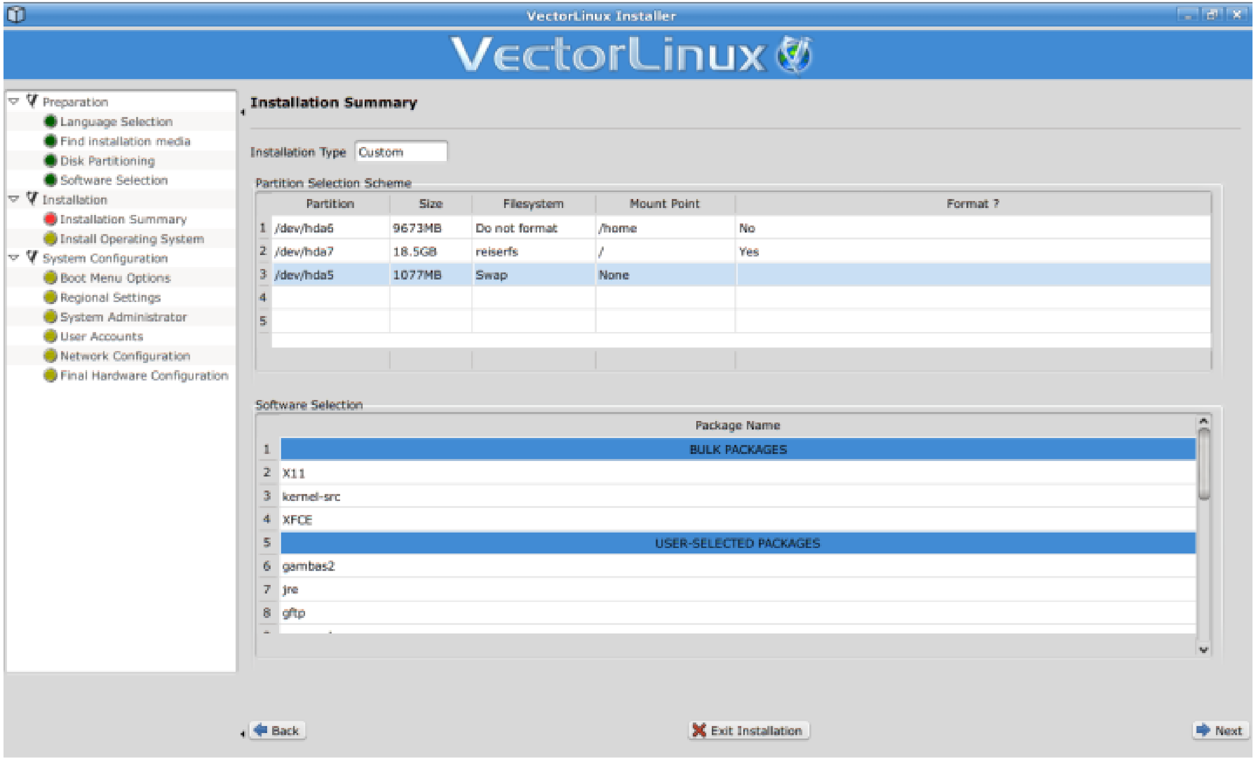


Select your individual packages to install

To install them all, just click Next

		Package Name	Description	Size	
1	✗	bluefish	HTML editor	6350 K	bluefish-1.0.7-i586-2gsb.tlz
2	✓	gambas2	Gambas 2 - BASIC IDE for Linux	26130 K	gambas2-2.9.0-i586-1vl60.tlz
3	✗	vlati	ATI Source to build proprietary driver	178610 K	vlati-6.0-x86_64-1vl60.tlz
4	✗	vlnvidia	NVIDIA Source to build proprietary driver	74710 K	vlnvidia-6.0-x86-2vl60.tlz
5	✗	PySolFC	solitaire card games written in python	12670 K	PySolFC-1.1-i586-1vl60.tlz
6	✗	penguin-command	clone of the classic Missile Command game	1330 K	penguin-command-1.6.11-i586-1vl60.tlz
7	✗	xgalaga	a 2d scrolling shooter with powerups	660 K	xgalaga-2.1.1.0-i586-1vl60.tlz
8	✓	jre	TM 2 Platform Standard Edition Runtime Environment,	99800 K	jre-6u6-i586-3.tlz
9	✗	dillo	Fast , lightweight web browser	890 K	dillo-2.0-i586-1vl60.tlz
10	✗	firefox	Mozilla Firefox Web Browser	25360 K	firefox-3.0.4-i586-1vl60.tlz
11	✓	gftp	a multithreaded ftp client with both text and GUI interfaces	3810 K	gftp-2.0.19-i586-1vl60.tlz
12	✗	opera	Opera Web Browser	20940 K	opera-9.62-i386-1vl60.tlz
13	✗	pidgin	multi-protocol Instant Messaging client	28350 K	pidgin-2.5.2-i586-2vl60.tlz
14	✓	seamonkey		74250 K	seamonkey-1.1.13-i586-2vl60.tlz
15	✓	xchat	GTK+-based IRC client	5980 K	xchat-2.8.6-i586-1vl60.tlz
16	✓	gutenprint	IJS printer driver for Ghostscript and CUPS	5600 K	gutenprint-5.0.2-i486-1.tlz
17	✓	hplip	HP print/scan/fax support	20770 K	hplip-2.8.4-i486-1.tlz
18	✗	jpilot	desktop organizer software for the Palm Pilot	2230 K	jpilot-1.6.0-i586-1vl60.tlz
19	✓	leafpad	GTK+ based simple text editor	350 K	leafpad-0.8.14-i586-1vl60.tlz
20	✗	scribus	Desktop Publishing	23190 K	scribus-1.3.3.12-i586-1vl60.tlz
21	✓	deluge	Deluge BitTorrent Client	7600 K	deluge-0.5.9.0-i586-1gsb.tlz

The next screen is an installation summary. Ensure your chosen partitions are correct as are the packages you want to omit, because the next stage is the actual installation to the hard drive of all the system files and packages.



Installation Summary

Installation Type: Custom

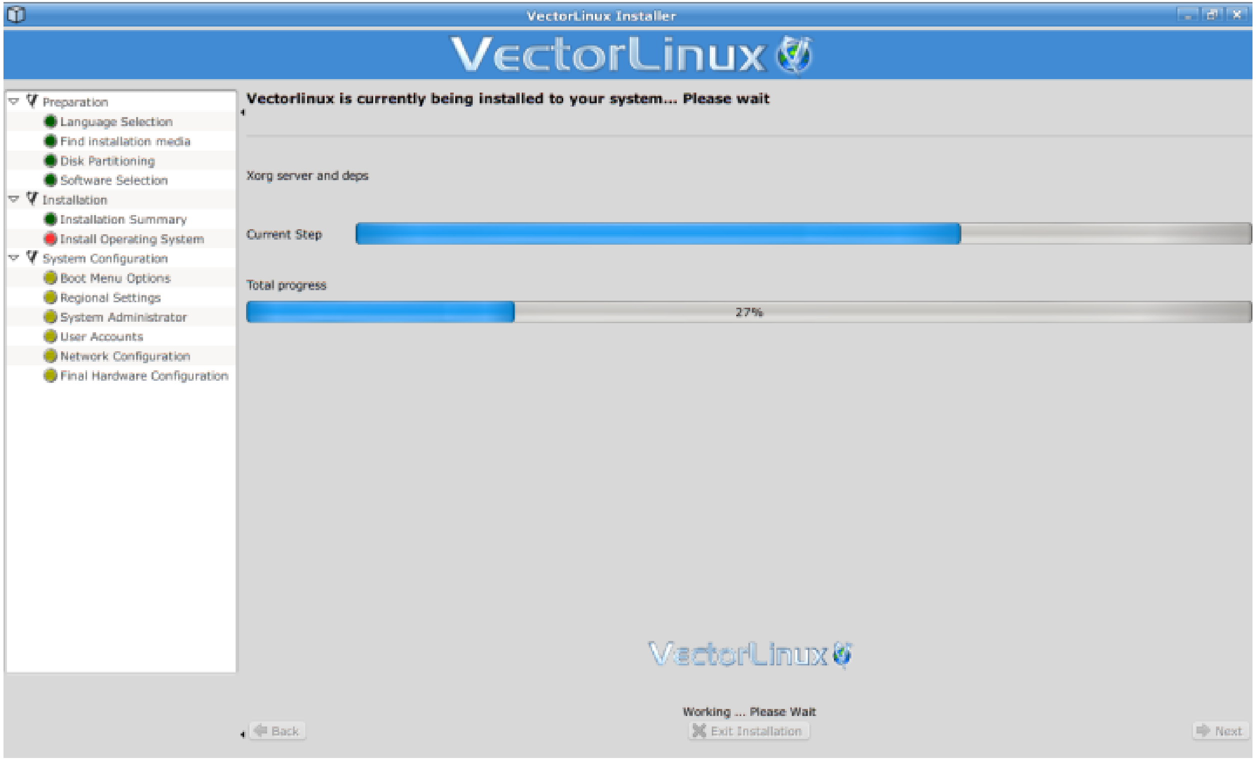
Partition Selection Scheme

	Partition	Size	Filesystem	Mount Point	Format ?
1	/dev/hda6	9673MB	Do not format	/home	No
2	/dev/hda7	18.5GB	reiserfs	/	Yes
3	/dev/hda5	1077MB	Swap	None	
4					
5					

Software Selection

	Package Name
1	BULK PACKAGES
2	X11
3	kernel-src
4	XFCE
5	USER-SELECTED PACKAGES
6	gambas2
7	jre
8	gftp

Progress of VectorLinux operating system files and packages installation is then shown with accurate status bars. On modern computers this process should take less than 15 minutes.



Vectorlinux is currently being installed to your system... Please wait

Xorg server and deps

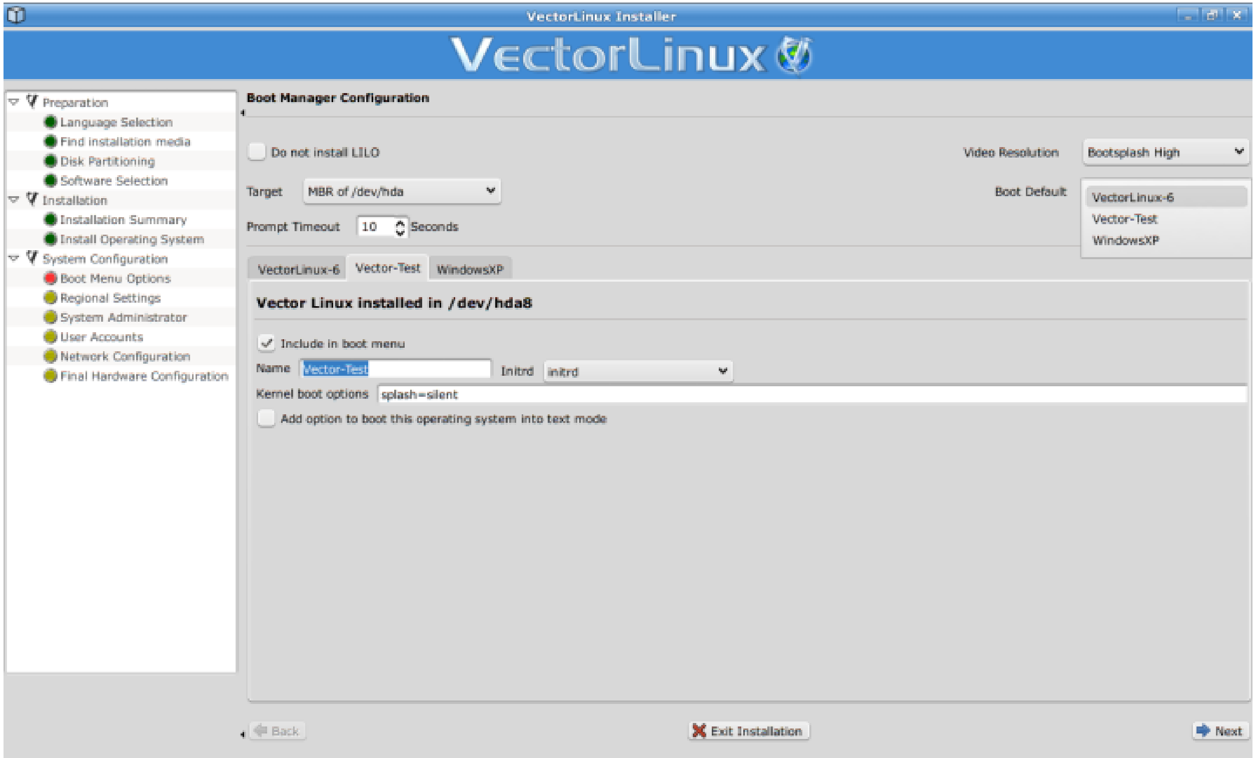
Current Step

Total progress: 27%

Working ... Please Wait

Once the installation of system files is complete the system configuration steps are started - the first of these being to install the Linux Loader - "lilo" boot manager. For newbies we suggest that you go with the default values as presented to you and click the "Next" button. Lilo will find any other operating systems on your hard drives (such as Windows if this is a dual boot installation) and will create and entry for all operating systems in the boot loader. For more advanced users this panel enables you to:

- not /usr/share/vim/vim71/compiler/tidy.viminstall lilo (for instance if VL is a second distro and you already have grub)
- install the boot loader to somewhere other than the MBR (eg: a floppy disk or USB device)
- choose whether or not to include a specific operating system on the boot menu
- choose the name for the OS as it will appear on the boot menu
- choose kernel boot options for each specific OS
- choose the video resolution for the boot loader; useful where you might have an older 15" monitor



Boot Manager Configuration

☐ Do not install LILO

Video Resolution: Bootsplash High

Target: MBR of /dev/hda

Boot Default: VectorLinux-6, Vector-Test, WindowsXP

Prompt Timeout: 10 Seconds

Vector Linux installed in /dev/hda8

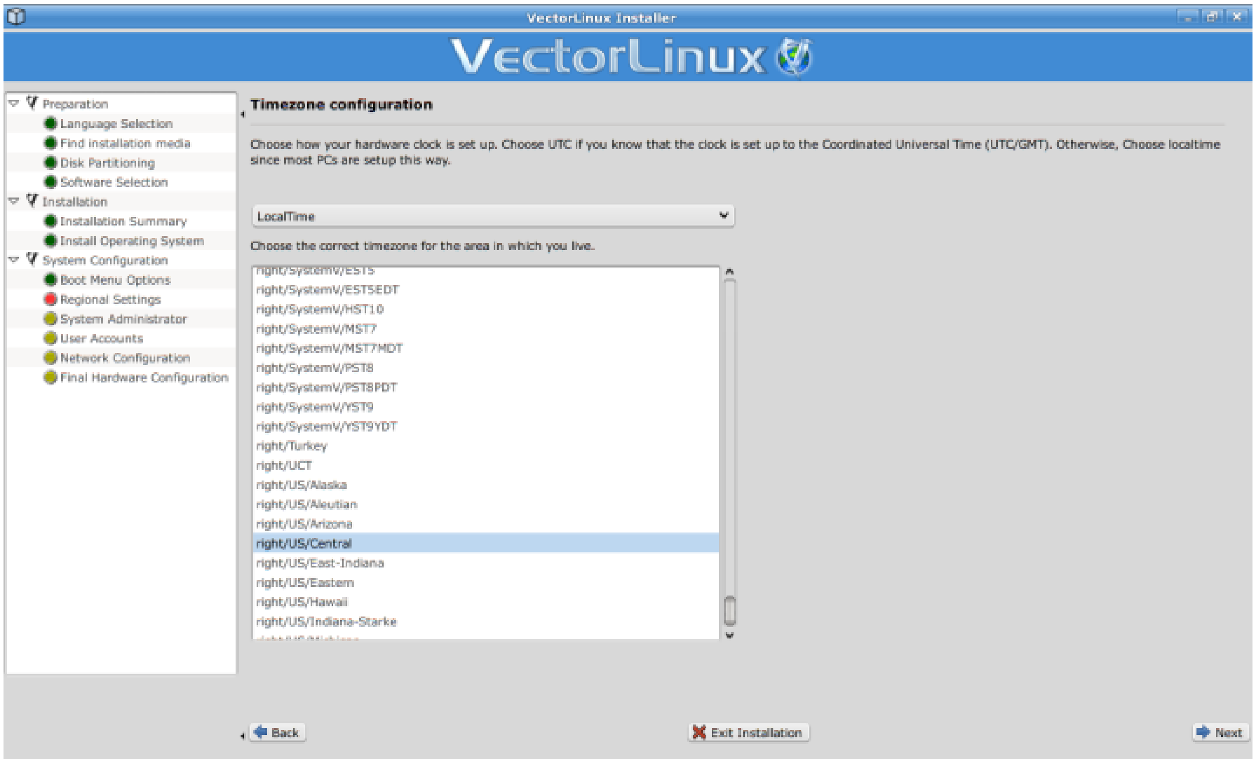
☑ Include in boot menu

Name: Vector-Test Initrd: initrd

Kernel boot options: splash=silent

☐ Add option to boot this operating system into text mode

We now select our timezone.



Timezone configuration

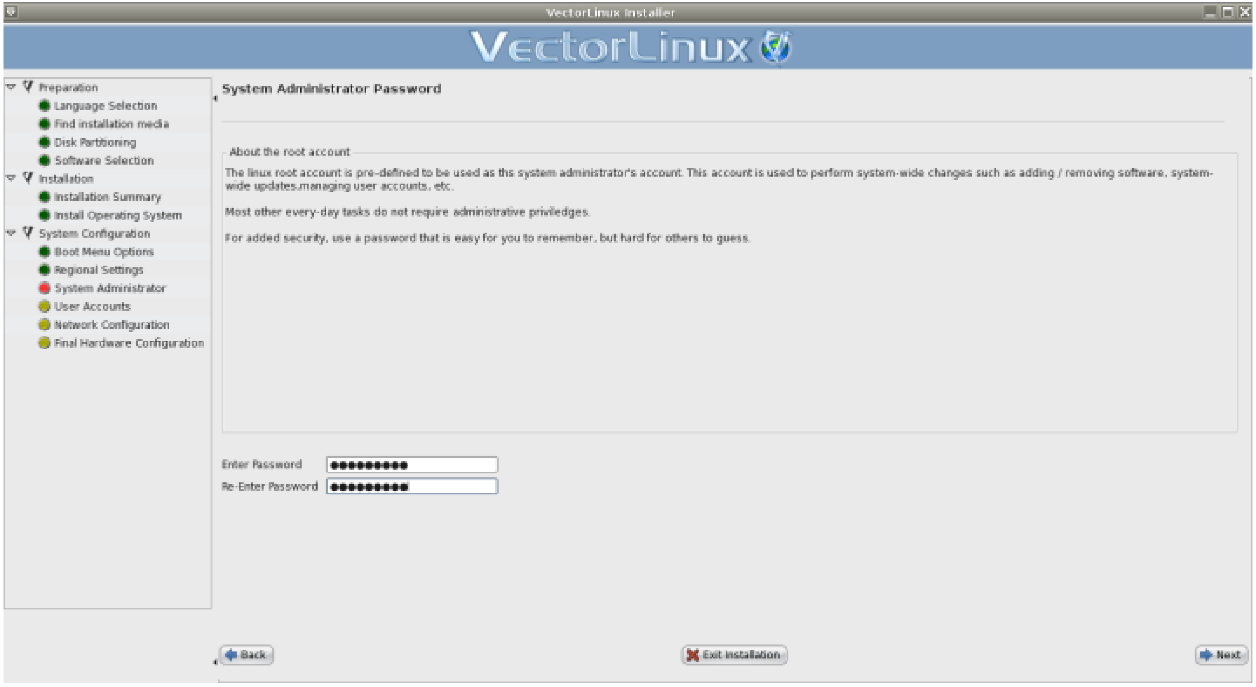
Choose how your hardware clock is set up. Choose UTC if you know that the clock is set up to the Coordinated Universal Time (UTC/GMT). Otherwise, Choose localtime since most PCs are setup this way.

LocalTime

Choose the correct timezone for the area in which you live.

right/US/Central

The installer then prompts for a root password. If you want proper Unix based security you must enter a hard root password on this screen.



System Administrator Password

About the root account

The linux root account is pre-defined to be used as ths system administrator's account. This account is used to perform system-wide changes such as adding / removing software, system-wide updates.managing user accounts, etc.

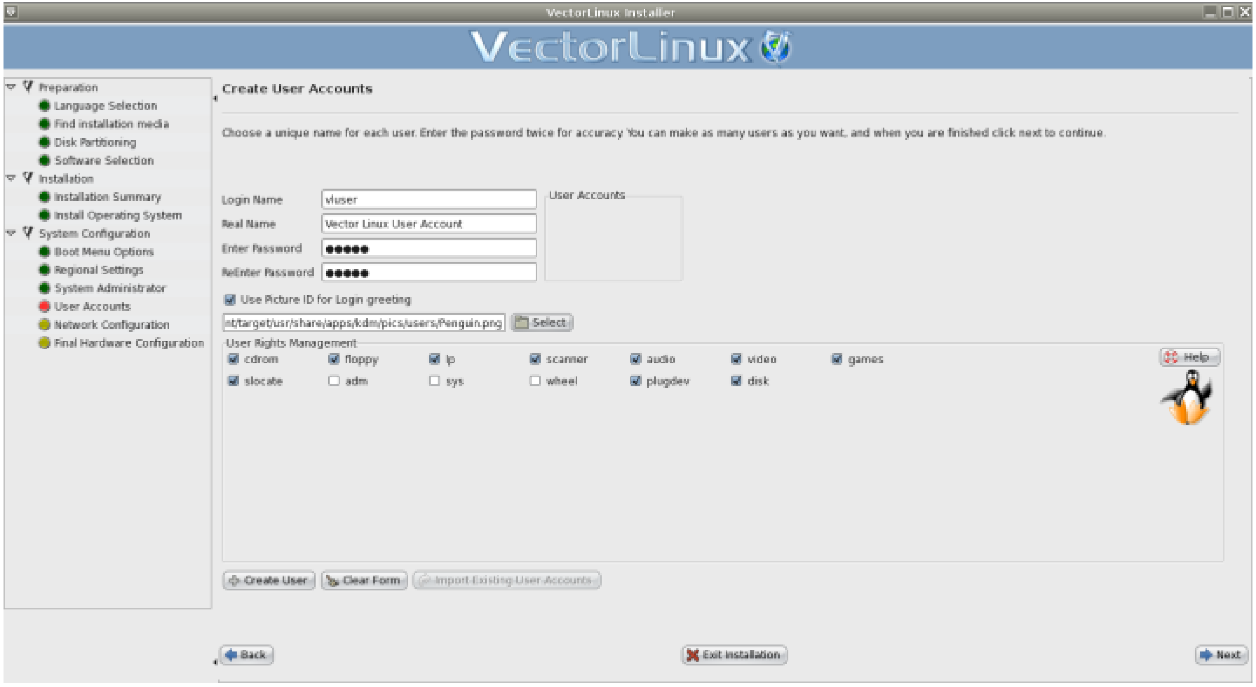
Most other every-day tasks do not require administrative priviledges.

For added security, use a password that is easy for you to remember, but hard for others to guess.

Enter Password ●●●●●●●●●●

Re-Enter Password ●●●●●●●●●●

You may now enter as many users as you wish. You should always have at least one user account which you will use as your normal account - normally you would just use your first name in lowercase letters for this account. Never use the root account for normal work. To do so violates the basic strong security for which Unix/Linux is famous. In the “Rights Management” panel we suggest you leave the default values unless you are an experienced Linux user and have specific requirements for access rights for a particular user. once you have entered user details you *must* click then click the “Create User” button. You may create a number of users on this same screen.



Create User Accounts

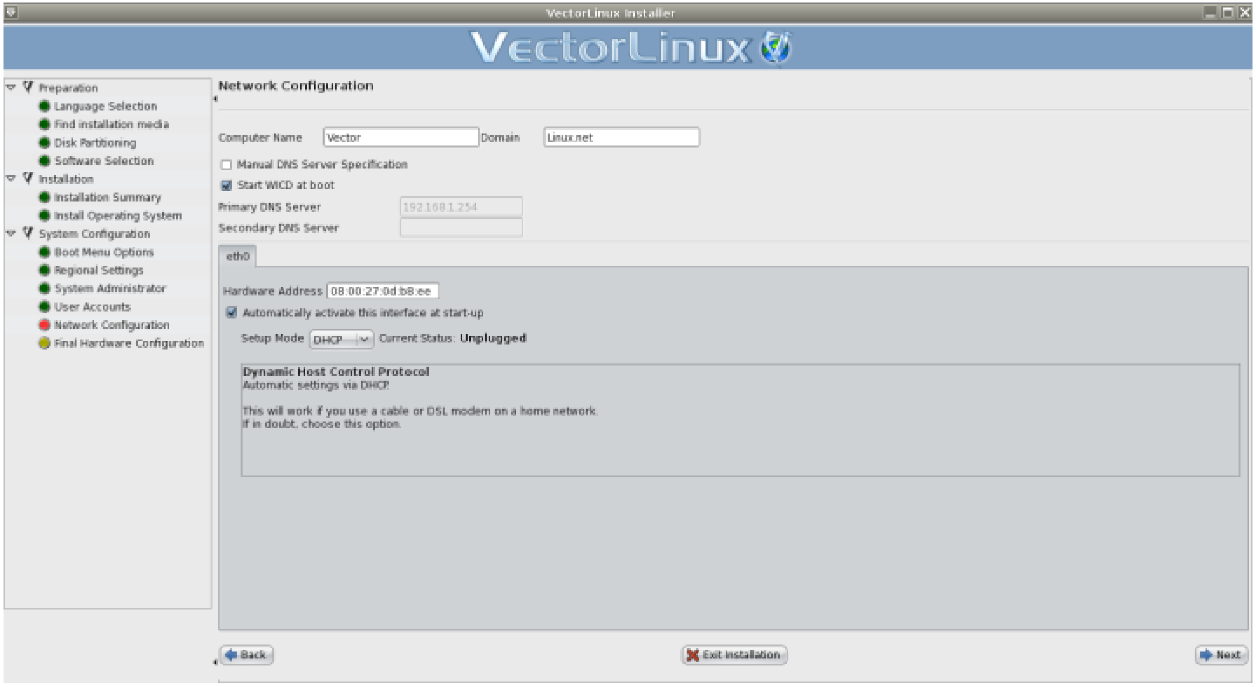
Choose a unique name for each user. Enter the password twice for accuracy You can make as many users as you want, and when you are finished click next to continue.

Login Name: vluser
Real Name: Vector Linux User Account
Enter Password: ●●●●●
ReEnter Password: ●●●●●

☑ Use Picture ID for Login greeting
nt/target/usr/share/apps/kdm/pics/users/Penguin.png

User Rights Management
☑ cdrom ☑ floppy ☑ lp ☑ scanner ☑ audio ☑ video ☑ games
☑ slocate □ adm □ sys □ wheel ☑ plugdev ☑ disk

On the Network Configuration screen you must give your computer both a name and domain name. It is recommended that for normal home network configurations you keep the defaults as prsented, i.e. use WiCD to manage the networks, use DHCP to domain name service, etc. If you have a wireless device and a regular ethernet device they will show as tabs: “eth0” and “ath0” or “wlan0”. You can configure each network device separately, but for newbies the defaults will probably suffice. Manual DNS servers specifications are only for networks where you have been given a specific IP address. Most Internet Service Providers (ISP) use DHCP.



Network Configuration

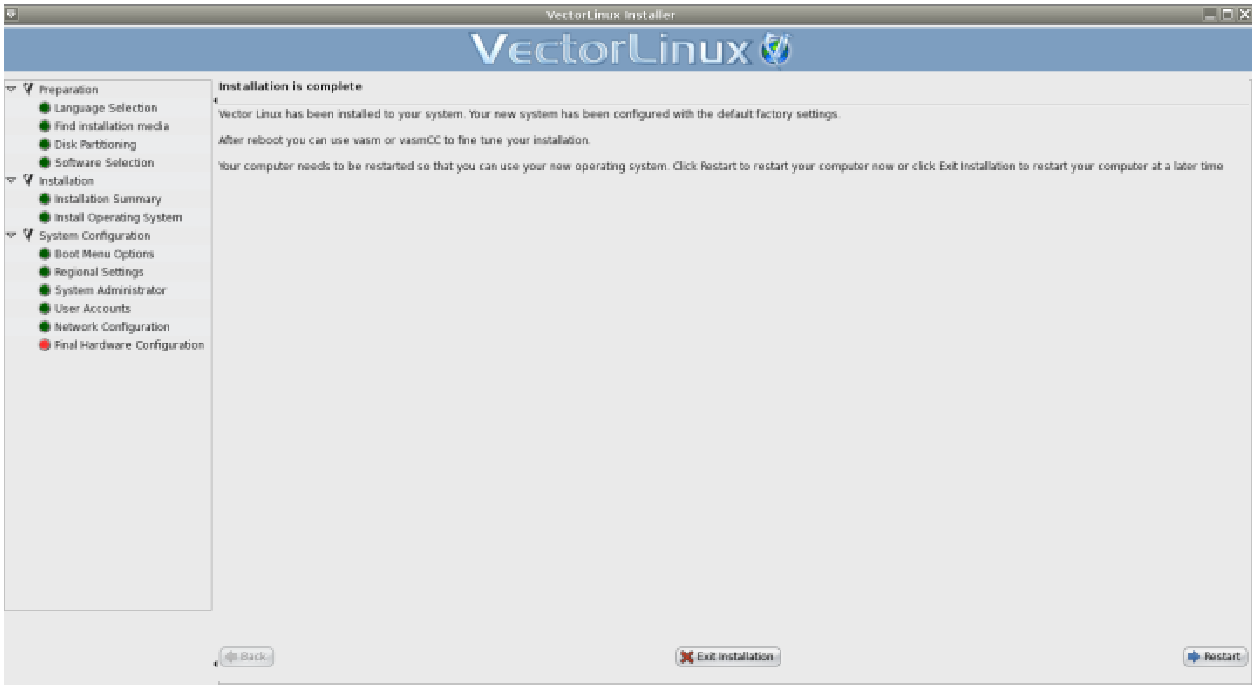
Computer Name: Vector Domain: Linux.net
□ Manual DNS Server Specification
☑ Start WICD at boot
Primary DNS Server: 192.168.1.254
Secondary DNS Server:

Hardware Address: 08:00:27:0d:b8:ee
☑ Automatically activate this interface at start-up
Setup Mode: DHCP Current Status: **Unplugged**

Dynamic Host Control Protocol
Automatic settings via DHCP.

This will work if you use a cable or DSL modem on a home network.
If in doubt, choose this option.

The Final Hardware Configuration screen requires no input. It simply notifies you that the VL installation is now complete and you may reboot the computer. Upon reboot there will still be some hardware configuration setup requiring input from the user. For that information please jump to Section 5c.2 below.



Installation is complete

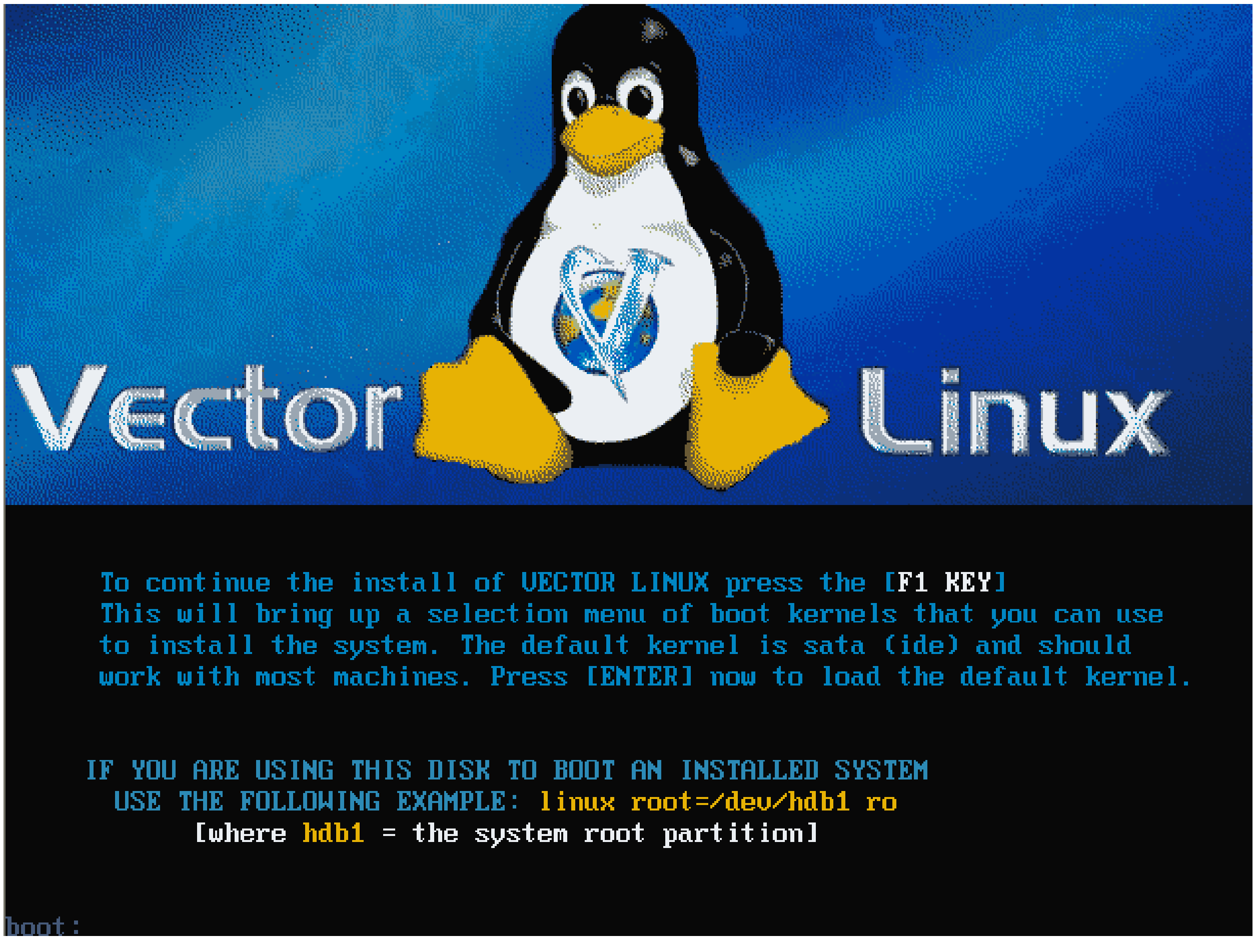
Vector Linux has been installed to your system. Your new system has been configured with the default factory settings.

After reboot you can use vasm or vasmCC to fine tune your installation.

Your computer needs to be restarted so that you can use your new operating system. Click Restart to restart your computer now or click Exit Installation to restart your computer at a later time

2.1.7 5b. The Text-Based Installation Process: Step by Step

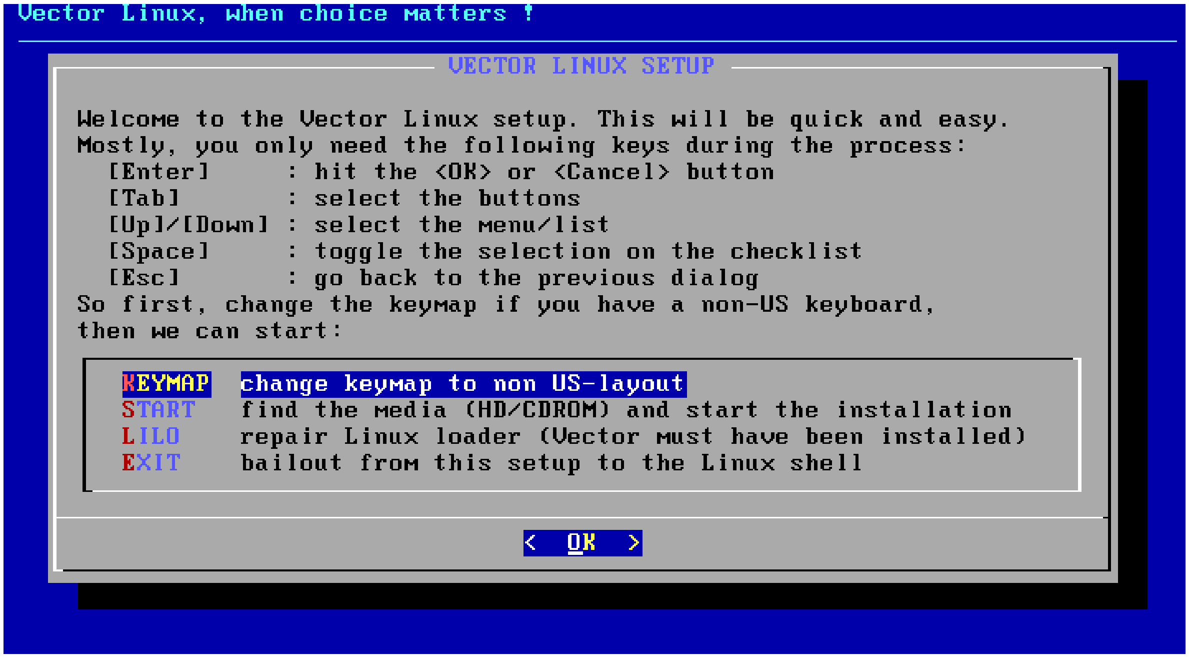
When you launch the installation process, the first screen presented to you lets you choose either the default kernel (IDE/SATA) or another kernel (by pressing F1).



```
     To continue the install of VECTOR LINUX press the [F1 KEY]
     This will bring up a selection menu of boot kernels that you can use
     to install the system. The default kernel is sata (ide) and should
     work with most machines. Press [ENTER] now to load the default kernel.


    IF YOU ARE USING THIS DISK TO BOOT AN INSTALLED SYSTEM
      USE THE FOLLOWING EXAMPLE: linux root=/dev/hdb1 ro
           [where hdb1 = the system root partition]


boot:
```

1. Start up – On the next screen you have four options:

   - Select the keymap to be used during the installation. You should select this menu for the first time if your keyboard in a non-US layout.
   - Start the installation. The reason why we are here!
   - Repair lilo (Linux Loader). This is a handy utility in case you have an installed Vector Linux, but somehow you cannot boot it because of a corrupted LILO.
   - Exit. This will bring you to the Linux command prompt. It might be required if something is wrong with the installation and you are capable enough at the Linux command line to fix it manually.

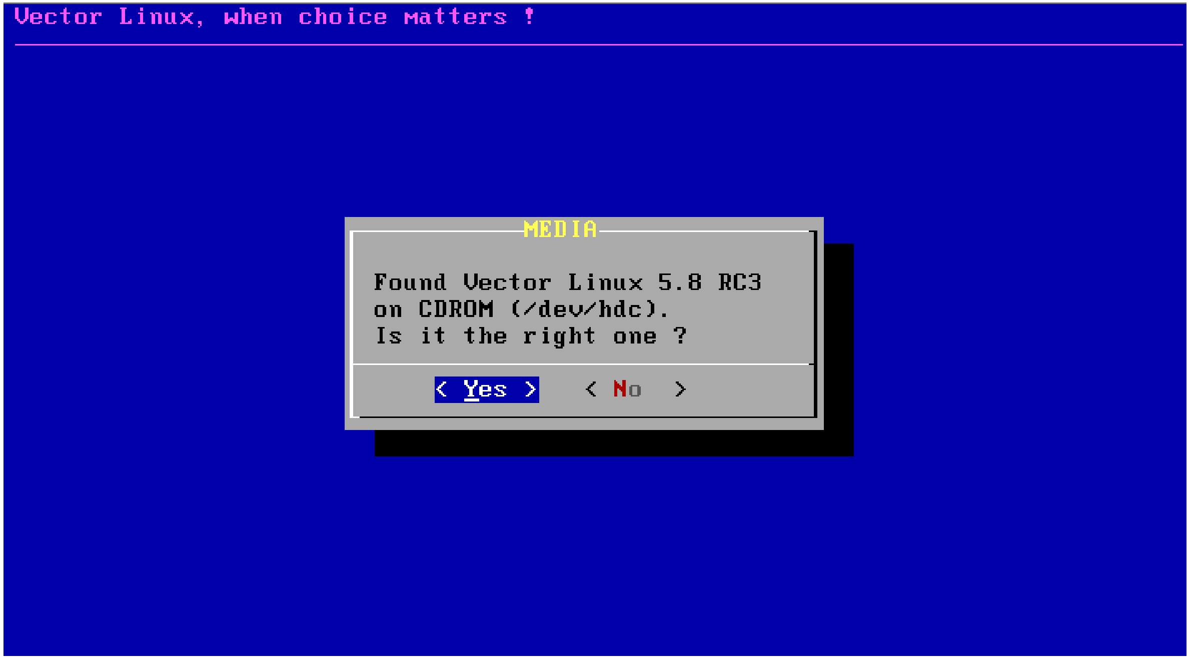


```
Vector Linux, when choice matters !

                      VECTOR LINUX SETUP

 Welcome to the Vector Linux setup. This will be quick and easy.
 Mostly, you only need the following keys during the process:
   [Enter]      : hit the <OK> or <Cancel> button
   [Tab]        : select the buttons
   [Up]/[Down]  : select the menu/list
   [Space]      : toggle the selection on the checklist
   [Esc]        : go back to the previous dialog
 So first, change the keymap if you have a non-US keyboard,
 then we can start:

     KEYMAP   change keymap to non US-layout
     START    find the media (HD/CDROM) and start the installation
     LILO     repair Linux loader (Vector must have been installed)
     EXIT     bailout from this setup to the Linux shell

                          <  OK  >
```

2. Once you start the installation, the routine will look for the installation media in the following places:

   - Any hard drive partition that contains installation files
   - Any hard drive partition that contains the ISO file in the top directory
   - CDROM drive

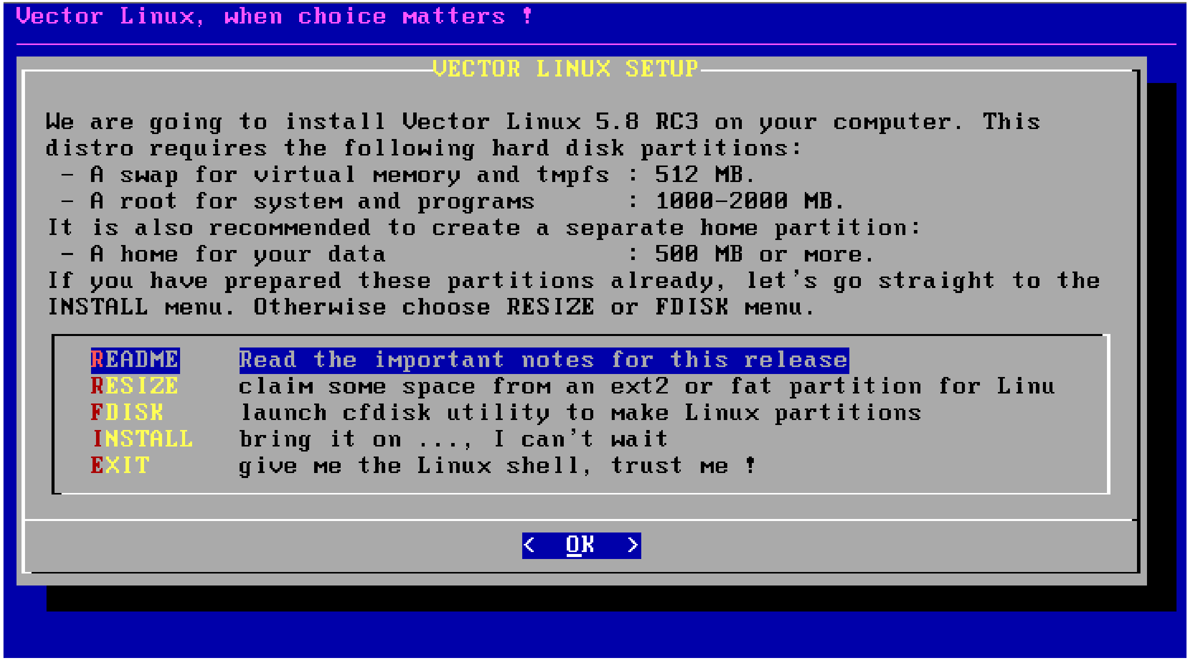
   If a media is found, it will ask you to confirm. Select Yes to proceed, No to search another media.



```
Vector Linux, when choice matters !

              MEDIA

  Found Vector Linux 5.8 RC3
  on CDROM (/dev/hdc).
  Is it the right one ?

      < Yes >    < No  >
```

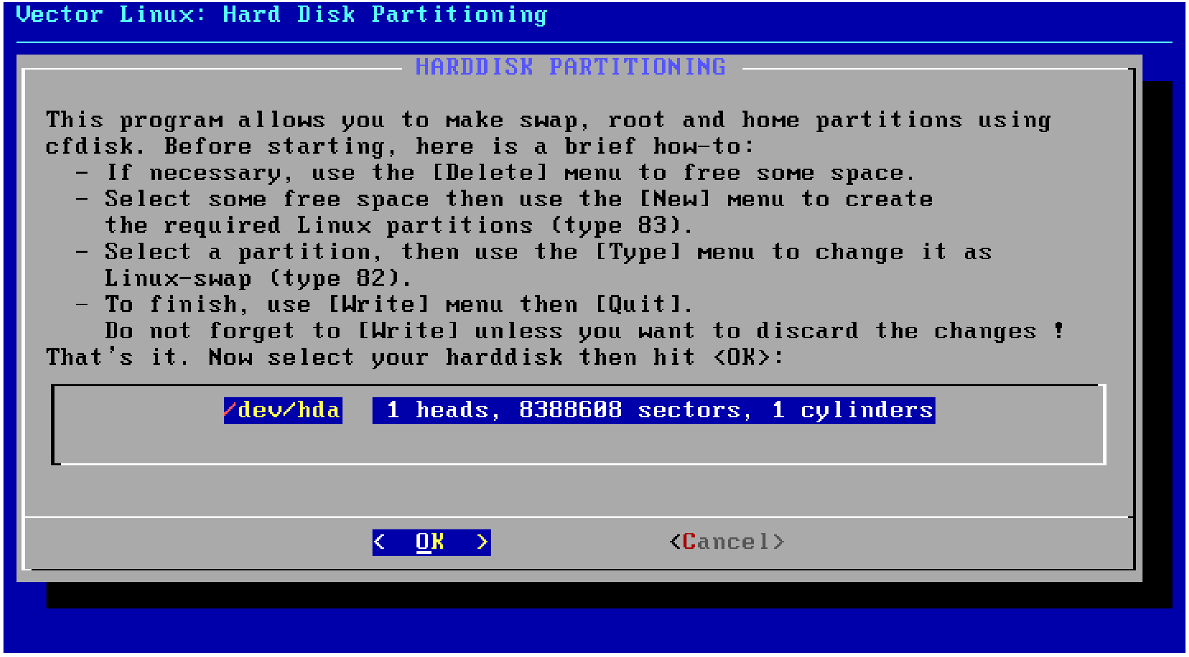
3. The next screen shows you the hard drive requirements of the soon to be installed edition. If you have already set up your partitions, then start the installation now. Otherwise you can create or modify the hard drive partitions using the built in tools. RESIZE menu is a simple front end for GNU-Parted. Meanwhile the FDISK menu will launch a menu-driven partitioning program called cfdisk (see the three images following). Warning: do not proceed to the INSTALL menu if you don't have the

required 3 partitions (root, swap and home) at the required sizes, because the install will surely fail.

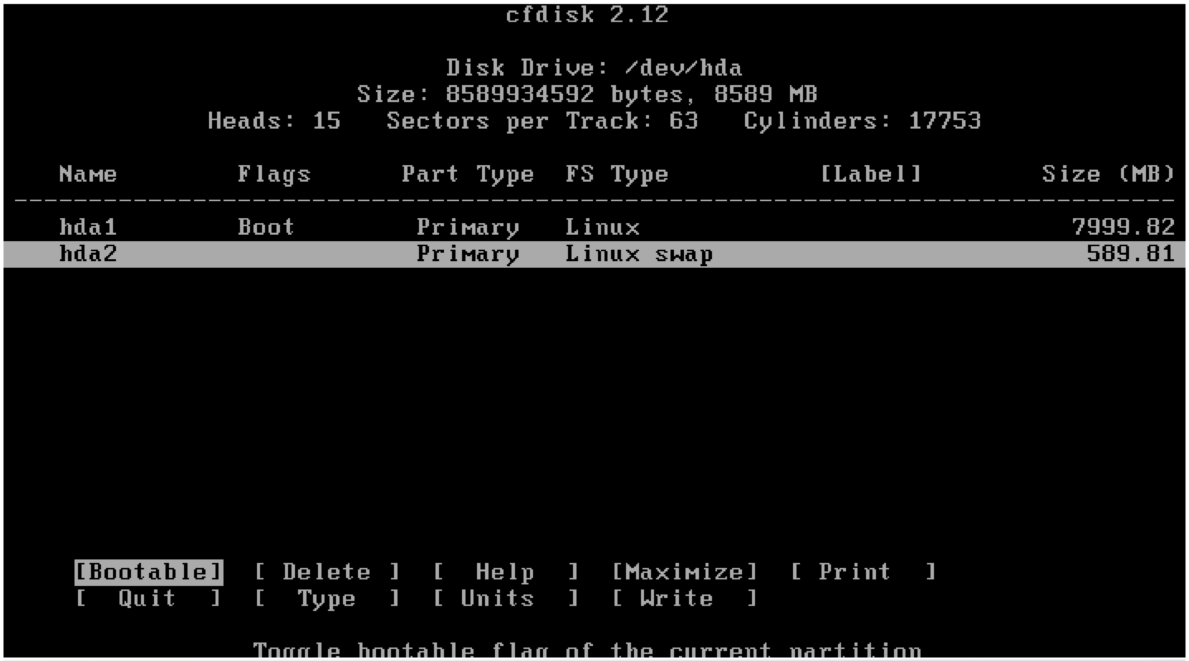


```
Vector Linux, when choice matters !

VECTOR LINUX SETUP

We are going to install Vector Linux 5.8 RC3 on your computer. This
distro requires the following hard disk partitions:
 - A swap for virtual memory and tmpfs : 512 MB.
 - A root for system and programs      : 1000-2000 MB.
It is also recommended to create a separate home partition:
 - A home for your data                : 500 MB or more.
If you have prepared these partitions already, let's go straight to the
INSTALL menu. Otherwise choose RESIZE or FDISK menu.
```

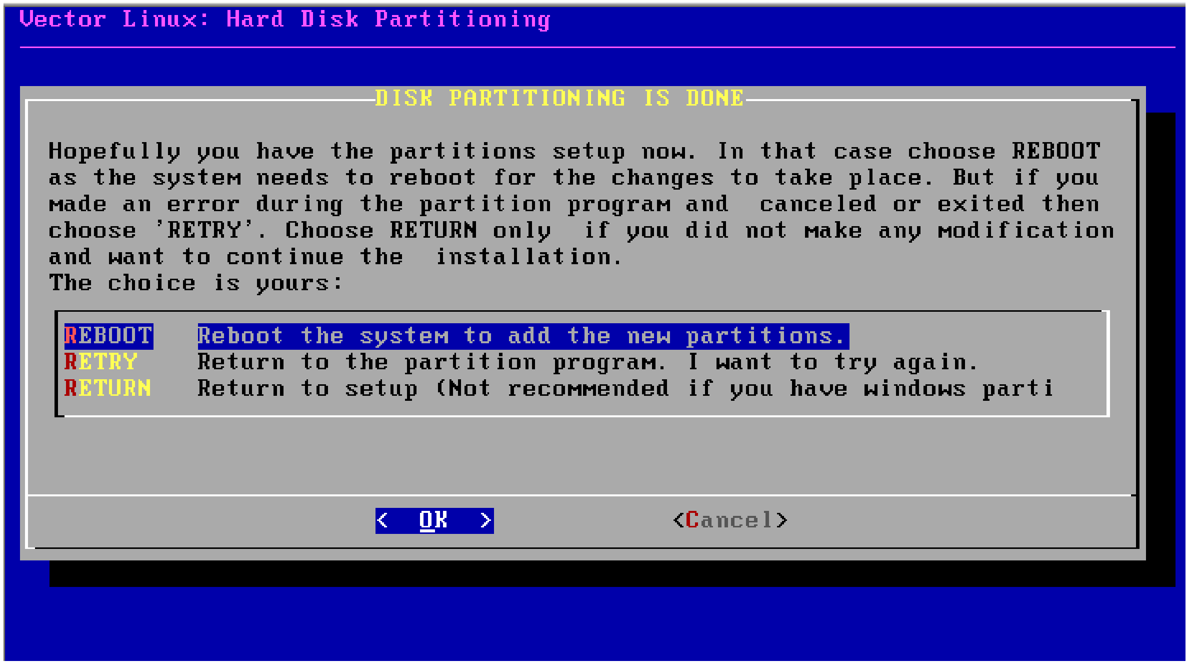
README   Read the important notes for this release
RESIZE   claim some space from an ext2 or fat partition for Linu
FDISK   launch cfdisk utility to make Linux partitions
INSTALL   bring it on ...., I can't wait
EXIT   give me the Linux shell, trust me !
< OK >



```
Vector Linux: Hard Disk Partitioning

HARDDISK PARTITIONING

This program allows you to make swap, root and home partitions using
cfdisk. Before starting, here is a brief how-to:
  - If necessary, use the [Delete] menu to free some space.
  - Select some free space then use the [New] menu to create
    the required Linux partitions (type 83).
  - Select a partition, then use the [Type] menu to change it as
    Linux-swap (type 82).
  - To finish, use [Write] menu then [Quit].
    Do not forget to [Write] unless you want to discard the changes !
That's it. Now select your harddisk then hit <OK>:
```

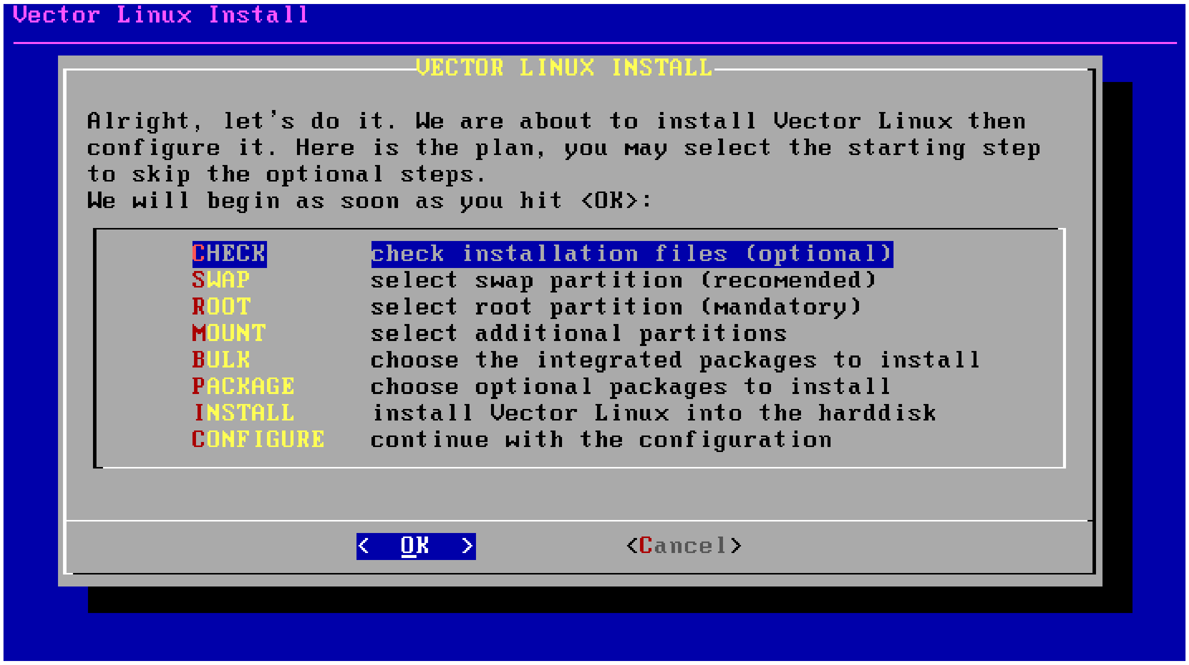


```
                              cfdisk 2.12

                          Disk Drive: /dev/hda
                    Size: 8589934592 bytes, 8589 MB
          Heads: 15   Sectors per Track: 63   Cylinders: 17753

    Name        Flags      Part Type  FS Type          [Label]        Size (MB)
 ------------------------------------------------------------------------------
    hda1        Boot        Primary   Linux                             7999.82
    hda2                    Primary   Linux swap                         589.81









     [Bootable]  [ Delete ]  [  Help  ]  [Maximize]  [ Print  ]
     [  Quit  ]  [  Type  ]  [ Units  ]  [ Write  ]

                 Toggle bootable flag of the current partition
```



```
Vector Linux: Hard Disk Partitioning

                          DISK PARTITIONING IS DONE

   Hopefully you have the partitions setup now. In that case choose REBOOT
   as the system needs to reboot for the changes to take place. But if you
   made an error during the partition program and  canceled or exited then
   choose 'RETRY'. Choose RETURN only  if you did not make any modification
   and want to continue the  installation.
   The choice is yours:

     REBOOT    Reboot the system to add the new partitions.
     RETRY     Return to the partition program. I want to try again.
     RETURN    Return to setup (Not recommended if you have windows parti

                      <  OK  >             <Cancel>
```

4. You are now presented with a list of the next steps the routine will perform, it goes through each of these steps in



```
Vector Linux Install

VECTOR LINUX INSTALL

Alright, let's do it. We are about to install Vector Linux then
configure it. Here is the plan, you may select the starting step
to skip the optional steps.
We will begin as soon as you hit <OK>:

    CHECK        check installation files (optional)
    SWAP         select swap partition (recomended)
    ROOT         select root partition (mandatory)
    MOUNT        select additional partitions
    BULK         choose the integrated packages to install
    PACKAGE      choose optional packages to install
    INSTALL      install Vector Linux into the harddisk
    CONFIGURE    continue with the configuration

           <  OK  >            <Cancel>
```

order.

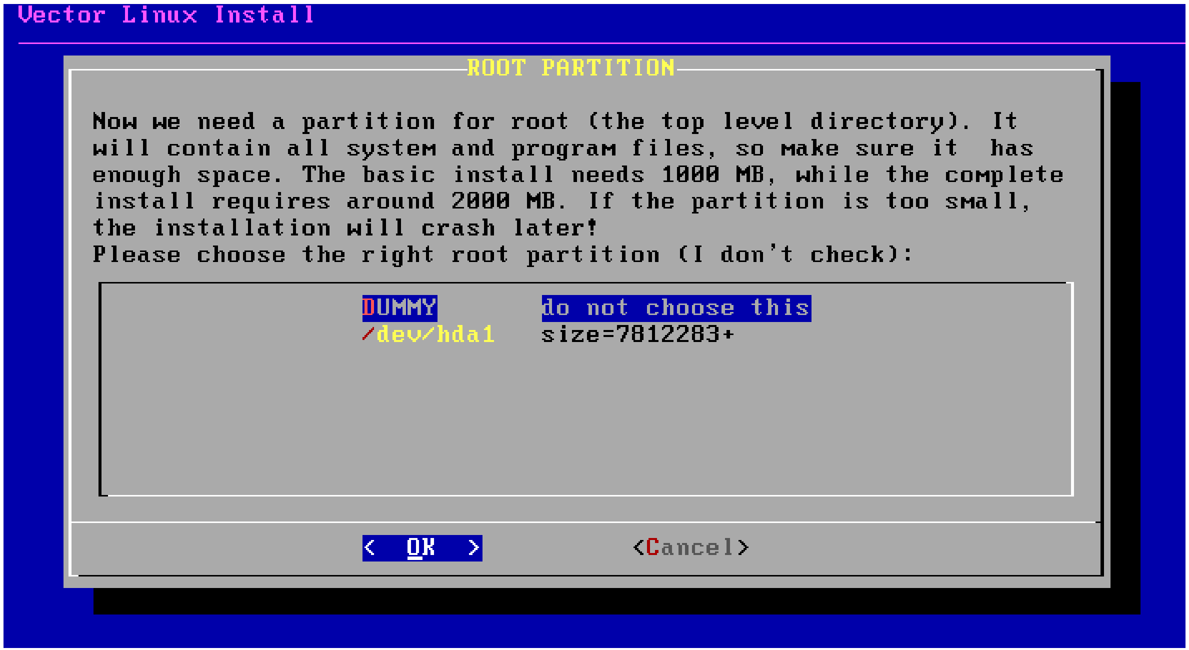
5. In the check-files screen, you may choose which files are to be verified for any damage or corruption. If you are confident enough about them you could skip the verification, but if the files are somehow damaged the installation will probably fail later. If you have already done an *md5sum* check on the .iso file then this step is probably unnecessary.

6. Now the routine will present you with any swap partition detected. Choose the swap partition to use and select OK..

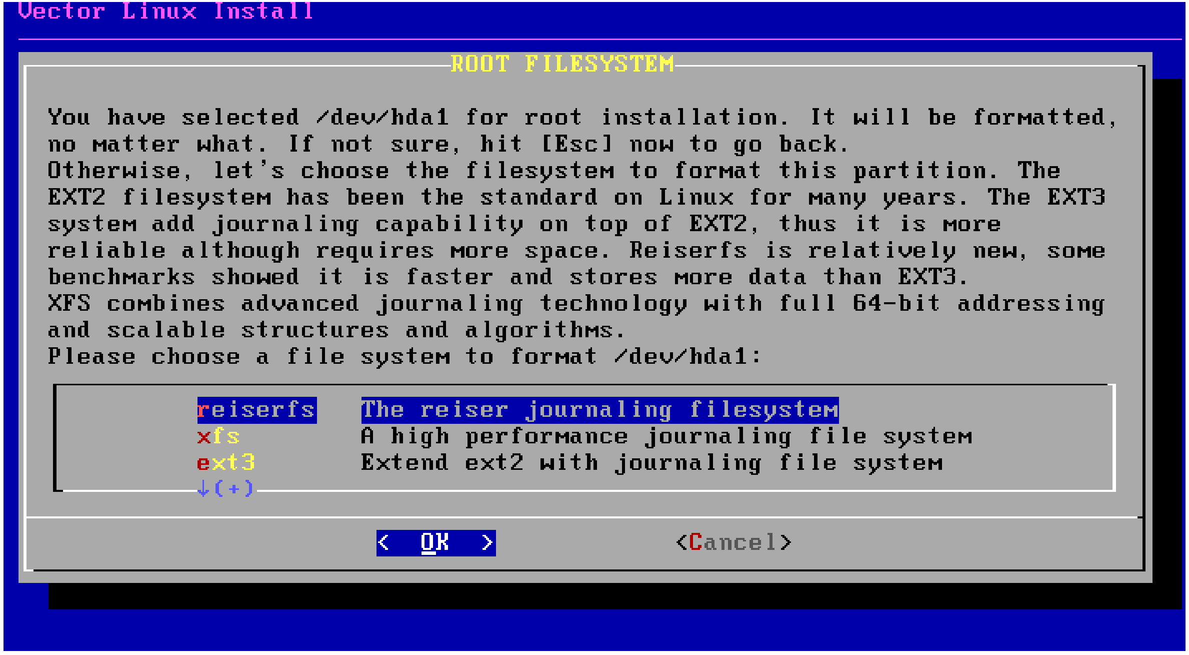
7. The next step is to choose your root partition. This is the partition on which you want to install VectorLinux. You will have the chance to select a different partition for your /home directory later.

8. Then select the filesystem you prefer for the root partition: reiserfs, ext3 or ext2. ext2 is the older Linux filesystem, reiserfs and ext3 are both newer and more robust journaling filesystems. ext3 is a general standard and reiserfs is particularly fast with many small files.

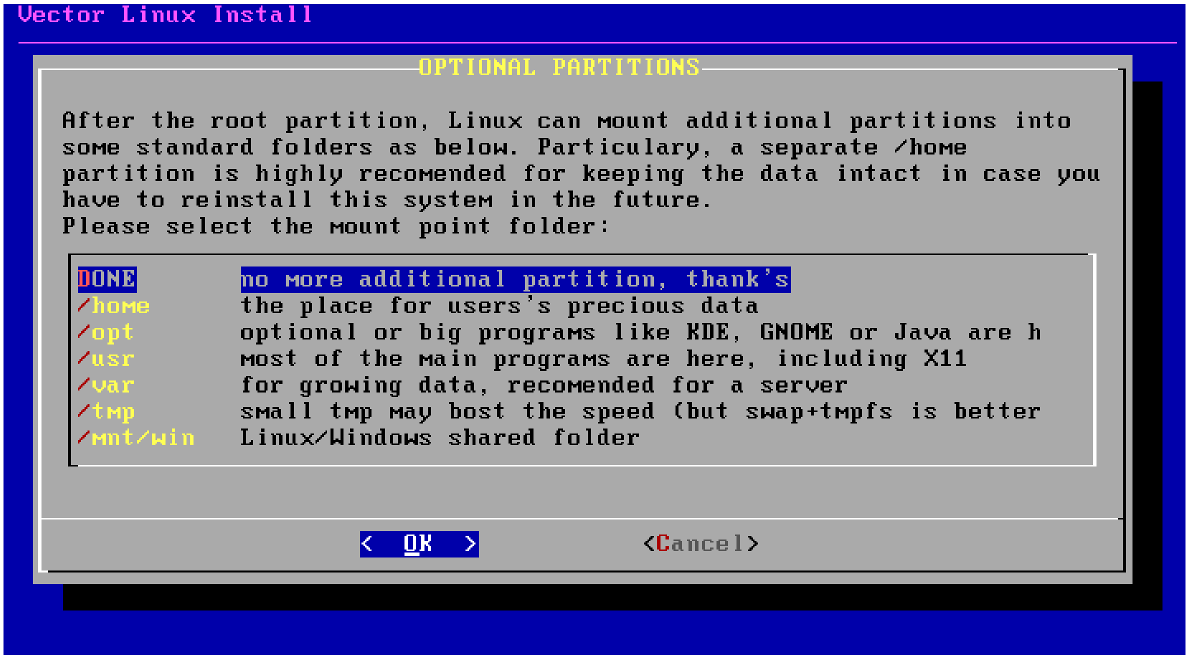
9. Next, you can choose to use a different partition for your /home directory or use the same one that is used as root. The “/home” is where files that belong to users are to be stored, and “root” is where the Operating System´s files and all packaged software will be stored.



```
Now we need a partition for root (the top level directory). It
will contain all system and program files, so make sure it  has
enough space. The basic install needs 1000 MB, while the complete
install requires around 2000 MB. If the partition is too small,
the installation will crash later!
Please choose the right root partition (I don't check):

                 DUMMY       do not choose this
                 /dev/hda1   size=7812283+
```

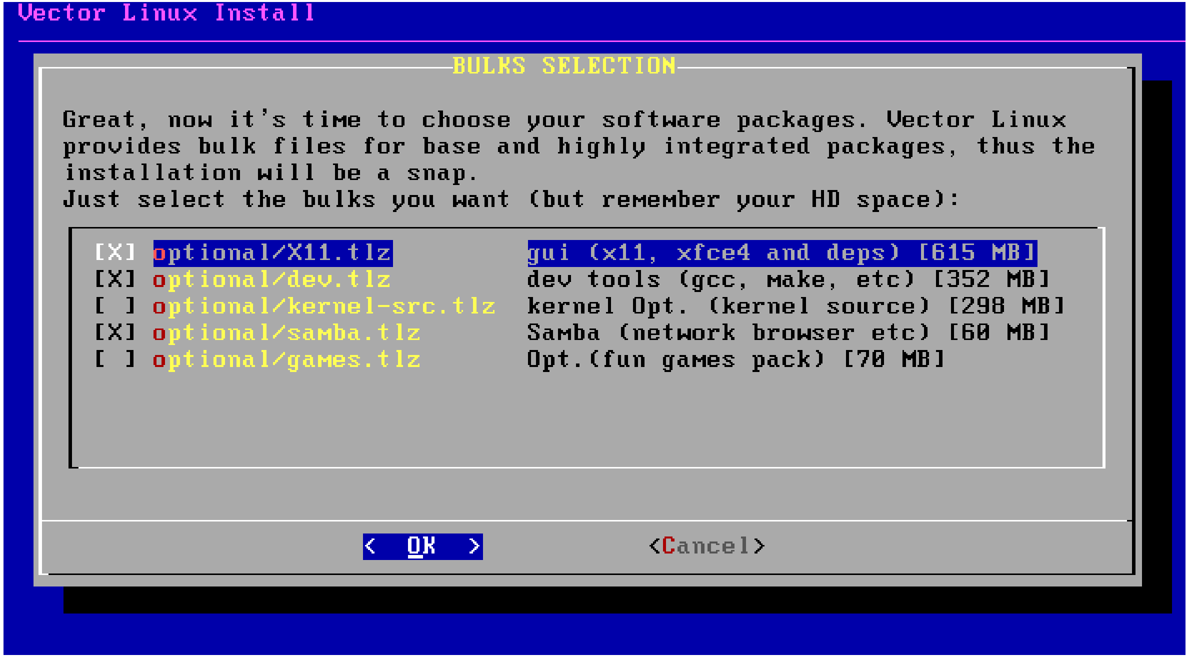


```
You have selected /dev/hda1 for root installation. It will be formatted,
no matter what. If not sure, hit [Esc] now to go back.
Otherwise, let's choose the filesystem to format this partition. The
EXT2 filesystem has been the standard on Linux for many years. The EXT3
system add journaling capability on top of EXT2, thus it is more
reliable although requires more space. Reiserfs is relatively new, some
benchmarks showed it is faster and stores more data than EXT3.
XFS combines advanced journaling technology with full 64-bit addressing
and scalable structures and algorithms.
Please choose a file system to format /dev/hda1:

          reiserfs    The reiser journaling filesystem
          xfs         A high performance journaling file system
          ext3        Extend ext2 with journaling file system
          ↓(+)
```

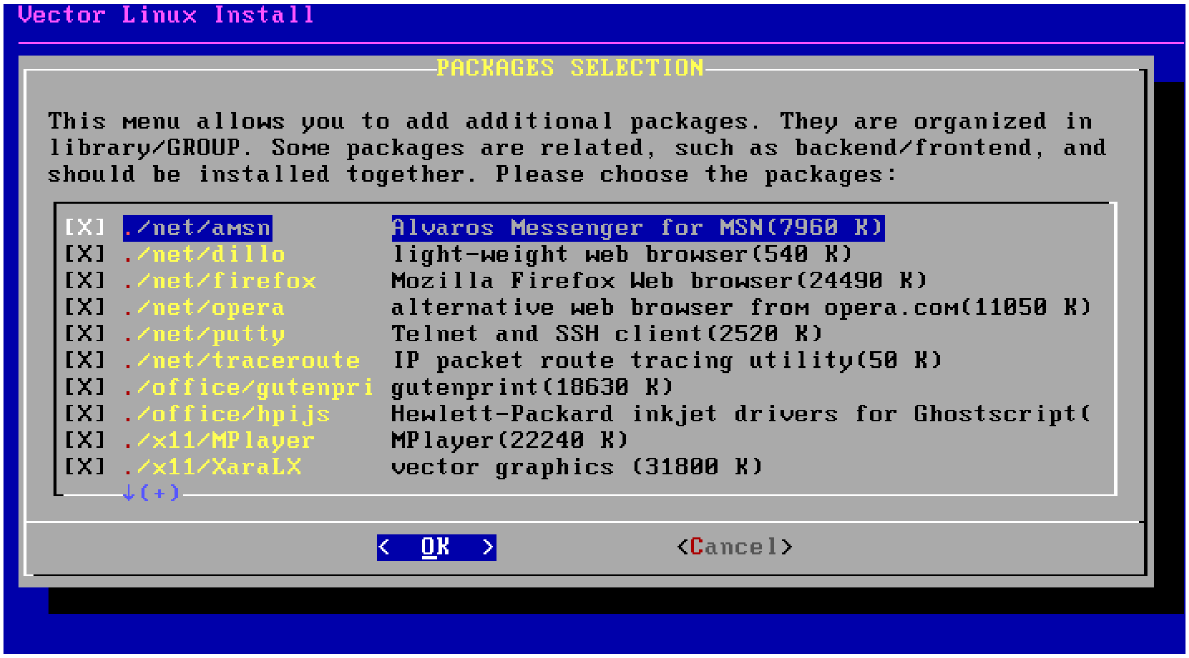


```
Vector Linux Install

OPTIONAL PARTITIONS

After the root partition, Linux can mount additional partitions into
some standard folders as below. Particulary, a separate /home
partition is highly recomended for keeping the data intact in case you
have to reinstall this system in the future.
Please select the mount point folder:

DONE        no more additional partition, thank's
/home       the place for users's precious data
/opt        optional or big programs like KDE, GNOME or Java are h
/usr        most of the main programs are here, including X11
/var        for growing data, recomended for a server
/tmp        small tmp may bost the speed (but swap+tmpfs is better
/mnt/win    Linux/Windows shared folder
```

10. The next two dialog screens allow you to choose what main packages and individual software applications you wish to install.

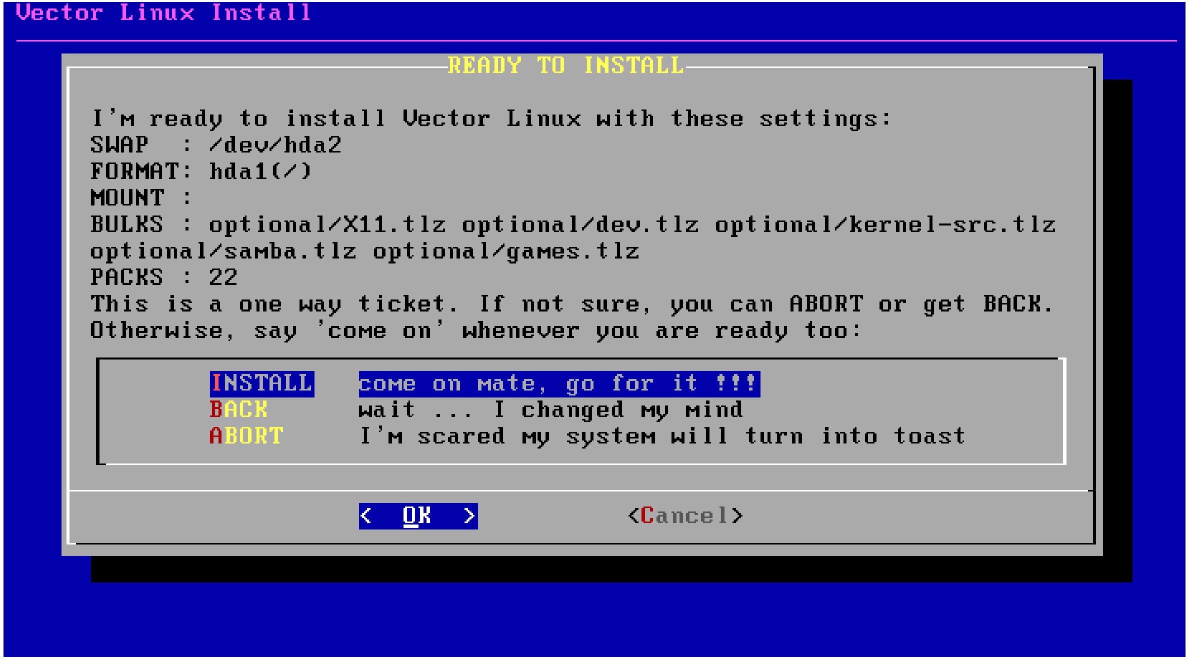


```
Vector Linux Install

BULKS SELECTION

Great, now it's time to choose your software packages. Vector Linux
provides bulk files for base and highly integrated packages, thus the
installation will be a snap.
Just select the bulks you want (but remember your HD space):

[X] optional/X11.tlz          gui (x11, xfce4 and deps) [615 MB]
[X] optional/dev.tlz          dev tools (gcc, make, etc) [352 MB]
[ ] optional/kernel-src.tlz   kernel Opt. (kernel source) [298 MB]
[X] optional/samba.tlz        Samba (network browser etc) [60 MB]
[ ] optional/games.tlz        Opt.(fun games pack) [70 MB]
```



```
Vector Linux Install

PACKAGES SELECTION

This menu allows you to add additional packages. They are organized in
library/GROUP. Some packages are related, such as backend/frontend, and
should be installed together. Please choose the packages:

[X] ./net/amsn          Alvaros Messenger for MSN(7960 K)
[X] ./net/dillo         light-weight web browser(540 K)
[X] ./net/firefox       Mozilla Firefox Web browser(24490 K)
[X] ./net/opera         alternative web browser from opera.com(11050 K)
[X] ./net/putty         Telnet and SSH client(2520 K)
[X] ./net/traceroute    IP packet route tracing utility(50 K)
[X] ./office/gutenpri   gutenprint(18630 K)
[X] ./office/hpijs      Hewlett-Packard inkjet drivers for Ghostscript(
[X] ./x11/MPlayer       MPlayer(22240 K)
[X] ./x11/XaraLX        vector graphics (31800 K)
    ↓(+)

            <  OK  >            <Cancel>
```

11. You are now ready to install VectorLinux to your system. You can review the choices you have made and go back and do some modifications, or you can select OK to continue installing VectorLinux. Once you hit OK, and the installation proceeds, it will format the partitions you selected for root and /home, and any information in them will be erased, so please verify everything before continuing.



```
Vector Linux Install

READY TO INSTALL

I'm ready to install Vector Linux with these settings:
SWAP   : /dev/hda2
FORMAT: hda1(/)
MOUNT  :
BULKS  : optional/X11.tlz optional/dev.tlz optional/kernel-src.tlz
optional/samba.tlz optional/games.tlz
PACKS  : 22
This is a one way ticket. If not sure, you can ABORT or get BACK.
Otherwise, say 'come on' whenever you are ready too:

        INSTALL    come on mate, go for it !!!
        BACK       wait ... I changed my mind
        ABORT      I'm scared my system will turn into toast

            <  OK  >            <Cancel>
```

The installation will take a little while, so you may have a short break. The installation time will vary depending on your system´s speed. It can be as quick as 10 minutes. After some minutes, your monitor screen may go blank as it enters a power saving mode. If it does, press **[SHIFT]** on the keyboard to restore your monitor. DO NOT hit [enter] or [space] as you could inadvertently accept a choice the install routine might have reached at that point. After the installation is done, you will be required to do some basic configuration, as explained in Section 6.

2.1.8 5c. Post-Install Configuration

Once VL has been installed, a configuration screen is presented. This allows you to configure sound, video, network, etc. This screen can also be accessed later using "Vasm" as root.

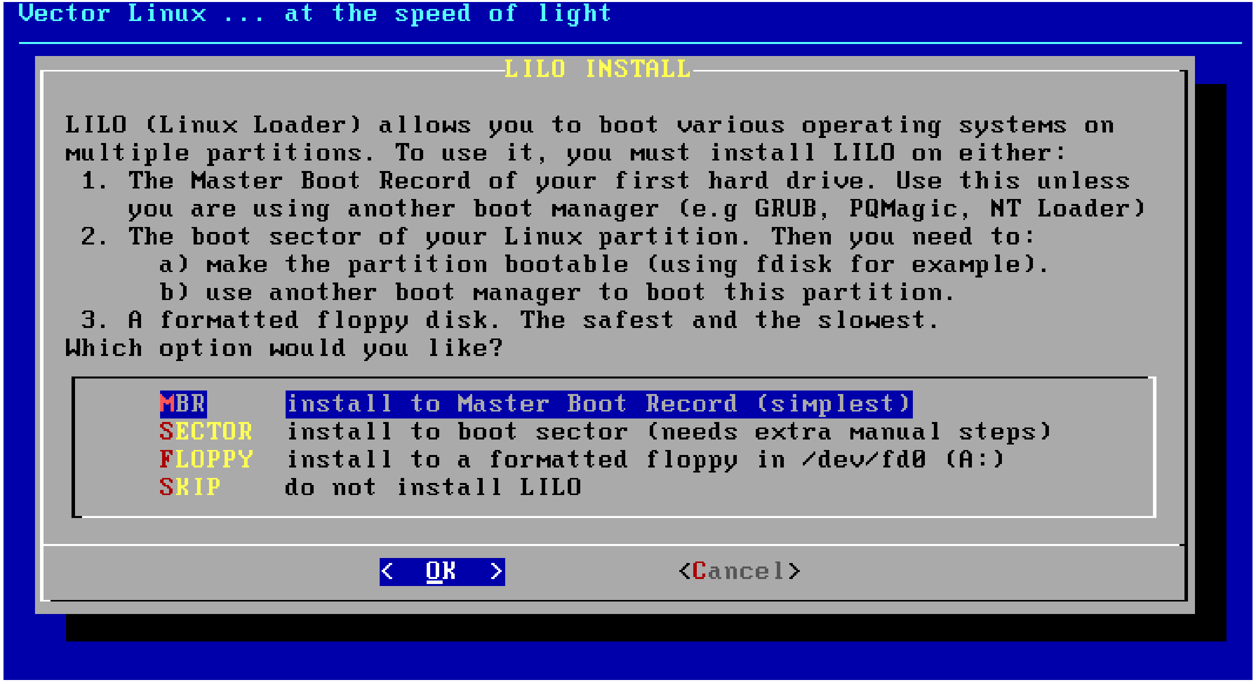
However, it is recommended that you **do not skip** this configuration step at installation time.

5c.1 Set Up LILO

You will be prompted to set-up "LILO", the Linux Loader that boots the system.

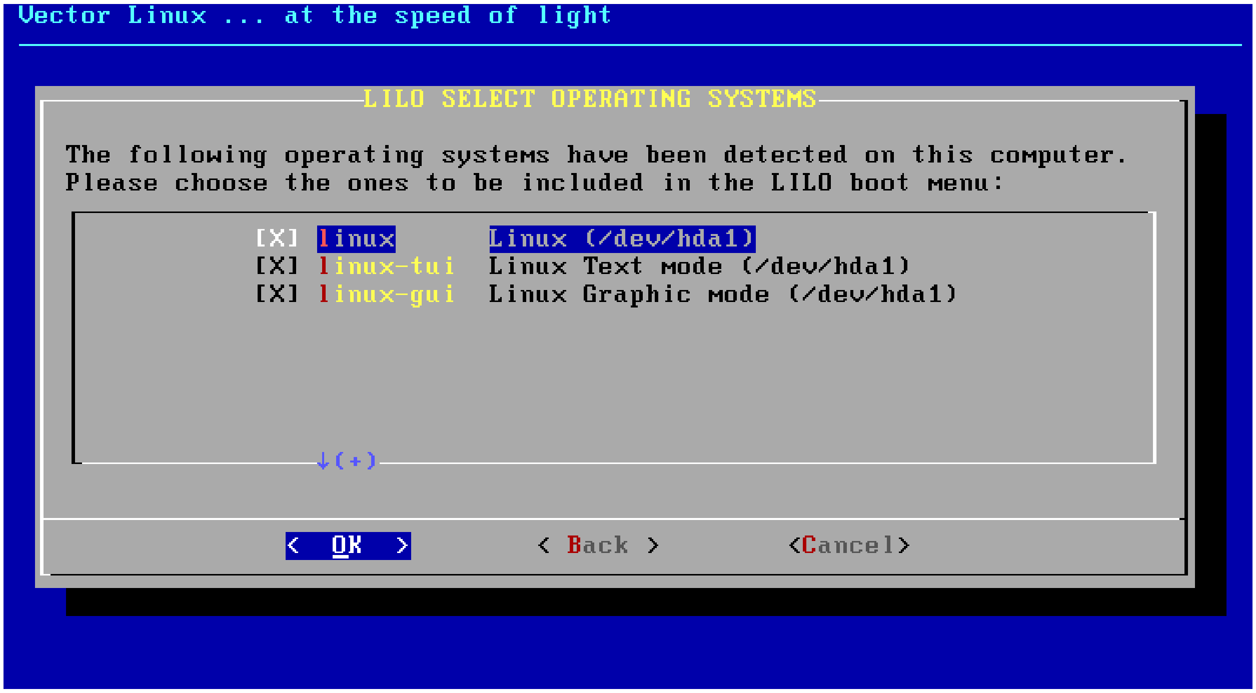
Choose where to install lilo:

- the root partition (if you installed VL to /dev/hda2, this would install lilo to /dev/hda2)
- the MBR (master boot record) for the disk
- a floppy drive



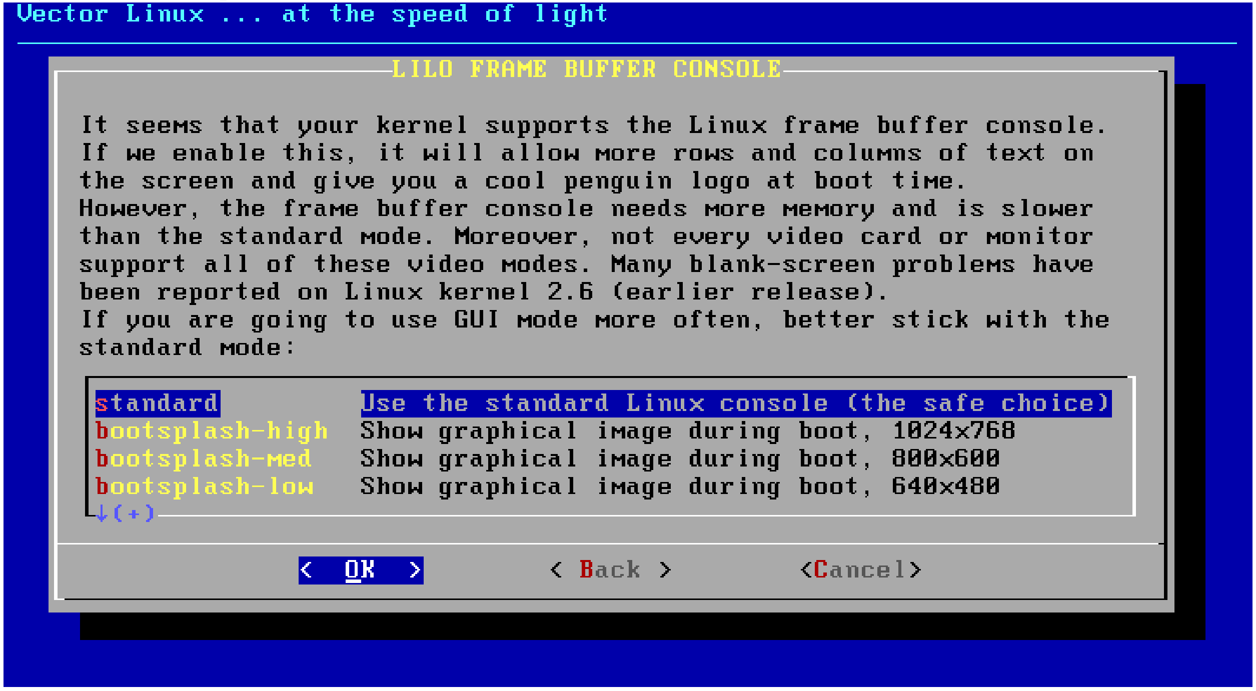
```
Vector Linux ... at the speed of light

                              LILO INSTALL

 LILO (Linux Loader) allows you to boot various operating systems on
 multiple partitions. To use it, you must install LILO on either:
  1. The Master Boot Record of your first hard drive. Use this unless
     you are using another boot manager (e.g GRUB, PQMagic, NT Loader)
  2. The boot sector of your Linux partition. Then you need to:
       a) make the partition bootable (using fdisk for example).
       b) use another boot manager to boot this partition.
  3. A formatted floppy disk. The safest and the slowest.
 Which option would you like?

       MBR     install to Master Boot Record (simplest)
       SECTOR  install to boot sector (needs extra manual steps)
       FLOPPY  install to a formatted floppy in /dev/fd0 (A:)
       SKIP    do not install LILO
```

If you want Lilo to take over the boot process entirely, install to the MBR of the hard disk (this is the most common scenario). LILO will detect other operating systems on your hard drives and make an entry for them in its boot menu. If you already have another boot manager installed on some partition that can point to your Linux partition, then you can install Lilo to the root partition where you installed VL. If you are not sure and you don't want to cause any problems, install to a floppy. But you must then ensure that your computer's BIOS is set to boot from the floppy drive first. This is the slowest boot method, and only suggested if you do not want to alter your existing boot manager. For most systems installing to the MBR is safe and easy.

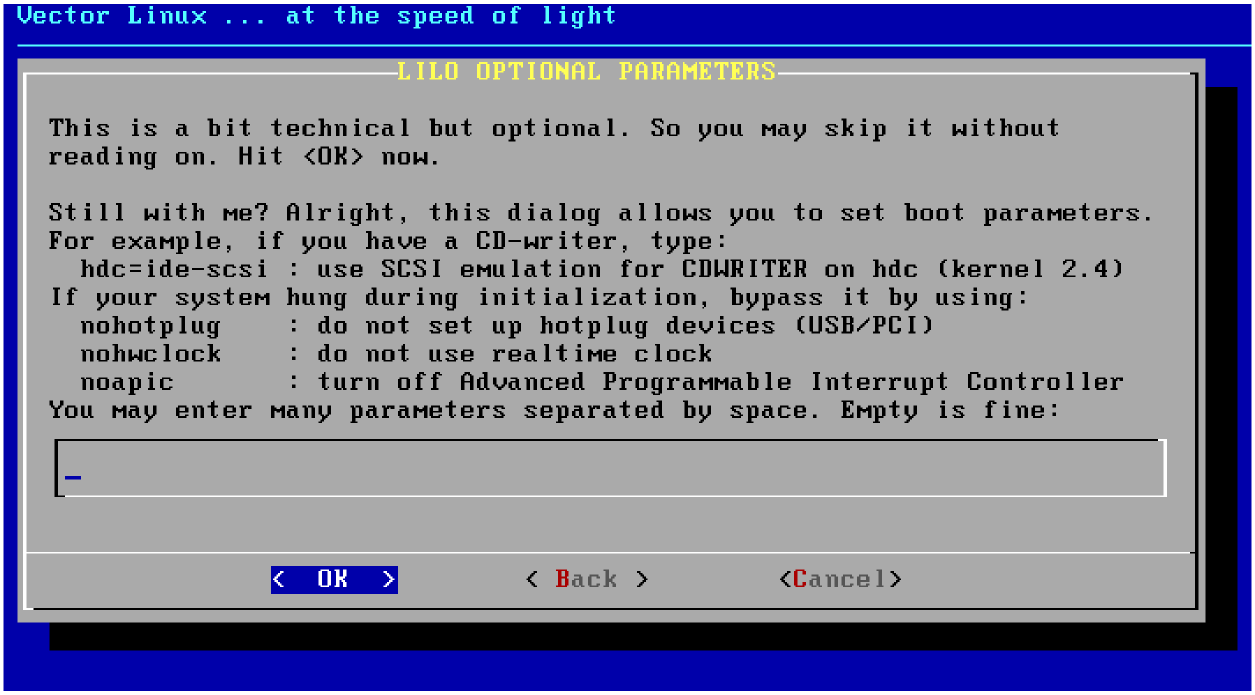


```
Vector Linux ... at the speed of light

LILO SELECT OPERATING SYSTEMS

The following operating systems have been detected on this computer.
Please choose the ones to be included in the LILO boot menu:

        [X] linux       Linux (/dev/hda1)
        [X] linux-tui   Linux Text mode (/dev/hda1)
        [X] linux-gui   Linux Graphic mode (/dev/hda1)
```

Choose to enable framebuffer or not. This option affects how the boot process looks, and the onscreen indications will let you know what option is best for you.



```
Vector Linux ... at the speed of light

LILO FRAME BUFFER CONSOLE

It seems that your kernel supports the Linux frame buffer console.
If we enable this, it will allow more rows and columns of text on
the screen and give you a cool penguin logo at boot time.
However, the frame buffer console needs more memory and is slower
than the standard mode. Moreover, not every video card or monitor
support all of these video modes. Many blank-screen problems have
been reported on Linux kernel 2.6 (earlier release).
If you are going to use GUI mode more often, better stick with the
standard mode:

standard          Use the standard Linux console (the safe choice)
bootsplash-high   Show graphical image during boot, 1024x768
bootsplash-med    Show graphical image during boot, 800x600
bootsplash-low    Show graphical image during boot, 640x480
```



```
Vector Linux ... at the speed of light

LILO OPTIONAL PARAMETERS

This is a bit technical but optional. So you may skip it without
reading on. Hit <OK> now.

Still with me? Alright, this dialog allows you to set boot parameters.
For example, if you have a CD-writer, type:
  hdc=ide-scsi : use SCSI emulation for CDWRITER on hdc (kernel 2.4)
If your system hung during initialization, bypass it by using:
  nohotplug    : do not set up hotplug devices (USB/PCI)
  nohwclock    : do not use realtime clock
  noapic       : turn off Advanced Programmable Interrupt Controller
You may enter many parameters separated by space. Empty is fine:
```

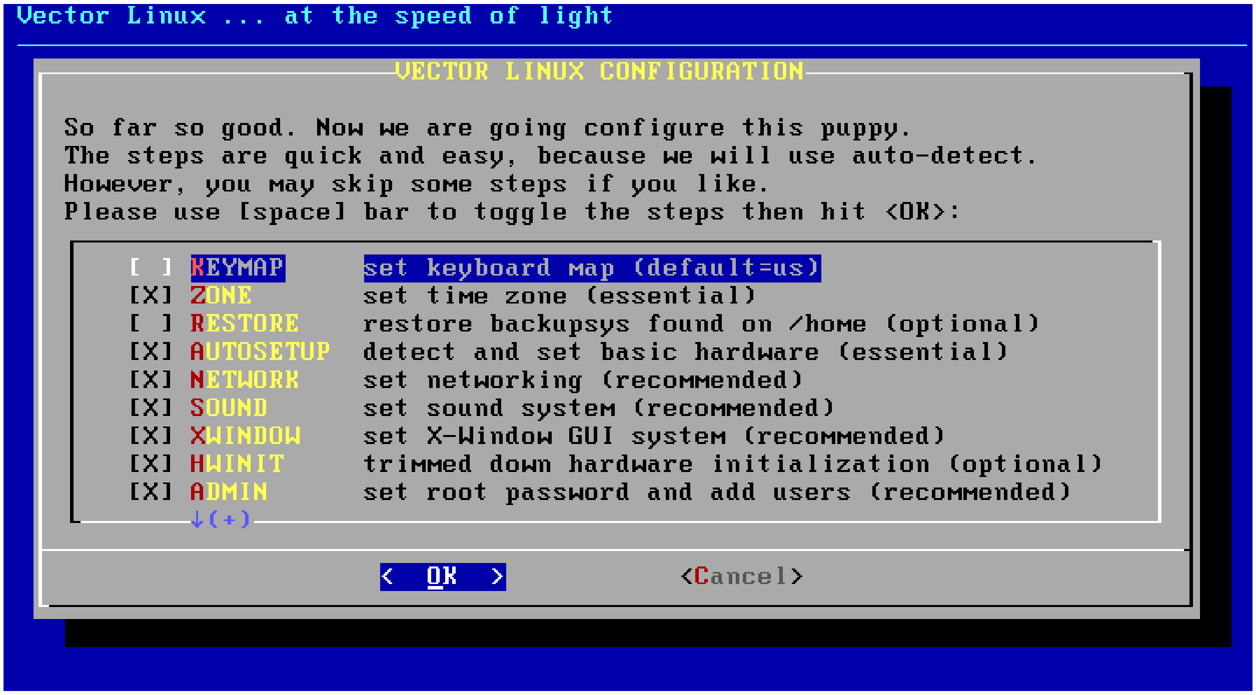
Add any additional parameter you need to boot you system. If your system didn´t require any special kernel parameters to perform the installation, then leave this field empty.

If you have them, Lilo will detect the partitions and Operating Systems on your hard disk and allow you to select which ones you want to have available in your new boot menu.

After you have installed VL, you can change the lilo configuration by using “vasm” as root, which will bring up the configuration screen again, or, also as root, you can edit the /etc/lilo.conf file by hand. After editing the file, be sure to issue the following command as root: “/sbin/lilo -v”. This will commit the changes to the lilo bootloader.

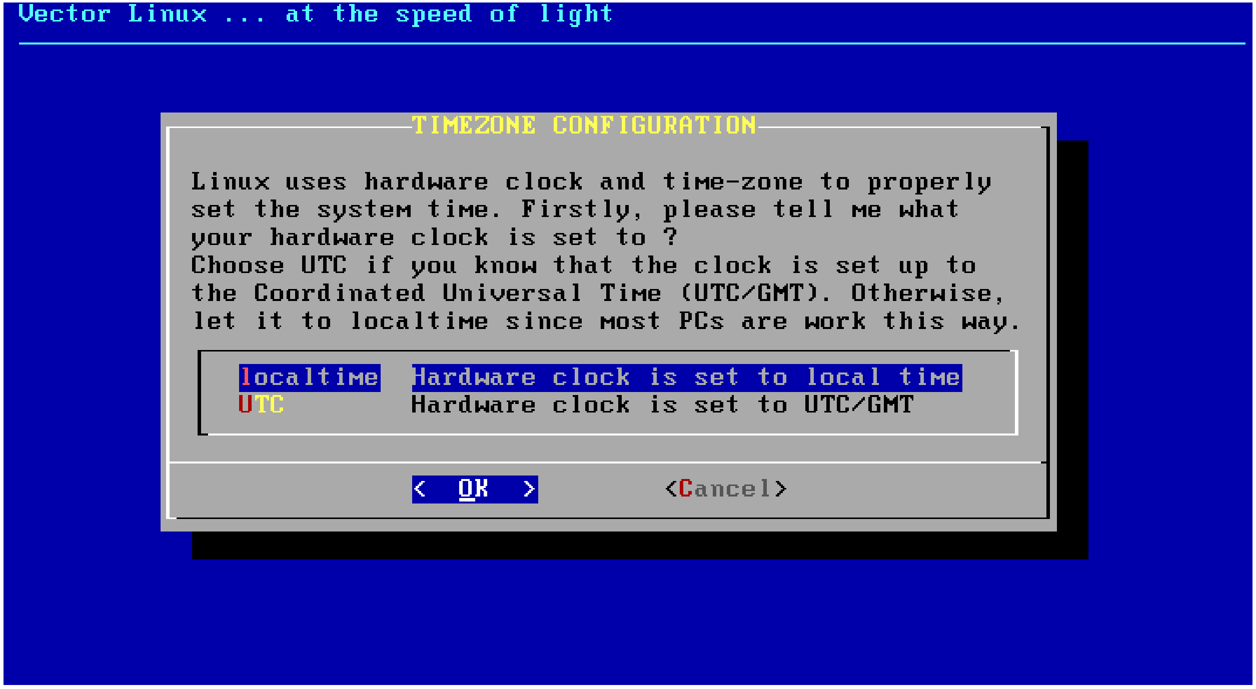
5c.2 Configuring VectorLinux

Once Lilo is installed, the next steps are to configure this new system. If you installed with an ISO file directly from a Linux host the system will have to reboot first before doing this next configuration step.

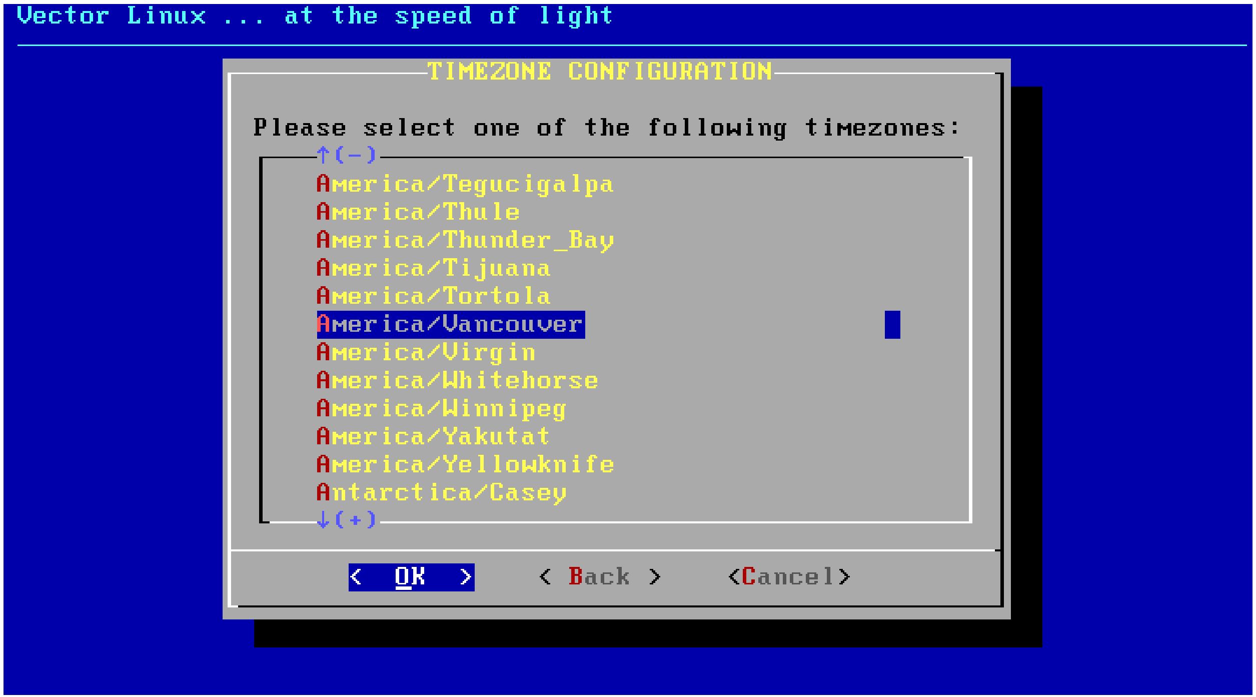


```
Vector Linux ... at the speed of light

VECTOR LINUX CONFIGURATION

So far so good. Now we are going configure this puppy.
The steps are quick and easy, because we will use auto-detect.
However, you may skip some steps if you like.
Please use [space] bar to toggle the steps then hit <OK>:

    [ ] KEYMAP      set keyboard map (default=us)
    [X] ZONE        set time zone (essential)
    [ ] RESTORE     restore backupsys found on /home (optional)
    [X] AUTOSETUP   detect and set basic hardware (essential)
    [X] NETWORK     set networking (recommended)
    [X] SOUND       set sound system (recommended)
    [X] XWINDOW     set X-Window GUI system (recommended)
    [X] HWINIT      trimmed down hardware initialization (optional)
    [X] ADMIN       set root password and add users (recommended)
```

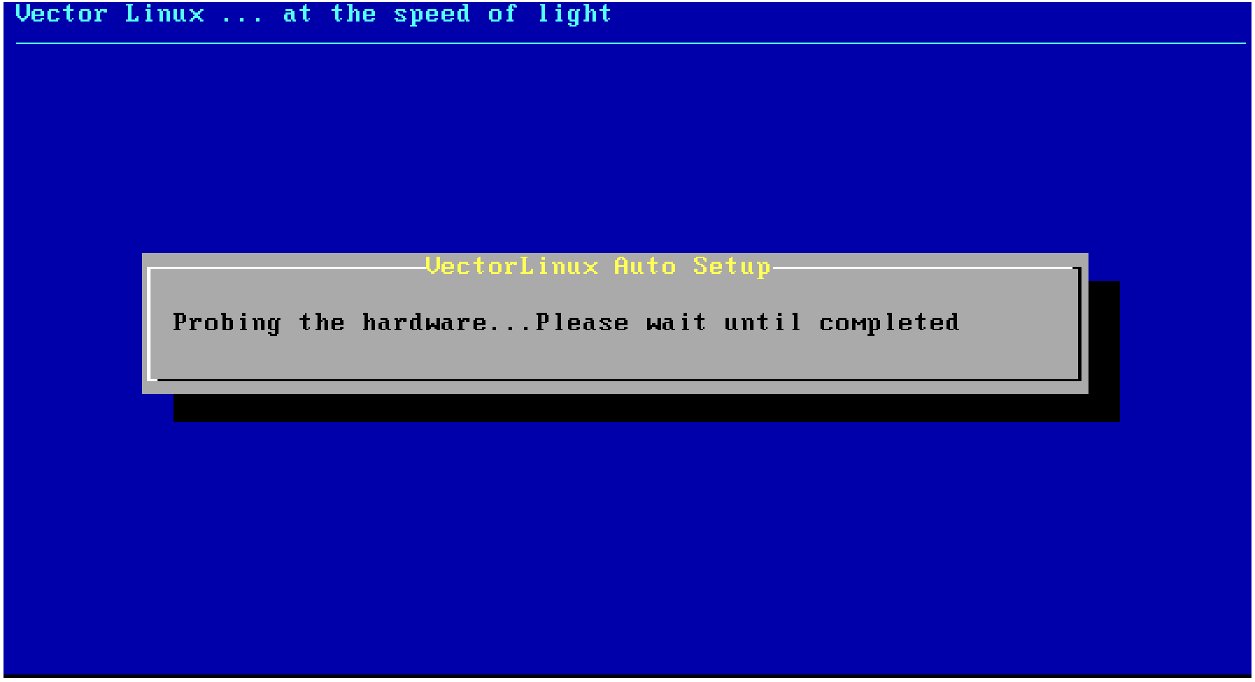
The first screen shows the configuration steps, and allows you to choose which ones are to be performed. The wise decision is to select them all, unless you have experienced problems with a particular step previously. At this point you are walked through a series of screens to configure the keyboard, auto-setup the basic hardware, select network settings, set the video, sound, and time zone. The configuration will try to detect most of the settings automatically.



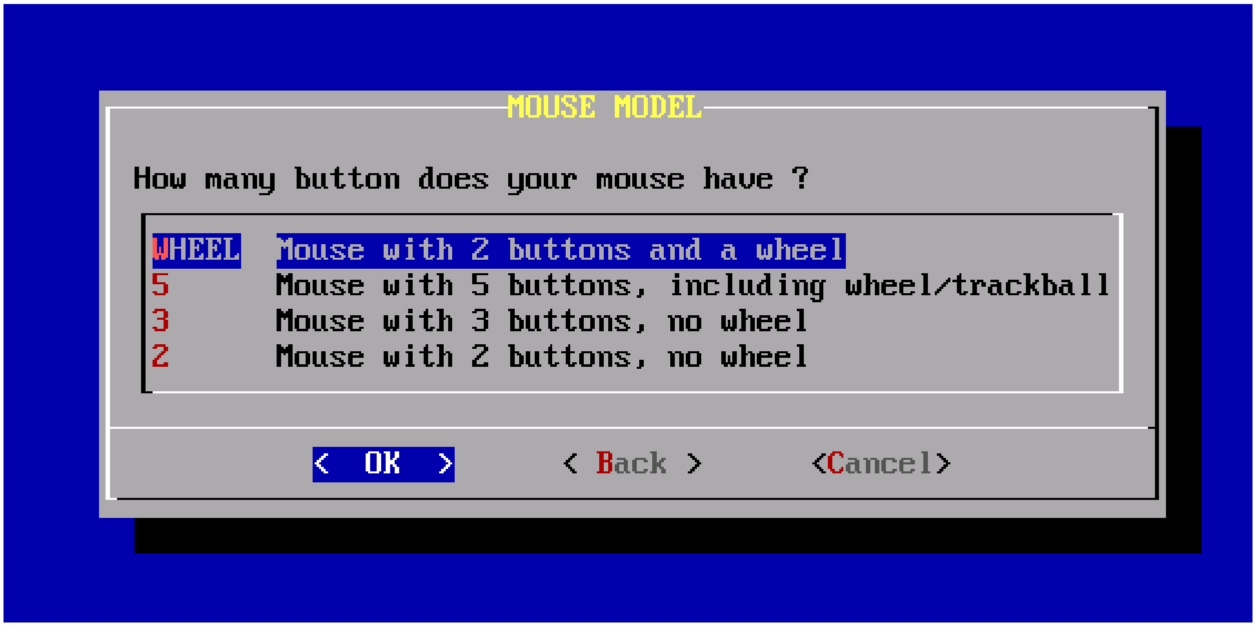
```
Vector Linux ... at the speed of light

TIMEZONE CONFIGURATION

Linux uses hardware clock and time-zone to properly
set the system time. Firstly, please tell me what
your hardware clock is set to ?
Choose UTC if you know that the clock is set up to
the Coordinated Universal Time (UTC/GMT). Otherwise,
let it to localtime since most PCs are work this way.

  localtime     Hardware clock is set to local time
  UTC           Hardware clock is set to UTC/GMT
```



```
Vector Linux ... at the speed of light

TIMEZONE CONFIGURATION

Please select one of the following timezones:
↑(-)
America/Tegucigalpa
America/Thule
America/Thunder_Bay
America/Tijuana
America/Tortola
America/Vancouver
America/Virgin
America/Whitehorse
America/Winnipeg
America/Yakutat
America/Yellowknife
Antarctica/Casey
↓(+)
```



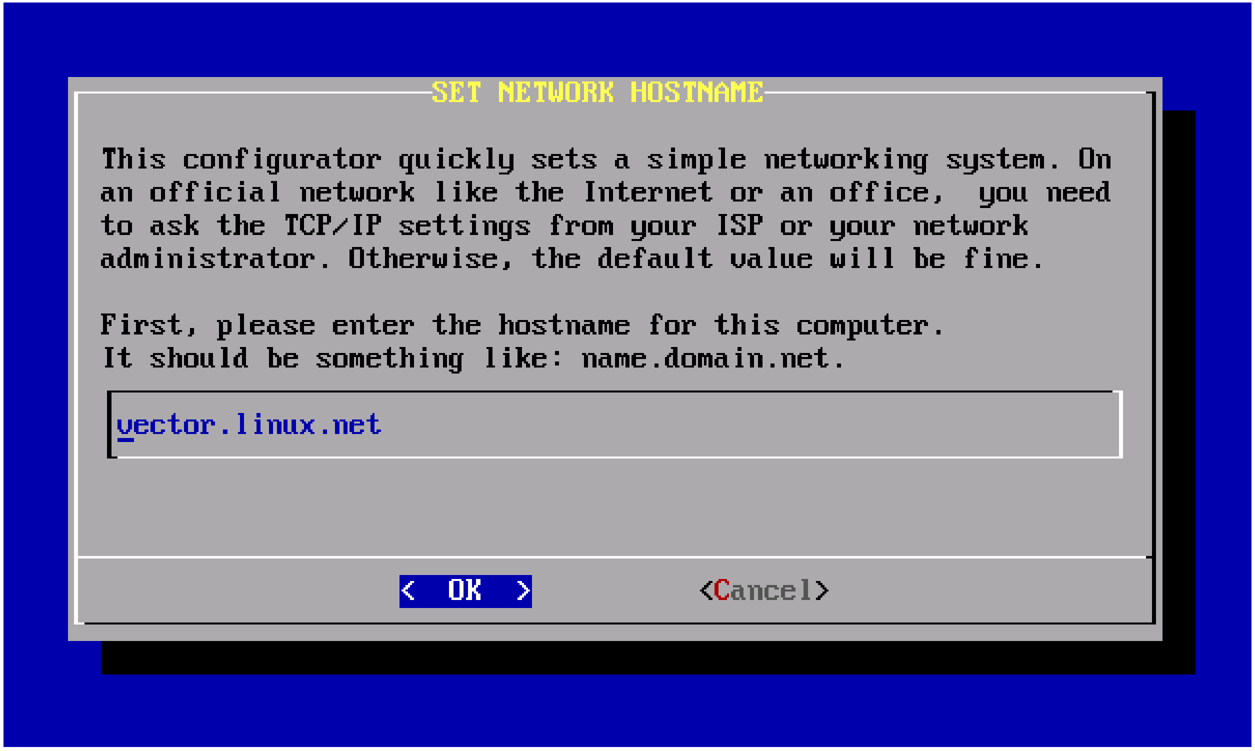
```
Vector Linux ... at the speed of light

VectorLinux Auto Setup

Probing the hardware...Please wait until completed
```



MOUSE MODEL

How many button does your mouse have ?

```
WHEEL    Mouse with 2 buttons and a wheel
5        Mouse with 5 buttons, including wheel/trackball
3        Mouse with 3 buttons, no wheel
2        Mouse with 2 buttons, no wheel
```

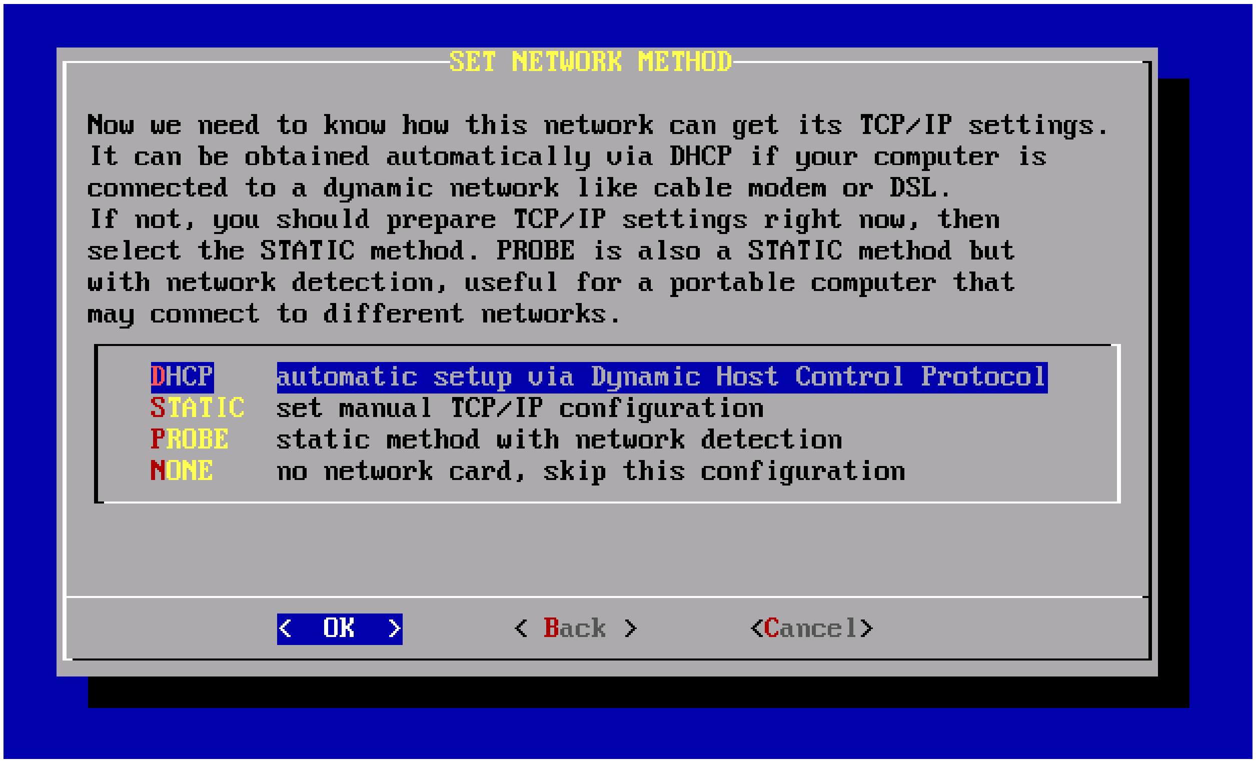


SET NETWORK HOSTNAME

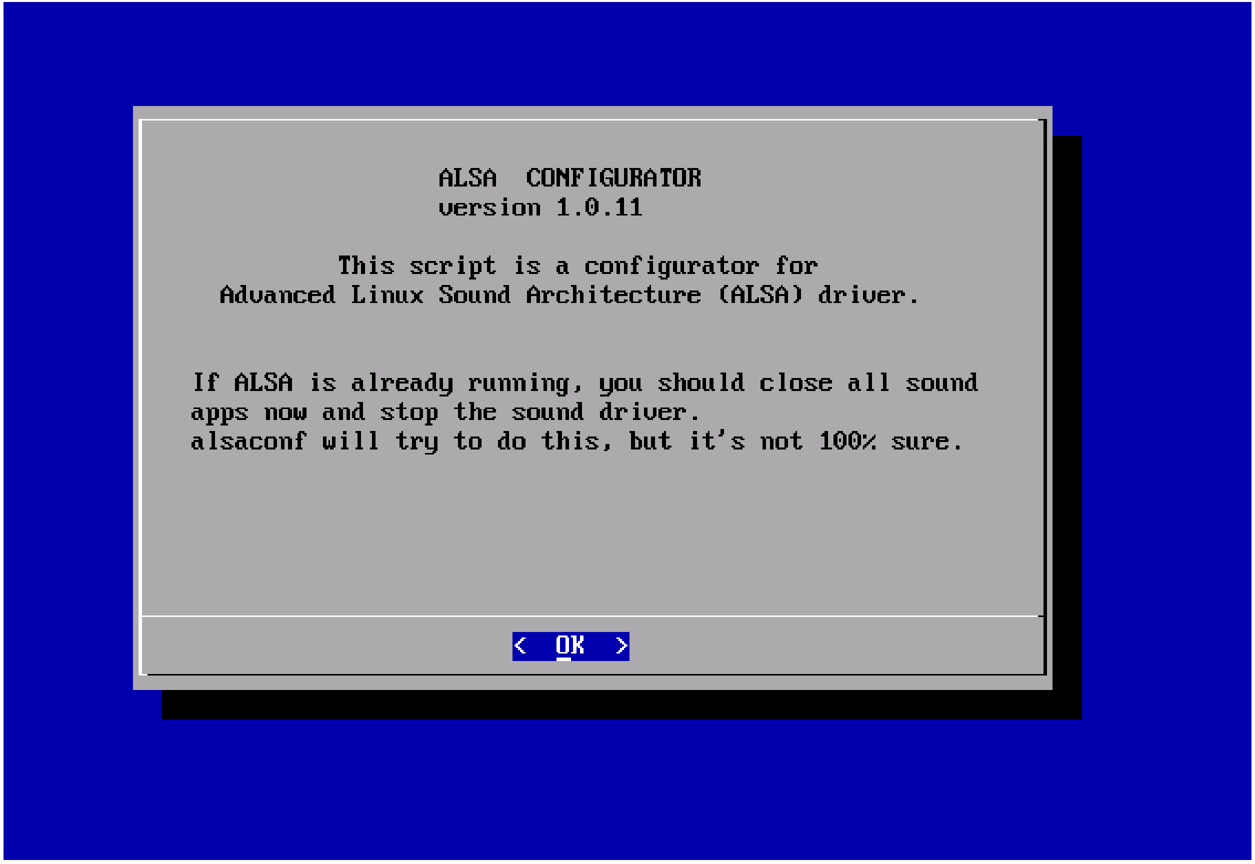
This configurator quickly sets a simple networking system. On an official network like the Internet or an office, you need to ask the TCP/IP settings from your ISP or your network administrator. Otherwise, the default value will be fine.

First, please enter the hostname for this computer.
It should be something like: name.domain.net.

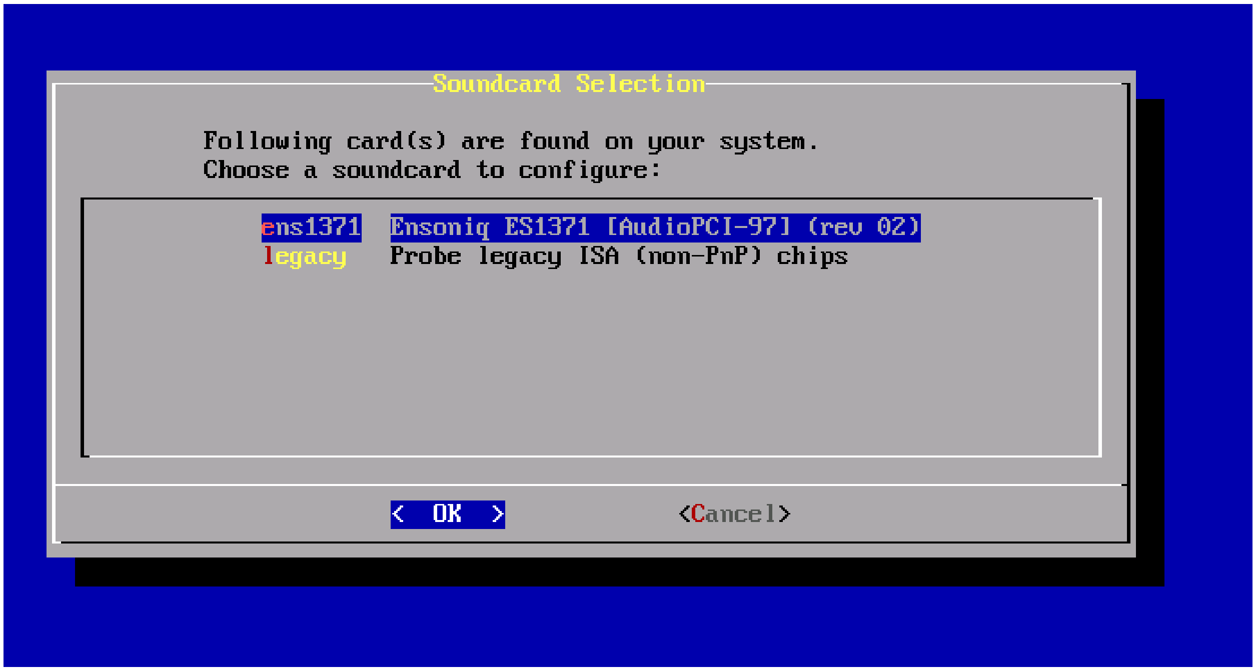
vector.linux.net



```
SET NETWORK METHOD

Now we need to know how this network can get its TCP/IP settings.
It can be obtained automatically via DHCP if your computer is
connected to a dynamic network like cable modem or DSL.
If not, you should prepare TCP/IP settings right now, then
select the STATIC method. PROBE is also a STATIC method but
with network detection, useful for a portable computer that
may connect to different networks.

    DHCP      automatic setup via Dynamic Host Control Protocol
    STATIC    set manual TCP/IP configuration
    PROBE     static method with network detection
    NONE      no network card, skip this configuration
```

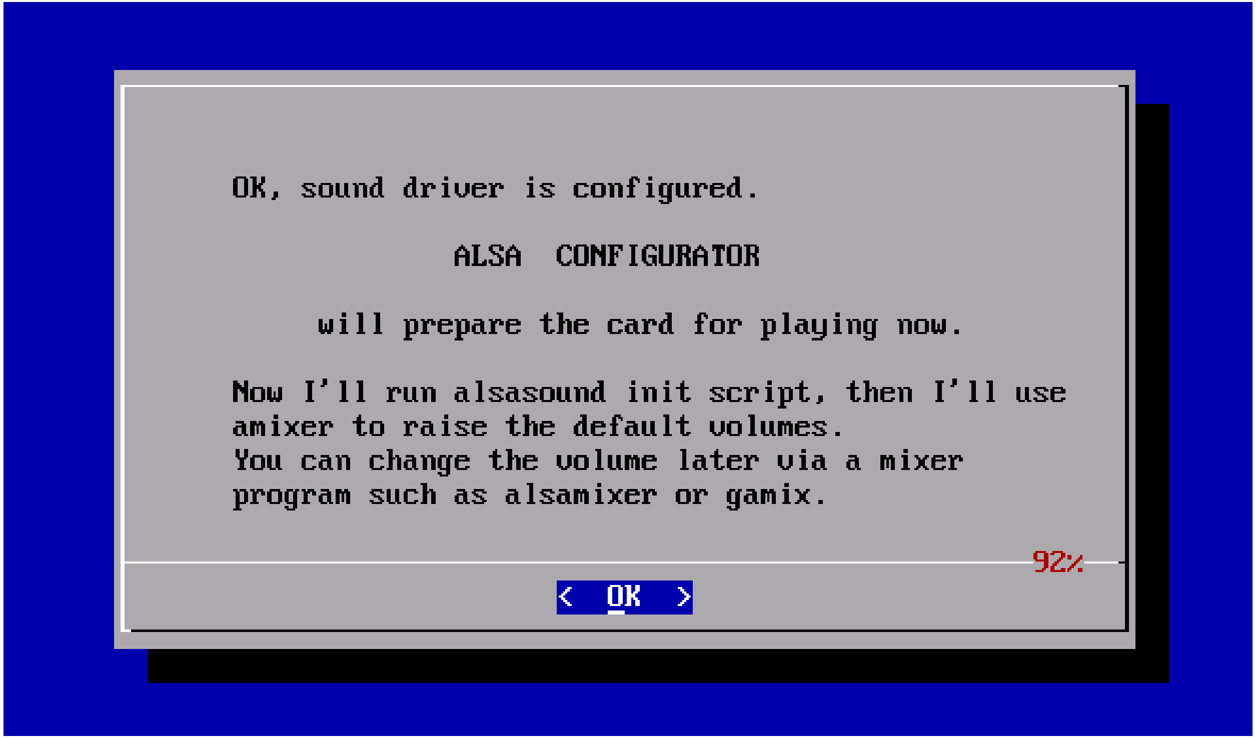


```
                 ALSA  CONFIGURATOR
                 version 1.0.11

            This script is a configurator for
    Advanced Linux Sound Architecture (ALSA) driver.


  If ALSA is already running, you should close all sound
  apps now and stop the sound driver.
  alsaconf will try to do this, but it's not 100% sure.
```

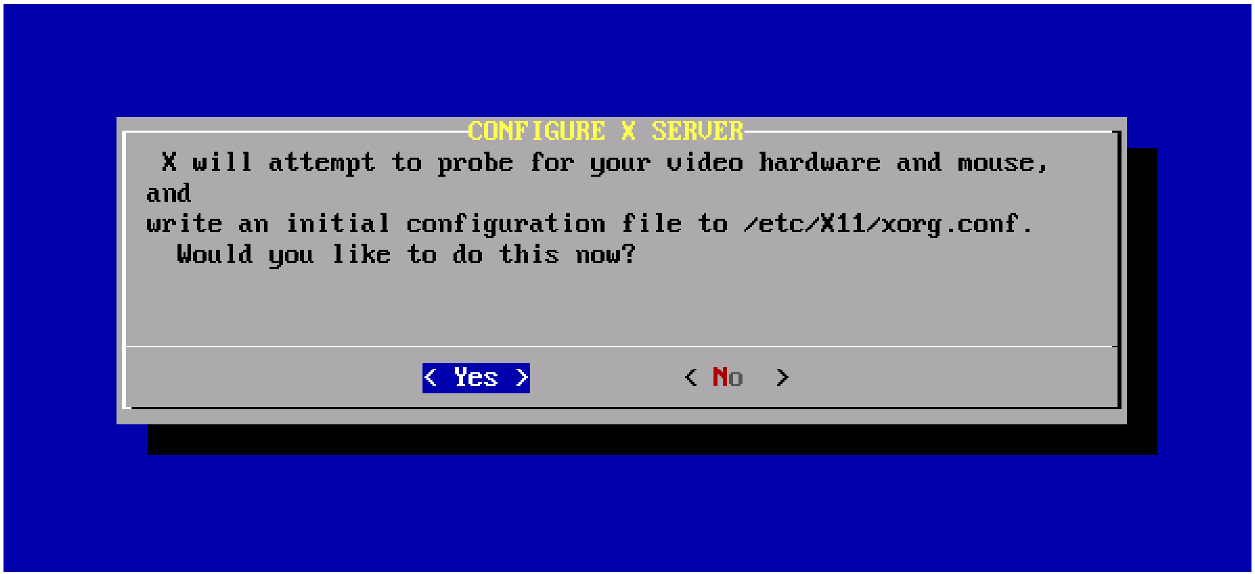


Soundcard Selection

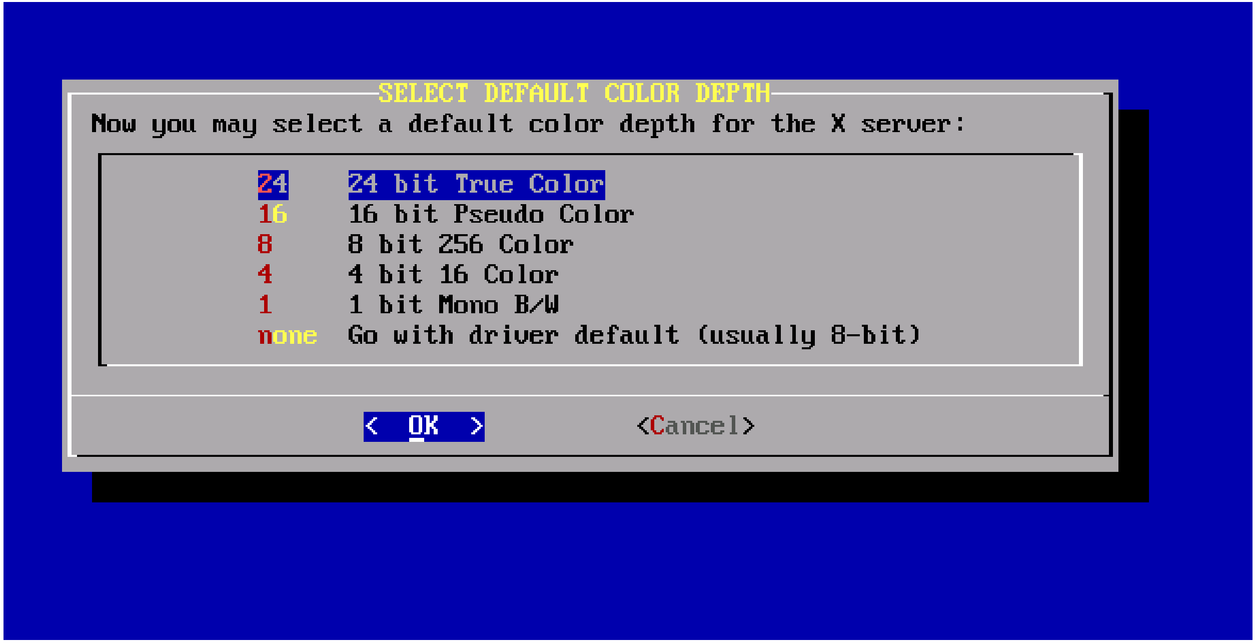
```
Following card(s) are found on your system.
Choose a soundcard to configure:

        ens1371   Ensoniq ES1371 [AudioPCI-97] (rev 02)
        legacy    Probe legacy ISA (non-PnP) chips
```



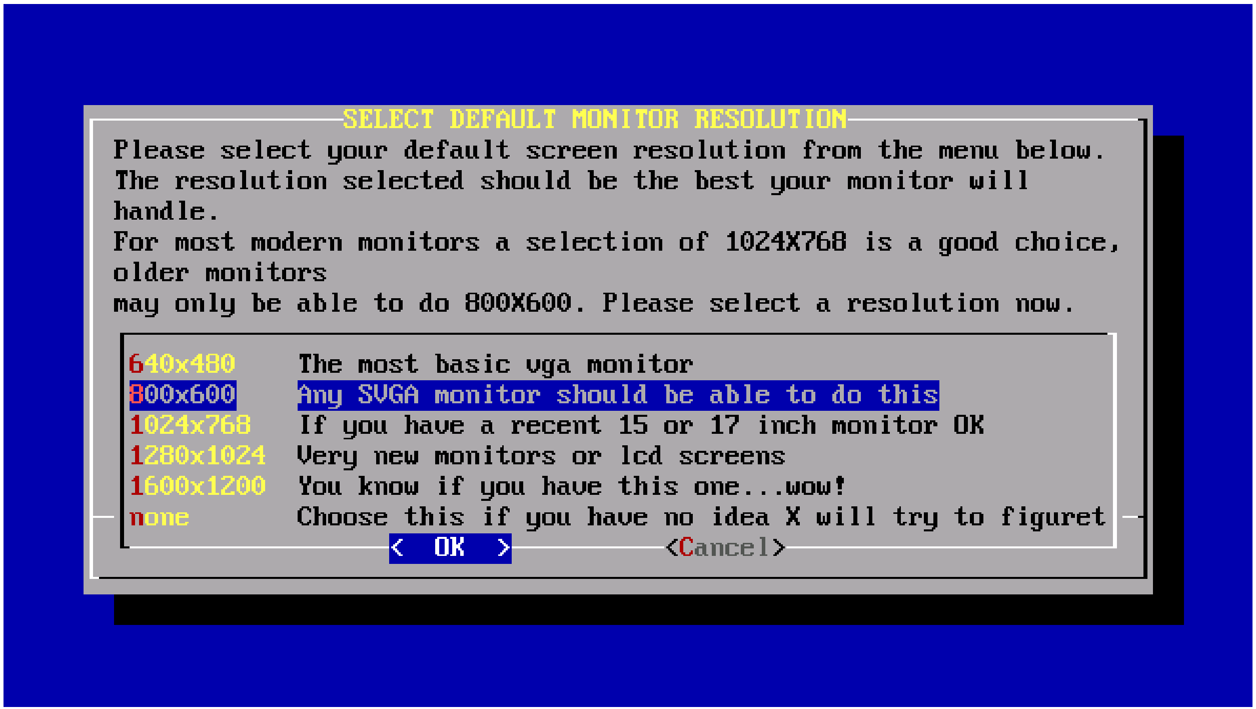
```
OK, sound driver is configured.

             ALSA  CONFIGURATOR

     will prepare the card for playing now.

Now I'll run alsasound init script, then I'll use
amixer to raise the default volumes.
You can change the volume later via a mixer
program such as alsamixer or gamix.
```



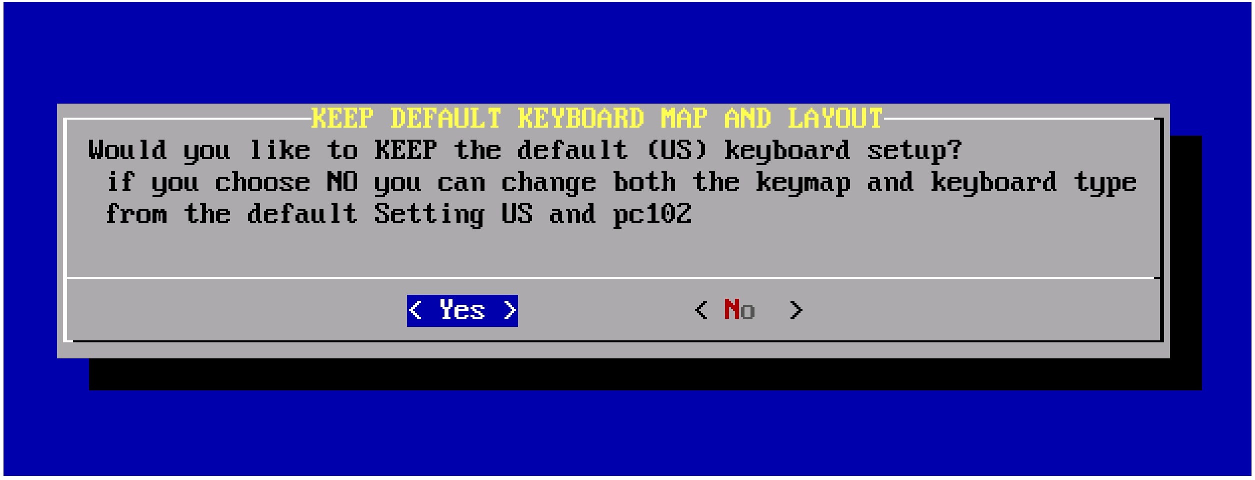
```
 X will attempt to probe for your video hardware and mouse,
and
write an initial configuration file to /etc/X11/xorg.conf.
  Would you like to do this now?
```



```
Now you may select a default color depth for the X server:

          24     24 bit True Color
          16     16 bit Pseudo Color
          8      8 bit 256 Color
          4      4 bit 16 Color
          1      1 bit Mono B/W
          none   Go with driver default (usually 8-bit)
```



```
SELECT DEFAULT MONITOR RESOLUTION
Please select your default screen resolution from the menu below.
The resolution selected should be the best your monitor will
handle.
For most modern monitors a selection of 1024X768 is a good choice,
older monitors
may only be able to do 800X600. Please select a resolution now.

640x480     The most basic vga monitor
800x600     Any SVGA monitor should be able to do this
1024x768    If you have a recent 15 or 17 inch monitor OK
1280x1024   Very new monitors or lcd screens
1600x1200   You know if you have this one...wow!
none        Choose this if you have no idea X will try to figuret
                    <  OK  >          <Cancel>
```



```
KEEP DEFAULT KEYBOARD MAP AND LAYOUT
Would you like to KEEP the default (US) keyboard setup?
 if you choose NO you can change both the keymap and keyboard type
 from the default Setting US and pc102

                 < Yes >          <  No  >
```

In the last step, the configuration asks you to change the root (superuser, administrator) password and add the first ordinary user. Please don't skip this step for your own security. On any operating system, working daily as root is not advisable, so you should set up a normal user and use that for normal tasks and resort to root only for administering the system.

When this is done, you simply press "OK" to restart the system and boot into VectorLinux for the first time.

2.1.9 Using the system for the first time

Login to VectorLinux

If you chose to boot into RunLevel 4 (the X GUI system), when the VectorLinux boot process has been completed you will be presented with a graphical login screen where you should enter your personal username and password (do not use root unless absolutely necessary). After logging in the desktop environment will load and within seconds you will see the desktop. Have fun!

As well as the GUI desktop, you will get six text consoles. You may switch between them by pressing [Ctrl]-[Alt]-[F1] through [Ctrl]-[Alt]-[F6] on the keyboard. You will be asked for a username and password. If you did not change the root´s password during installation you should use root as username and leave the password empty. Otherwise, use the name and password of the account you created earlier. You may return to the GUI by pressing [Ctrl]-[Alt]-[F7]

If you chose to boot into RunLevel 2 (a text console environment) you may switch to RunLevel 4 (GUI) by typing:

```
user:$ startx
```

Alternatively, you can launch the GUI login mode by switching runlevel into 4 or 5. Please login as root on the console, then type:

```
root:# init 4
```

System Administration

If you want to further configure your VL system, you should launch VASM (Vector Administration and System Menu) from either a terminal or from the desktop menu. You will be asked for root's password. This utility is explained in detail in the previous link and will not be reiterated here.

Reboot and Shutdown

There are many ways to reboot the system, including

- From a console (not GUI) press Ctrl-Alt-Del
- From a console or GUI terminal, type "reboot"
- From a GUI windows manager, choose "reboot" menu.

Meanwhile, to turn off the system, you may:

- Type "halt" or "poweroff" from a console.
- Select "shutdown" menu from a windows manager if available.

2.1.10 Troubleshooting

Error type 1

installation gives you a message saying that it can't find the vector bz2 kernel and / or saying that /dev/xxxx is not a valid block device.

This error usually appears when you have more than one optical drive (CD/CD-RW/DVD/DVD-W) and you are trying to install Vector from the second unit. Move the installation CD to the first drive.

Error type 2:

Installation halts or does not start properly after a seemingly correct installation or you get messages about CRC errors during install

That kind of issue often suggests file corruption during download or a faulty burning process.

The first thing to do, if you haven't already done so, is to check the .iso file for corruption; please refer to section 3 of this manual. If the .iso file passed the md5sum integrity check , then you could try burning the file at a slower speed or use higher quality media.

Remember to burn as a cd image, not as a conventional file!

Error type 3:

You get one of these two messages:

Kernel Panic: Aiee, killing interrupt handler!In interrupt handler - not syncing.

or

Error! There was a problem!Code: 39 36 75 03 5b 5e c3 5b 89 f0 31 c9 ba 03 00 00 00 5e e9 cbInstallation not completePlease press enter to activate this console

Those errors are usually related to old hardware, and could mean that you need to pass some kernel commands to the boot process. It could also mean that there is some sort of hardware problem with your computer, but if you had it working previously with another operating system then it is probably one of the following:

Some commands you may try are:

linux mem=16M (replace 16 with the correct amount of memory in your PC) *linux ide=nodma* (disable udma access, for old hard drives)

These commands disable power management, Notebooks often require them:

linux noacpi l*inux noapmlinux pci=noacpilinux acpi=offlinux apm=off*

Error type 4:

Your SCSI or SATA hard drive is not available to install VL on it.

The required driver for your SCSI card is not being loaded, and therefore your disks are not seen by the install routine.

Error type 5:**

Installing from CDROM drive fails with this error: "*mount: /dev/scd7 is not a valid block device*"

Your CDROM or CDRW drive requires scsi emulation. When the installation greets you with the first prompt (where it says "boot:" at the bottom left) you should type :

ide hdx=ide-scsi

(where x is your cd-rom unit).

If that doesn't work restart and try writing

scsi hdx=ide-scsi

(where x is your cd-rom unit).

Note: The Linux Kernel 2.6.x treats CD-Rx drives in a different way than previous kernels, so this problem shouldn´t arise, it is still mentioned here for the record.*

Error type 6:

The installation halts somewhere near the end during the install of packages and the install process gives you an error message that it cannot proceed. This often indicates that you may not have apportioned sufficient hard drive space for the "/" (root) partition. VectorLinux requires a minimum of 3GB to install, 3.8GB for the SOHO edition. You will need to increase the size of the root partition before proceeding to re-install the system. This can be done using cfdisk during the second install screen.

Error type 7:

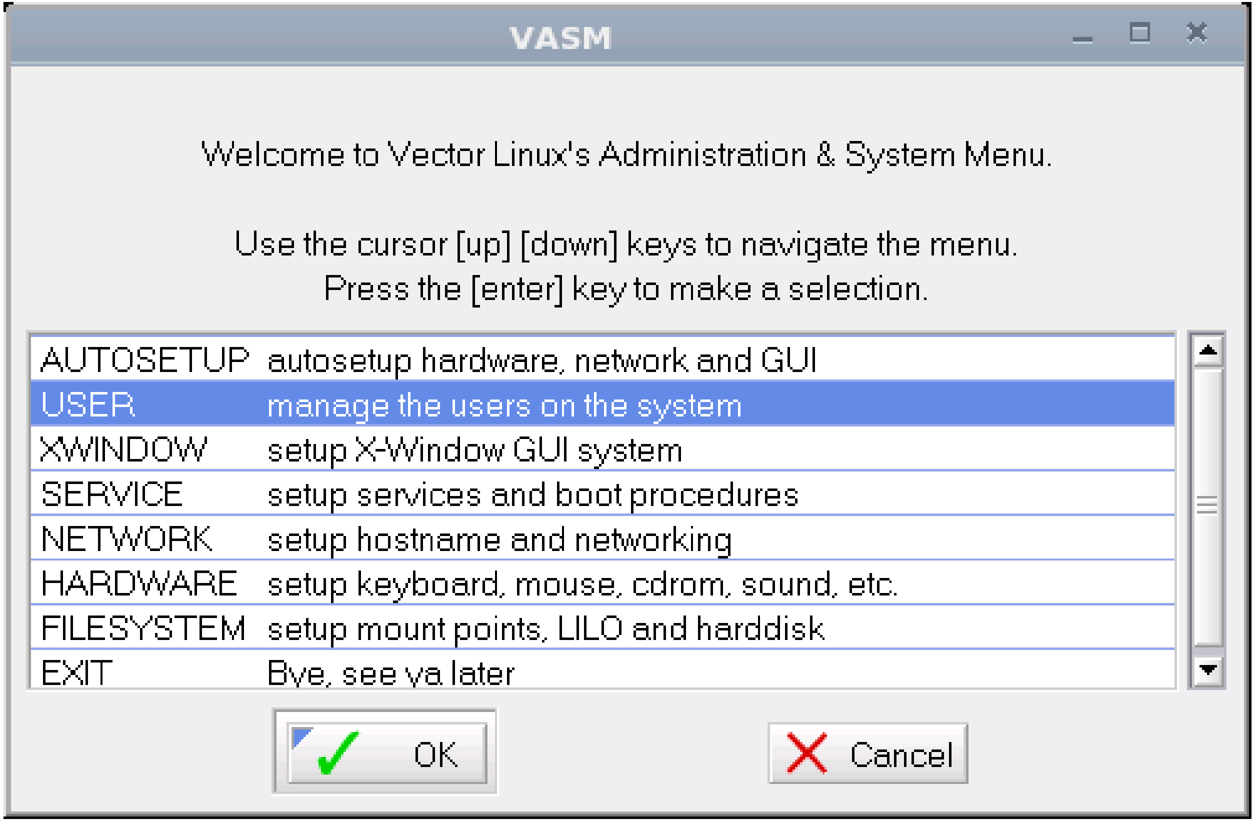
The installation locks up, with no response from the keyboard, and often occurs right near the beginning of the install process when you see the kernel-loading messages. This usually indicates that you have faulty RAM. Use a Live Linux CD and run "memtest" to confirm that you have a faulty RAM memory module on your computer.

2.2 System Administration with VASM and VasmCC

2.2.1 Introduction

“VASM” is short for “Vector Administrative and Services Menu” and is Vector Linux’s main system configuration tool. Recently, VL has added VASMCC to version 6.0. VASMCC provides a very newbie-friendly GUI iconic interface to the VASM menu system, making it easier for the new user to find his/her way around VL system administration commands. It is recommended that newbies and users new to VL use VasmCC for their system administration work.

VASM is the same in both CLI (text) and GUI mode. The script automatically identifies the mode you are currently in and uses the appropriate interface.



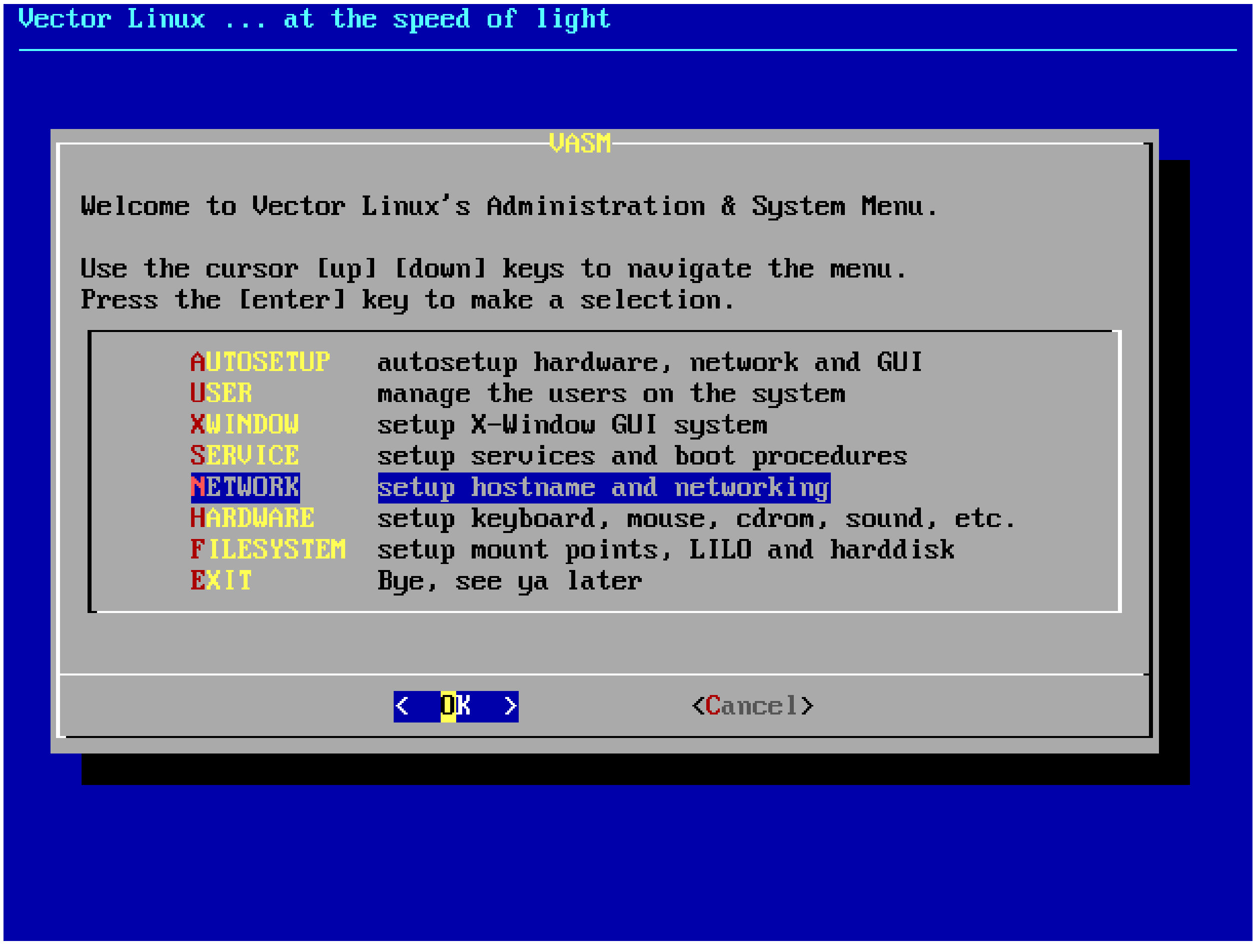
Welcome to Vector Linux's Administration & System Menu.

Use the cursor [up] [down] keys to navigate the menu.
Press the [enter] key to make a selection.

AUTOSETUP	autosetup hardware, network and GUI
USER	manage the users on the system
XWINDOW	setup X-Window GUI system
SERVICE	setup services and boot procedures
NETWORK	setup hostname and networking
HARDWARE	setup keyboard, mouse, cdrom, sound, etc.
FILESYSTEM	setup mount points, LILO and harddisk
EXIT	Bye, see ya later

VASM running in Graphical Mode.

Note: 1.For most functions VASM needs you to be logged in as root, the administration account on your VectorLinux system. 2.Some functions accessible through the VASM require the system to be running in Text Mode and not GUI Mode. Such functions are clearly marked and cannot function in GUI mode. (See Section 5 below).



```
Vector Linux ... at the speed of light

VASM

Welcome to Vector Linux's Administration & System Menu.

Use the cursor [up] [down] keys to navigate the menu.
Press the [enter] key to make a selection.

      AUTOSETUP   autosetup hardware, network and GUI
      USER        manage the users on the system
      XWINDOW     setup X-Window GUI system
      SERVICE     setup services and boot procedures
      NETWORK     setup hostname and networking
      HARDWARE    setup keyboard, mouse, cdrom, sound, etc.
      FILESYSTEM  setup mount points, LILO and harddisk
      EXIT        Bye, see ya later

                  <  OK  >          <Cancel>
```

VASM running in Text Mode.

2.2.2 User features vs. Root features

You can use VASM as a normal user or as privileged root user (System Administrator). The difference is that running it as a normal user gives you access to only those functions that affect that particular user, whereas in root mode you can access the full range of options that affect the entire system and/or all of the users.

If you launch VASM as a normal user, you may access the root mode by selecting the "SUPER" entry in the menu. You will then be required to enter the root´s password to be granted permission. This is, of course, a security measure.

Note: The tools available to normal users are a subset of those available to root user. This document explains the complete functionality of VASM.

2.2.3 Use in X-Windows (GUI)

If you have started your window manager of choice, double-click on the VASM icon or from the main menu select "System", then select "Vector Administrative and Services Menu or VASM" and VASM will then be loaded onto your screen.

Depending on your VL version, you may have an icon on your desktop labeled "*Vector Administrative and Services Menu*", click it and you will presented with VASM´s interface.

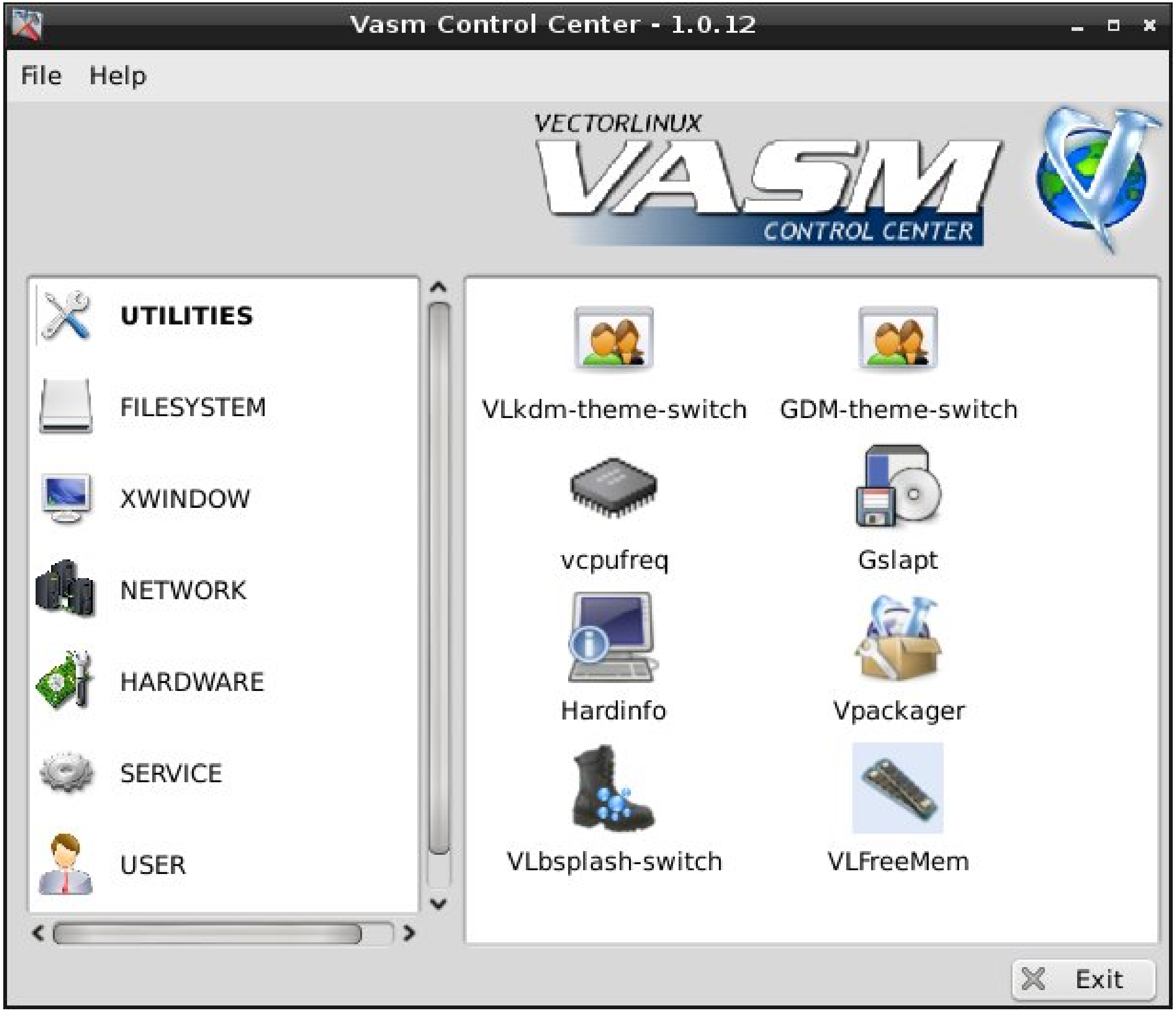
If you are running the system as a regular user you will see an entry named “SUPER” to access to the root level, select it and you will be prompted to enter the root´s password.

Please, be aware that some functions in VASM require the system to be running in Text Mode and not GUI Mode (see chapter 5).

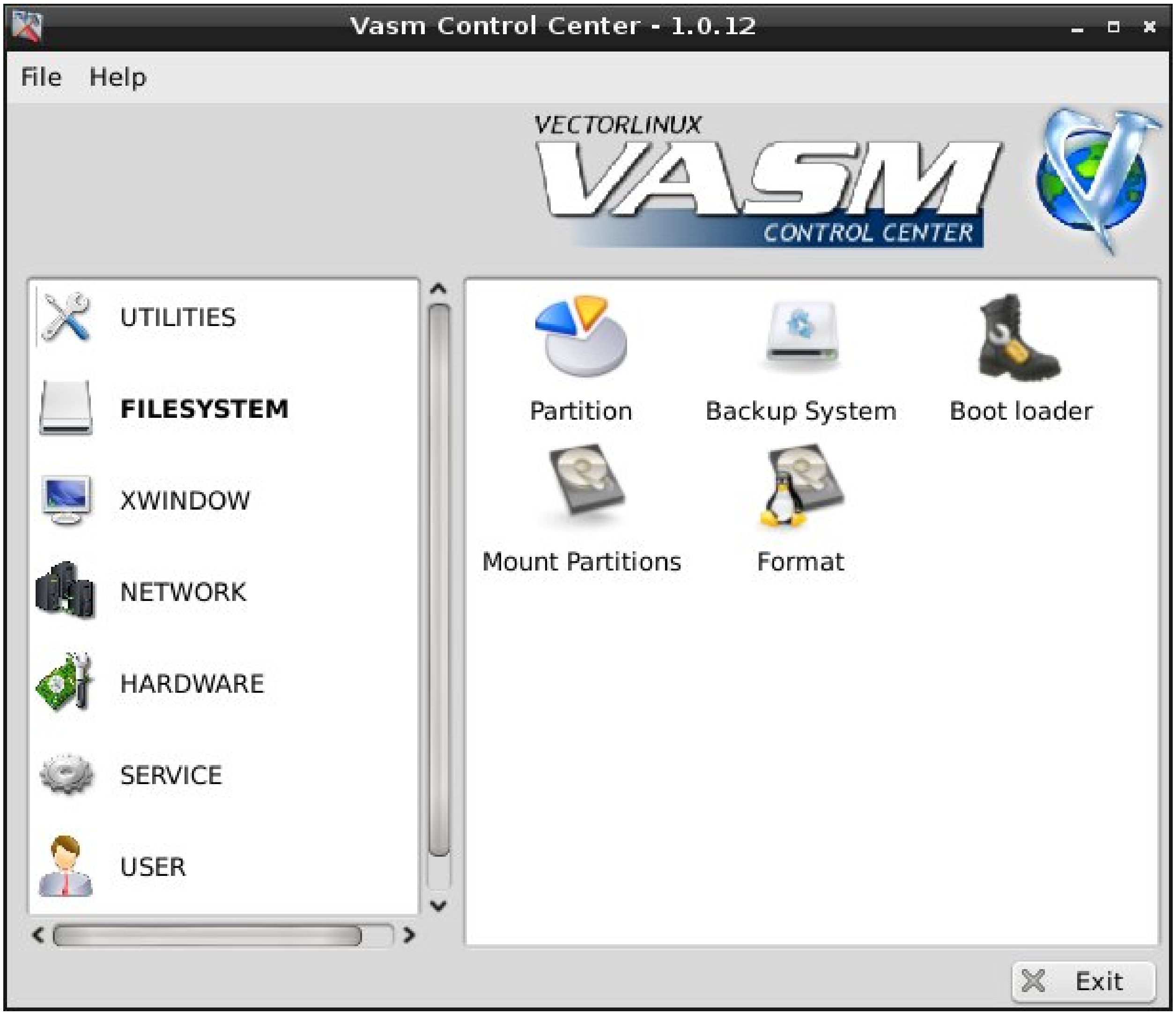
2.2.4 VasmCC (GUI wrapper)

The volunteer developers at VectorLinux have created a very user friendly GUI system interface to VASM called VasmCC or the “Vector Administration and System Menu Control Centre”. Most users will now probably prefer to use this system front end to VASM. It provides a well structured iconic interface which makes finding the right system administration tool easy.

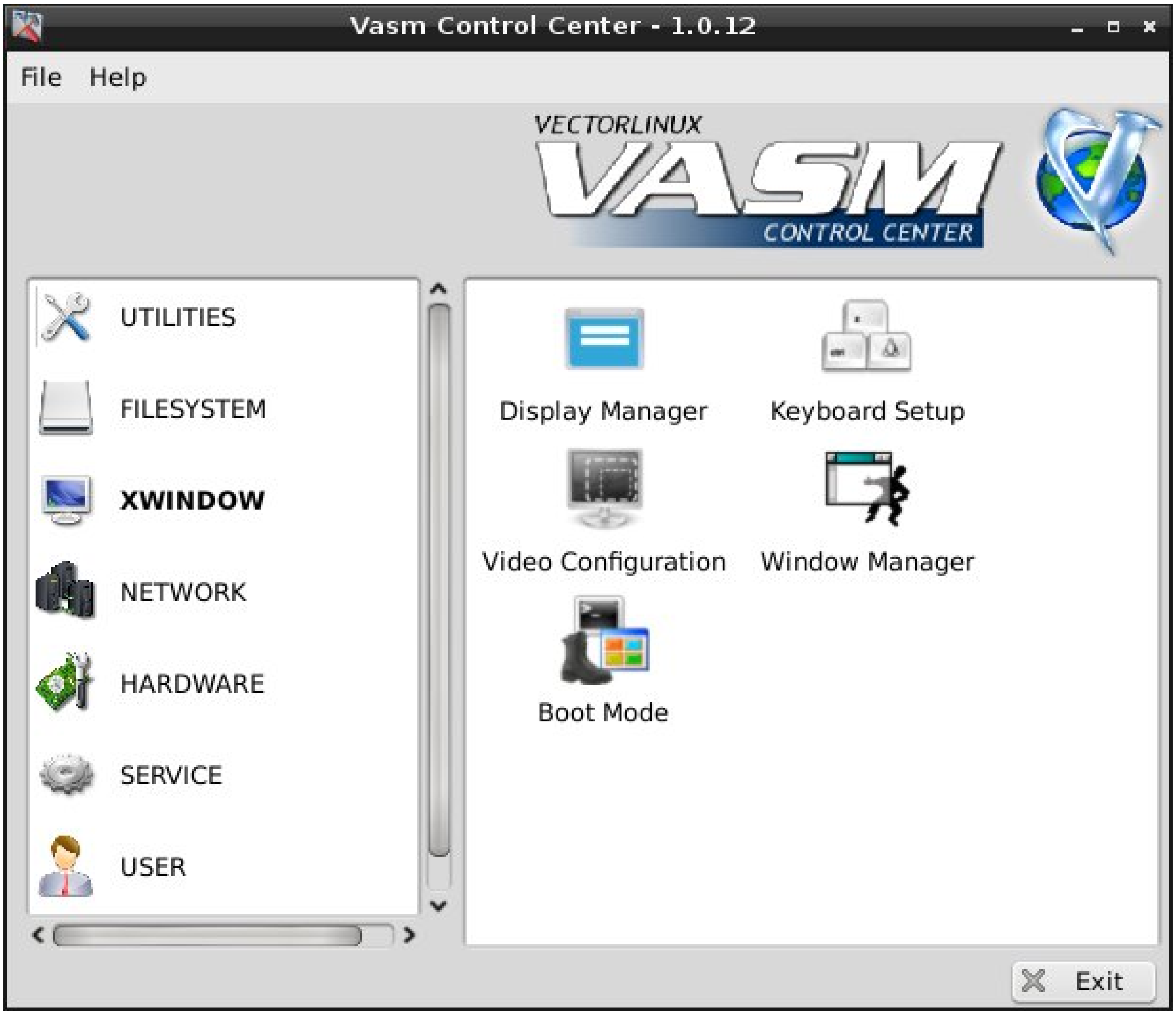
The screenshots below show the various screens of VasmCC and the utilities available within each screen. Clicking the various utilities raises the appropriate VASM menu interface - all of which are described in detail later in this document:



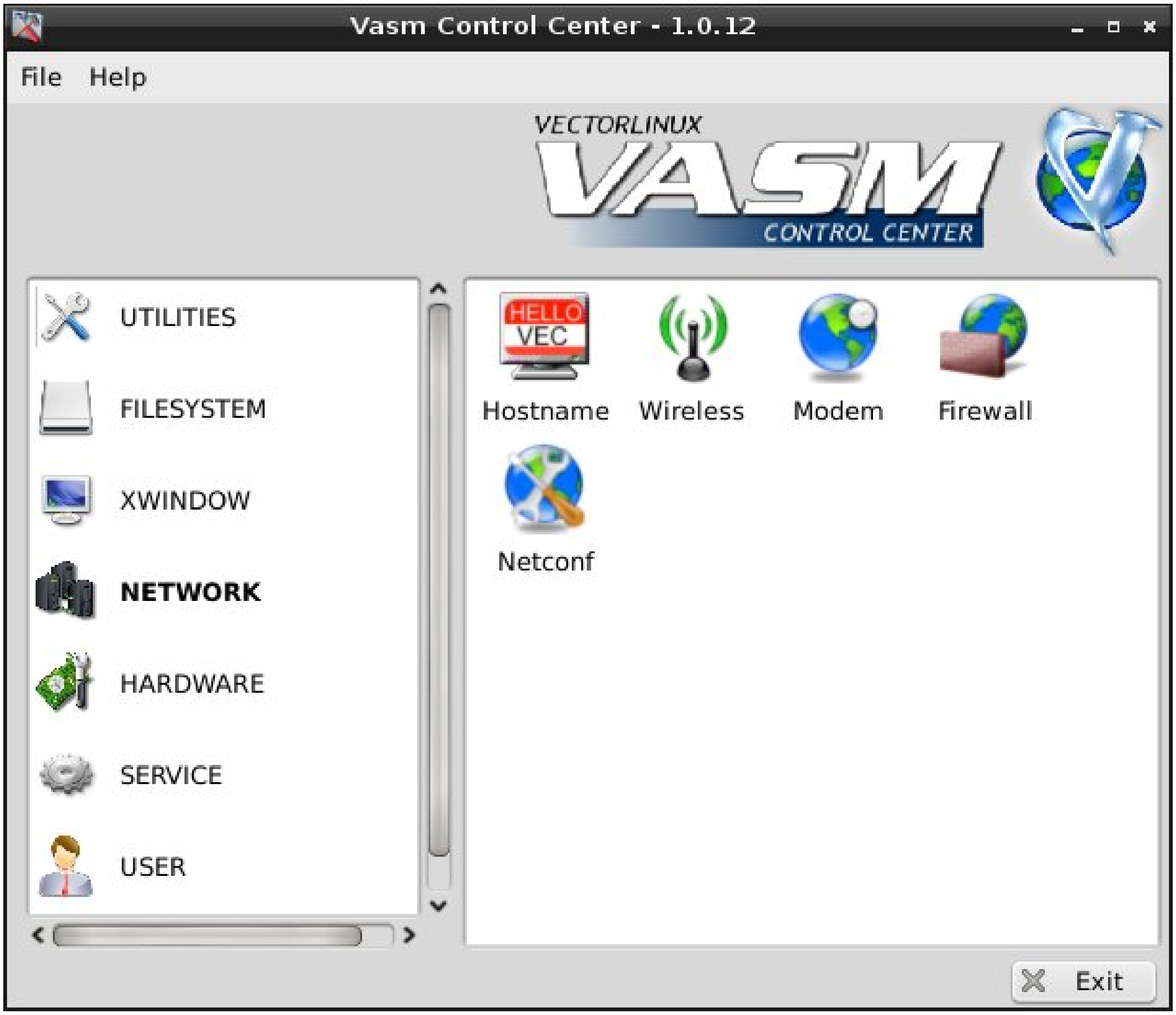
Utilities


Vasm Control Center - 1.0.12
File
Help
VECTORLINUX
VASM
CONTROL CENTER
UTILITIES
FILESYSTEM
XWINDOW
NETWORK
HARDWARE
SERVICE
USER
Partition
Backup System
Boot loader
Mount Partitions
Format
Exit

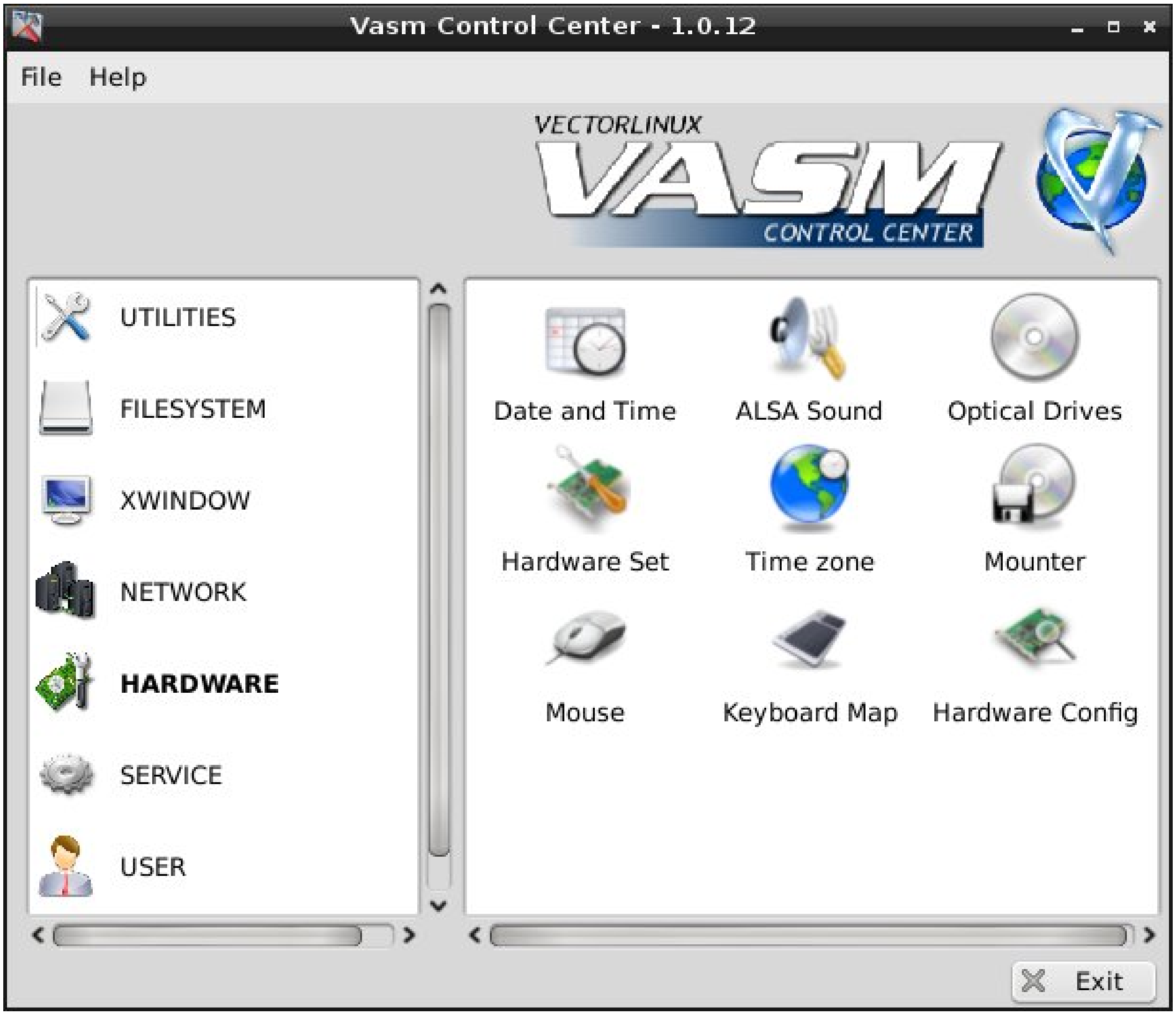
Filesystem


Vasm Control Center - 1.0.12
File
Help
VECTORLINUX
VASM
CONTROL CENTER
UTILITIES
FILESYSTEM
XWINDOW
NETWORK
HARDWARE
SERVICE
USER
Display Manager
Keyboard Setup
Video Configuration
Window Manager
Boot Mode
Exit

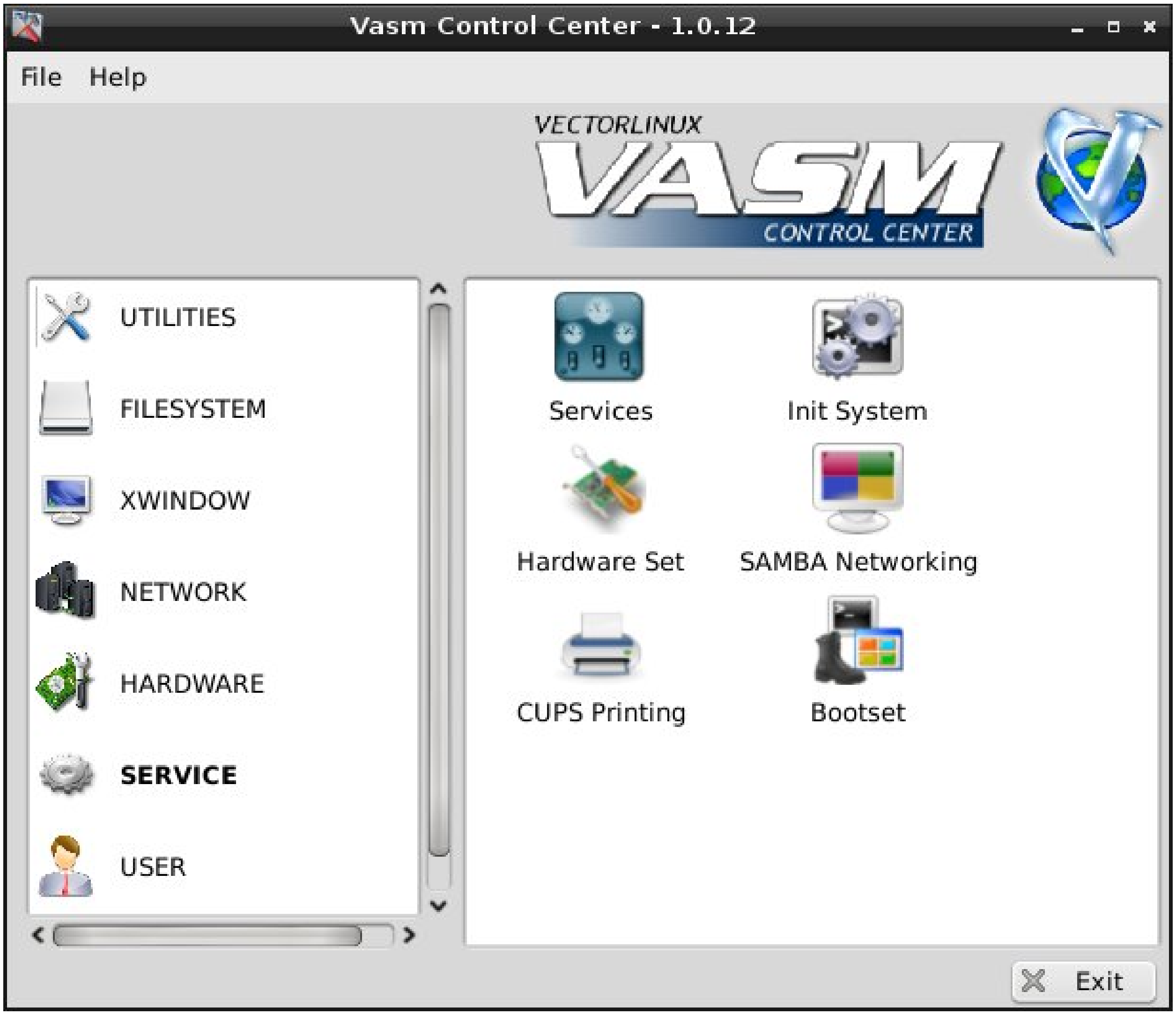
XWindow


Vasm Control Center - 1.0.12
File
Help
VECTORLINUX
VASM
CONTROL CENTER
UTILITIES
FILESYSTEM
XWINDOW
NETWORK
HARDWARE
SERVICE
USER
Hostname
Wireless
Modem
Firewall
Netconf
Exit

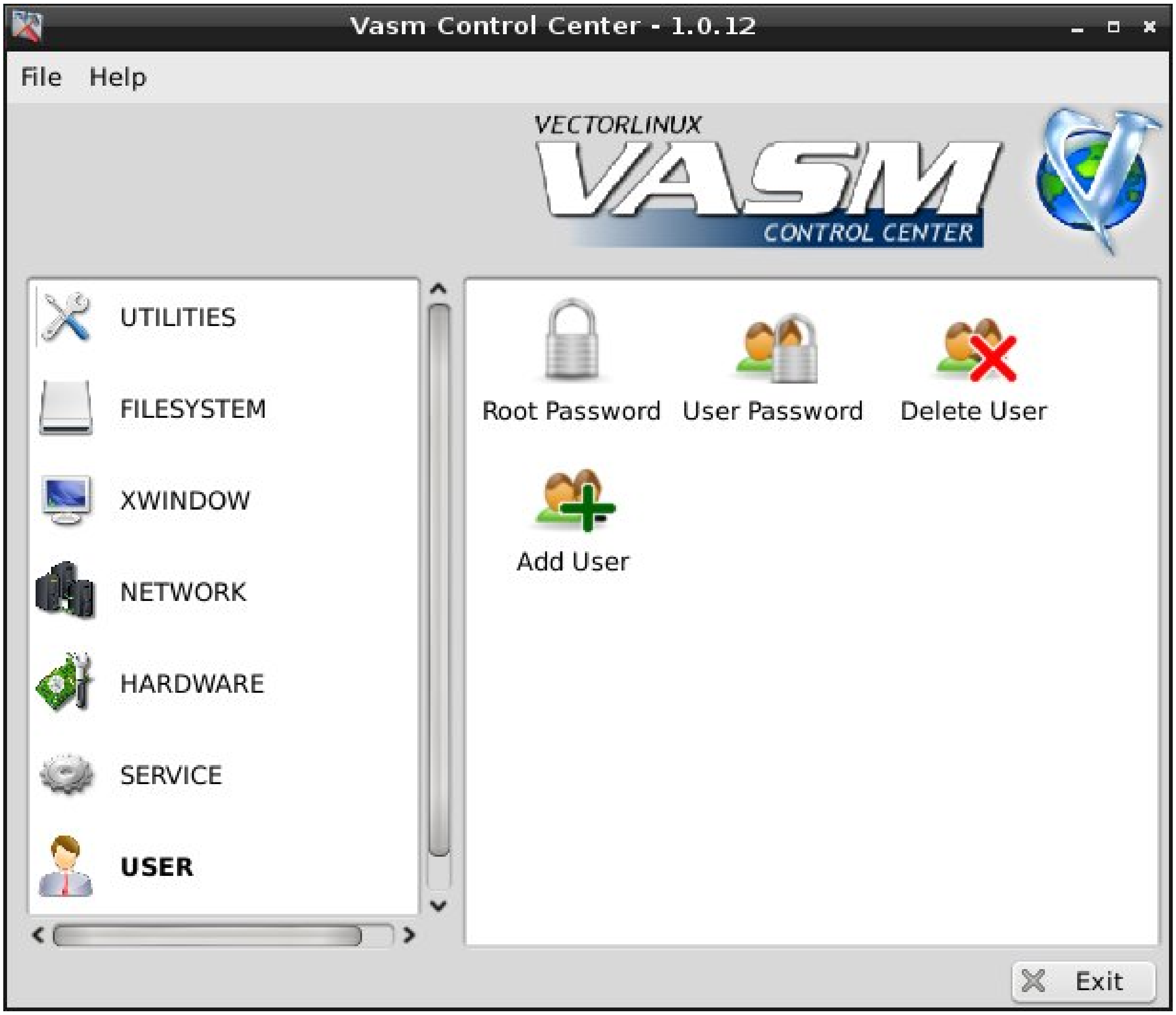
Network


Vasm Control Center - 1.0.12
File
Help
VECTORLINUX
VASM
CONTROL CENTER
UTILITIES
FILESYSTEM
XWINDOW
NETWORK
HARDWARE
SERVICE
USER
Date and Time
ALSA Sound
Optical Drives
Hardware Set
Time zone
Mounter
Mouse
Keyboard Map
Hardware Config
Exit

Hardware


Vasm Control Center - 1.0.12
File
Help
VECTORLINUX
VASM
CONTROL CENTER
UTILITIES
FILESYSTEM
XWINDOW
NETWORK
HARDWARE
SERVICE
USER
Services
Init System
Hardware Set
SAMBA Networking
CUPS Printing
Bootset
Exit

Service



User

2.2.5 Use in Text Mode

To launch it, type in console mode “vasm” (lowercase) without quotes and hit enter. This will start an ncurses based menu. Use the cursor [up] [down] keys to navigate the menu. Press the [enter] key to make a selection. If you wish to exit use the [left] [right] arrows to select CANCEL.

If you are running the system as a regular user you will see an entry named “SUPER” to access to the root level. Select it and you will be prompted to enter the root´s password.

2.2.6 Switching to Text Mode

For some of the administrative tasks available in VASM, like configuring the X Server, hardware autodetection, etc., it is safer, or even strictly required, that the system is running in text mode (Run Level 2). When this situation appears, VASM will let you know and you will not be able to perform such tasks from your window manager.

If you are running in GUI mode, log out of it, then:

- If you are taken to the text mode console, you can call vasm from there. (This is the case when your system is configured to boot automatically into Text Mode (also known as TUI Mode).
- If you are presented with a GUI login, this means that the system is configured to autostart in GUI mode (runlevel 4 or 5). In this case you need to switch into TUI mode (runlevel 2/3). Please press Ctrl + Alt + F1, login as root, and type “init 2”, the system will shutdown the X server. You may then launch vasm and configure the system. Once you have finished, switch back to GUI mode again by typing “init 4”.

2.2.7 Detailed descriptions

This section explains, in order, each of the configuration utilities available to the root user in VASM.

AUTOSETUP

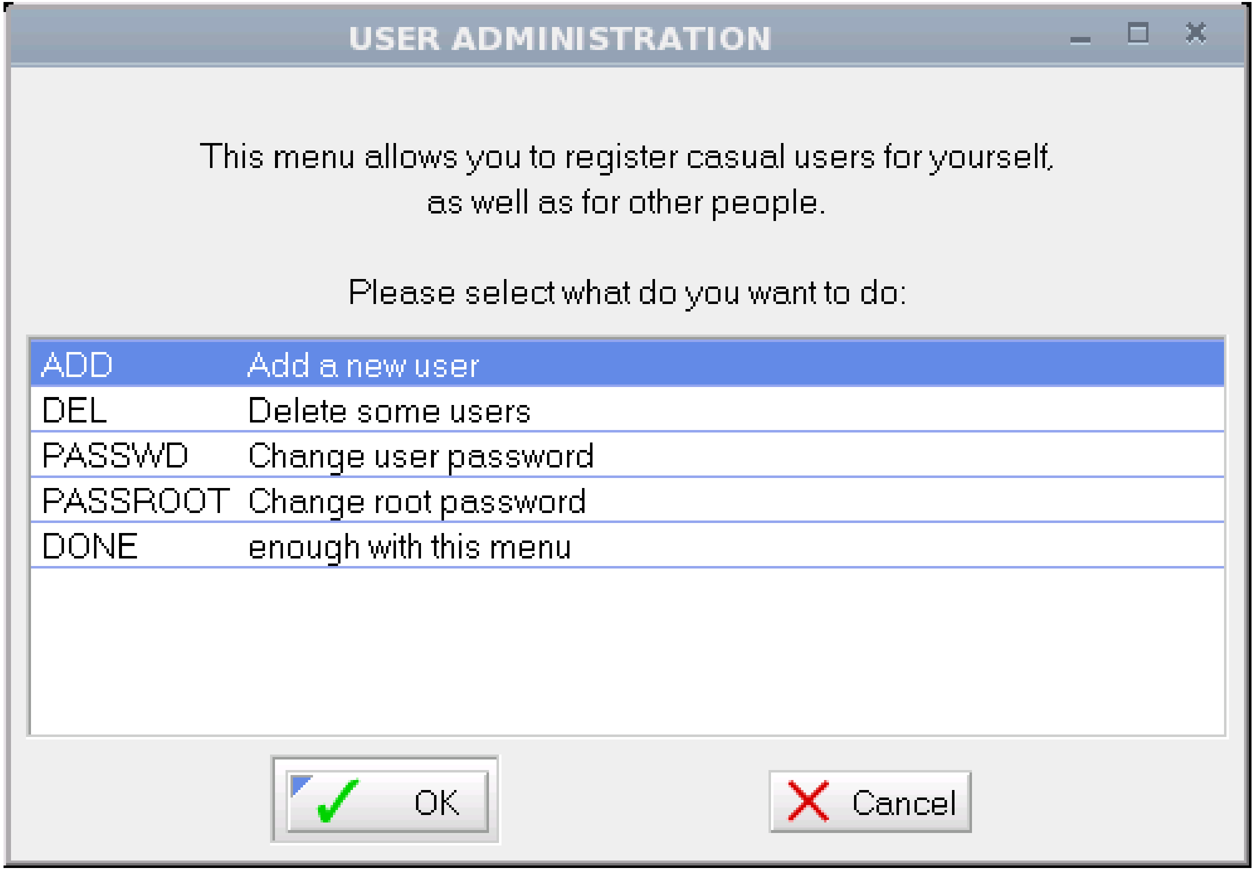
Autosetup goes through the same autodetection and autoconfiguration process that was performed at installation time. Doing this means resetting your system to almost fresh install status. Therefore some of the configurations post-install that you may have done to the system could be re-set to some default value.

If you need to reconfigure something on your system it is advisable to use the specific VASM entry for that task.

USER

With this section of VASM you can manage users. You have to be logged in as administrator of the system, so login as ‘root’ via console or SUPER option in VASM.

Command line: /sbin/vuser



USER ADMINISTRATION

This menu allows you to register casual users for yourself, as well as for other people.

Please select what do you want to do:

ADD Add a new user
DEL Delete some users
PASSWD Change user password
PASSROOT Change root password
DONE enough with this menu
OK
Cancel

User administration menu in Graphical Mode.

ADD

Purpose: Add a new user to the system.

Command line: /sbin/vuseradd

First you will be asked to enter a login for this new user. Just enter the name you want (lower case) and press the 'enter' key or click on the 'Ok' button.

The next dialog will ask you to enter the real name of the person corresponding with the login name you entered in the previous dialog. Enter the name and press 'enter' or click on the 'Next' button. If you want to change the login name at this stage you can click on the 'Previous' button.

The following dialog will ask you to enter an id for this user. Choose a unique id for the user you want to add or just accept the default by pressing enter for the next dialog.

You will get a list of groups the user can be a member of. Select the groups the new user must have access to. Mostly you can accept the defaults. Deselect the groups to limit the access rights.

In a fresh vl6.x install the following groups are available: - cdrom: user can access CD/CDW/DVD - floppy: user can access floppy disks - lp: user can access printers - audio: user can access audio devices - video: user can access video devices - games: user can play restricted games - adm: administrators - sys: system administrators - wheel: elite users

Click on 'Ok' if you're finished setting the groups.

Now you will get a view of the login name, real name, user id etc. You will be asked if you want to create this user on your system. Press 'enter' to accept the input you gave.

The last step is to enter a password for the new user. Enter a password for the new user (it is more secure to choose a combination of at least 6 characters, numbers and special characters, e.g. `c@vi@47`). Press 'enter' or click on 'Ok' to accept the password.

In the dialog that follows, you will be asked to re-enter the password you gave. Press 'enter' or click on 'Ok' after you entered the password again.

The last dialog confirms the creation of this new user on the system. After clicking on 'Ok' you will return to the USER ADMINISTRATION menu.

DEL

Purpose: delete a user from the system.

Command line: /sbin/vuserdel

After you choose this option you will get a list of the users on the system. Select the user you want to delete (double click on the user or select with the arrows up/down and press 'enter'). A dialog pops which displays the user information and asks if you want to delete that user. Press 'enter' or click on 'Yes' to confirm. You will return to the list of users that can be deleted. Click on 'Cancel' to return to the USER ADMINISTRATION menu.

PASSWD

Purpose: change the password of an user.

Command line: /sbin/vpasswd

With this option you can change the password of a user. Select the user from the list (double click on the user or select with the arrows up/down and press 'enter'). Enter the new password for this user and press 'enter' or click on the 'Ok' button. In the dialog that follows, re-enter the password you gave in the previous dialog and press 'enter' or click on 'Ok'. If the password matches you will see a confirmation of the change.

You will return to the USER ADMINISTRATION menu.

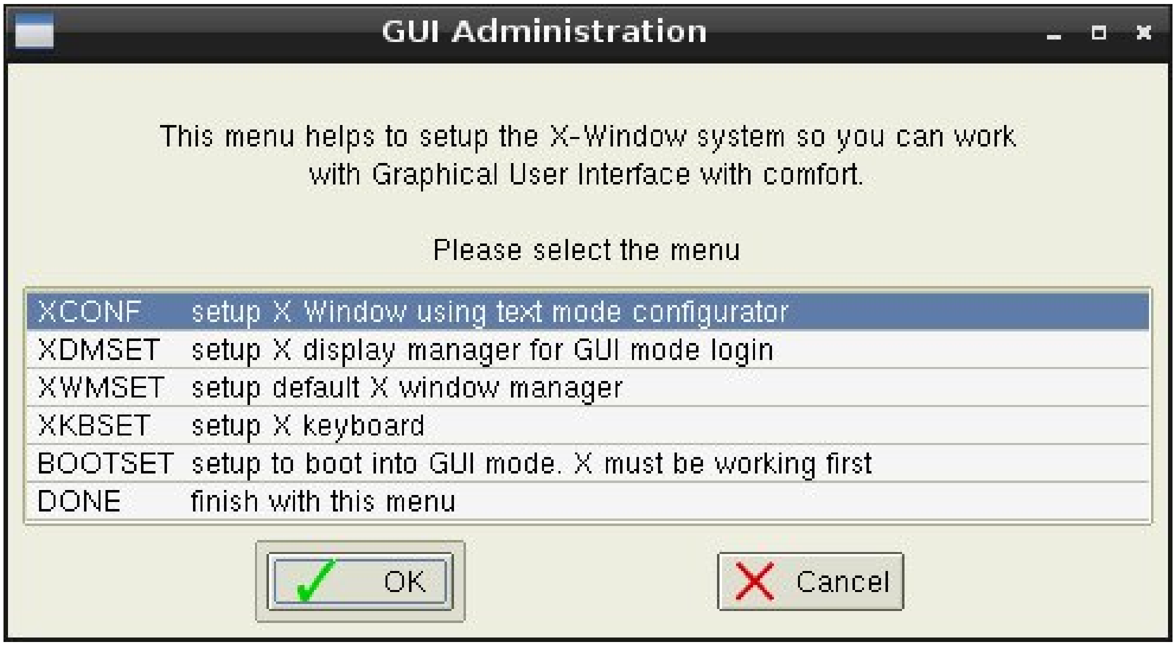
PASSROOT

Purpose: Change the password of 'root', the administrator account of your Vector Linux system.

Enter a new password for 'root' in the first dialog and re-enter the password in the second dialog. See 6.2.3 PASSWD.

XWINDOW

This section deals with the configuration of the X window system. You will need to be running the system in console mode (see Section 5).



This menu helps to setup the X-Window system so you can work with Graphical User Interface with comfort.

Please select the menu

XCONF	setup X Window using text mode configurator
XDMSET	setup X display manager for GUI mode login
XWMSET	setup default X window manager
XKBSET	setup X keyboard
BOOTSET	setup to boot into GUI mode. X must be working first
DONE	finish with this menu

GUI administration menu in Graphical Mode.

XCONF

Purpose: Configure the system´s X server for compatibility with your video card, monitor and mouse hardware.

Command line: /sbin/vxconf

Walk Through: When you enter the Xconf section you can choose between three options:

- **Auto** This will detect and configure your video card and monitor, ask a few questions about your desired resolution and mouse characteristics, and will create a NEW configuration file. Any previous manual adjustments you may had done to that file will be overwritten.
- **Current** This will perform the detection and ask you some details about your preferred resolution, colour depth, and mouse configuration. However, it will commit those to the configuration file (*/etc/X11/xorg.conf*) without deleting the file and will thus keep **some** additional configuration lines you might have edited. For instance, as it does not ask for your keyboard layout, there won't be any changes to your keyboard configuration, but

since it asks you to choose between the detected available screen resolutions, those will be written to the file, overlapping any previously configured value.

- **Basic** This option will mostly behave in the same way but configures the system to use the VESA driver. This driver is as a 'safe mode' video driver (although a very good one, capable of over 800x600 and 16 bits) and is most useful for cards that do not have native linux drivers or which refuse to be properly detected. This option should at least allow you to get a basic graphical environment up and running.

XDMSET

Purpose: allows you to choose the **X Display Manager**, that is, the utility in which you log in when the system boots automatically to GUI mode.

Command line: /sbin/vxdmset

Walk Through: Select the one you prefer, and press "Ok". You will be asked if you want to test it at that moment, something that requires the X server to be restarted, so you will have to close any running applications.

If you choose not to test it, you will be taken back to the previous menu.

XWMSET

Purpose: Sets up which **Window Manager** is launched from the console when you type "startx" and your system is configured to boot in text mode.

Command Line: /sbin/vxwmset

Walk Through: When you choose this option, you will be given a list of available window managers to start when you use startx. Make a selection or cancel.

BOOTSET

Purpose: configure you system to boot directly into GUI Mode or Text mode (these are technically known as "runlevels").

Command Line: /sbin/vbootset

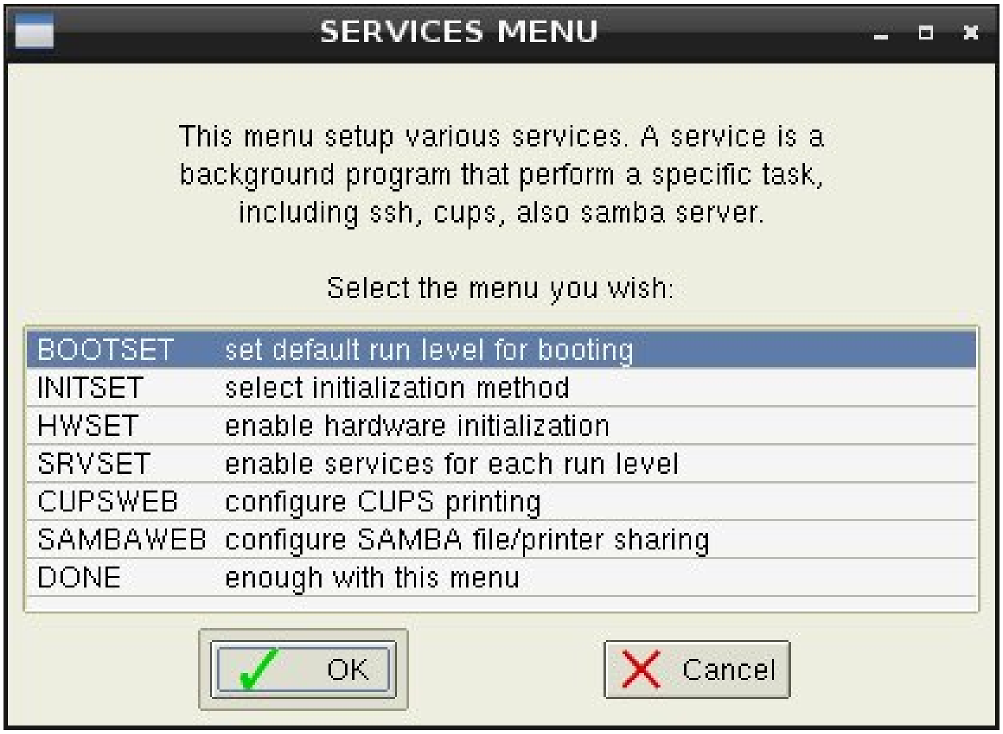
Walk Through: When you select this option, you will be given the choice between "text mode desktop", "text mode server", "GUI mode desktop" or "GUI mode server". The difference between desktop and server choices is in the services they start, i.e. ssh, apache, and the like. Independently of this menu, you can further configure which services are started or not selecting "Service" then "Srvset" in VASM´s main menu.

Warning: Ensure X-windows works before setting the system to start in graphics mode (try "startx" before defaulting to graphics mode).

SERVICE

Allows you to configure services started at boot time.

Command Line: /sbin/vsrvmenu



This menu setup various services. A service is a background program that perform a specific task, including ssh, cups, also samba server.

Select the menu you wish:

BOOTSET	set default run level for booting
INITSET	select initialization method
HWSET	enable hardware initialization
SRVSET	enable services for each run level
CUPSWEB	configure CUPS printing
SAMBAWEB	configure SAMBA file/printer sharing
DONE	enough with this menu

SERVICES menu in Graphical Mode.

BOOTSET

Purpose: configure your system to boot directly into GUI Mode or Text mode (these are technically known as "run-levels")

Command Line: /sbin/vbootset

Note: This option is also present in the XWINDOW Menu.

Walk Through: When you select this option, you will be given the choice between "text mode desktop", "text mode server", "GUI mode desktop" or "GUI mode server". The difference between desktop and server choices is in the services they start, i.e. ssh, apache, and the like. Independently of this menu, you can further configure **which** services are started or not selecting "Service" then "Srvset" in VASM´s main menu.

Warning: Ensure X-windows works before setting the system to start in graphics mode (try "startx" before defaulting to graphics mode).

INITSET

Purpose: Allows you to choose the services **initialization method** to use when you switch runlevels with the "init <run_level>" command.

Command line: /sbin/vinitset

Walk Through: the initialization system starts or stops services when you switch run levels using the "init <run_level>" command. The standard initialization system is called SysV-Init.

When switching run levels, it kills all services of the previous level then starts all services of the new level. Vector Linux offers a **faster** init system: It does not kill the services only to start them again in the next runlevel. So here you can choose what method you prefer.

HWSET

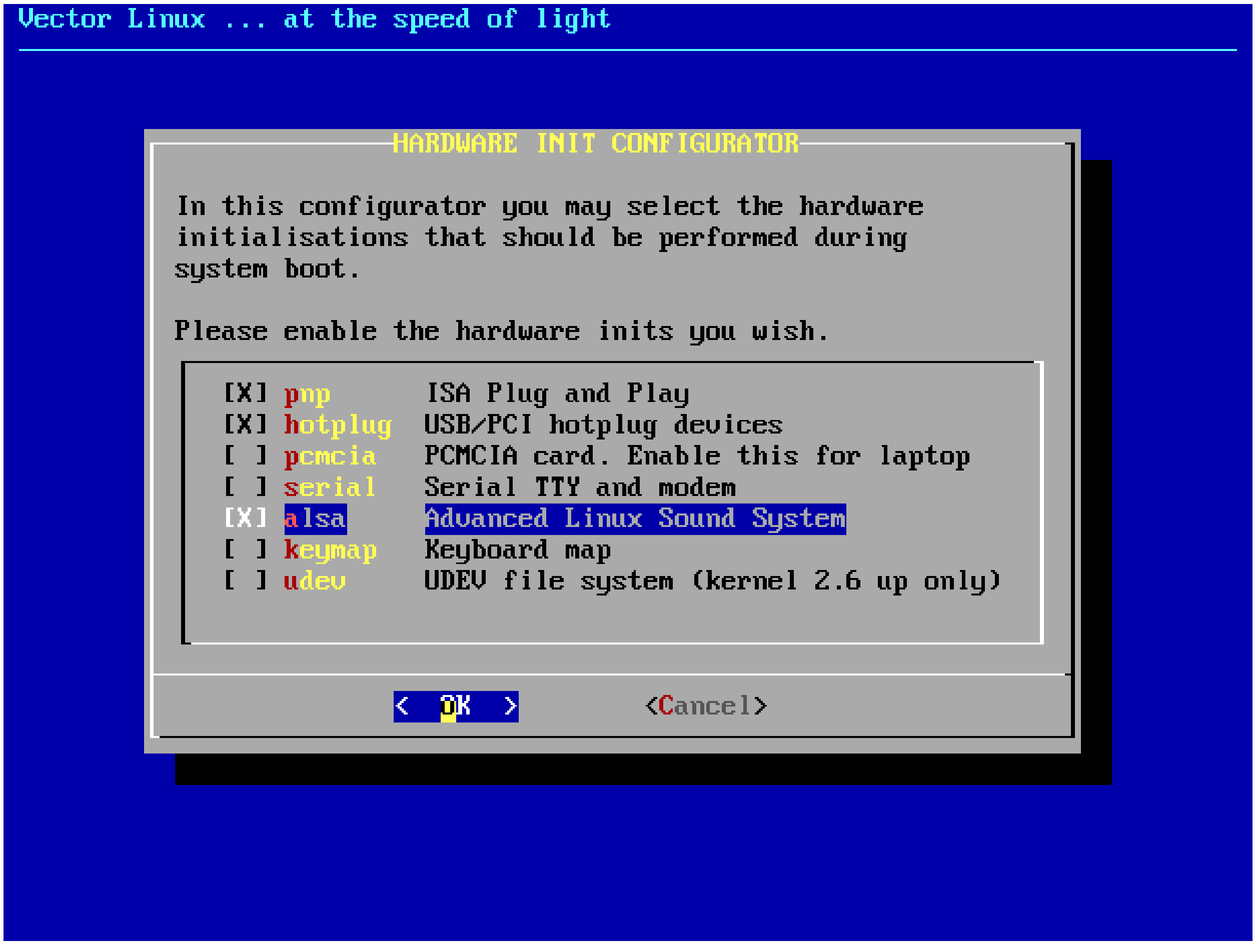
Purpose: This menu allows you to enable or disable the initialization of hardware components of your system.

Command line: /sbin/vhwset

Walk Through: When selecting this entry a list will appear, showing the hardware you can initialize at boot time. This means that if you plan to use a parallel port printer you need to set "parallel" to be initialized at boot time, but if you don´t plan to, you can disable it and free some system resources. The available options are:

- **PNP** ISA Plug and Play. This should be enabled for a modern PC
- **Hotplug** USB/PCI hotplug devices (pendrive, digital camera, etc)
- **PCMCIA** PCMCIA cards, common on laptops (network, modem, etc.)
- **APM** Advanced Power Management, useful for Laptops.
- **Serial** Serial port and modem
- **Parallel** Parallel port and printer
- **Wireless** Networking using radio or infrared
- **ALSA** Advanced Linux Sound System
- **udev** Dynamic /dev naming for hotplug on kernel 2.6
- **tmpfs** On memory /tmp. Recommended if RAM>=196MB + SWAP>=256MB

Screenshot:



```
Vector Linux ... at the speed of light

HARDWARE INIT CONFIGURATOR

In this configurator you may select the hardware
initialisations that should be performed during
system boot.

Please enable the hardware inits you wish.

[X] pnp       ISA Plug and Play
[X] hotplug   USB/PCI hotplug devices
[ ] pcmcia    PCMCIA card. Enable this for laptop
[ ] serial    Serial TTY and modem
[X] alsa      Advanced Linux Sound System
[ ] keymap    Keyboard map
[ ] udev      UDEV file system (kernel 2.6 up only)

< OK >        <Cancel>
```

Selecting system components to be initialised at boot time.

SRVSET

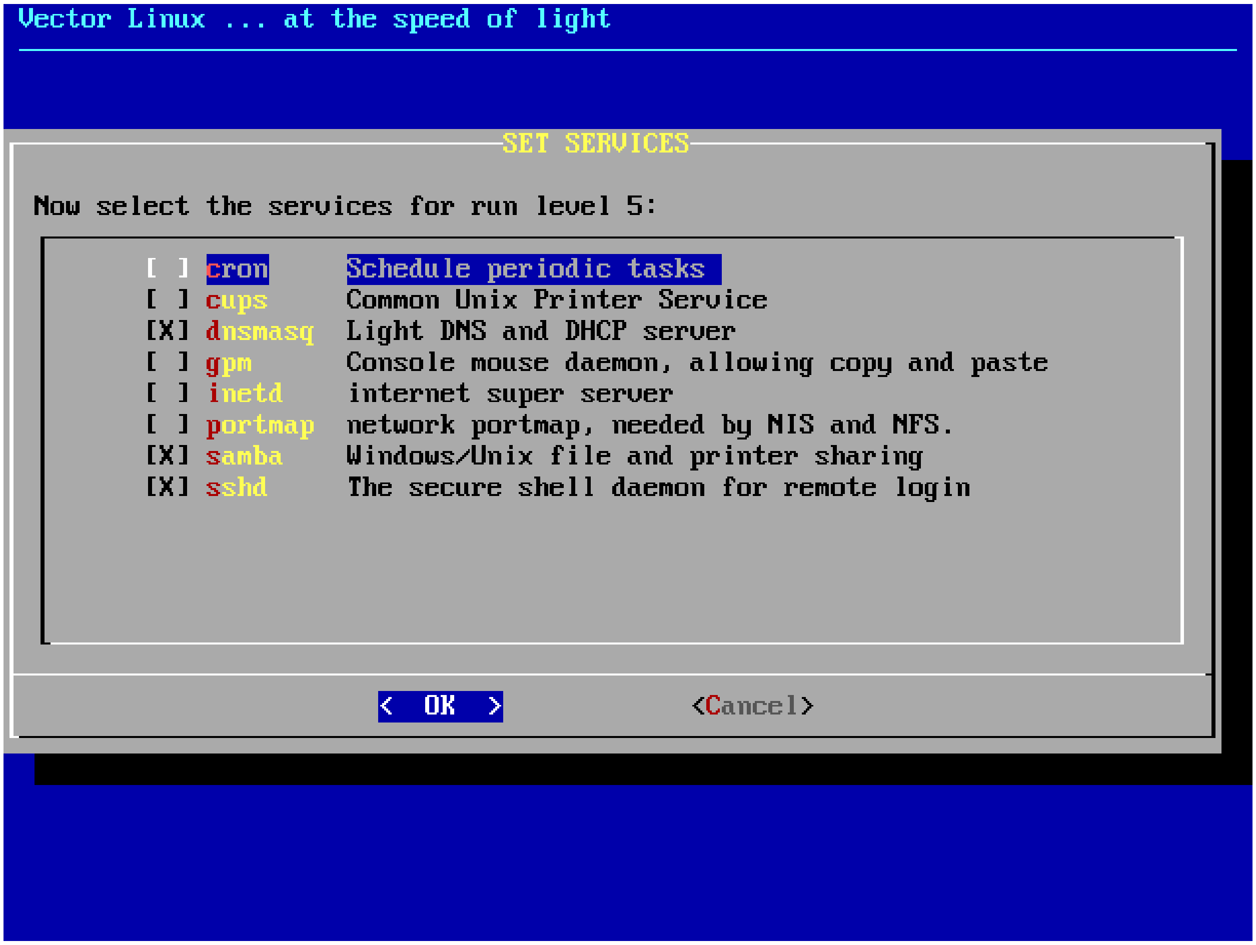
Purpose: Here you can configure what services, such as ssh server, http server, etc., are started in different runlevels.

Command line: /sbin/vsrvset

Walk Through: You are presented with a list of the runlevels. Select the one you wish to configure and press Enter. Then you will see the available services and which ones are set to be started when the system enters that specific runlevel. Toggle the ones you want to enable or disable and press “Ok”.

You can modify services for other runlevels or exit the menu.

Screenshot:



```
Vector Linux ... at the speed of light

SET SERVICES

Now select the services for run level 5:

      [ ] cron      Schedule periodic tasks
      [ ] cups      Common Unix Printer Service
      [X] dnsmasq   Light DNS and DHCP server
      [ ] gpm       Console mouse daemon, allowing copy and paste
      [ ] inetd     internet super server
      [ ] portmap   network portmap, needed by NIS and NFS.
      [X] samba     Windows/Unix file and printer sharing
      [X] sshd      The secure shell daemon for remote login
```

Selecting services to start at runlevel 5.

CUPSWEB

Purpose: Allows you to add and configure local and networked printers. It requires the CUPS package to have been installed and the CUPS daemon to have been started on your system. If you need to install it, please refer to the VectorLinux Printing Guide, where you will find more detailed instructions.

Command line: /sbin/vcupsweb

Walk Through: This option launches the web browser and attempts to connect to the local port for CUPS. There, you will have the choice to add, remove, and configure local and networked printers, print jobs, etc. If you use this option from console mode, the launched browser will be lynx. While lynx is very capable for the task, you might find it more comfortable to use this option in GUI mode, where Firefox will be used.

SAMBAWEB

Purpose: Allows you to configure file and printer sharing through the network with other systems. Specifically for sharing between Windows and Linux machines.

Command line: /sbin/vsambaweb

Walk Through: This option launches a web browser and connects to “SWAT”, an application that provides a relatively easy way to configure file and printer sharing. If SWAT is not running you will asked whether you want to start it or not. You need to accept in order to access its web-based configuration interface.

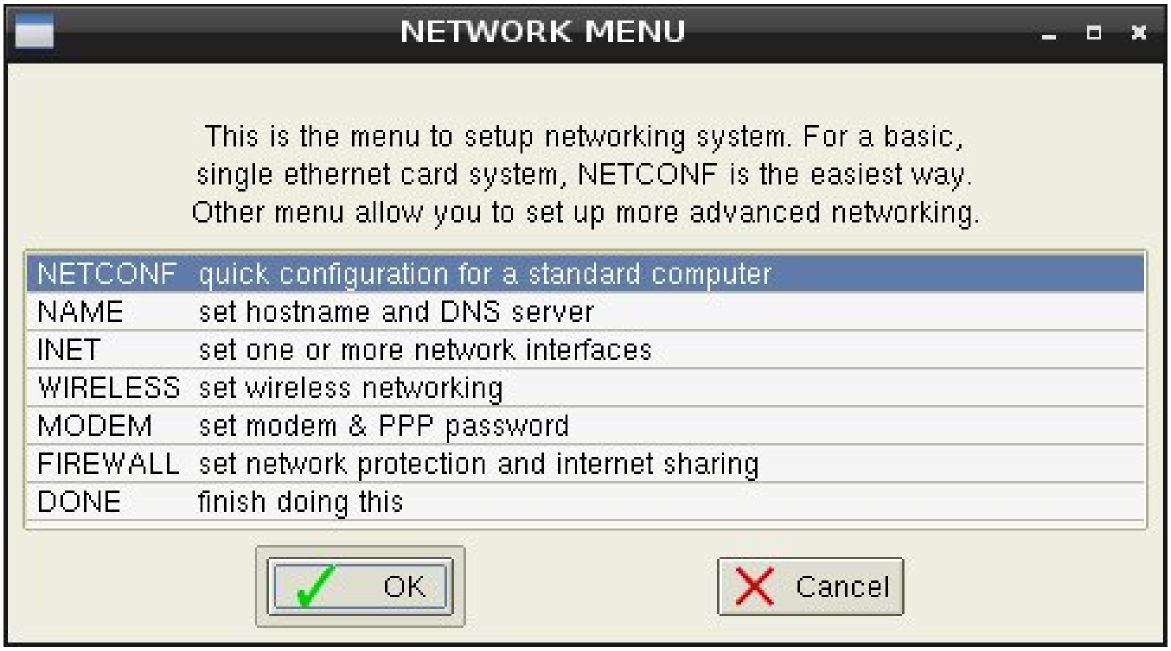
You *can* use this in text mode, but the text browser will probably make the task harder than it needs to be, so you are encouraged to do this in GUI mode, where a more capable browser will be started.

Note: Dillo, a very light graphical web browser doesn´t support some required features, so you can´t access SWAT with it.

NETWORK

Setup network configuration.

Command Line: /sbin/vnetmenu



This is the menu to setup networking system. For a basic, single ethernet card system, NETCONF is the easiest way. Other menu allow you to set up more advanced networking.

NETCONF quick configuration for a standard computer
NAME set hostname and DNS server
INET set one or more network interfaces
WIRELESS set wireless networking
MODEM set modem & PPP password
FIREWALL set network protection and internet sharing
DONE finish doing this
OK
Cancel

NETWORK menu in Graphical Mode.

NETCONF

Purpose: Walks you through setting up a basic network connection. This program is only needed if you are connected to a LAN or a cable modem network.

Command Line: /sbin/vnetconf

Walk Through:

When you select this option the program will prompt for information required to set up the network connection.

1. Input computer name and domain name in the form of "computername.domainname". If you are not connected to a domain, that is, you are a lone computer workstation connected only to the Internet it is best to type in a computername only. The format "aaaa.bbbb.ccc" is also valid, but note that you can shadow a public Iternet address by using it.
2. IP address. You have three choices: Static, DHCP and Loopback. If you have a DHCP server (perhaps a router) select DHCP from the list (this is the case for most users connected to the Internet via an ADSL or cable

modem). If you have no lan card choose loopback. If you wish to set a static address choose Static. If you choose Static you will then be prompted for the IP address for the machine and then the netmask of the network. Next you will be prompted for the IP address of the gateway to the Internet. Finally, you will be asked for the IP address of the name server.

NAME

Purpose: Set hostname and DNS server

Command Line: /sbin/vnameset

Walk Through:

When you select this option the program will prompt for information required to set up the network connection.

1. Input computer name and domain name in the form of "computername.domainname". If you are on a personal workstation not connected to other computers you do not require a domainname.
2. Input IP address of the the domain name server.

INET

Purpose: Setup one or more network interfaces that will be automatically started at system initialization. Each inet script may have a different network device and TCP/IP setting.

Command Line: /sbin/vinet

Walk Through: When you select this option you will be provided a menu of options.

- **Add** This option is used to set up a network interface. 1. When started the user will be given a list of configuration files that can be used for your connection. Once this has been chosen you are prompted for the settings for the connection. 2. Now choose the network interface that you want to configure. Generally, you should chose a primary device (like eth0) from the list below. Use the alternate device (like eth1) for multiple IP configurations, mostly useful for a server or a laptop. Do not use the same device for more then one connection. 3. Next you will be asked how the device get its IP address. Your choices are DHCP, Static or Probe. DHCP is the automatic method. Use it if you are connected to a dynamic network like cable modem, DSL or your administrator tells you to do so. Most home computers attached to the Internet with a small home network using a router and/or an ADSL, ISDN or Cable modem will use DHCP. Select STATIC only if you definetaly have a permanent IP address for this machine. PROBE is a STATIC method with network testing, useful for a laptop. If you choose DHCP, the setup is complete. If you choose one of the others you must assign the address. If you are connected to an official network (campus, office, etc), you must get the IP address from the system administrator. However, if you are on your own network, you may assign an arbitrary IP address from the standard internal IP range: 192.168.0.1 - 192.168.255.254 172.16.0.1 - 172.31.255.254 10.0.0.1 10.255.255.254 Next you will be asked for the network mask. They are of the form 255.255.255.0. This will be provided by your system administrator. If you are on your own network the above should be sufficient. Finally you will need to supply the IP address of the gateway. A gateway is the computer that forwards network traffic to the bigger network (most likely the Internet). You need the IP address of the gateway. If you choose Probe the system will use this to verify to which network you are attached. Leave it empty if this inet does not have a gateway.
- **Delete** Use this option to delete an unused inet configuration.
- **Set** This option is used to set up a network interface. When started the user will be given a list of configuration files that can be changed. You are prompted for the settings for the connection. Follow steps 2 to 6 in the add option.
- **Start** This option is used to start manually start a connection.
- **Stop** This option is used to start manually stop a connection.

WIRELESS

Purpose: Manage wireless configuration files - change interface, add, delete and change connections. These configuration files are stored in /etc/wireless/.

The second group of options start, stop and give the status of a connection. This is done via /etc/rc.d/rc.modules.

Use Network:INET option to set up the ethernet interface.

Command Line: /sbin/vinetset

Walk Through: When you select this option you will be provided a menu of options.

- **Interface** This option is used to change interface settings. You can identify which network interface is wireless. If you use ndiswrapper the interface is wlan0. If you use wpa_supplicant you will need to identify which driver to use. (known to work for ndiswrapper with Broadcom driver (bcmwl5).
- **Add** Use this option to add and define a new connection. When you select this option you will be asked for the ESSID of the connection. Connections are identified by their ESSIDs (Extended Service Set Identification). All of the wireless devices on a WLAN must employ the same ESSID in order to communicate with each other. This will be the identifier for the associated configuration file (*/etc/wireless/<ESSID Name>.essid.conf*). Next you will be asked for a short description for the connection. Next you be asked to choose the type of encryption. They include plaintext (no encryption), WEP and WPA (personal). If you choose WEP or WPA you will be asked for the encryption key to use. If you choose WPA supplicant a second configuration file is created (*/etc/wireless/<ESSID Name>.wpa.conf*). You can modify this file if you have specific requirements. Detailed documentation is available at http://hostap.epitest.fi/wpa_supplicant/ . Next you will be given a list of parameters that you may wish to set (including the description and encryption) specific to your own requirements.
- **Del** Choose the connection definition that you wish to delete. Select the connection that you wish to delete. A backup copy is created (*/etc/wireless/<ESSID Name>.essid.bkp and /etc/wireless/<ESSID Name>.wpa.bkp*).
- **Change** Use this option to change the parameter for the connection. Select the connection that you wish to change. A backup copy is created (*/etc/wireless/<ESSID Name>.essid.bkp and /etc/wireless/<ESSID Name>.wpa.bkp*).
- **Connect** Select this option to connect an available ESSID. You will be given a list of visible ESSIDs. If none are visible the list will include the defined connections in case they do not broadcast their ESSID.
- **Stop** Use this option to stop the wireless connection.
- **Status** Select this option to get a detailed status of the wireless connection.

Note: Assumes that the wireless interface has been installed and working. Configuration data is stored in */etc/wireless*. This directory is only available to root since it may contain passwords. In order to automate startup use HARDWARE:HWSET or by making */etc/rc.d/rc.wireless* executable.

MODEM

Purpose: Utility for configuring a dial-up connection to an ISP. You need to know a number of things about your ISP (phone number, authentication method, etc.) and your modem (device, baud rate, init string, etc.)

Command Line: /sbin/vmodemset

Walk Through: If you select this menu item, you will be given a list of serial ports. Select the port where your modem is attached. The ports included are those used by a Linmodem, but this script does not install or setup these modems. If you know what COM device it was under Windows, you can select the listed equivalent. Otherwise, you can try the autodetect or you might have to do some experimenting. The best course is to start at ttyS0 and work your way down the list.

Next you will be asked for the user name and password for your ISP's connection for PPP dialers such as X-ISP. You can skip this if you are using GkDial or KPPP, which you will have to configure yourself.

FIREWALL

Purpose: Sets up basic network protection and Internet sharing.

Command Line: /sbin/vfirewall

Walk Through: This option calls a submenu of options to setup a basic firewall/gateway. The options are:

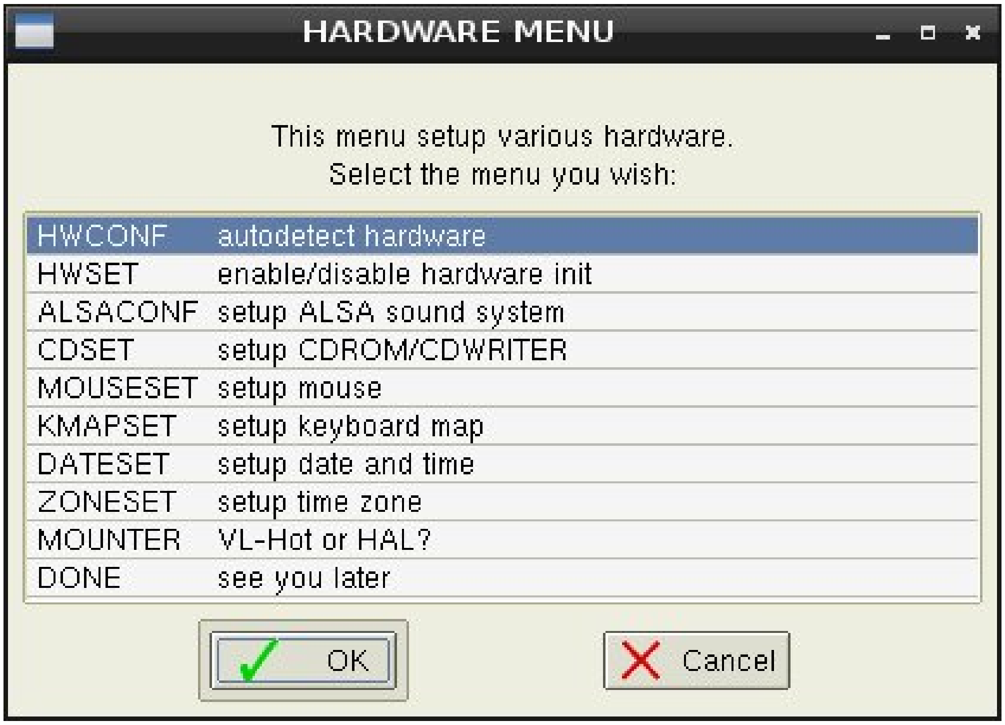
- **New** This option creates a script */etc/rc.d/rc.firewall* and makes it executable so it will start every time the system is started.
- **Open** Allows the user to open some common ports on the system for others to access. The user can also modify the rc.firewall script.
- **Gateway** This script sets up a simple gateway, using ip masquerading (NAT), with a firewall using iptables. The user is asked to identify the interface that is connected to the local area network for sharing. This interface will need to be set up using the INET option of the NETWORK submenu
- **Start** Starts the firewall.
- **Stop** Stops the firewall.
- **Enable** Enables the firewall to be started each time the system starts.
- **Disable** Disables the automatic starting of the firewall.

> **Warning:** This firewall script is able to handle simple filtering (open/close the host port) and simple masquerading (become an Internet gateway). However, this script is relatively basic, so it is recommended that you use more advanced firewall tools (like guarddog/guidedog, included in SOHO) to create more advanced rules. For these "advanced" rules to take effect, you should use VASM to **set the firewall active** but **not** to configure it, since you will do that through guarddog/guidedog.

HARDWARE

Purpose: Setup keyboard, mouse, CD-ROM drives, sound, etc.

Command Line: /sbin/vhwmenu



This menu setup various hardware.
Select the menu you wish:

HWCONF	autodetect hardware
HWSET	enable/disable hardware init
ALSACONF	setup ALSA sound system
CDSET	setup CDROM/CDWRITER
MOUSESET	setup mouse
KMAPSET	setup keyboard map
DATESET	setup date and time
ZONESET	setup time zone
MOUNTER	VL-Hot or HAL?
DONE	see you later

HARDWARE menu in Graphical Mode.

HWCONF

Purpose: Autodetect hardware devices on your system.

Command line: /sbin/vhwconf

Note: The autodetection routine will start as soon as you select this option. Be sure that you want re-detect your hardware before selecting this.

Walk Through: Must be run from console mode. If used under X you will receive the message telling you so.

When you select this option the system will immediately start to probe the system's components. You will see windows showing detected devices as they are found and configured. Since this is an AUTO-Probe you don't have the means to configure the detected devices - the system will do that for you. This mostly deals with the detection of the hardware itself and not so much with the fine-tuning. For example, it will detect and activate your ethernet cards, but if you want to enter you network configuration you have to resort to the "Network Menu".

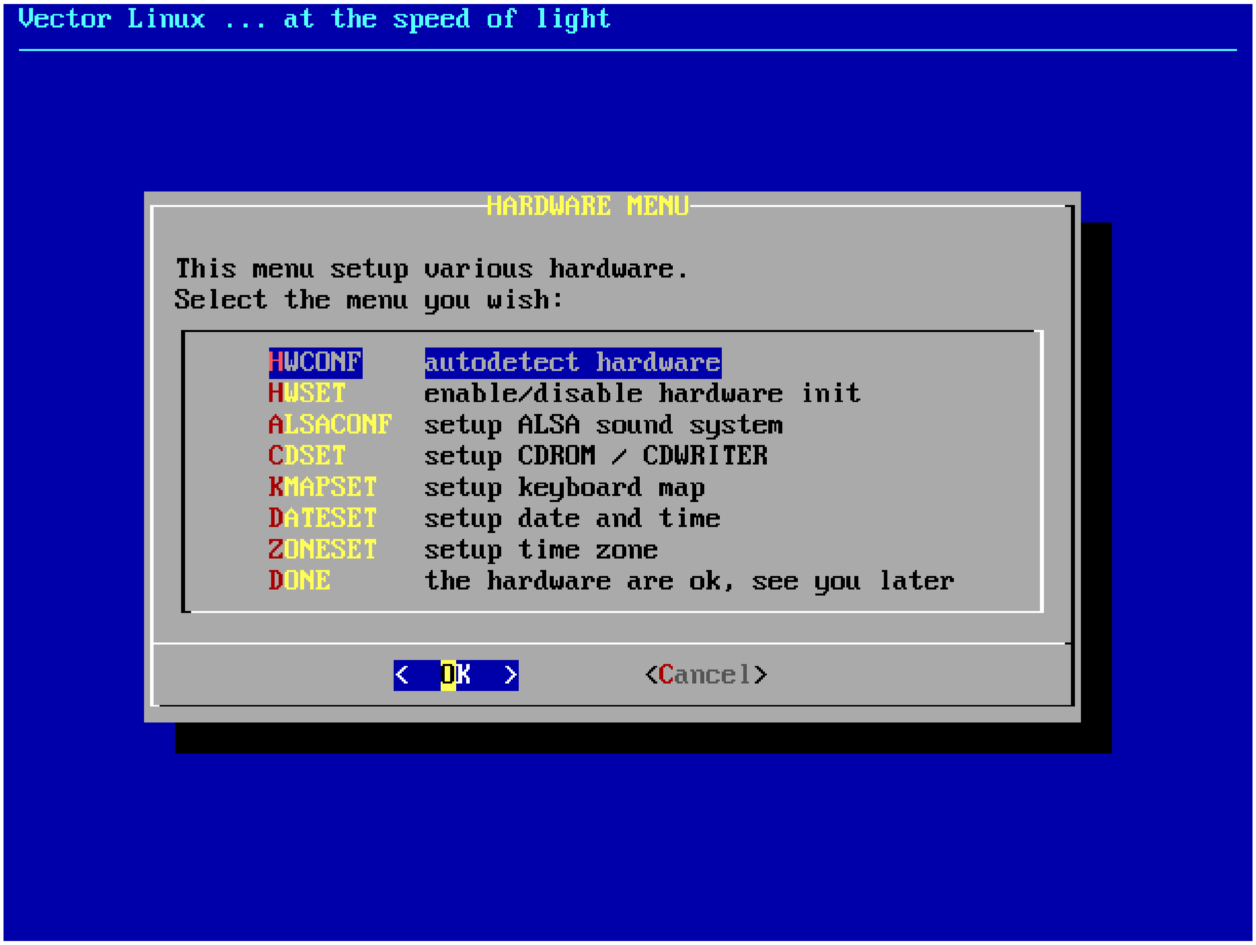
Screenshot:

HWSET

Purpose: This menu allows you to enable or disable the initialization of hardware components in your system.

Command line: /sbin/vhwset

Walk Through: When selecting this entry, a list will appear, showing the hardware you can initialize at boot time. This means that if you plan to use a Parallel port printer you need to set "parallel" to be initialized at boot time, but if you don´t plan to, you can disable it and free some system resources.The available options are:



```
Vector Linux ... at the speed of light

HARDWARE MENU

This menu setup various hardware.
Select the menu you wish:

     HWCONF      autodetect hardware
     HWSET       enable/disable hardware init
     ALSACONF    setup ALSA sound system
     CDSET       setup CDROM / CDWRITER
     KMAPSET     setup keyboard map
     DATESET     setup date and time
     ZONESET     setup time zone
     DONE        the hardware are ok, see you later

          <  OK  >          <Cancel>
```

- **PNP** ISA Plug and Play. This should be enabled for a modern PC.
- **Hotplug** USB/PCI hotplug devices (pendrive, digital camera, etc).
- **PCMCIA** PCMCIA cards, common on laptops (network, modem, etc.).
- **APM** Advanced Power Management, useful for Laptops.
- **Serial** Serial port and modem.
- **Parallel** Parallel port and printer.
- **Wireless** Networking using radio or infrared.
- **ALSA** Advanced Linux Sound System.
- **udev** Dynamic /dev naming for hotplug on kernel 2.6.
- **tmpfs** On memory /tmp. Recommended if RAM>=196MB + SWAP>=256MB.

ALSACONF

Purpose: Setup ALSA (Advanced Linux Sound Architecture).

Command line: /sbin/valsaconf

Walk Through: Must be run from console mode. If used under X you will receive the message telling you so.

When you run ALSACONF, a dialog appears asking you to close any open application related to sound. When you press “OK” the system will try to autodetect any present sound device and you will see a progress bar indicating the status of the detection.

You will then be presented with the detected cards and asked to select the one to use or if you want to probe the system for older, non-PnP, ISA cards.

If ALSA detected any onboard or PCI sound device and you chose that one then when you press “OK” the driver will be loaded and the device will be configured for activation at boot time. Press “Ok”

To accept the confirmation dialog and you will be taken back to the “Hardware Menu”.

If you choose to probe the system for legacy sound cards you will receive a warning stating that the system may become unstable; press “Yes” to proceed.

A dialog appears with a list of the available modules (drivers) to probe. While the list may seem a bit short, it actually covers a much wider range of sound cards which work with similar drivers.

Uncheck any particular module you don’t want to be probed and press “Ok”. You will be asked if the system should probe for possible IRQ and DMA combinations. Since doing so takes more time, you could skip it for now to see if the card is detected, and if it is not, then re-run alsaconf enabling this option instead. You will finally see the results of the probing and a request to choose the card to be used by the system.

CDSET

Purpose: Allows you to configure the location of your CD-ROM and CD-Writer drives.

Command line: /sbin/vcdset

Walk Through: When a CD-Rom is detected, you will be prompted to accept the creation of a symbolic link (/mnt/cdrom) pointing to it.

When a CD-Writer is detected, either after, before or instead of a reader unit, you will be asked if you want to allow access to it by ordinary users, if you select “Yes”, they will be able to use programs like XCDRoast, otherwise, only root will have access to it.

Using CDSET results in some changes to the LILO bootloader, so you will need to reboot the system for the changes to take effect.

MOUSESET

Purpose: Configure your pointing devices type and protocol.

Command line: /sbin/vmouseset

Walk Through: When you select this entry you are presented with a list of possible pointing devices, from standard mice to graphic tablets, plus an autodetection option.

After selecting your device type, you are asked some more details like how many buttons does it have and, for serial devices, what port it is attached to. After entering this information you are taken back to the Hardware Menu.

The mouse configuration takes effect after you start or re-restart the X Server, thus, to avoid finding yourself with a non-working mouse if you select an incorrect configuration, it is highly recommended that you **switch to text mode** to use this feature (see chapter 5).

KEYMAPSET

Purpose: Change the map layout used by your keyboard.

Command line: /sbin/vkmapset

Walk Through: Select the one that matches it and press “OK” test the selection by typing characters such as @ & #, erase them, and type 1 (by itself) to accept the layout. Type 2 (by itself), or “Cancel”, to go back to the maps selection and choose a different one.

DATESET

Purpose: Set date and time of the system.

Command line: /sbin/vdateset

Walk Through: The use of this option is rather self-explanatory. Select the date by clicking it, select a different month or year using the arrows next to them, and then press “Ok”. Do the same for the time, and then press “Next” to commit the changes to the system.

ZONESET

Purpose: Changes settings to reflect if your clock is set to local or universal time zone.

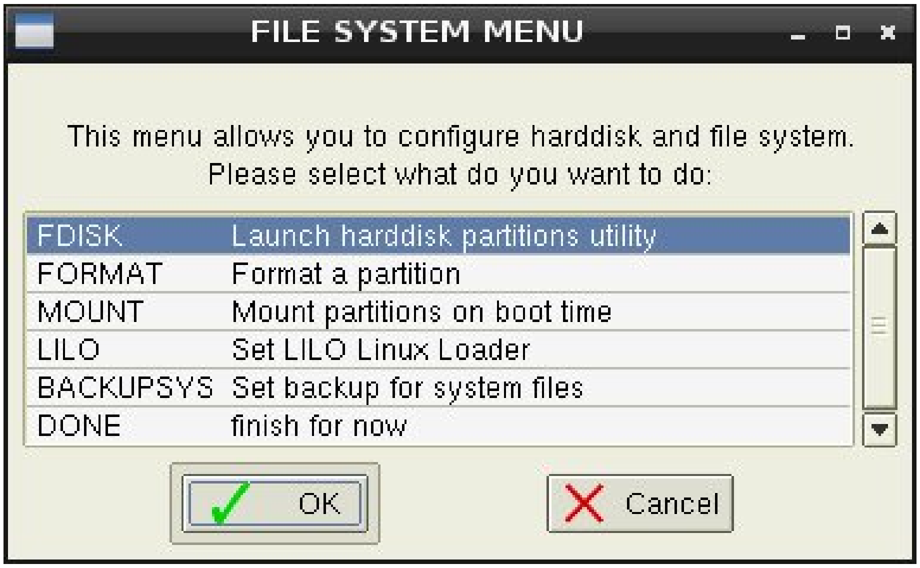
Command Line: /sbin/vzoneset

Walk Through: When you choose this option you will be asked if the clock in your machine is set to local or UTC time. Choose no if local and yes if UTC. Most likely it is set to local time. You will then be given a list of timezones, select the best match and press “Next” to activate the change.

FILESYSTEM

Perform disk partitioning and formatting, setup drives and partitions to be mounted, LiLo bootloader and system configuration backups.

Command Line: /sbin/vfsmenu



This menu allows you to configure harddisk and file system.
Please select what do you want to do:

FDISK	Launch harddisk partitions utility
FORMAT	Format a partition
MOUNT	Mount partitions on boot time
LILO	Set LILO Linux Loader
BACKUPSYS	Set backup for system files
DONE	finish for now

FILESYSTEM menu in Graphical Mode.

FDISK

Purpose: This option launches *cfdisk*, a text mode application capable of editing your hard disk partitions.

Command line: /sbin/vfdisk

The use of this program is beyond the scope of this guide, but we advise you to use it with care, and to remember that you must select the "Write" option for any changes to be committed to the partition map before you exit the application.

FORMAT

Purpose: Formats partitions, clearing all the data in them, while creating a new filesystem.

Command line: /sbin/vformat

Walk Through: By launching this option, you are presented with a list of the partitions on your system that can be formatted. Only **unmounted** partitions can be formatted, so make sure the one you intend to format meets this condition or it will not be presented in the list.

To format a partition select it from the list and press OK, then follow the instructions.

> **Warning:** Be careful when you select the partition to format, once it is done, all of the information contained in it will be erased.

MOUNT

Purpose: Setup additional partitions to be mounted at boot time.

Command line: /sbin/vmount

Walk Through: This tool is an easy method to configure additional local disks or partitions to be mounted in your system. Select the option and you can ADD or REMOVE mount points.

- **Add** If you select "Add" you will be presented with a list of the local filesystems which are available and which are not already present in */etc/fstab* (the file where mount point configurations are stored). Select the one you want to configure and you will be asked where you want it to be mounted. Then you will see the default options it will be mounted with. If you know what you are doing, you can modify these options, otherwise accept the defaults and press "Ok". The filesystem will not be automatically mounted, you will have to mount it manually by either command line, Kwikdisk, or utilities such as gkrellm. If you mount it by command line, and assuming you created a mount point in /mnt/win, you could use this command (as root): *mount /mnt/win* You could also use: *mount -a* this will mount *all* of the mount points available in the configuration file, /etc/fstab.

Note: Keep in mind that the default settings make the filesystem mountable ONLY by the root user and not by ordinary users. If you want to make it mountable by users you could append "users," to the default options that are presented during the process.

- **Del** If you select "Del" you will be deleting a "mount point". This tells the system not to access some particular filesystem (disk, partition, etc,). You are not actually deleting any contents of that filesystem. So, if you choose to Delete a mount point, you will see a list of the devices configured to be mountable (not necessarily auto-mounted). Simply select those you want to remove and press "Ok". Their entries will be removed from the configuration files and nothing will be modified in the filesystem itself.

  Note: It is highly recommended that you unmount the filesystem BEFORE you delete it's mount point. If you do not unmount the filesystem beforehand it will not be unmounted automatically so you will have to do it either by command line, Kwikdisk, gkrellm or by rebooting the system.

LILO

Purpose: This option helps you build the */etc/lilo.conf* configuration file so that you can install LILO to your system. The Linux Loader, or LILO, is a popular booter in use on many Linux systems. It is quite configurable and can easily be used to boot other operating systems such as Windows.

Command Line: /sbin/vliloconfig

Walk Through: When selecting this option, you will be given the choice to use simple or expert mode.

If this is your first time setting up LILO, you should pick the "simple" option. If you are familiar with LILO and Linux, the "expert mode" may provide you additional levels of control, which could lead to faster configuration.

- **Simple Setup** ** ** If kernel frame buffer support is compiled into your kernel, **liloconfig** will ask which video resolution you would like to use. This is the resolution that is also used by the XFree86 frame buffer server. If you do not want the console to run in a special video mode, selecting normal will keep the standard 80x25 text mode in use.

  The next part of the LILO configuration is selecting where you want it installed. This is probably the most important step. The list below explains the installation places:

  – Root This option installs LILO to the beginning of your Linux root partition. This is the safest option if you have other operating systems on your computer. It ensures that any other bootloaders are not overwritten. The disadvantage is that LILO will only load from here if your Linux drive is the first drive on your system.

  – Floppy This method is even safer than the previous one. It creates a boot floppy that you can use to boot your Linux system. This keeps the bootloader off the hard disk entirely, so you only boot this floppy when you want to use VectorLinux. However, this boot method is the slowest.

  – MBR You will want to use this method if VectorLinux is the only operating system on your computer, or if you will be using LILO to choose between multiple operating systems on your computer. This is the most common method.

> **Warning:** This option will overwrite any other bootloader you have in the MBR.
> After selecting the installation location, **liloconfig** will write the configuration file and install LILO.

- **Expert** If you select the "expert" mode you will receive a special menu. This menu allows you to tweak the */etc/lilo.conf* file, add other operating systems to your boot menu, and set LILO to pass special kernel parameters at boot time.

BACKUPSYS

Purpose: Allows you to backup important system files.

Command line: /sbin/vbackupsys

Walk Through: This utility allows you to keep multiple backups (up to 9). It is also designed to backup system configuration files, which most of the time are small text files. There are three available options:

- **Cron** Schedule regular backups. Selecting this option means that the cron daemon will be configured to start at boot time and perform the backup on a daily basis.
- **Backup** Perform a one time backup. You can choose to perform an update of an existing backup, where only the files that were changed are added to the compressed archive (something known as an incremental backup). Or you can perform a full backup where all of the designated files are stored in a new, additional compressed archive. After you select and accept the backup method, the process will begin and, when done, you will be presented with a report of the results.
- **Restore** Restore files from backup archives. After selecting this option you will be presented with a list of the available backup archives. Select the one you wish to restore based on its date. Once you selected the archive, a dialog window will appear, where you can individually select which files to restore. **Warning:** when you restore a file, it will overwrite the one currently in use. If you want to keep both files you will have to manually copy the current file to a safe place and only then restore the old one from the archive.

2.3 The VectorLinux Packaging System

2.3.1 Introduction

Unlike the Microsoft Windows world which uses executable *.exe* files to install software the Linux world uses "packaging systems". Red Hat Linux and Mandriva use *.rpm* packages, Ubuntu, Debian, Mepis, Xandros use *.deb* packages and Slackware/Vector use *.tgz* packages. VectorLinux also uses ".tlz" packages, which take less space and enable us to provide more software on one CD. Many Linux packages are contained in FTP repositories and software is available which automates the download and installation of the correct package for your system in one easy step. VectorLinux uses a package management system based on *slapt-get* (text mode) and *gslapt* (graphical, GUI mode).

The VectorLinux packaging system is based around the Slackware packaging system and consists of *.tgz* or *.tlz* packages. However, the Slackware system has been improved by slapt-get. slapt-get mimics the Debian apt packaging system. It automates the download, cataloguing and install process and also provides some dependency checking which was not available with the Slackware system. gslapt is a GUI-based wrapper around slapt-get, so is the recommended packaging software for newcomers to VectorLinux. On the other hand if you are a confident command line user you will find slapt-get, coupled with piping to other Linux commands very powerful.

slapt-get and gslapt enable VectorLinux users to easily download, install, upgrade, remove, search, and query packages of software on their system. You only really need need to do two steps to install/upgrade or remove software packages :

- **Update local information on packages available from your chosen** source(s).

- Install, Upgrade or Remove the packages of your choice.

New in version 6.0: VectorLinux 6.0 now includes by default the small daemon "slapt-update-notifier". This utility will check the VectorLinux repository and will pop-up a small notifier in the bottom right applet section of either KDE or xfce to inform the user when updates are available. If clicked gslapt will be launched. Please ensure that you do wish to do this. Although VL packagers are very careful at their job there is no guarantee that software updates will not break your system. You have been warned!

2.3.2 Update the Package List

This step downloads the necessary package information details from the VectorLinux repository (a specific FTP site). You must ensure your Internet connection is working, then: 1) command line method: `slapt-get --update` , or 2) GUI method: launch "gslapt", click Update icon. These commands can take a few seconds to a few minutes depending on the speed of your Internet connection, the load on the server and the speed of your system.

2.3.3 Install the Packages

1) command line method: `slapt-get --install [packagenames]` , or 2) gslapt method: launch gslapt, search for your required packages in the list, click those you want, click Package Install. Remember that this command actually fetches the package from a server and then installs it. This can take some time depending on the speed of your Internet connection, the load on the server and the speed of your system. Please be patient.

2.3.4 Other useful slapt-get commands

Please refer to the documentation for slapt-get: `man slapt-get`, the HOWTOs at the VL Forum: slapt-get basics and gslapt basics or go to the slapt-get FAQ site for more advanced topics.

You may wish to try some of these slapt-get commands:

`slapt-get --available` to list all the available packages from the source repository

`slapt-get --installed` to list only those packages that you have already installed

`slapt-get --search [packagename(s)]` to search the listings for specific package(s)

`slapt-get --install [packagename(s)]` to install (or to upgrade an already installed) package(s)

`slapt-get --clean` to clear your temp directory of downloaded packages

`slapt-get --remove [packagename(s)]` to remove packages(s)

`slapt-get --show [package(s)]` to show a package(s) description

`slapt-get --reinstall --install [package]` to reinstall an existing package

`slapt-get --reinstall --install [exactpackagenameandnumbers]` to downgrade a package

`slapt-get --available|sort|less` to show a sorted, paged list of available packages from the source

`slapt-get --installed|sort|less` to show a sorted, paged list of installed packages on your system

`slapt-get --available|grep inst=no|sort|less` to show a sorted, paged list of available, uninstalled packages

`slapt-get --available|grep fluxbox` to show only available packages related to e.g. fluxbox

`slapt-get --available|grep inst=no|grep vl5|sort|less` to show only available, uninstalled packages specifically packaged for VL5

`slapt-get --available|grep fluxbox|awk '{print $1}'|sort|uniq|xargs -r slapt-get --install`
: to install all packages pertaining to e.g. fluxbox

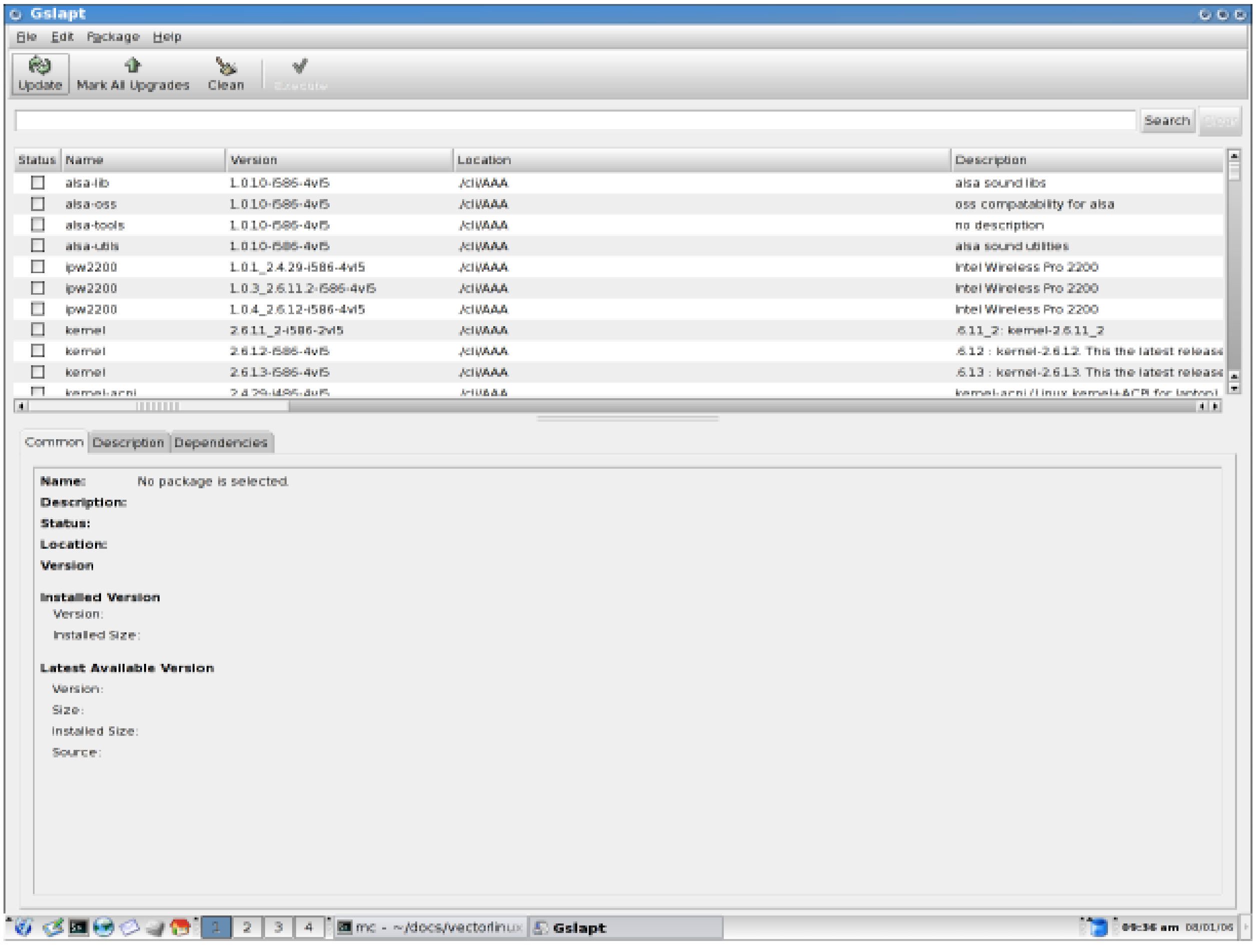
`slapt-get --available|grep inst=no|awk '{print $1}'|sort|uniq|xargs -r slapt-get --install`
: to install every available package not yet installed (DANGER!)

2.3.5 Gslapt

Gslapt is the GUI software for managing VectorLinux packages. It is the software most likely to be used by newcomers to VL. It is a GUI wrapper around typical slapt-get commands (see section above) and makes slapt-get much easier unless you are very comfortable with the command line. The thumbnails below illustrate the essential features you need to know to operate gslapt effectively. Click on the thumbnails to see a larger version.

The gslapt window is comprised of 5 sections, arranged vertically. From top down these are the 1) menu panel, 2) icon panel, 3) search panel, 4) package listing panel and 5) package description panel. In essence, gslapt is a very user-friendly so we will not belabour this section.

> **Warning:** Please note that the gslapt command "Mark All Upgrades" followed by "Execute" will upgrade every installed package on your system for which there is a newer version at the repository. This is the equivalent of the slapt-get command `slapt-get --upgrade`. *Either of these commands can be dangerous and may lead to a broken system - you have been warned!* See section below for further details.



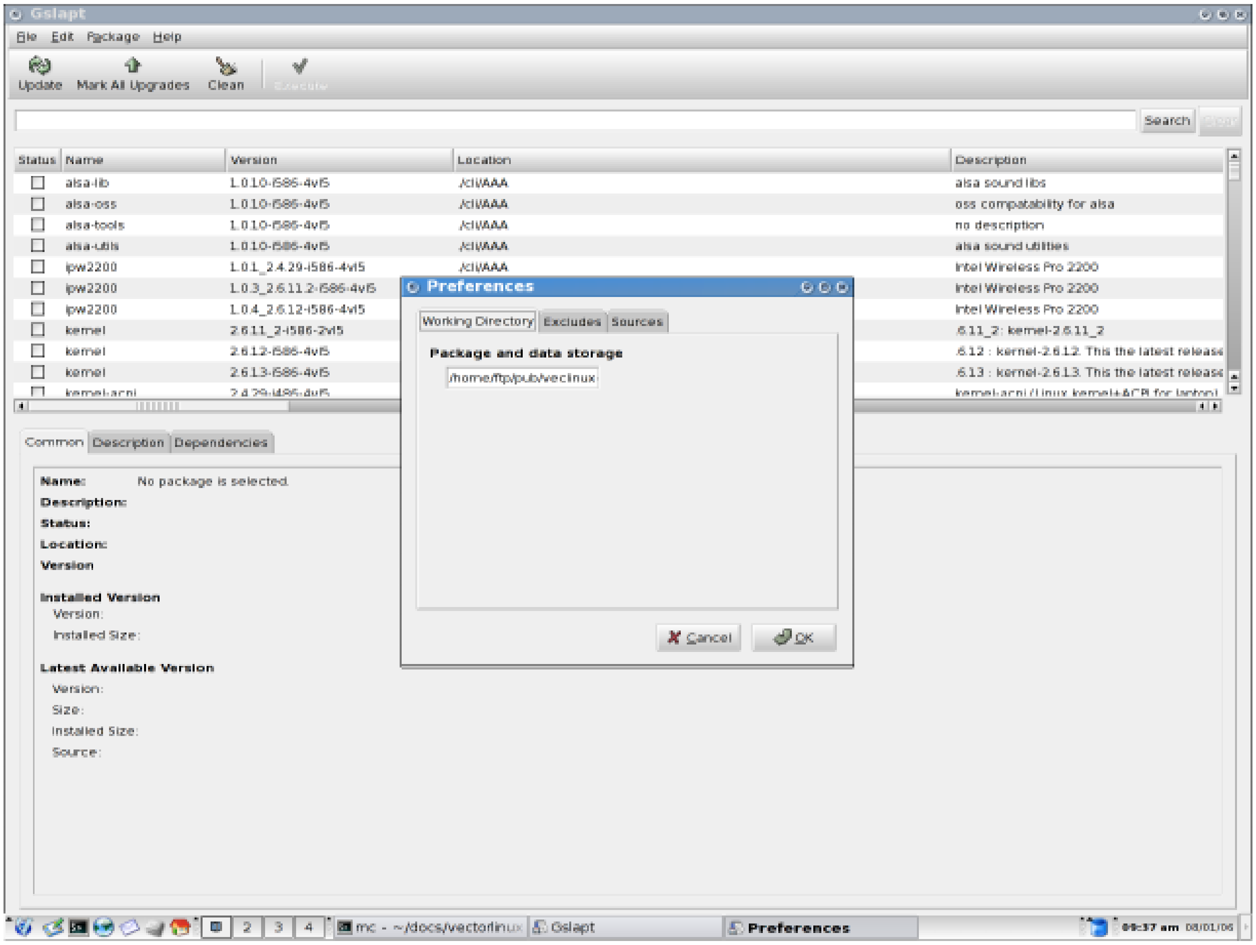
Status	Name	Version	Location	Description
□	alsa-lib	1.0.10-i586-4vl5	./cli/AAA	alsa sound libs
□	alsa-oss	1.0.10-i586-4vl5	./cli/AAA	oss compatability for alsa
□	alsa-tools	1.0.10-i586-4vl5	./cli/AAA	no description
□	alsa-utils	1.0.10-i586-4vl5	./cli/AAA	alsa sound utilities
□	ipw2200	1.0.1_2.4.29-i586-4vl5	./cli/AAA	Intel Wireless Pro 2200
□	ipw2200	1.0.3_2.6.11.2-i586-4vl5	./cli/AAA	Intel Wireless Pro 2200
□	ipw2200	1.0.4_2.6.12-i586-4vl5	./cli/AAA	Intel Wireless Pro 2200
□	kernel	2.6.11_2-i586-2vl5	./cli/AAA	.6.11_2: kernel-2.6.11_2
□	kernel	2.6.12-i586-4vl5	./cli/AAA	.6.12 : kernel-2.6.12. This the latest release
□	kernel	2.6.13-i586-4vl5	./cli/AAA	.6.13 : kernel-2.6.13. This the latest release
□	kernel-acpi	2.4.29-i486-4vl5	./cli/AAA	kernel-acpi (Linux kernel+ACPI for laptop)

Name: No package is selected.
Description:
Status:
Location:
Version

Installed Version
Version:
Installed Size:

Latest Available Version
Version:
Size:
Installed Size:
Source:

Fig. 2.1: Gslapt



Status	Name	Version	Location	Description
□	alsa-lib	1.0.10-i586-4vl5	./cli/AAA	alsa sound libs
□	alsa-oss	1.0.10-i586-4vl5	./cli/AAA	oss compatability for alsa
□	alsa-tools	1.0.10-i586-4vl5	./cli/AAA	no description
□	alsa-utils	1.0.10-i586-4vl5	./cli/AAA	alsa sound utilities
□	ipw2200	1.0.1_2.4.29-i586-4vl5	./cli/AAA	Intel Wireless Pro 2200
□	ipw2200	1.0.3_2.6.11.2-i586-4vl5		Intel Wireless Pro 2200
□	ipw2200	1.0.4_2.6.12-i586-4vl5		Intel Wireless Pro 2200
□	kernel	2.6.11_2-i586-2vl5		.6.11_2: kernel-2.6.11_2
□	kernel	2.6.12-i586-4vl5		.6.12 : kernel-2.6.12. This the latest release
□	kernel	2.6.13-i586-4vl5		.6.13 : kernel-2.6.13. This the latest release
□	kernel-acpi	2.4.29-i486-4vl5		kernel-acpi (Linux kernel+ACPI for laptop)

Name: No package is selected.
Description:
Status:
Location:
Version

Installed Version
Version:
Installed Size:

Latest Available Version
Version:
Size:
Installed Size:
Source:

Package and data storage
/home/ftp/pub/veclinux

Fig. 2.2: Gslapt Preferences

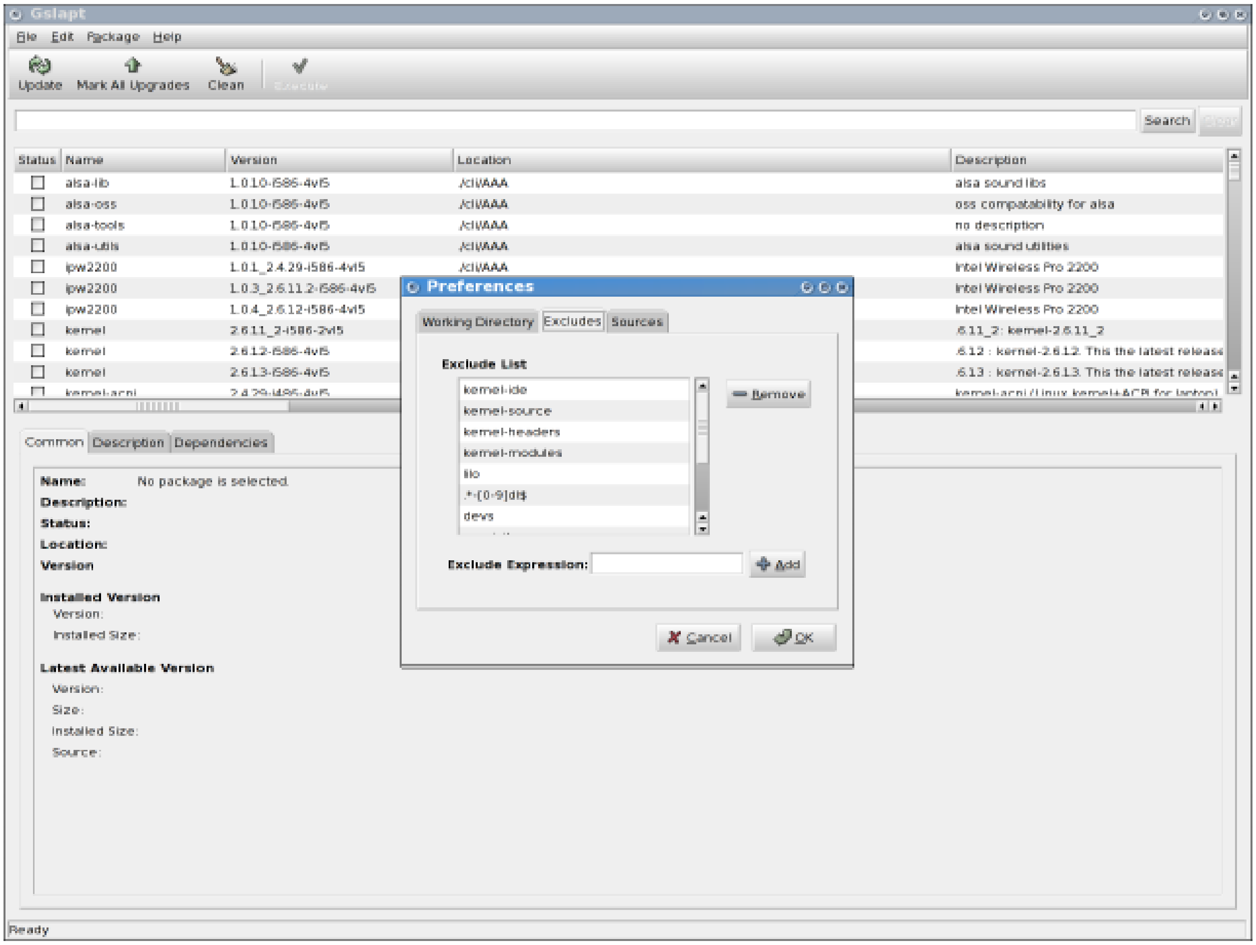
2.3.6 Known problems

System Upgrades

Unfortunately at the moment, the VectorLinux repository is not yet as robust and debugged as a typical Debian package site (but it gets better by the week)!. Consequently, it is highly recommended that users **refrain from attempting full system upgrades.** In other words, do not use the commands `slapt-get --upgrade` or "gslapt, Mark All Upgrades, Execute". Either of these commands will upgrade *every* installed package on your system for which there is a more recent version. It is suggested that you `slapt-get --install [packagenames]` only for those packages which you definetely require an upgrade for a functionality improvement or to cure a serious security risk to the older package. At present, it is wiser to actually reinstall a stable, newer release of VectorLinux than to attempt a system upgrade with *slapt-get –upgrade*. Remember the old adage: "if it ain't broke don't fix it!". The VL developers and packagers are working to improve our package repository so that sometime in the near future full "safe" complete system upgrades using slapt-get –upgrade will be a viable option.

Slackware Packages

VectorLinux is able to install Slackware packages. However, Slackware does not normally support slapt-get nor do Slackware packages do any dependency checking. For this reason we do not recommend enabling any Slack-



Status	Name	Version	Location	Description
□	alsa-lib	1.0.10-i586-4vl5	./cli/AAA	alsa sound libs
□	alsa-oss	1.0.10-i586-4vl5	./cli/AAA	oss compatability for alsa
□	alsa-tools	1.0.10-i586-4vl5	./cli/AAA	no description
□	alsa-utils	1.0.10-i586-4vl5	./cli/AAA	alsa sound utilities
□	ipw2200	1.0.1_2.4.29-i586-4vl5	./cli/AAA	Intel Wireless Pro 2200
□	ipw2200	1.0.3_2.6.11.2-i586-4vl5		Intel Wireless Pro 2200
□	ipw2200	1.0.4_2.6.12-i586-4vl5		Intel Wireless Pro 2200
□	kernel	2.6.11_2-i586-2vl5		.6.11_2: kernel-2.6.11_2
□	kernel	2.6.12-i586-4vl5		.6.12 : kernel-2.6.12. This the latest release
□	kernel	2.6.13-i586-4vl5		.6.13 : kernel-2.6.13. This the latest release
□	kernel-acpi	2.4.29-i486-4vl5		kernel-acpi (Linux kernel+ACPI for laptop)

Name: No package is selected.
Description:
Status:
Location:
Version

Installed Version
Version:
Installed Size:

Latest Available Version
Version:
Size:
Installed Size:
Source:

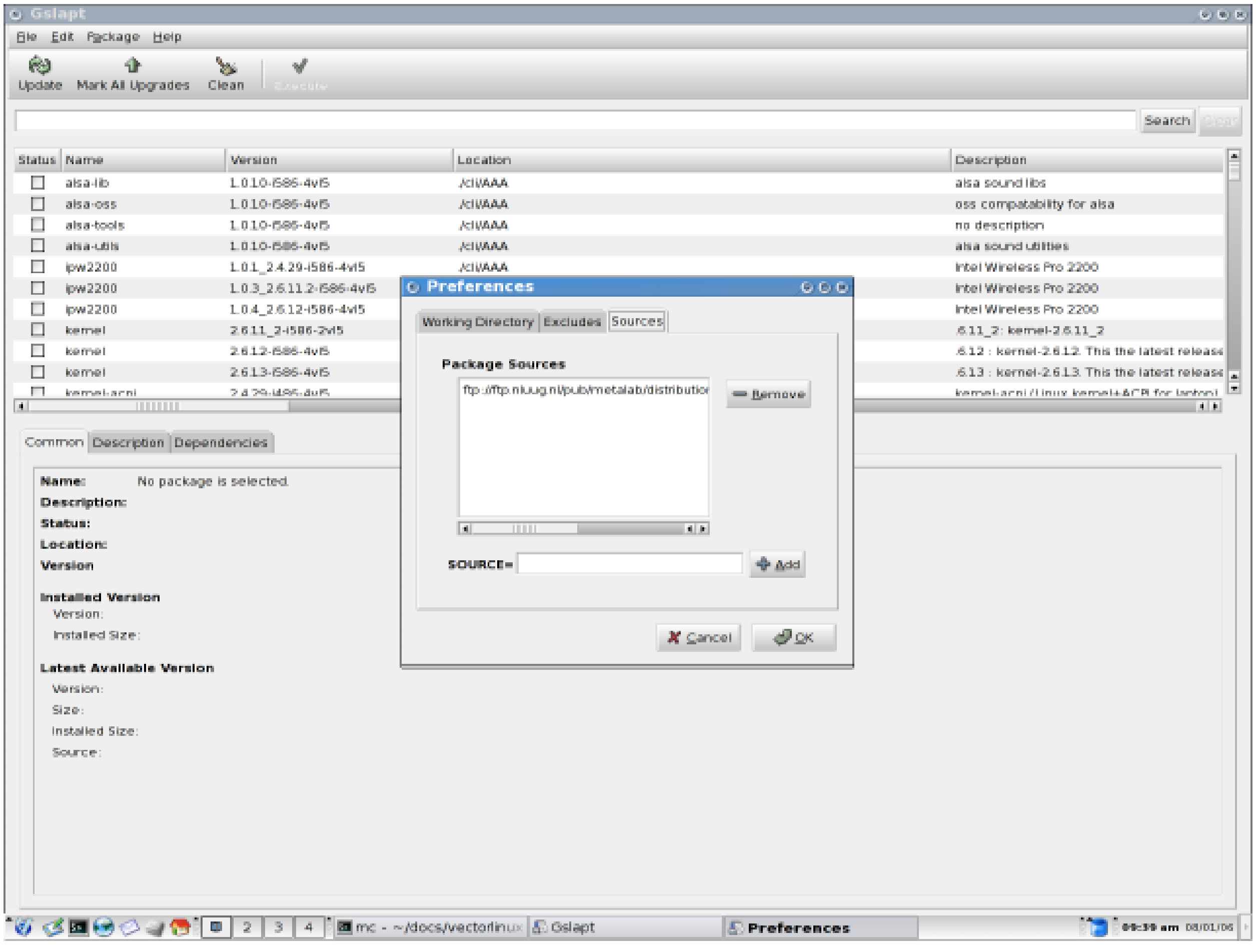
Exclude List

kernel-ide
kernel-source
kernel-headers
kernel-modules
lilo
.*-[0-9]dl$
devs

Exclude Expression:

Ready

Fig. 2.3: Excludes



Status	Name	Version	Location	Description
□	alsa-lib	1.0.10-i586-4vl5	./cli/AAA	alsa sound libs
□	alsa-oss	1.0.10-i586-4vl5	./cli/AAA	oss compatability for alsa
□	alsa-tools	1.0.10-i586-4vl5	./cli/AAA	no description
□	alsa-utils	1.0.10-i586-4vl5	./cli/AAA	alsa sound utilities
□	ipw2200	1.0.1_2.4.29-i586-4vl5	./cli/AAA	Intel Wireless Pro 2200
□	ipw2200	1.0.3_2.6.11.2-i586-4vl5		Intel Wireless Pro 2200
□	ipw2200	1.0.4_2.6.12-i586-4vl5		Intel Wireless Pro 2200
□	kernel	2.6.11_2-i586-2vl5		.6.11_2: kernel-2.6.11_2
□	kernel	2.6.12-i586-4vl5		.6.12 : kernel-2.6.12. This the latest release
□	kernel	2.6.13-i586-4vl5		.6.13 : kernel-2.6.13. This the latest release
□	kernel-acpi	2.4.29-i486-4vl5		kernel-acpi (Linux kernel+ACPI for laptop)

Name: No package is selected.

Description:

Status:

Location:

Version

Installed Version

Version:

Installed Size:

Latest Available Version

Version:

Size:

Installed Size:

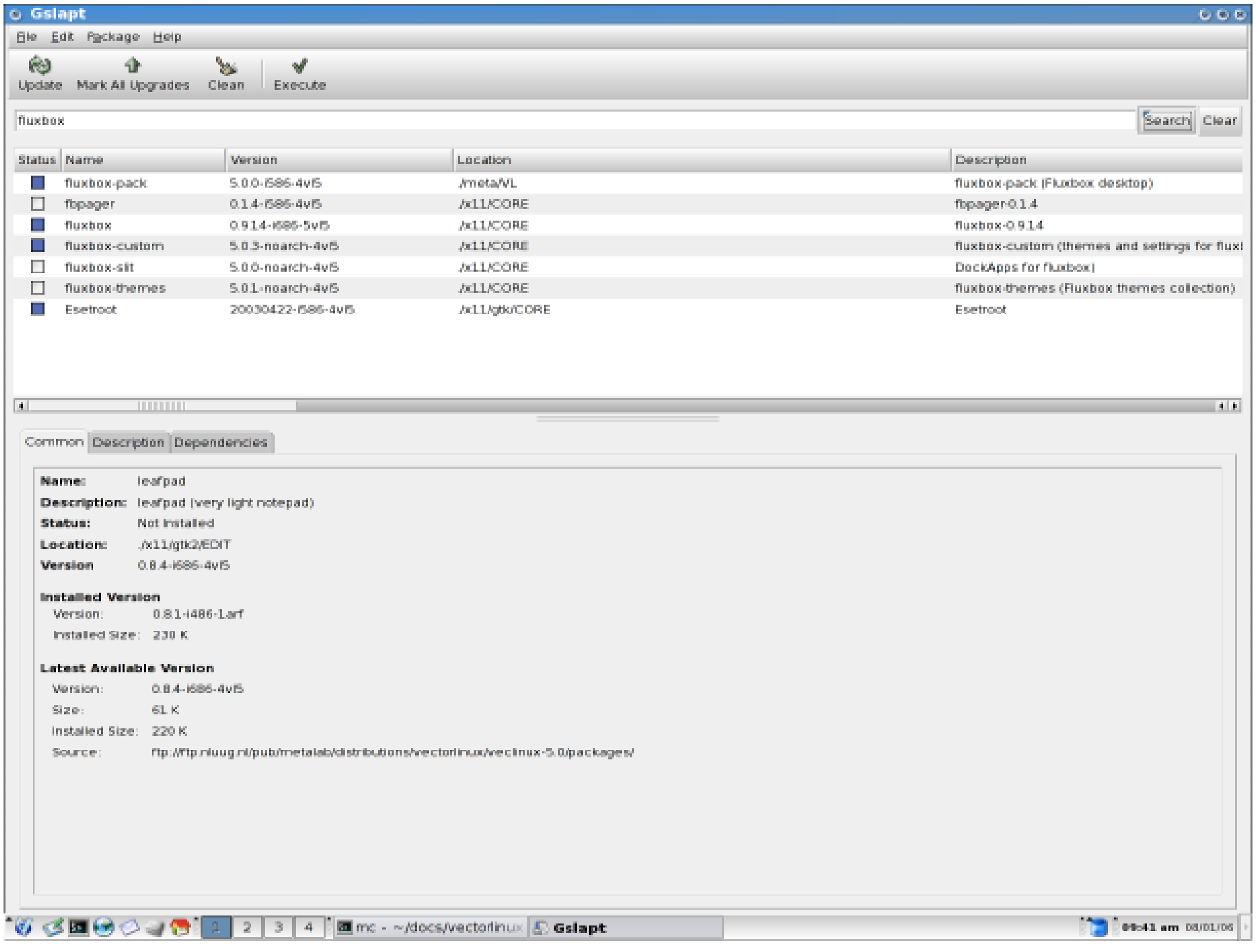
Source:

Package Sources

ftp://ftp.nluug.nl/pub/metalab/distributio

SOURCE=

Fig. 2.4: Sources



fluxbox

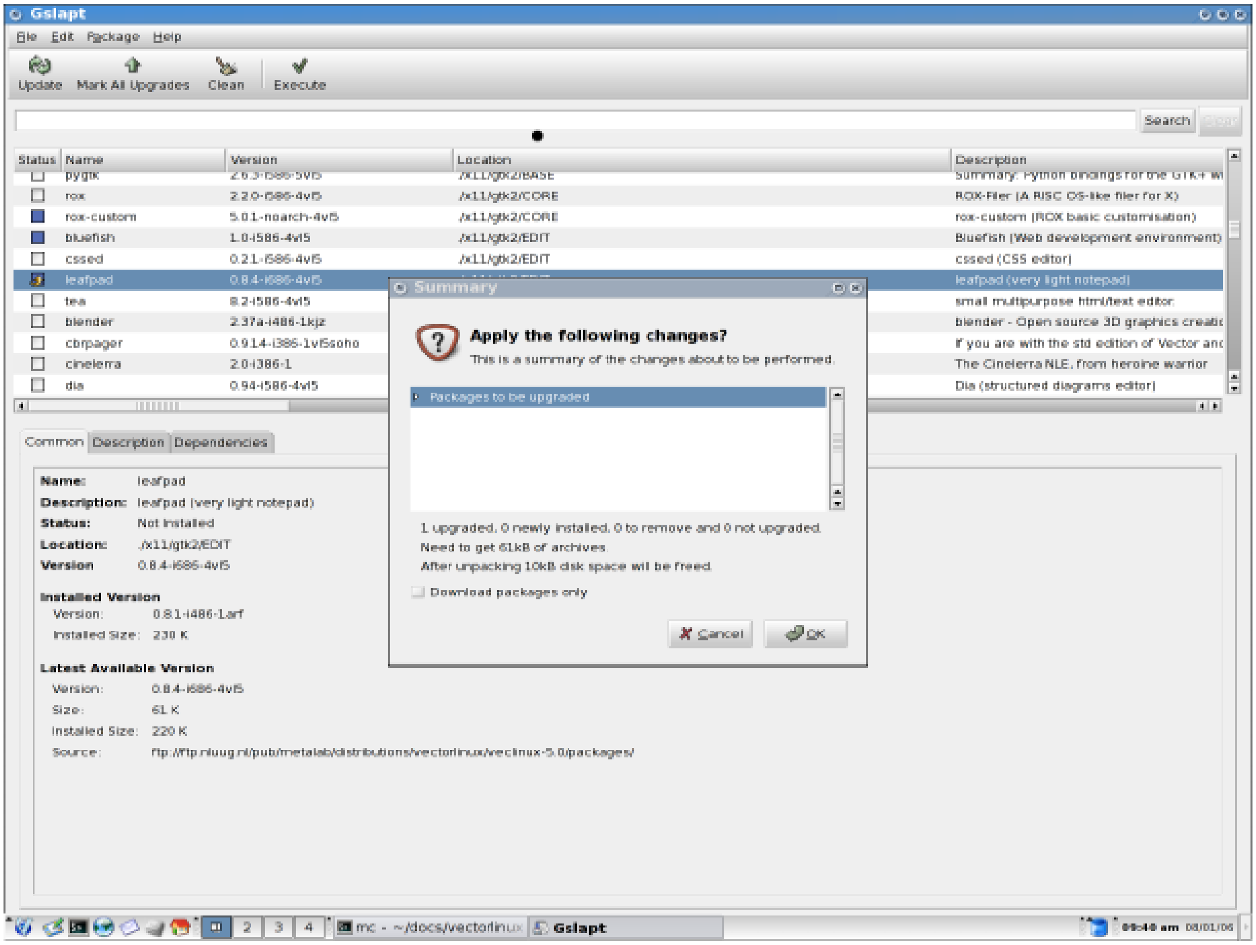
Status	Name	Version	Location	Description
■	fluxbox-pack	5.0.0-i586-4vl5	./meta/VL	fluxbox-pack (Fluxbox desktop)
□	fbpager	0.1.4-i586-4vl5	./x11/CORE	fbpager-0.1.4
■	fluxbox	0.9.14-i686-5vl5	./x11/CORE	fluxbox-0.9.14
■	fluxbox-custom	5.0.3-noarch-4vl5	./x11/CORE	fluxbox-custom (themes and settings for flux
□	fluxbox-slit	5.0.0-noarch-4vl5	./x11/CORE	DockApps for fluxbox)
□	fluxbox-themes	5.0.1-noarch-4vl5	./x11/CORE	fluxbox-themes (Fluxbox themes collection)
■	Esetroot	20030422-i586-4vl5	./x11/gtk/CORE	Esetroot

Name: leafpad
Description: leafpad (very light notepad)
Status: Not installed
Location: ./x11/gtk2/EDIT
Version 0.8.4-i686-4vl5

Installed Version
Version: 0.8.1-i486-1arf
Installed Size: 230 K

Latest Available Version
Version: 0.8.4-i686-4vl5
Size: 61 K
Installed Size: 220 K
Source: ftp://ftp.nluug.nl/pub/metalab/distributions/vectorlinux/veclinux-5.0/packages/

Fig. 2.5: Search



Status	Name	Version	Location	Description
□	pygtk	2.6.3-i586-5vl5	./x11/gtk2/BASE	Summary: Python bindings for the GTK+ wi
□	rox	2.2.0-i586-4vl5	./x11/gtk2/CORE	ROX-Filer (A RISC OS-like filer for X)
■	rox-custom	5.0.1-noarch-4vl5	./x11/gtk2/CORE	rox-custom (ROX basic customisation)
■	bluefish	1.0-i586-4vl5	./x11/gtk2/EDIT	Bluefish (Web development environment)
□	cssed	0.2.1-i586-4vl5	./x11/gtk2/EDIT	cssed (CSS editor)
	leafpad	0.8.4-i686-4vl5		leafpad (very light notepad)
□	tea	8.2-i586-4vl5		small multipurpose html/text editor
□	blender	2.37a-i486-1kjz		blender - Open source 3D graphics creatio
□	cbrpager	0.9.14-i386-1vl5soho		If you are with the std edition of Vector anc
□	cinelerra	2.0-i386-1		The Cinelerra NLE, from heroine warrior
□	dia	0.94-i586-4vl5		Dia (structured diagrams editor)

Name: leafpad
Description: leafpad (very light notepad)
Status: Not installed
Location: ./x11/gtk2/EDIT
Version 0.8.4-i686-4vl5

Installed Version
Version: 0.8.1-i486-1arf
Installed Size: 230 K

Latest Available Version
Version: 0.8.4-i686-4vl5
Size: 61 K
Installed Size: 220 K
Source: ftp://ftp.nluug.nl/pub/metalab/distributions/vectorlinux/veclinux-5.0/packages/

Apply the following changes?
This is a summary of the changes about to be performed.

Packages to be upgraded

1 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
Need to get 61kB of archives.
After unpacking 10kB disk space will be freed.

□ Download packages only

Fig. 2.6: Install

ware repositories in the /etc/slapt-get/slapt-getrc configuration file (or with gslapt, Edit, Preferences, Sources, Add a Source). The default slapt-get configuration file will enable the user to download and install Vector packages only. Slackware packages which are non-system packages will probably work fine with VL but you may have to install all the dependant packages first and there is no guarantee the package will work properly. If you do decide to load a Slackware package please ensure you download packages built for the correct version of Slackware. For VL6.0 the Slackware version it is based upon is v.12.1

To install a Slackware package that you have downloaded you use the Slackware "installpkg" command rather than slapt-get or gslapt (see section below for more details).

2.3.7 Other Slackware Package Commands

For the sake of completeness this section documents basic Slackware Package commands which are also available to the VL user. Remember that slapt-get (and gslapt) are built upon Slackware package commands. The Slackware commands, unlike slapt-get and gslapt do not retrieve packages from mirror sites: they assume you have already downloaded the appropriate package. The commands available are: `installpkg, removepkg, upgradepkg, explodepkg, makepkg and pkgtool.` You will find a "man page" for each of these commands, e.g. `man installpkg` for a full explanation of how to use each of these commands. Some examples of Slackware package commands usage:

- to install a "leafpad" package which you downloaded from linuxpackages.net, first "cd" into the directory where the package is located and then:
- to remove an "abiword" package from your system: `removepkg abiword`.
- to extract the contents of a Slackware package into the current directory: `explodepkg leafpad-0.8.4-i486-1arf.tgz`.
- to install, remove or view packages from a handy menu system: `pkgtool` .

One of the most convenient features of "mc", the Midnight Commander menu-based file manager, is that VL has added some Slackware package commands to the "F2" menu. One may easily pack, install and remove Slackware/Vector *.tgz* packages using mc in this manner. In the mc F2 menu you also can convert an RPM package to a Slackware package. This facility is also available from the command line using the command: `rpm2tgz`.

Furthermore, VL provides the convenient command: `pkgtool` . "pkgtool" is the Slackware package utility - a command line wrapper around the Slackware package commands mentioned in the paragraphs above, with a few enhancements. By typing: `pkgtool` as root, you will see the options available to you.

2.3.8 Building Packages

Experienced Linux users who are familiar with compiling software from source code are encouraged to contribute to the VectorLinux community by building packages which are not yet in the VL repositories. Your contributions will enhance VL for all users by providing a more comprehensive suite of packages for the VL community.

The procedure to build a proper VectorLinux package is outlined at the VectorLinux Forum here. Please follow the procedures exactly as any deviations from this methodology may result in non-robust package that may break a user's system.

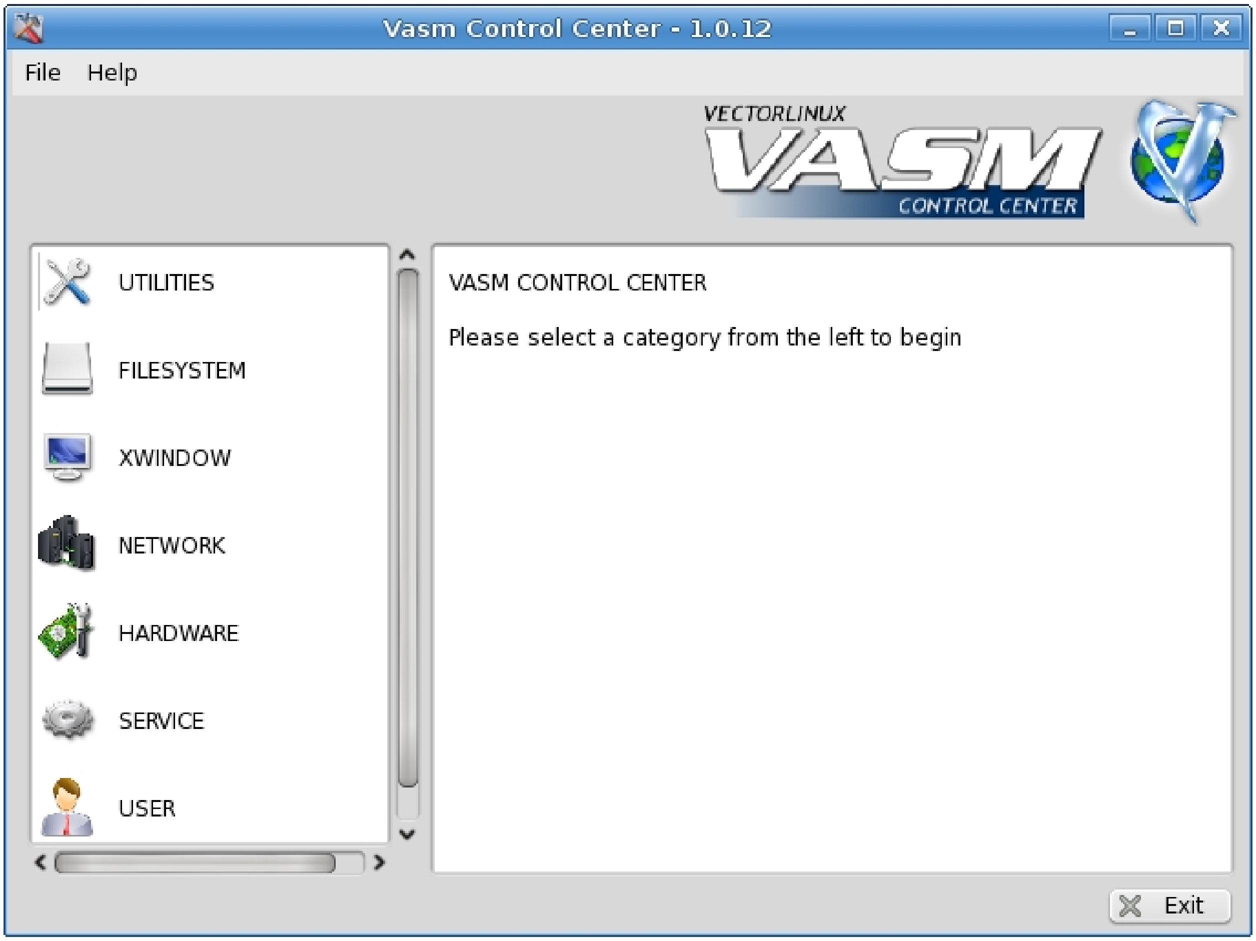
VL now has a new application provided with 6.0 called "vpackager". This newbie-friendly GUI software automates the compilation and creation of a VectorLinux package from source code. More details can be found here.

2.4 VectorLinux System Utilities and Tools

VectorLinux v6.0 provides users with a number of system tools and utilities to make administration of their computer system easier than hand-editing configuration files. These utilities are described in detail below, but for the most part, their usage is trivial and obvious. Where that is not the case the intricacies are explained.

2.4.1 VasmCC

VasmCC is the VectorLinux (System) Control Centre. It provides an iconic GUI interface to vasm. VASM is the Vector Administration and System Menu, fully explained in the VASM manual. "vasm" itself is an ncurses based text menu interface, while VasmCC is simply a GUI wrapper to vasm. The image below show the basic functionality of this software.



VASM CONTROL CENTER

Please select a category from the left to begin

2.4.2 Vpackager

vpackager is a VectorLinux utility which enables users to build a properly packaged VL .tlz package from source code. A complete explanation of the VL package management system (gslapt and slapt-get) is found in our slapt-get/gslapt/packages manual.

The user is also referred to our forum where a full explanation on how to build a package is described. vpackager documentation is fully explained at the vpackager website, so will not be fully re-iterated here. Newer Linux users should be aware that vpackager is not required to install or remove packages. Such functionality is provided instead by “gslapt”. The image below shows the basic functionality of vpackager.

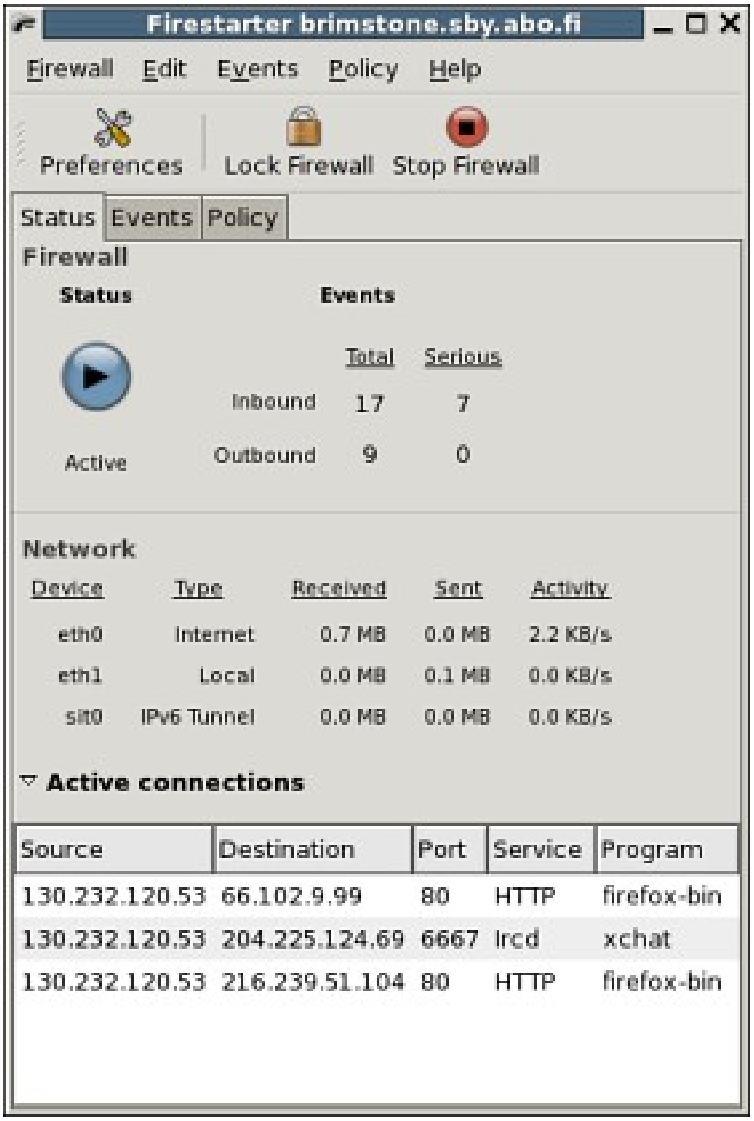
2.4.3 Vcpufreq

“vcpufreq” is a Central Processing Unit (CPU) frequency configuration utility developed in Gambas by Joe1962 for VectorLinux. It makes it easy to change the CPU frequency governor (with those CPU’s which have such a function) and related frequency settings. It does not (yet) load the appropriate cpufreq module for your system. vcpufreq includes the CLI utility “vcpufreq-load” to set the saved configuration on system start. This utility requires root access and requires that the appropriate module is loaded. With most modern CPU’s this will be done at boot up. If this is not the case then the user must find out which module is relevant and works with their CPU and then use the command “modprobe name_of_module” in their /etc/rc.d/rc.local file, to ensure the module is loaded at boot time. A listing of the available CPU modules are found in the directory /usr/src/linux-2.6.???/arch/i386/kernel/cpu/cpufreq. vcpufreq would be useful to those with notebook computers in order to reduce CPU frequency (and hence battery usage). The image below shows the basic functionality of vcpufreq.

2.4.4 Firestarter

“Firestarter” makes configuring a firewall for Linux easy and replaces the older VL utility “vleasytables” for VL version 6.0. Nonetheless, newbies should know exactly what a firewall is before proceeding to enable a firewall under VectorLinux. If you are behind a hardware router, you are not serving files to other machines, you the only user of your machine, are a generally careful user of the Internet and do not normally run your computer as root user then a firewall may not be necessary. Otherwise enable a firewall. For more details please read the Firestarter documentation.

The image below shows the status interface screen of Firestarter.



Firewall

Status: Active

Events

	Total	Serious
Inbound	17	7
Outbound	9	0

Network

Device	Type	Received	Sent	Activity
eth0	Internet	0.7 MB	0.0 MB	2.2 KB/s
eth1	Local	0.0 MB	0.1 MB	0.0 KB/s
sit0	IPv6 Tunnel	0.0 MB	0.0 MB	0.0 KB/s

▿ Active connections

Source	Destination	Port	Service	Program
130.232.120.53	66.102.9.99	80	HTTP	firefox-bin
130.232.120.53	204.225.124.69	6667	Ircd	xchat
130.232.120.53	216.239.51.104	80	HTTP	firefox-bin

2.4.5 HAL, Vl-Hot and Vl-Hot-config

HAL and vl-hot are utilities which enable auto-detection and auto-mounting of devices such as CDROM drives, external hard drives, USB devices, etc. HAL (Hardware Abstraction Layer) is a daemon which provides an easy way for applications to discover the hardware on the system. It basically detects new hardware or inserted drives and media and automatically pops up the software necessary to handle the new device. vl-hot is a purely udev based automount system for any kind of pluggable storage device that conforms to the block device specification and so uses scsi emulation. Both utilities do much the same thing but vl-hot is much less resource intensive. HAL is the default application installed - if you have a slower computer or enjoy less resource intensive applications then you can go into “vasm” and change the HAL system to vl-hot.

“vl-hot-config” provides simple configuration to the VectorLinux automounting system called vl-hot. Hardware known to work with vl-hot are USB pendrives, hard disks, digital cameras, memory card readers, PCCARD (or PCMCIA) memory cards and external USB drives. Firewire devices should work, but there are no user reports on this kind of hardware yet. More information on vl-hot and its differences to the HAL automount system are found in the VL mounting manual.

The working specifications of vl-hot are such that the mount base directory will be “/mnt/vl-hot/”, each drive will have a “sd?” directory (where ”?” represents a letter of the alphabet) and each mounted partition will have a “vol#” directory (where “#” represents a number) within the drive directory. An exception to this rule is in the case of non-MBR devices, where there is no partition table. Desktop icons are dynamically created/deleted (currently only for KDE, xfce and LXDE) and these have an unmount options in the context (right-click) menu. (In VL Light 6.0 using IceWM of JWM window managers you can get to the device by opening the “My Documents” icon and check the right hand panel for your device). There is a conventional unmount (should be used normally) as well as options for unmount with signalling to the process that is holding open the mount and unmount with killing of said process (the last two should be tried in that order, when the normal unmount fails). The unmount operation has completed successfully once the desktop icon disappears.

vl-hot-config enables the user to change the base mount directory, the mount icon, what should be included and automatically excluded from the mount process, the log file locations, sound notifications and mount specifics depending on filesystem type.

The image below shows the basic functionality of vl-hot-config.

2.4.6 Vlsmbmount

“vlsmbmount” is simply a front end menu message to the xsmb.sh shell script, which assists a user in connecting their computers via Samba. For this system to work the user must have the smbd and nmbd service daemons running beforehand. To do so go to System, VASM, SUPER, SERVICE, SRVSET, 4 and enable the Samba daemon.

The images below shows the basic functionality of vlsmbmount.

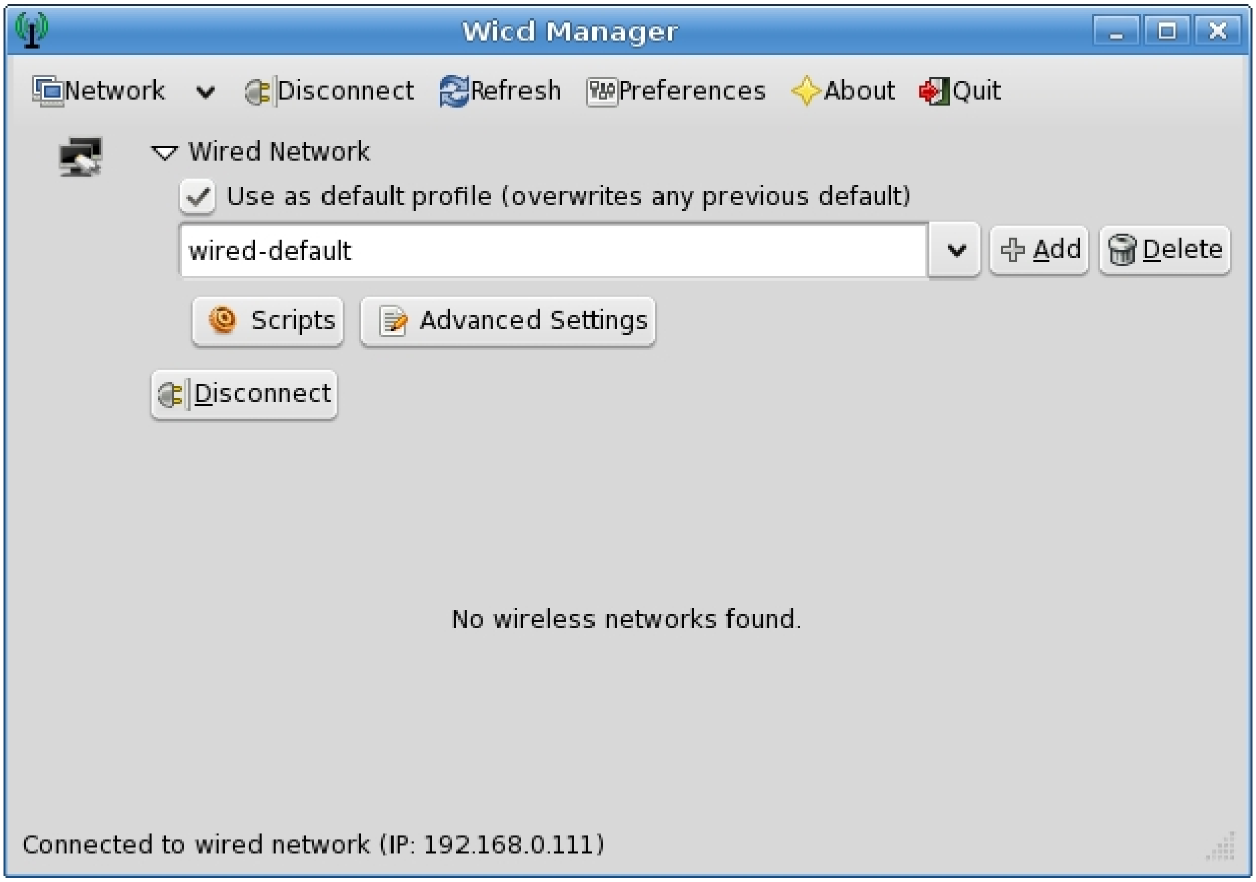
2.4.7 Vwifi

“vwifi” is a relatively simple bash script which attempts to detect the user’s wireless card device and to launch the wifi services via the iwconfig, dhcpcd and ifconfig network commands. If it does not find an appropriate module for your device it will ask you for an appropriate one from a supplied list. The user must know what module to choose. To determine the correct module you must know what chipset your wireless device uses. This can often be determine with the “lspci” command. Then visit this Linux wireless site for more information on your chipset and the appropriate module to use. Any further questions regarding problems about VL and wireless might be solved by reading our wireless HOWTO.

2.4.8 Wicd

“Wicd” is enabled by default on VectorLinux 6.0. It enables one to scan for available networks and create profiles for your preferred networks. At boot time, running Wicd as a continuous daemon will automatically scan for an available preferred network and connect to it. For further information visit the Wicd website or here.

The image below shows the basic functionality of Wicd.



☑ Use as default profile (overwrites any previous default)

wired-default

No wireless networks found.

Connected to wired network (IP: 192.168.0.111)

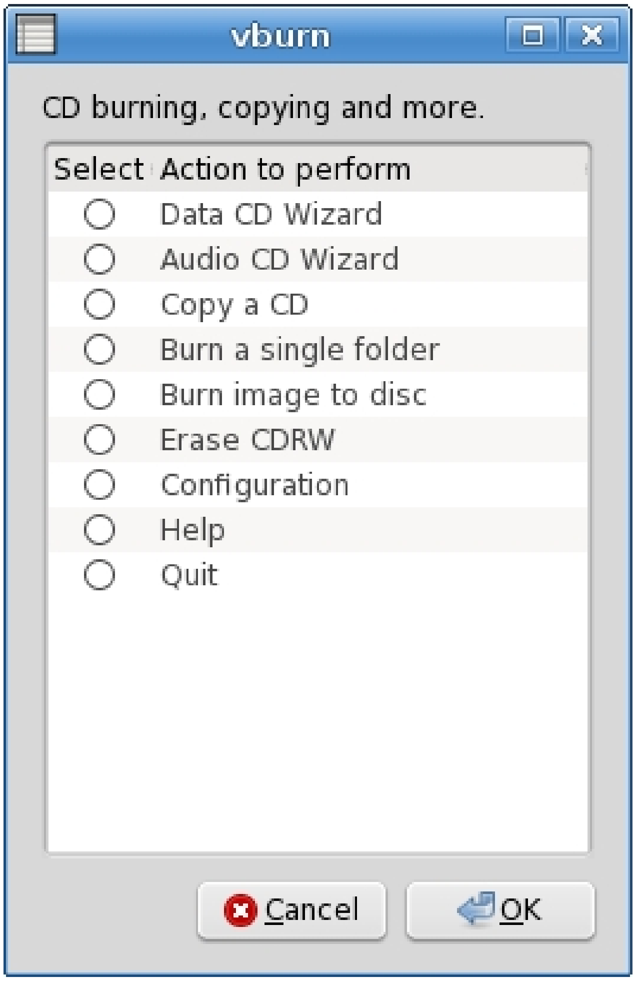
2.4.9 Slapt-get-notifier

"slapt-get-notifier" is a small daemon enabled by default on VectorLinux 6.0. It notifies the user about package updates available via slapt-get and gslapt. It is modeled after the Ubuntu update-notifier. slapt-update-notifier places an icon in the user's notification area when updates are available. Clicking the icon starts upgrading with gslapt.

2.4.10 Vburn & Tburn

"vburn" is a small, simple GUI optical drive burning application. "tburn" is its console based equivalent. They are for CD burners and not for DVD burning. For that functionality please use "k3b". vburn & tburn are examples of very slim, trim and fast Linux applications.

The image below shows the basic functionality of vburn.



CD burning, copying and more.

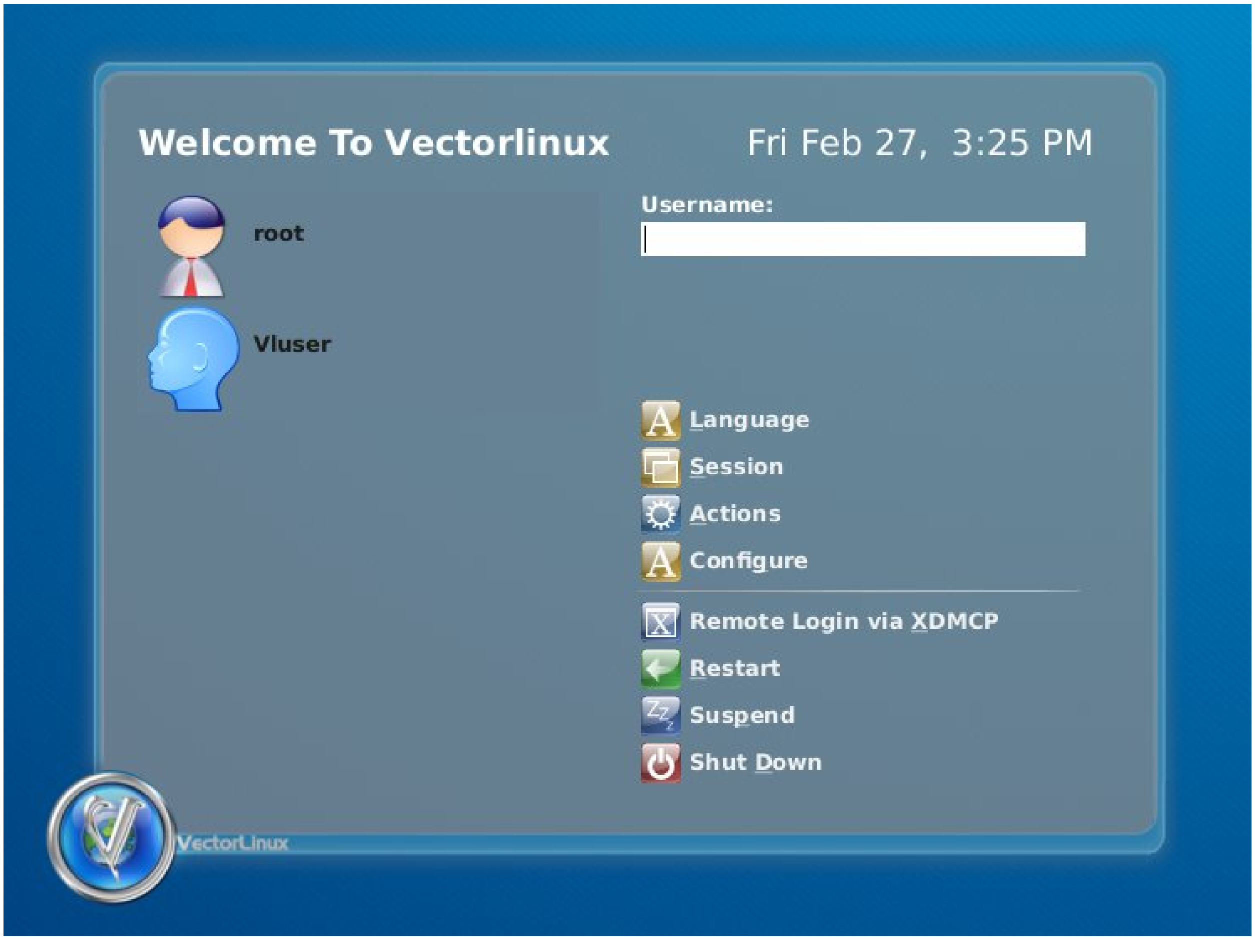
Select	Action to perform
○	Data CD Wizard
○	Audio CD Wizard
○	Copy a CD
○	Burn a single folder
○	Burn image to disc
○	Erase CDRW
○	Configuration
○	Help
○	Quit

2.4.11 GDM

“gdm” is the login manager application now used on VL 6.0 Standard. Previous users will note this change because either the kdm and xdm login managers were used on previous editions of VL Standard. The main differences to note with gdm are that one may actually change languages within gdm, configure gdm itself from the login screen and enable a remote login. gdm is highly customizable but this requires reading its documentation.

New in version 6.0: Since version 6.0 GDM is used instead KDM and XDM

The image below shows the basic functionality of gdm.



Welcome To Vectorlinux

Fri Feb 27, 3:25 PM

Username:

2.5 Mounting guide

2.5.1 Mounting Devices

In Linux, all of the drives, partitions and devices in your computer are treated as “files”. Various hard drive partitions, CD-ROMs, and floppies are all placed in the same filesystem tree. In order to be able to access the contents of those devices, external or internal devices, they must be “mounted”.

The default installation of VectorLinux v6.0 enables the HAL automounting system. HAL detects newly attached devices such as USB devices, floppy disk , CD-DVD disks, etc. It then automounts them and then launches an appropriate application. It does this seamlessly in KDE and in xfce. In other window managers provided with VL 6.0 you will need to open the PCManFM file manager and check its right hand panel for your device and double click that device to get access to it. vl-hot is similar to HAL, but uses the udev system and is much less resource intensive. It would be more appropriate to use in a lower resource older computer, and especially with the VectorLinux Light Edition. At present though, vl-hot only works with JWM and IceWM as long as the PCManFM file manager is also installed (this is the case with VL Light 6.0).

With either HAL or vl-hot working properly inserting external devices such as any USB device, a floppy disk or a CD-DVD platter will cause them to be automounted and an appropriate application will launch or a new icon for accessing the device will appear on your desktop. However, if you use a desktop other than those listed in the paragraph above, add a new hard drive or want a device to be automounted whenever you reboot the computer then you will need to familiarize yourself with the Linux “mount” and “umount” commands and also learn about the mount configuration file: /etc/fstab. The rest of this document explains these concepts. Newbies probably do not need to concern themselves yet with these concepts.

The easiest way to mount a device such as a second hard disk or partition is by adding a permanent entry in the */etc/fstab* file. In this manner the device will be automatically mounted for you at every boot.

Note: If you are not using HAL or vl-hot and you therefore do not know what device name has been assigned to the USB device you have just inserted then the easiest way to determine the device name is to open a terminal immediately after you have inserted the device and type “tail -f /var/log/messages”. The second or third last line of the file should tell you the device name.

2.5.2 Mounting devices with VASM

VASM provides an easy method to configure additional local disks or partitions to be mounted in your system. Just launch it, select “FILESYSTEM”, then “MOUNT”, and there you can ADD or REMOVE mount points.

- Adding mount points

If you select “Add” you will be presented with a list of the local filesystems which are available and which are not already present in the fstab file (the file where mount points configuration is stored).

Select the one you want to configure and you will be asked where you want it to be mounted. Then you will see the default options it will be mounted with. If you know what you are doing, you can modify these options, otherwise accept the defaults and press “Ok”.

The filesystem will not be automatically mounted, you will have to mount it manually by either command line, Kwikdisk, or utilities such as gkrellm.

If you mount it by command line, and assuming you created a mount point in /mnt/win, you could use this command (as root):

`mount /mnt/win` You could also use:

`mount -a` this will mount *all* of the mount points available in the configuration file, */etc/fstab*.

Note: Keep in mind that the default settings make the filesystem mountable ONLY by the root user and not by ordinary users. If you want to make it mountable by users you could append “users,” to the default options that are presented during the process.

- Deleting mount points

When you delete a mount point, all you are doing is telling the system not to access some particular filesystem (disk, partition, etc,), you are not actually deleting any contents of that filesystem.

So, if you choose to Delete a mount point, you will see a list of the devices configured to be mountable (not necessarily auto-mounted). Simply select those you want to remove and press “Ok”. Their entries will be removed from the configuration files and nothing will be modified in the filesystem itself.

Notes: It is highly recommended that you unmount the filesystem BEFORE you delete it’s mount point. If you do not unmount the filesystem before, it will not be unmounted automatically, so you will have to do it either by command line, Kwikdisk, gkrellm or by rebooting the system.

2.5.3 The fstab file

Since VL5, using VASM is all you need to know to mount your partitions or hardisks. However, for those wanting to know more about mounting devices, here is some additional information. Let's look at an example of the */etc/fstab* file:

```
<device>     <mount point>    <type>      <options>
/dev/hda3    /                ext3        defaults 1 1
/dev/hda2    swap             swap        defaults 0 0
/dev/hda1    /mnt/windows     vfat        defaults,noauto 0 0
/dev/hda4    /mnt/personal    vfat        defaults,auto,umask=000 0 0
none         /dev/pts         devpts      gid=5,mode=620 0 0
none         /proc                        defaults 0 0
/dev/fd0     /mnt/floppy      msdos       defaults 0 0
/dev/cdrom    /mnt/cdrom       iso9660     ro 0 0
```

The first column is the device name. In this case, the devices are four partitions in an IDE hard drive, two special filesystems that don't need a device, a floppy, and a CD-ROM drive. The second column is where in the directory tree the device will be mounted. This needs to be a directory name, except in the case of a swap partition. The third column is the filesystem type of the device. For Windows 9x filesystems, this will be vfat, for normal Linux filesystems, this will be ext2 (second extended filesystem). CD-ROM drives are iso9660, and other Windows-based devices will either be msdos or vfat. NTFS filesystems read support is available but write support is not fully reliable yet.

The umask section deals with access permissions to FAT devices. This is a very complex topic that goes beyond the scope of this guide, but keep in mind that the 000 option poses almost no restrictions about how regular users can access the device.

The last column is a listing of options that apply to the mounted filesystem. "defaults" is fine for just about everything. However, read-only devices should be given the ro flag. There are a lot of options that can be used. Check the fstab(5) man page for more information. The last two columns are used by fsck and other commands that need to manipulate the devices. Check the man page for that information, as well.

When you install VectorLinux, the setup program will build much of the fstab file. The only time you will need to edit it is if you add disks or want devices to be automatically mounted at boot time.

2.5.4 Mount and umount commands

Attaching another device to your filesystem is easy. All you have to do is use the mount command, along with a few options. **Using mount can also be made much more simple if the device has an entry in the /etc/fstab file.** For example, let's say that I wanted to mount my CD-ROM drive and that my fstab file looked like the example from the previous section. I would call mount like so:

`# mount /mnt/cdrom` Since there is an entry in fstab for that mount point, mount knows what options to use. If there wasn't an entry for that device, I would have to use several options for mount:

`# mount -t iso9660 -o ro /dev/cdrom/cdrom` That command line includes the same information as the example fstab did, but we'll go over all the parts anyways. The -t iso9660 is the filesystem type of the device to mount. In this case, it would be the iso9660 filesystem which is what CD-ROM drives most commonly use. The -o ro tells mount to mount the device read-only. The /dev/cdrom is the name of the device to mount, and /mnt/cdrom is the location on the filesystem to mount the drive.

Before you can remove a floppy, CD-ROM, or other removable device that is currently mounted, you'll have to unmount it. That is done using the `umount` command. You can use either the mounted device or the mount point as the argument to umount. For example, if you wanted to unmount the CD-ROM from the previous example, either of these commands would work:

`# umount /dev/cdrom` `# umount /mnt/cdrom`

In the default configuration of VectorLinux, only the root user is able to mount and umount devices. You can allow regular users the ability to mount devices by adding "users" (without quotes) in your fstab file:

```
/dev/hda4   /mnt/personal   vfat    defaults,auto,users,umask=000 0 0
```

2.6 Printing guide

2.6.1 Pre-Installation Check

Some printer manufacturers have made more efforts to support Linux than others. This support takes the form of either releasing Linux-specific drivers or at least releasing crucial hardware data to the Linux community so others can write the necessary drivers. Two manufacturers who have excelled are Hewlett Packard and Brother. Others are improving their Linux support. To date probably the least Linux-friendly manufacturer has been Lexmark. Before purchasing or enabling a printer please check that it is supported by Linux at the "OpenPrinting" website. "Most" printers now manufactured do work with Linux but there are some exceptions - the website above is definitive.

If you have a parallel port printer you should have enabled the parallel port during the install process. If you did not do this go to VASM, SUPER, HARDWARE, HWSET, enable parallel. If you have a newer HP printer you should check that either the hpijs and/or hplip packages have been installed to your system - if not then install them (use "gslapt"). If you have a printer which requires a special driver you must install this driver prior to launching the CUPS configuration steps (below). The website above will point you in the right direction. Please ensure you follow the driver install directions exactly or it is unlikely you will magically get your printer to work.

If you are going to use a printer on a Windows server you should check if the printer is available (see the section "Printing to Windows Servers via Samba").

2.6.2 Install & Configure your printer using CUPS

Open your web browser of choice and in its address bar type:

‘‘http://localhost:631/‘‘ Choose "Do Administration Tasks" and then enter "root" as username and root´s password at the prompt.

To add a printer, select "Add Printer" and answer questions as required. If your printer is a USB printer you should see the USB device and the printer name in the drop down devices list. For a parallel port printer you normally select "#LPT1" from the device list. When this is complete you should test the printer. (Select Printers and then select Print Test Page). You may open your browser and enter the CUPS server page (as described above) whenever needed to administer your printer(s). The CUPS help pages also contain very useful documentation. If you are going to use a printer on a Windows server (or a Linux Server which supports SAMBA) see the section "Printing to Windows Servers via SAMBA" below.

2.6.3 Printing to Windows Servers via SAMBA

(Adapted From CUPS Software Admin Manual)

One way to print to a printer on a Windows Server is through the Microsoft Server Message Block ("SMB") protocol. Support for this protocol is provided with the free SAMBA software package. This is included in the base install of VectorLinux v6.

If you are going to use a printer on a Windows server ensure that you can access the server with the printer and determine share name via smbclient:

`/usr/bin/smbclient -L server -U user` where server is name of the server and user is a login name on the server.

You should get something like:

:: added interface ip=192.168.0.4 bcast=192.168.0.255 nmask=255.255.255.0 Got a positive name query response from 192.168.0.4 (192.168.0.4) Password: (not shown) Sharename Type Comment PRINTER$ Disk INKJET Printer DOWNLOAD Disk IPC$ IPC Remote Inter Process Communication In this case the sharename is INKJET.

Before you proceed with the printer installation, check to see if there exists a symbolic link *smb* in the directory */usr/lib/cups/backend/*. (If you installed CUPS using the preceding instructions the link should exist). If it is not there, you will need to create it by running the following command:

```
ln -s `which smbspool` /usr/lib/cups/backend/smb        ln -s /usr/bin/smbspool
/usr/lib/cups/backend/smb
```

Notice that "which smbspool" is enclosed in back ticks, not single quotes! The back ticks will execute the command within and use the result in the ln command. The latter command works for the default installation of all versions of VectorLinux 6.0. Alternatively, you can create this link using Midnight Commander.

Once you have made the link you can configure your printer as in section 3. When prompted for device, choose "Windows Printer via SAMBA" which is near the bottom of the list of devices. When prompted for device URI set it with:

```
smb://user:pass@workgroup/server/sharename
```

The *workgroup* name need only be specified if your system is using a different workgroup. The *user:pass* strings are required when printing to Windows NT, 2K or XP servers or to shares with passwords enabled under Windows 95 and 98.

In these cases the entry could be simplified to one of:

```
smb://workgroup/server/sharename<br> smb://server/sharename<br>
smb://user:pass@server/sharename
```

Note: The user/pass must match an existing, active account on the server.

2.6.4 Sharing Your Printer with Windows via SAMBA

(Adapted from Debian and Windows Shared Printing mini-HOWTO by Ian Ward http://www.tldp.org/HOWTO/Debian-and-Windows-Shared-Printing/)).

In this section we discuss how to set up VectorLinux to act as a print server for other printers on our network via SAMBA. It is assumed that you have your printer working locally using CUPS. We will need to make several changes to both CUPS and SAMBA configuration files.

Each of the Windows clients must have the appropriate printer drivers.

Setting up SAMBA

If you are allowing anonymous access to your printer you will need to create a user account for remote print jobs. As root (or su) do the following:

`useradd -d /home/smbprint -s -m /bin/false smbprint` This command adds a user called "smbprint" to your system. Make sure there is enough disk space in */home/smbprint*, the "smbprint" user's home directory, to spool files. Since we have no password for the account "smbprint" we include "-s /bin/false". This causes an error if someone tries to access the system using this account. If you have configured CUPS to restrict printing to certain users on your system, you must allow the "smbprint" user to access printers you want to share.

The Samba configuration file is */etc/samba/smb.conf*. The following is an example configuration file set up to use CUPS with the "smbprint" user:

:: [global] workgroup = WORKGROUP printcap name = cups printing = cups security = share guest account = smbprint

[printers] comment = all printers printable = yes guest ok = yes create mode = 0700 guest only = yes use client driver = yes path = /home/smbprint browseable = yes

The last line allows the Windows (and other SMB) clients to see the share when browsing.

Please note that this configuration will allow printing by anyone that can make a network connection to your computer and is not recommended for computers on untrusted networks, such as computers with direct Internet connections. If you need to implement access control, set security = user or security = domain and read the Samba man pages for further information. In addition you can refer to "The Unofficial Samba HOWTO" at http://hr.uoregon.edu/davidrl/samba/ for further pointers.

Once you have added the above settings to your Samba configuration file you must restart Samba with the command:

```
/etc/rc.d/init.d/samba restart
```

Note: The above assumes that script */etc/rc.d/init.d/samba* exists and is executable. A copy of the script is available in the directory */etc/rc.d/init.d/sample-scripts* if you have set up SAMBA to start as part of RC.M.

If SAMBA does not start at boot, one method to do this is to create symbolic links, S44samba and K55samba, to the above script in */etc/rc.d/rc2.d* if you boot to text mode and */etc/rc.d/rc5.d* if you boot to a GUI.

CUPS Configuration

Windows printer drivers format their output for the printer before sending it across the network. You must configure CUPS to accept the pre-formatted output by uncommenting the following line from */etc/cups/mime.convs*:

:: *application/octet-stream application/vnd.cups-raw 0 -*

Also uncomment the following line from */etc/cups/mime.types*:

:: *application/octet-stream*

Now CUPS must be told to allow connections from other machines on the network. Add these lines to */etc/cups/cupsd.conf*:

::

<Location /printers> AuthType None Order Deny,Allow Deny From None Allow From All

</Location>

As in the Samba configuration, this configuration allows any computer to connect to your printers and is not recommended for computers on untrusted networks. For example, if you want restrict printing to the subnet 192.168.0.* replace *Allow From All* with *Allow From 192.168.0.0/24*.

For information about tightening access control to your printers, see the cupsd.conf man page and the CUPS documentation.

Finally, restart cups with the following command:

```
/etc/rc.d/init.d/cups restart
```

Your Linux printers should now be accessible to Windows PCs on the LAN. Follow the usual steps for adding a network printer to your Windows PCs, and remember to print a test page.

2.7 The VectorLinux Filesystem and How to Find Files

2.7.1 Introduction

VectorLinux, as with most other Linux distributions, tries to adhere to the Linux Filesystem Hierarchy Standard. This standard is necessary to enable developers and users to install, move, place and find files in locations that make sense and are consistent between distributions. This document will not discuss the details of the Linux FHS as you can read such details at the above website. What we wish to point out here are the important directories and file locations for those configuration files and directories which are particularly relevant or unique to VectorLinux. It is hoped this will enable newcomers to navigate the many Linux directories more effectively and to know where to find files to fix any problems that may arise. Secondly, we briefly discuss some of the Linux utilities that will help you locate files/directories.

It also needs to be known that VectorLinux is based upon the Slackware Linux distribution. Slackware Linux uses the BSD-style file layout for its system initialization script files. Consequently Slackware and Linux do not use System V init scripts. This is an important fact if you wish to navigate or edit the init configuration scripts. If interested, you can read about the difference between BSD and System V init scripts.

VectorLinux provides *VasmCC* the "Vector Administration and Services Menu" system administration utility amongst other utilities, plus a fully configured Linux system for most common hardware. Thus it should generally be unnecessary for newcomers to have to manually edit any of the configuration files or init scripts.

2.7.2 Important Configuration Files

Most system configuration files are located in the */etc* directory. Most user-specific configuration files are in the appropriate home directory as a "hidden" "rc" file, e.g. *~/.bashrc* or within a directory specific to the application, e.g. *~/.config/xfce4* (where ~ is a shortcut to your home directory). Navigate to the */etc* directory in your favourite file manager application and we will analyze the most important system config files:

- */etc/lilo.conf* : the lilo boot loader configuration file
- */boot/grub/menu.lst* : the grub bootloader configuration file - if you use grub as your bootloader.
- */etc/fstab* : the block device (drives) system mounting file; controls which drives are mounted at bootup.
- */etc/inittab* : configuration file for the prime "init" script; determines bootlevel
- */etc/passwd* : user and password configuration file
- */etc/X11/xorg.conf* : the X config file; controls keyboard, mouse, video card and monitor
- */etc/slapt-get/slapt-getrc* : config file for slapt-get - the VL packaging tools
- */etc/modules.conf* : config file for loading kernel modules
- */etc/resolv.conf* : config file for network nameservers - set automatically if your ISP uses DHCP (most do).
- */etc/samba/smb.conf* : Samba config file
- */etc/skel* : "Skeleton" desktop environment base config files, copies to each users /home directory upon installation

The important BSD-style system initialization scripts which the knowledgeable user may at some time wish to edit are:

- */etc/rc.d* : config DIRECTORY containing most of the Slackware-style startup scripts
- */etc/rc.d/README* : please do if you want to learn more!
- */etc/rc.d/rc.S* : one of the first boot scripts to run to prepare your system at boot time.

- */etc/rc.d/rc.modules* : modules to be loaded at boot time
- */etc/rc.d/rc.inet1* : config file for eth0, you primary network card.
- */etc/rc.d/rc.local* : local bootup customization script. Put your additions here.

Now the most important user config files (where ~ denotes your home directory) are listed below. Note that almost every application you use will probably create a *~/.application* file or directory where it stores your preference settings.

- *~/.bashrc* : config file for nonlogin, interactive bash shells
- *~/.Xdefaults* : config file for terminal console programs such as xterm, mrxvt
- *~/.kde* : kde preferences and autostart directories
- *~/.config* : directory for xfce4 and lxde config files
- *~/.jwmrc* : the jwm window manager config file (if JWM installed)
- *~/.jwm* : the jwm window manager directory (if JWM installed)
- *~/.fluxbox* : directory for the fluxbox window manager's config files (if fluxbox installed)
- *~/.icewm* : directory for the IceWM window manager's config files (if IceWM installed)

And lastly here are some other important log files and other files which you may need to refer to at some stage:

- */var/log/packages* : directory containing description files for every Slackware/VL package installed on your system
- */var/log/removed_packages* : directory containing description files for every Slackware/VL package removed from your system
- */home/ftp/pub/veclinux-6.0/packages* : directory containing all packages downloaded using gslapt or slapt-get. Also contains mirror package info.

2.7.3 How To Find Files

GUI Tools

Although not as efficient and fast as the command line tools listed below some users will feel more comfortable using a GUI application to help them find specific files. Depending upon the version of VL you have installed look for one or more of these applications:

- kfind: if KDE is loaded
- gtkfind: if xfce loaded

slocate or locate

`slocate` or `locate` commands provides a super fast, secure way to search an indexed database of every file on your system. However, you must first of all create the database and keep it up-to-date by running `updatedb` as root. You can place updatedb in your weekly crontab file. slocate is much faster and easier than using `find`. Examples of using slocate:

- `slocate *.pdf` will search the slocate database for every pdf file on your system.
- `slocate kde | grep rc` will search the slocate database (whose location is */var/lib/slocate/slocate.db*) for all files containing kde which also contain the phrase "rc".
- `slocate .png | less` searches for all instances of files ending .png and sends the output to the less pager so that you can browse the list easily.

If you want to know where all the files were placed when you installed a Vector Linux .tgz package then slocate is your best bet. You can also browse this information at /var/log/packages.

mc (Midnight Commander)

`mc`, *Midnight Commander* is one of the most useful applications in Linux. It is a very fast, text-based file manager, much more powerful than many of the GUI file managers if learned properly - the only thing you can't do is drag and drop. Quite frankly, you will double your computing efficiency if you master this application. Playing with mc is the quickest way to learn your way around the VL filesystem. Press F1 for extensive help and read `man mc`.

find

`find` is a very powerful, but newbie-unfriendly command line program for finding files. Extensive options but a steep learning curve. If you want learn more read this HOWTO. Some examples:

- `find . -name 'a*'` : will find all files beginning with the letter a in the current directory
- `find /etc -mtime -1` : will find all files in the /etc directory modified within the past day
- `find . \( -name temp -o -name tmp \) -print -exec rm {} \;` : will display and then delete all files in the current directory named temp or tmp.

whereis

The `whereis` command locates the binary, source and manual pages for a command, e.g.: `whereis sort` returns the output:

> sort: /usr/bin/sort /usr/man/man1/sort.1.gz /usr/man/man3/sort.3.gz /usr/share/man/man1/sort.1.gz /usr/share/man/man3/sort.3.gz

apropos

The `apropos` command searches a database of all the manual (man) pages and returns those page names for the string you provide, e.g.: `apropos pdf` returns:

```
docbook2pdf [jw] (1) - (Jade Wrapper) converts SGML files to other formats
dvipdf (1) - Convert TeX DVI file to PDF using ghostscript and dvips
gs (1) - Ghostscript (PostScript and PDF language interpreter and previewer)
gsnd (1) - Run ghostscript (PostScript and PDF engine) without display
pdf2dsc (1) - generate a PostScript page list of a PDF document
pdf2ps (1) - Ghostscript PDF to PostScript translator
pdfopt (1) - Ghostscript PDF Optimizer
ps2ascii (1) - Ghostscript translator from PostScript or PDF to ASCII
ps2pdf (1) - Convert PostScript to PDF using ghostscript
ps2pdf12 [ps2pdf] (1) - Convert PostScript to PDF 1.2 (Acrobat 3-and-later compatible) using ghostscr
ps2pdf13 [ps2pdf] (1) - Convert PostScript to PDF 1.3 (Acrobat 4-and-later compatible) using ghostscr
ps2pdfwr (1) - Convert PostScript to PDF without specifying CompatibilityLevel, using ghostscript
texi2dvi4a2ps (1) - Compile Texinfo and LaTeX files to DVI or PDF
tiff2pdf (1) - convert a TIFF image to a PDF document
```

The above output shows all the commands and a brief description from the man page title of what they do.

which

The `which` command searches the directories in the PATH variable and displays the absolute pathname of the first file it finds whose simple filename is the same as the command, e.g.: `which sort` returns: */usr/bin/sort*

whatis

The `whatis` command searches a set of database files containing short descriptions of system commands for keywords and displays the result on the standard output. Only complete word matches are displayed. Requires that the "whatis database" is up to date. To do that run the command "makewhatis" as root.

2.8 VectorLinux Desktop Environments and Window Managers

2.8.1 Introduction

Newcomers to Linux are often confused by the variety of various desktops available to Linux. MS Windows and Apple provide only one. The attraction of Linux to some, is its variety. There is a "look" for every taste and a "usable desktop" for everything from very old 486 computers to modern expensive gaming computers.

What probably confuses newbies the most is the fact that Linux makes a distinction between a "desktop environment" (DE) and a "window manager" (WM). The former tends to include GUI utilities to easily alter the look of the desktop, automatically update the menu on installation of new applications, provide small useful auxiliary applications and some system configuration tools. The latter however, only creates the window borders on applications and manages movements of windows on the screen. Window Managers by themselves may not provide desktop icons, may not auto update their menu and may not provide GUI tools to change the look of the desktop. However, otherwise they are as configurable as desktop environments but the user sometimes must edit their configuration files by hand, rather than using a GUI tool.

We recommend that newbies stick to either the KDE DE when using SOHO or Xfce when using Standard. Both these DE's provide facilities for automatic menu updating, easy maintenance of desktop icons and easy to use GUI utilities for changing the look of your desktop. The other environments are less intuitive for the beginner.

To satisfy all tastes VectorLinux provides a variety of DE's and WM's, depending on the version of VL:

- VL SOHO: KDE (DE) and Fluxbox (WM).
- VL Standard: Xfce (DE) and lxde (small DE).
- VL Light: IceWM (WM) and JWM (WM).
- VL Live: Xfce (DE) and Fluxbox (WM) and JWM (WM).

Notice that each DE-WM link above points to the specific website for each application where full documentation is available that would answer any question you have. The sections below will summarize very briefly the most important concerns newbies have raised on how to deal with each DE-WM, specifically as they would apply to VectorLinux. Where to find the main configuration files and utilities is also listed below.

2.8.2 KDE Desktop Environment

KDE is supplied with the VL SOHO Edition. KDE and Gnome (not provided by VL) are considered to be the two dominant, heavyweight and most fully-featured desktop environments now in use on most Linux systems around the world. The KDE desktop is relatively similar to that provided by MS Windows Vista. It requires a reasonably modern computer with about #12MB of RAM to run effectively. It can run with just 256MB of RAM but when other large applications are opened your machine may begin to slow considerably.

KDE's desktop and its icons can quickly be configured by using one right mouse-button click when the cursor is on the desktop and using that context menu. The KDE Panel can be configured likewise by right-clicking on the panel. Other configuring of the system and its environment can be accomplished by KDE Menu, Control Centre. The configuration options in the control center can keep a hacker busy for months!

2.8.3 Fluxbox Window Manager

Fluxbox is supplied as an alternative, lighter weight window manager with the VL SOHO 5.9.1 Edition. At the login screen click the "Session" button and choose Fluxbox. Right-clicking on a Fluxbox desktop raises the Applications Menu. There are no desktop icons under Fluxbox but wbar (an animated MacOSX-like launch bar) may be included. Right clicking the Fluxbox panel gives you panel configuration options. In the Menu there is also a "Fluxbox" section where you may alter some Fluxbox settings. Right clicking the top bar on any application window enables complete control over that window itself - often more control than provided by any other DE or WM. Note that neither HAL nor vl-hot will produce desktop icons or raise any windows to enable GUI configuration of any newly attached hardware devices or drives. You will have to determine at what mount point these devices have been mounted and then use the file manager to navigate to them. Please read the Mounting Devices Guide. To configure other aspects of Fluxbox or to edit the Menu you edit fluxbox configuration files which are found in your ~/.fluxbox directory (where "~" represents your home directory, e.g. /home/larry/.fluxbox). Fluxbox config files are:

- ~/.fluxbox/apps : specifies specifics of how to display saved application window positions/sizes, etc.
- ~/.fluxbox/init : initial fluxbox config file
- ~/.fluxbox/menu : the fluxbox menu
- ~/.fluxbox/keys : hotkey configurations
- ~/.fluxbox/startup : specifies applications to launch on start

2.8.4 Xfce Desktop Environment

Xfce is supplied with VL6.0 Standard and VL5.9 Live Standard as the default desktop environment. Xfce is less resource intensive than either KDE or Gnome, yet still provides all desktop utilities that most Windows and Mac users would expect. Right-clicking on an Xfce desktop raises the Applications Menu. Right clicking the Xfce panel give you panel config options. Right-clicking on any desktop icon gives you options for adding more icons, editing that icon and changing the desktop background. The Xfce menu is updated when new, properly packaged applications are installed. Both HAL and vl-hot work well with Xfce and appropriate icons are created or appropriate applications are launched when you attach new hardware to your machine (i.e. digital cameras, external drives, etc.). Further tweaking of the Xfce desktop is done via its extensive "Settings Menu".

2.8.5 LXDE lightweight Desktop Environment

LXDE is supplied with VL6.0 Standard. To use it you click the "Session" tab on the login screen and choose LXDE rather than the default Xfce. LXDE is faster and takes less system resources than Xfce, but as a consequence is not as easily configurable by the novice user. Right-clicking on an LXDE desktop raises the LXDE Settings Menu. Right clicking the LXDE panel give you panel configuration options. The main menu contains a "Settings" submenu where you can also configure the look of LXDE's desktop. HAL works well with LXDE's file manager (PCManFM) so that when you attach new hardware to your machine (i.e. digital cameras, external drives, etc.) an entry appears in the rightmost panel of the File Manager (double click the "My Documents" icon). Further tweaking of the LXDE desktop is done via editing files in the ~/.config/lxde directory.

2.8.6 IceWM Window Manager

IceWM is an attractive, lightweight and fast Linux window manager and is the default manager for VL Light. The developers of VL Light have spent considerable efforts in making IceWM more newbie friendly. They have included the PCManFM desktop and prepared scripts to auto update the menu when requested. HAL works well with PCManFM and therefore attached USB devices will appear in the file manager right hand panel when you double click on the "My Documents" icon. Right-clicking anywhere on the desktop will enable you to control icons and change desktop settings. If you add new applications you need to update the menu by going to Menu, System, Update Menu. You may change your IceWM desktop theme from the main menu. If you want to delve into details of changing IceWM configuration files they are found in ~/.icewm and the relevant files are: keys, menu, startup, theme, toolbar and preferences. See the IceWM documentation.

2.8.7 JWM Window Manager

JWM is included with VL Light and VL Live. Of all the DE's-WM's used in various VectorLinux Editions the JWM Window Manager is probably the fastest and uses the least system resources. It is best used on slower, older computer hardware that has minimal RAM. Therefore, it also has the fewest user friendly features. However, the developers of VL Light have spent considerable efforts in making JWM more newbie friendly. They have included the PCManFM desktop and prepared scripts to auto update the menu when requested. HAL works well with PCManFM and therefore attached USB devices will appear in the file manager right hand panel when you double click on the "My Documents" icon. Right-clicking anywhere on the desktop will enable you to control icons and change desktop settings. If you add new applications you need to update the menu by going to Menu, System, Update Menu. To configure anything to do with JWM you will need to edit your ~/.jwmrc file or the files located in the JWM directory (~/.jwm). To do that you will need to read the documentation at the JWM website.

2.9 LXC Containers on VectorLinux

lxc-containers has been deprecated in favor of docker.

See docker documentation

2.9.1 Docker containers on VectorLinux

Introduction

About Docker

According to the official docker website, docker is an open platform for application developers and system administrators to build, ship, and run distributed applications.

Chances are, if you are reading this document, you know what it is, but just in case, see http://www.docker.com for more information.

About this guide

This document will guide you through the process of installing docker on your VectorLinux installation and configuring the system to run docker containers. Due to the fact that there is plenty of documentation on how to use the docker platform all over the internet, I decided to save my fingertips and not cover every aspect of 'how to use docker' here.

A word or caution

Docker is **not supported on |vector_edition| version 7.0 or earlier**. It will most likely continue to be supported on future releases, but there are no plans to backport this to earlier versions.

Preparing the host

Before any docker containers can be launched, we need to make some modifications to the host Operating System.

The following packages are needed for docker support.

1. docker

Search for the package(s) and install them via GSlapt or issue the following command on a terminal:

```
slapt-get -u
slapt-get -i docker
```

Note: By default, docker is only available to the root user. If you want to make it available to non-root users, add the user to the *docker* group via the usermod command. `usermod -a -G docker <your_user_login>`

As of the time of this writing, the default cgroup configuration will not work for supporting docker, so we need to make some changes to the system. This should be very easy if you follow this procedure and run the following commands on a terminal as **root** (or copy and paste from here)

Create new cgroup hierarchy (VectorLinux 7.1)

For cgroups, docker does not support mounting cgroups on the "all" single hierarchy controller, but rather the indivirual controllers. That means we need to create a new hierarchy to use for cgroup mounting because the default VectorLinux does not have this setup by default in version 7.1.

This can be accomplished by running this command on a terminal:

```
mkdir -p /cgroup/{cpuset,cpu,cpuacct,memory,devices,freezer,net_cls,blkio}
```

Modify your /etc/fstab (VectorLinux 7.1)

Open your /etc/fstab and add the following lines

```
# For docker compatibility
cgroup /cgroup/cpuset cgroup rw,relatime,cpuset 0 0
cgroup /cgroup/cpu cgroup rw,relatime,cpu 0 0
cgroup /cgroup/cpuacct cgroup rw,relatime,cpuacct 0 0
cgroup /cgroup/memory cgroup rw,relatime,memory 0 0
cgroup /cgroup/devices cgroup rw,relatime,devices 0 0
cgroup /cgroup/freezer cgroup rw,relatime,freezer 0 0
cgroup /cgroup/net_cls cgroup rw,relatime,net_cls 0 0
cgroup /cgroup/blkio cgroup rw,relatime,blkio 0 0
```

Control groups config file (VectorLinux 7.1)

Add the following content to your /etc/cgconfig.conf file. If the file does not exist yet, create it with this content.

```
mount {
cpuset = /cgroup/cpuset;
cpu = /cgroup/cpu;
cpuacct = /cgroup/cpuacct;
memory = /cgroup/memory;
devices = /cgroup/devices;
freezer = /cgroup/freezer;
net_cls = /cgroup/net_cls;
blkio = /cgroup/blkio;
}
```

System init script (VectorLinux 7.1)

One last thing to do is to modify the init system so that it respects the instructions set forth in /etc/fstab. You will need to edit your /etc/rc.d/rc.S file and apply this patch (save as text and apply using `patch -Np0 < your_saved_text_file --verbose` if you want)

```
--- rc.S.dist   2014-07-30 13:21:16.000000000 +0000
+++ rc.S        2014-07-30 13:21:48.000000000 +0000
@@ -61,15 +61,15 @@
   /bin/plymouth --show-splash
 fi

-# Mount Control Groups filesystem interface:
-if grep -wq cgroup /proc/filesystems ; then
-  if [ -d /sys/fs/cgroup ]; then
-    mount -t cgroup cgroup /sys/fs/cgroup
-  else
-    mkdir -p /dev/cgroup
-    mount -t cgroup cgroup /dev/cgroup
-  fi
-fi
+## Mount Control Groups filesystem interface:
+#if grep -wq cgroup /proc/filesystems ; then
+#  if [ -d /sys/fs/cgroup ]; then
+#    mount -t cgroup cgroup /sys/fs/cgroup
+#  else
+#    mkdir -p /dev/cgroup
+#    mount -t cgroup cgroup /dev/cgroup
+#  fi
+#fi

 # Start file systems
 echoc "Mounting local file systems" cyan
```

Finalizing host configuration After finishing all the previous steps, you will need to restart your computer to get the right cgroups configuration. Continue to the `Testing your setup` section after the system restarts.

Testing your setup

At this point, your host operating system should be ready to launch docker containers. Follow these steps to verify your system is ready.

Start the docker service daemon

```
/etc/rc.d/rc.docker start
ps ax |grep docker.pid
```

That should print a line indicating the docker daemon is running and you should also have a `/var/run/docker.pid` file with a numeric value in it.

Networking

After the docker daemon starts, it will create its own network bridge (typically labeled `docker0`). You can verify this by issuing the `ifconfig` command on a terminal. The output should display a `docker0` entry.

If both of these tests passed, then you are ready to use docker on your VectorLinux installation.

Using Docker

Since there is plenty of documentation out there on how to use docker, I will not waste my breath trying to cover that aspect in depth. This will just be a quick guide on how to download an image, create a container from it and launch a shell inside it.

Download an OS image

The docker image repository has lots and lots of images to choose from. For this example, we will be using a slackware64-14.1 image hosted at the public image repository. To see the complete listing issue `docker search <term>` to search for any distro image that interests you.

```
docker pull vbatts/slackware
```

That will download the slackware image and copy it to your local filesystem for docker to use.

Run a docker container

After the `vbatts/slackware` container has been downloaded, you are ready to launch a container using it. To start it issue the following command.

```
docker run -t -i vbatts/slackware /bin/bash
```

That will give you a new shell prompt with a very bare slackware setup.

Official VectorLinux image

As of this writing, VectorLinux does not yet have an official image on the docker public image repository. A test image has been prepared and uploaded to our public package repository for testing purposes. Keep in mind this is barely getting implemented, so it is possible that the image will change if required later. It is also possible that these images will be available from the docker public image repository later too. To import the testing VectorLinux image, open a terminal and issue the following commands

First download an image.

Then, import the downloaded image into your docker images collection. For this example we will assume you downloaded the 32-bit docker image for VectorLinux 7.1. File name is `VL-7.1-BB-FINAL_vlbb-docker.tar.xz`

```
cat VL-7.1-BB-FINAL_vlbb-docker.tar.xz | docker import - vector:7.1-bb
```

After downloading and importing the image, issue `docker images` and you should see a line displaying the newly imported image at the top of the listing.

REPOSITORY	TAG	IMAGE ID	CREATED	VIRTUAL SIZE
vector	7.1-bb	154ad...	about..	69.36 MB

After the image is imported, you may run it as usual.

```
docker run -ti vector:7.1-bb /bin/bash
```

Note: See `docker help run` for more information on all arguments available to the `docker run` command. You can also issue `docker help` for more help on all other docker operations.

2.10 Packaging Environment (sandboxing)

This document will describe how to setup and use a clean packaging environment to build packages locally on your installed VectorLinux

2.10.1 Assumptions

This guide will assume the following.

- **You have VectorLinux 7.1 installed.** This setup cannot be produced in earlier versions of VectorLinux
- **You have read and followed the docker guide for VectorLinux and** have successfully launched the docker daemon
- You are confortable using the command line or a teminal emulator.
- You are somewhat familiar with how to use git

Task Description

The clean build environment is achieved by setting up docker and importing the correct image into your docker installation.

The default docker behaviour is to discard all of the data after each container has run its life cycle. In order to save the the packages you create inside the clean environment, we will need to setup a directory structure somewhere in your path so the data can be saved there for access after the container is terminated.

Note: If you are on a 32-bit installation of VectorLinux you will only be able to use 32-bit images. Users with a 64-bit installation of VectorLinux will be able to use 32-bit and 64-bit images.

2.10.2 The quick and easy way (using the vlsandbox utility)

The VectorLinux project has a tool called the `vlsandbox` which automates a lot of what is described below. This tool can (and should) be used as a non-root user. When launched, it will perform the following tasks.

- Create a temporary clean build environment usind a docker image

- Refresh (clone first, if necessary) the official vabs repository and make it available in `/home/slackbuilds` inside the sandbox environment.
- Give you (the user) a shell prompt with all the builds tools and source scripts at your disposal to compile what you wish from source code.

Getting the utility

You can get the `vsandbox` utility in VectorLinux versions 7.1 and newer via the `slapt-get` and `GSlapt` package manager.

`slapt-get -i vlsandbox` or search for `vlsandbox` in GSlapt from your GUI desktop.

Adjusting The settings

The `vlsandbox` utility relies on a few settings that can be adjusted by the user to better fit their needs. These settings can be found in:

- `/etc/vlbuildbot/vlsandbox/vlsandbox.conf`. This file controls the system-wide default settings. User-spefic settings are based off this template.
- `$HOME/.vlsandbox/vlsandbox.conf`. This is a copy of the system-wide settings. Each user can adjust this as needed.

Some key settings can also be overridden at runtime from a terminal to temporarily switch from one base to another. For example, the `VLARCH` env variable tells `vlsandbox` which architecture to work with and the `VLRELEASE` tells it which version of VectorLinux to target.

These can be set in the run command. For example `VLARCH=i586 VLRELEASE=veclinux-7.1 vlsandbox` will give you a sandbox for VectorLinux version 7.1 in 32-bit mode.

Using the sandbox to contribute to VectorLinux

You can use the vlsandbox utility to test your builds if you wish to contribute to the VectorLinux project. To do so, you will need to fork the vabs tree from bitbucket and issue a Pull Request. See the graphical representation of the workflow available at https://i.imgsafe.org/d5a9dbe.png

2.10.3 The Technical way (complicated, TL;DR)

This will allow you to enter a sandbox similar to what is documented above in a more detailed way.

Preparations

As pointed out above, you will need to create a directory structure to save your packages once they have been created. For this, we will assume you are in your $HOME directory, but really it does not matter as long as you know where you placed your data. Wherever that may be, create the structure following these commands.

Note: The following snippet assumes you have cloned the image you wish to use. Use `docker clone m0elnx/vlocity-7.2-bb:latest` to download the base image for 7.2 or use `docker search` to find a suitable docker image.

```
mkdir -p sandbox/data-{in,out}
pushd sandbox/data-in
git clone http://bitbucket.org/VLCore/vl71
popd
```

This has just prepared a directory structure in your host that will be shared with your docker container. The `git clone...` line would have downloaded the build scripts collection for VectorLinux 7.1 and should be a good starting point for building many applications from source.

Entering the build environment (sandbox)

To enter the build environment, you will need to call the `docker run` command. To get familiarized with what the arguments used mean, see `docker help run`.

```
export DATA_IN=$PWD/sandbox/data-in/vl71
export DATA_OUT=$PWD/sandbox/data-out

docker run --rm -ti -v $DATA_IN:/home/slackbuilds -v $DATA_OUT:/data \
m0elnx/vector-7.1-bb:latest /bin/bash
```

At this point, you should see some output on the terminal and will notice the prompt has changed. you should be able to `cd /data/in/` and see the directory named `vl71` that you cloned with git before. You can find a lot of build scripts here ready to be executed.

A graphical representation of the workflow for contributing your changed data back to VectorLinux project is available at https://i.imgsafe.org/d5a9dbe.png

Working inside the build environment

Now that you are inside the clean build environment, you are free to install whatever you need inside. There is a variety of tools available to you inside the sandbox. The following is a short list of some of the ones you will most likely need to use inside the sandbox.

- slapt-get
- sbbuilder
- version control applications (svn, git, etc)
- text editors (nano, vi, emacs, etc)

If you happen to need anything else, just use `slapt-get` to install it.

2.11 VectorLinux Kernel Upgrade Guide

Vector Linux offers several kernels. Here i will explain two methods of how to add a kernel to your system. I say **ADD** because you should **NOT** get rid of your working kernel. If for some reason something goes wrong you will have the original kernel to fall back on.

2.11.1 Method 1

For this guide, 7.1 is used as an example. the kernel names for 7.2 have changed to `kernel4.x`, ‘‘ kernel4.x-modules‘‘, etc.

First of all you need to download a kernel package: - 32 bit kernels:

http://vlcore.vectorlinux.com/pkg/stable/veclinux-7.1/extra/kernels/

- 64 bit kernels: http://vlcore.vectorlinux.com/pkg/stable/VL64-7.1/extra/kernels/

Then follow these instructions:

- Download the kernel package and the **matching** kernel-modules package
- `cd` to the directory you saved the kernel to
- `installpkg` both the kernel and kernel-modules packages

2.11.2 Method 2

- Add the apropriate repo to your /etc/slapt-get/slapt-getrc
- `slapt-get -u`
- `slapt-get -search kernel`

decide which kernel and its matching modules you want to install

- `slapt-get -i --no-upgrade kernel-version`
- `slapt-get -i --no-upgrade kernel-version-modules`

2.11.3 Update your bootloader Menu

Again, kernel 4.0.7 is only used as an example. this will work with any kernel version

If you are using LiLO:

- If you use lilo open `/etc/lilo.conf` with your editor of choice
- Simply copy the first kernel entry section which looks like this:

```
# -- Vector on /dev/sdX --
image = /boot/vmlinuz
label = Vector
initrd = /boot/initrd.gz
root = "UUID=3b3ed16e-8db3-44be-b4b8-9b81df7692b2"
append = "quiet splash"
read-only

# --
```

- Paste it at the bottom of `lilo.conf` and edit as appropriate
- For example if you installed kernel 4.0.7:

```
# -- Vector on /dev/sdX --
image = /boot/vmlinuz-4.0.7
label = Vector-4.0.7
initrd = /boot/initrd.gz
root = "UUID=3b3ed16e-8db3-44be-b4b8-9b81df7692b2"
append = "quiet splash"
read-only
# --
```

Now run `lilo`

- `lilo -v`

or if you use grub

- `grub-mkconfig -o /boot/grub/grub.cfg`

That's it. Reboot and you should now have an option to boot the new kernel as well as the original kernel

If you are using GRUB2

Update the Grub2 menu by running `grub-mkconfig -o /boot/grub/grub.cfg` as root in a terminal.

That's it. Reboot and you should now have an option to boot 4.0.7 as well as the original kernel

2.12 Create Bootable USB

This is the official method of making a bootable usb stick for VectorLinux.

- Insert an USB stick and type as root

```
fdisk -l
```

In the fdisk output, check what drive designation your USB stick is, we'll use `/dev/sdb` as the example for this post.

- Change directory to where the iso is located

```
cd /home/user
```

Now this next step will hose your system if you accidentally use the wrong path so make sure that you use the correct drive designation from fdisk -l and remember I'm using `/dev/sdb` as an example, yours may or may not be different!

- Run this command from a terminal (mat take a couple of minutes)

```
dd if=name.of.iso of=/dev/sdb
```

Warning: Double check the path to your USB device, you can accidentally delete your data with this command.

And that's it, now you have a bootable USB stick which you can install from.

2.13 VectorLinux 7.x Broadcom wifi howto

Version 7.1 needs a little tweaking to get broadcom going. instructions are here http://vlcore.vectorlinux.com:10080/m0e.lnx/sta-builder

The following applies to both 7.1 AND 7.2

2.13.1 Blacklist modules

1. `nano /etc/modprobe.d/blacklist.conf`
2. Add these lines to your `blacklist.conf` file

```
    blacklist b43
    blacklist ssb
    blacklist bcma
    blacklist bcm43xx
    blacklist bcm80211
    blacklist brcmsmac
```

3. Reboot. You should now have module wl loaded. Verify with `lsmod | grep wl`
4. Done

2.14 Installation Debugging Guide

If you have encountered a problem during installation, follow this guide to collect all the necessary information and report the issue to the development team.

Note: This guide applies to VectorLinux Versions 7.1 and newer only.

2.14.1 Collecting the logs

The installation logs will help determine what went wrong during the install process. Here is how to collect the logs.

You will need to save this data to an alternate location where you can find it later, or paste to a an online pastebin for later retreival. In this guide we will assume that you have a partition `/dev/sdb1` formatted and ready to accept data.

From the GUI installer

If you installed using our GUI installer and your installation has stalled or has exited with an error:

- Access the application menu by moving the mouse pointer to the **bottom left** corner of the screen. Once the taskbar and menu become visible, click `Menu -> Terminal`. This will open a terminal window
- Mount your partition where the logs will be saved.
  - `mkdir /mnt/sdb1`
  - `mount /dev/sdb1 /mnt/sdb1`
- Copy the log files to the destination partition
  - `cp /root/installer.log /mnt/sdb1/installer.log`
  - `cp /root/subprocess.log /mnt/sdb1/subprocess.log`

From the Text installer

If you installed using our Text installer and your installation has stalled or failed with an error, here is how you can retreive the logs.

- Access a new TTY by pressing `CTRL+ALT+F3`. F4 can be used just the same.
- Log in as user `root`. When it asks for password, just press `Enter`
- When the installer shows up again, press the ‘‘< Back > ‘‘ button.

- Mount your partition where the logs will be saved
  - `mkdir /mnt/sdb1`
  - `mount /dev/sdb1 /mnt/sdb1`
- Copy the log files to the destination partition.
  - `cp /root/installer.log /mnt/sdb1/installer.log`
  - `cp /root/subprocess.log /mnt/sdb1/subprocess.log`

2.14.2 Filing a the bug report

If your installation has failed, we ask that you file a bug report at http://bitbucket.org/VLCore/ in the correct project (ie, vl71, vl72) that corresponds to the version you have installed. In your bug report you should include the log files you retreived from the installation.

Note: If your machine has a network connection during installation (test by pinging google.com for example), you can paste your logs to an online pastebin right from the terminal or shell. For example, to paste to sprunge.us, you can `cat /root/installer.log | curl -F 'sprunge=<-' http://sprunge.us`.

If you use one of these services, make sure you paste the contents on the bug report itself, and not just a link. Most of these services will remove the content of your paste after a few days.

2.15 Power Management Setup & Troubleshooting

Here are some things that can help a VectorLinux user troubleshoot their power management options. This is useful if you use VectorLinux on a laptop and wish to use suspend/resume.

2.15.1 Preparations

Make sure the following packages are installed on your system.

- pm-utils
- hibernate-script
- upower (version 0.9.2x)

These are available via `slapt-get` or `GSlapt` from the xfce4 menu.

Note: Version 0.99.x of upower no longer handles the suspend/hibernate stuff. Instead, it has handed that functionality over to `systemd` which, which is not available or supported in VectorLinux

2.15.2 WARNINGS:

- The default setup hibernates to swap. You may run into problems if you share your swap partition between more than one distro.

2.15.3 Troubleshooting

If the required packages are installed, and you are still not able to suspend your session, the following steps may help you find out the reason. You will need to open a terminal window and type the commands as written below.

Check the upower dump

Query the upower daemon to see which PM capabilities it reports. - In a terminal window, run `upower -d`. Reading the output should be pretty straight forward.

Check what dbus thinks

Query the system message bus to see what PM capabilities it reports.

```
qdbus --system org.freedesktop.UPower /org/freedesktop/UPower
org.freedesktop.UPower.CanSuspend
```

```
qdbus --system org.freedesktop.UPower /org/freedesktop/UPower
org.freedesktop.UPower.CanHibernate
```

Check the polkit authorization policies

Even if the system *can* suspend or hibernate, your user still needs permissions to access that functionality. This is where polkit comes in. Check if the current policy allows the currently logged in user to access the PM functionality.

Issue these commands as the non-root user(s) you want to allow to suspend/hibernate the system.

```
pcheck --action-id org.freedesktop.upower.suspend --process $$; echo $?
```

Any returned value greater than 0 here means you are *NOT ALLOWED* to perform the queried action.

```
pcheck --action-id org.freedesktop.upower.hibernate --process $$; echo $?
```

Any returned value greater than 0 here means you are *NOT ALLOWED* to perform the queried action.

Adjusting the polkit rules

If the commands in the above section report you do not have permission to execute the suspend or hibernate actions, make sure the following files exist and have the correct content as specified below.

file: `/etc/polkit-1/rules.d/01-default.rules`

```
polkit.addRule(function(action,subject) {
    if (action.id == "org.freedesktop.upower.suspend" ||
        action.id == "org.freedesktop.upower.hibernate") {
        return polkit.Result.YES;
        }
});
```

file: `/etc/polkit-1/localauthority/50-local.d`

```
[Local Users]
Identity=unix-group:wheel
Action=org.freedesktop.upower.*
ResultAny=yes
ResultInactive=no
ResultActive=yes
```

Bootloader

In addition to having support and permissions, your bootloader must also be instructed to look for suspended sessions. Not having the bootloader setup correctly will result in not being able to resume a suspended session.

If you are using the `GRUB2` bootloader, edit your `/etc/default/grub` file and add the following line: `GRUB_CMDLINE_LINUX="resume=/dev/your-swap-partition"`. Of course, point it to the right device path for your swap partition. After that you will need to run `grub-mkconfig -o /boot/grub/grub.cfg` to re-generate your bootloader configuration and make the changes take effect.

If you are using the `LiLO` bootloader, you will need to edit your `lilo.conf` and find the section for the OS you want to suspend/resume. You will need to either add an `append=` line or update the existing append line. The append line should have this in it: `resume=/dev/your-swap-partition"`. Again, point it to the right device path for your swap partition. After you save the file, run `lilo -v` to write the changes to your bootloader target and make the changes effective.

2.15.4 Testing Your Results

To test your results, you need to just reboot (1 time to reload the polkit policies). Your `Menu -> Logout` in xfce4 should have a ‘Hibernate’ and/or ‘Suspend’ button. Click on either one of them. The system should hibernate or suspend. Then reboot to resume.

2.15.5 Helpful Links

http://www.slackwiki.com/Hibernate

https://forums.gentoo.org/viewtopic-t-977948-start-0.html

CHAPTER 3

Packaging

3.1 An in depth Guide to package building for the VL repository

3.1.1 Introduction

For those of you new to the GNU/Linux world, you may have noticed that the way software installation and maintenance is dealt with here is very different from the way it is handled on proprietary platforms such as Microsoft Windows.

Instead of surfing the web in search of Freeware*, Shareware or cracked software (“warez”) as is frequent on Windows, a GNU/Linux user can download software directly from a server provided by the distribution in a faster and safer manner.

This software server, or **repository,** hosts software packages that are tailored for that particular distribution and contains information that will allow a user to easily install or upgrade software in a seamless and automated way.

This is a great concept and any seasoned Linux user will tell you that after using this software management system for a while, you will wonder how you ever did without it!

But how does the software end up on that server? Who creates those packages? Like with most Free Software/Open Source projects, this is done largely by volunteer effort.

One of the first concerns a potential user has before trying/adopting a distro is whether the software repository has lots of packages. Because of this we need all the help we can get ;)

3.1.2 What this HowTo is going to talk about

This HowTo should set you up with the basic tools and knowledge needed to create packages for the VectorLinux repository. These topics will be discussed:

1. Preparing a package building environment
2. Building packages and uploading them
3. Ethics and other guidelines
4. Final words

3.1.3 Preparing the package building environment

In order to create good packages, you need a “clean” build environment. Having a clean build environment will ensure that the packages you build don’t have unnecessary dependencies.

One example of a “dirty” build environment is one that has OpenOffice installed. Packages built in that environment may report needing OpenOffice installed in order to work, which in most cases is not true.

This means that when creating packages, you should use a version with the least amount of extra software, such as VectorLinux Light.

There are several ways to create a clean build environment:

- Create a separate partition and install VectorLinux on it.
- Create a chroot jail.

The first method is fairly straight forward. Use a partitioning tool such as Gparted to create a separate partition where all the packaging will take place. That way you can easily format the partition when it becomes too “dirty” and start over.

The second method is somewhat more advanced, so to put it simply, it involves creating a fully working operating system within a directory of your current system. This can be a lot more convenient once you get the hang of it, since you can quickly erase the self-contained system and create a new one without ever formatting are re-partitioning your hard-drive.

To easily create a chroot jail, you can use a script from this this thread: http://www.vectorlinux.com/forum2/index.php?topic=5152.0

Once you have setup your build environment, you need to set some important environment variables that will be used by the compiler later on. VectorLinux has chosen to compile its software so it can be run on pre-Pentium II chips, the i586 family. When compiling source code, GCC (the compiler) will look at the $CFLAGS and $CXXFLAGS variables to determine how the compiled code should be optimized. To set these optimizations to i586, we need to set the above mentioned variables. Open a terminal, and logon as root. Then open /etc/profile.d/vasm.sh and make sure that this bit of text is presnt at the end of the file:

```
export CFLAGS=”-O2 -mtune=i686 -march=i586”
export CXXFLAGS=”$CFLAGS”
```

Those variables will now be set at boot time. You are almost ready to start packaging.

3.1.4 The basics of package building

Before we get to how packages need to be made specifically for VectorLinux, we will cover the basic steps that are necessary to create any simple Slackware Package.

This task can essentially be subdivided into 7 steps:

Getting and extracting the source code

First of all, you need to get the source code for the program or libraries that you are going to package.

Once again, Google is your friend, so fire up your browser and search for the name of the program you would like to package, and download the source code from the website into a directory on your hard drive.

The source code is usually compressed with Gzip (.tar.gz extension) or Bzip2 (.tar.bz2 extension), so you can use the tar command to decompress either format like this:

```
tar xvf filename.tar.bz2
```

After extraction, in almost all cases there is a directory with the name and version of the program that contains the source code. Enter it with this command,

```
cd name-version
```

and them move on:

Configuring the source code

What does “configuring the source code” really mean? Well, is consists of creating a file which will include all the options and instructions the compiler needs to create the binary the way you want it.

This file is called the Makefile. The problem is that with very large scale projects, the Makefile can be massive and would take ages to write and tweak by hand. So generaly, a script called “configure” is provided to automate the source code configuration task.

Of you simply run the configure script like this:

```
./configure
```

it will create a Makefile with the default values and configurations.

The most basic option of the configure script is the prefix option. The prefix indicates the base directory where the files will be installed. The default value for the prefix option is /usr/local, which means that all files will be installed to that directory (libraries to /usr/local/lib and executable binaries to /usr/local/bin).

However, this is not the correct prefix when building packages. To adhere to Slackware’s standard, files in that package must be prefixed to /usr.

To view more options available in the configure script, run it with the help flag:

```
./configure -help
```

That will show you the options you can use to tweak the Makefile before compiling.

This is the way you should run the configure script to include the most basic options for a Slackware compatible build:

```
./configure -prefix=/usr --sysconfdir=/etc -with-included-gettext
-mandir=/usr/man
```

As you can see, the prefix is set to /usr. –sysconfdir specifies that any configuration files must go in /etc; –with-included-gettext indicates that the compiler should include Gettext (for internationalization purposes) in the build if possible; and –mandir specifies the location where the manual pages should be installed (/usr/share/man would be the default, but on Slackware and Slackware based systems such as VectorLinux, the correct location is /usr/man).

While that script runs, it will check for all the required dependencies and print that information in the terminal. If it fails, it will indicate what dependency is missing.

Compiling the source

If there were no errors during the congfigure step then you can simply run

```
make
```

to start compiling the source code. After that finishes successfully, you need to install the compiled source code to a temporary location so it can be packaged.

Installing the compiled source into the package dir

If there were no errors during the make step then you can simply run

```
make install DESTDIR=/tmp/name-version
```

to install the files into the package directory. The $DESTDIR variable indicates where to place the files temporarily. After running that command, all the files that would be installed to /usr end up in /tmp/name-version.

Now, enter the temporary install location, and run the ls command

```
ls
```

you will see that there is a directory hierarchy that mimics what you would see in the filesystem's root directory (/).

Make the package description

Next, you need to create the package description. This file is called slack-desc and must be placed in a directory called install.

```
mkdir install
mcedit install/slack-desc
```

in the package description file, the beginning of every line must start with the package name followed by as colon, like so:

> uberpackage: Uberpackage contains an uber program! uberpackage: uberpackage: This uberprogram will increase your productivity uberpackage: by 1000%. uberpackage: It is also bery flexible and extensible, and can also uberpackage: perform your every-day chores, like taking out the uberpackage: garbage, washing dishes and scrubbing the toilet. uberpackage: uberpackage: Website: http://www.ubersite.com/ uberpackage: License: License Name and Version here uberpackage:

The description file cant be longer than 11 lines in total. The first line should include a very brief indication of what is in the package. After leaving a line, write a more thorough description of what is in the package. Last, you MUST indicate the website and the license under which the program is distrbuted.

The license information is generally included with the source code in a file called COPYING. Because not all software is licensed under the GNU GPL or the BSD License, never be too lazy to open that file and see what the license is. Branding a package with the incorrect license could bring legal problems.

Find program dependencies

Great, so now the last thing you need to do before the package can be built is to create a dependency list. This will tell the package manager later on exactly which other packages this one depends on. The tool of choice is called requiredbuilder. It may take a while to run, but it is generaly very accurate.

```
requiredbuilder -v -y ./
```

The -v option tells requiredbuilder to determinate the dependency version; -y forces requiredbuilder to dump the gathered information into a file called slack-required inside the install directory.

Make the package

To create the package, run the makepkg command:

```
makepkg -l y -c n name-version-arch-release.tlz
```

The -l y option tells makepkg to remove any symbolic links it may find and store that information in install/doinst.sh. -c n lets makepkg know that is must not change the permissions of the files in the packge.

You can use the .tgz extension instead of the .tlz extension if you wish to usr Gzip compression instead of LZMA compression. Gzip compression is faster but achieves lower compression rates. LZMA is a little slower, but compresses the files a lot more.

And that is how a package is created "manually".

3.1.5 The automated way

There are three main problems with building packages manually.

The first is that when you need to build many of them, the steps become very repetitive. Computers are there to do the repetitive work for us, right?

Secondly, after building a package that requires a lot of effort and tweaking, one tends to forget all the steps necessary to build that package again in the future (say a newer version of a program), and its harder for other to figure out exactly how you built your package.

Last but not least, there are licensing requirements. The most popular open source license in use to day is the GNU General Public License, which requires a distributor of the software to also provide the source code. This means that its not enough to just give the original source code for the program in the package, you also have to distribute any modifications made (patches, addons, etc), and make the configuration of the program available (configure script flags, compiler flags).

What a pain in the butt, eh?

Well, here is where using the shell (command line) shows its power.

Instead of manually running all those commands by hand and writing a text file indicating what needed to be done to build the package, you can simply place all those commands you use in a shell script.

The shell then interprets the script and runs all the commands in it. You get your computer to do all the heavy lifting, there is no GPL infringement and the end-user gets (and other packagers) get to see how the package was built.

Your package and script can then be uploaded to the repository.

Since it can take some time to become familiar with scripting and because your script will most likely contain bugs and need improvements that others have already worked on, we provide you with a template script that you can use to build your packages. This script will allow you to build a package with the very basic configurations, so its still up to you to add configure-time tweaks to it.

Download it here: http://vectorlinux.osuosl.org/docs/packaging/default.SlackBuild

Read through it, and most importantly, **understand** what it does.

After downloading it, create a directory named after the package that you are going to build. Inside it, create another directory with the source version as its name. Then Inside it, create another directory called **src**. In there, place the script (renamed to the name of the package you are going to build, with a .SlackBuild extension; ie: PackageName.SlackBuild) and the compressed source code. So for the source package openbox you would have a directory structure like this:

```
openbox/
`-- 3.4.6.1
   `-- src
      |-- openbox-3.4.6.1.tar.gz
      `-- openbox.SlackBuild
```

Make the necessary adjustments to the script, and then make it executable:

chmod +x PackageName.SlackBuild After running the script and if it builds the package successfully, then the package will end up in the directory you created for it like this:

```
openbox/
`-- 3.4.6.1
    |-- openbox-3.4.6.1-i586-1vl59.tlz
    |-- slack-desc
    |-- slack-required
    `-- src
```

```
        |-- openbox-3.4.6.1.tar.gz
        `-- openbox.SlackBuild`
```

Now all you need to do is use an FTP program such as GFTP to upload the directory to your contributors account.

3.1.6 Some rules and “ethics”

If a package you need already exists in the repository, then install it and use it. Don’t re-invent the wheel. Any duplicate packages will not be accepted.

Before embarking on a large scale or a more difficult packaging project, open a thread in the packager’s forum stating what your intentions are and asking if anyone else may already be working on packages that will overlap with yours.

CHAPTER 4

Search documentation

- search

CHAPTER 5

Links

- VectorLinux Homepage. Our online headquarters.
- VectorLinux Forum. Come and meet the VectorLinux community here. We are friendly and helpful and there is a wealth of useful information contained within. The developers frequent the forum every day. We believe it to be one of the best support communities on the planet!
- VectorLinux Knowledge and Support Centre WIKI. Provides answers on how to do common tasks.
- VectorLinux HOWTO Forum. Provides HOWTO's for more difficult tasks.
- VectorLinux IRC Channel. At this Internet Relay Chat channel you will often find one of more of the VL developers who would be happy to answer your questions.
- Cheat Sheet. Some useful commands for VectorLinux.
- Direct Paid Support. Professional support services for VectorLinux.