Vector Linux 4.3

installation Guide

CONTENTS

1. System Requirements

- VectorLinux 4.3 Download Edition (minimum requirements):

      Pentium Classic 200 MHz
      64 MB of RAM
      At least 850 MB free of hard disk space plus swap partition

2. drive partitions

Linux sees partitions in the following way: assuming an IDE disk, the first partition on the first disk is /dev/hda1, the second partition is /dev/hda2, etc. If you have two hard drives, the first partition on the second disk is /dev/hdb1, the second is /dev/hdb2, etc. SCSI hard disks are seen the same except the notation is 'sd' (scsi disk) i.e. the first partition on the first scsi disk would be /dev/sda1.

If you already have Windows installed, it's probably at /dev/hda1 (C:\). You need non-partitioned space on the hard disk, or existing Linux partitions, to install VL, otherwise you'll need to remove or resize a partition to free up space. When you add the Linux partitions, they may be at /dev/hda2 or a higher number. This is important to keep in mind when you do the actual install because you need to tell VL installer which partition you want to use.

VL requires at least two partitions, one where the system is installed, known as the "root" partition, and one "swap" partition, used for virtual memory. Linux can be installed on primary and logical partitions as well, primary partitions are named /dev/hda1 to /dev/hda4 and logical ones are named /dev/hda5 or higher.

So, an easy and very common partition scheme, could be the next one, where Windows is on the first, primary, partition and the others are logical ones.

- /dev/hda1 : Windows C:
  Windows must be installed on the first partitions.

- /dev/hda5 : Windows D:
  Use drive D: to store files you would like to share between Windows and Linux.

- /dev/hda6 : swap
  then put Linux swap partition next.

- /dev/hda7 : / (root)
  Followed by root partition.

Note:
That second partition (Windows D:) is optional.
If you will need to access files from Linux and Windows keep in mind that access to NTFS filesystems is limited, so you should format your "sharing" partition as FAT32.

Important Note:
It is always recommended that before any re-partitioning, you run a scandisk and defragmentation on the drive. Of course, you should also make a backup of your important files.

2.1 Tools for Windows/DOS

- *Partition Magic* is a popular commercial product for non-destructively resizing and formatting partitions. The GUI interface makes it easy to use.

- *Fips* is a free DOS program for non-destructive splitting of harddisk partitions. Using fips is beyond the scope of this document. However, the fips package comes with it's own extensive documentation, so please take the time to read it before attempting to resize or partition your drive with this method. (http://www.igd.fhg.de/~aschaefe/fips/)

2.2 Tools for Linux

- *GNU Parted* is a program for creating, destroying, resizing, checking and copying partitions, and the file systems on them. (http://www.gnu.org/software/parted/parted.html)

- *QTParted* is a Partition Magic clone written in C++ using the Qt toolkit. (http://qtparted.sourceforge.net/)

2.3 Other tools

SystemRescueCd is a linux system on a bootable cdrom for repairing your system and your data after a crash. It also aims to provide an easy way to carry out admin tasks on your computer, such as creating and editing the partitions of the hard disk. It includes parted and qtparted in a comfortable, bootable, cd. (http://www.sysresccd.org/)

The VL installation program includes a partitioning utility (parted) that you can use during the install. Otherwise, you might want to set up the partitions ahead of time using one of the tools mentioned above.

3. Download Integrity Check

If you haven't already done so, download the VL image file (.iso) and the corresponding md5 checksum file (.md5). You should check the image file before burning it to a CD, to make sure it has not been corrupted during download. 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).
It is always a good practice to do an md5sum check before you burn a CD image file, so you know if the file was downloaded properly or got corrupted. This will save you a lot of time and some wasted CDs.

Notes:
- Some web browsers (*Internet Explorer*, for instance) have a tendency to rename that .md5 file as .htm or .txt. You can just rename it back to .md5.

- If you have a slow computer, the md5sum check may take a long time for a large file such as the VL .iso image.

3.1 <u>Integrity check in Windows</u>

Download and unzip the GUI tool *md5summer* (http://www.md5summer.org/). Make sure you are using version 1.2.0.5 or above. The first time you run it, 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 a cdrom image.

There is another tool you could use (this one is command line driven):

- Download the following file:
   http://theopencd.sunsite.dk/md5sum.exe (48 KB) or get it from here:
   http://www.etree.org/md5com.html
- Put it into your system folder (c:\windows\command for Win95/98/ME or
   c:\winnt\system32 for NT/2K/XP). Alternatively, you can just put it in the same folder as the .iso and .md5 files. If you do that, though, it will not be available system-wide.
- Open a DOS box by clicking the "Start" button, then "Run", there type "command" if you are using Windows 9x/ME or "cmd" if you are using Windows NT/2K/XP, and click "OK"..You are now at what is called a "prompt". It's good to get used to it.
- Go to the folder where the .iso and the .md5 files are located (for example "VL4.0.iso" and "md5sum-vl4.0.md5")
- Type the following command and then press enter:
      md5sum -c md5sum-vl4.0.md5
      If the image is allright, you should get a "file is OK" message.

3.2 <u>Integrity check in Linux</u>

The md5sum program is normally included in Linux distros, so you probably don't need to download or install it.

- Open a console and go to the folder where the .iso and .md5 files are located (for example "VL4.0.iso" and "md5sum-vl4.0.md5")
- Type the following command and then press enter:
      md5sum -c md5sum-vl4.0.md5
      If the image is allright, you should get a "file is OK" message.

4. INSTALLATION

4.1 Supported controllers

VectorLinux supports and can be installed on systems using ATA hard disc controllers, which at the moment of this wrtiting are the most popular ones in standard desktop systems, as well as in systems with SCSI controllers. This VL version also incorporates support for SATA (Serial ATA) controllers, which are being quickly incorporated by motherboards manufacturers.

If you are having difficulties using your SATA disks, make sure you have set the BIOS correctly:

In a nutshell, set the BIOS to "*Enhanced mode SATA only*". This is counterintuitive, 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. Symptoms are the kernel hanging after detecting hda - hdd.

If your system happens to have an ESDI-drive & interface, the provided kernels will probably not recognize them.

4.2 CD Install

Set your computer´s BIOS to boot from CD, place the VL installation media in the drive and reboot the system, it should boot into the installer routine. If that doesn´t happen, you probably need to change the order in which your system selects the device to boot from, refer to section 4.4 of this guide.

If you have multiple CD drives (CD burners also count), the VL installation CD must be located in the first one.

4.3 Floppy Install

Previous VL versions include the possibility to boot from a floppy disk and install the system from the files in a CDRom or a folder in the hard disk, unfortuantely the size of the new kernel is too big to fit in a floppy and therefore this option is not available in VL 4.3. A workaround is being evaluated, but we can´t assure it will be done.

4.4 Hard Disk Install

It is possible to install VL in a system without a floppy drive and without a bootable CD-Rom, and you could also install VL in a system without no CD-Rom at all if you can transfer the files to the target system via LAN or LapLink cable.

To perform the installation you will need:
A) three partitions on the target system, one for VL, a second one for swap space, and a third one to store the installation files, this one should be a Fat or FAT32 partition.
B) Some way to boot the system in DOS, it can be Windows or DOS in the Fat partition, a compact flash card, etc.

Create a folder named "veclinux" in the FAT partition, it **must** be located at the top level of the partition, i.e. C:\veclinux.

To that folder, extract the following files from the .iso:

      \isolinux\kernel\ide (the kernel)
      \isolinux\initrd.img
      \veclinux\krnlide.bz2 (or krnlscsi.bz2 if you want scsi)
      \veclinux\veclinux.bz2
      \veclinux\xfree43.bz2
      \veclinux\etcconf.bz2

You will also need to put loadlin.exe into that folder, it can be downloaded here:
http://elserv.ffm.fgan.de/~lermen/

Then, boot into DOS (it must be real DOS, not a DOS box in windows), go to the partition where the veclinux folder is located; following the previous example, you would type

    C: <enter>

and then into the folder by typing

    cd veclinux <enter>

to load the installer type:

    loadlin ide root=/dev/ram rw initrd=initrd.img <enter>

The setup should go on as normal and detect the setup files for installation.

4.5 Changing the boot order

To do this, when 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, CD, etc). Choose which should boot first, save out of the screens and restart the computer. You can change the boot order back when you are done installing VL.

Note:
(1) Not all systems use the Delete key to enter the BIOS. Some systems use one of the F# keys. Some use a combination of keystrokes. You should see which key during POST (i.e. shortly after turning on your machine), otherwise, check the manual for

your hardware.

5. The Installation Process Step by Step

When you boot from the CD, after some initial start up messages, you'll be taken directly to the install screens.
The actual install is a menu-driven process that should be easy to do – just follow the instructions on each screen.

1. Start up - just press enter to start the install process. If you are using SATA disks you should choose the SCSI/SATA kernel.

2. Choose to edit partition the map or install to an existing partition. If you've already set up your partitions as described above, or want to overwrite an existing Linux installation, you'll want to choose to install to existing partitions.

3. Find install media

4. Select partition where you want to install VectorLinux. You need to type in the name of the partition, i.e. /dev/hda2 or /dev/sda2 if you are using a SCSI or SATA hard disk..

5. Choose swap partition. If you already have a swap partition it should be found automatically.

6. Check files for errors before install.

7. Choose file system (ext2, reiserfs, or ext3); ext2 is the older, standard Linux file system, reiserfs and ext3 are both newer journaling file systems.

8. Last chance menu - hit OK to format and install

9. Install kernel - nothing you can do here; The "heart" of the system is being installed

10. Install X - you can choose to go without it and save a good deal of harddisk-space.You won't have a fancy graphical desktop, though.

6. Post-Install Configuration

Once VL has been installed, a configuration screen is presented. This allows you to configure sound and video, set up your network connection if you have one, etc. This screen can also be accessed later using the command "Vasm" as root. It is recommended that you DO NOT skip this configuration step at installation time.

6.1 Set Up LILO
After that, you are prompted to set-up "LILO", the Linux Loader that boots the system. You have the option of simple or expert configuration. Simple works well in simple cases, i.e. just

two operating systems, one windows/DOS plus VL.

Then you have a choice of 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

If you have another boot manager that can point to your Linux partition, then you can install to the root partition where you installed VL. If you want Lilo to take over the boot process entirely, install to the MBR of the disk. If you're not sure and you don't want to cause any problems, install to a floppy. Just make sure your computer's BIOS is set to boot from the floppy drive first. This is probably the safest (but slowest) method if you're worried about altering your existing configuration.

After you've 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. This will commit the changes to the lilo bootloader.

6.2 Configure system devices
Once Lilo is installed, the system's devices are probed and you are walked through a series of screens to configure your screen resolution, keyboard, mouse, network, sound card, etc. Finally, you are prompted with a list of the detected and configured devices.

You are then presented with a list where you can configure additional options like the system's timezone, modem, and printer.
This particular option in the menu, means you install support for printers through the CUPS package (Common Unix Printing System). Be aware that the final step of this package's *installation*, which is the first time the CUPS daemon is started on your system, can take several minutes to complete depending on the system capabilities, so please be patient. As an example, this process can easily take around five minutes in a mid-level system; of course, this is only necesary during CUPS' *installation,* and not every time the system is booted.

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

7. Using the system for the first time

7.1 Create passwords and users
If you are using VectorLinux Download Edition, you may have noticed that we haven't set up users or created a password for root yet. So, when you reboot into VL, the first thing you need to do is set a password for the root user.

Log in as root. You shouldn't be asked for a password; instead you'll be taken directly to a shell prompt. Type "passwd" and choose a password for root.

Running any Operative System as root is not advisable, so you should set up a normal user. The easiest way to do this is with the "adduser" command. Type:

adduser <user>

where <user> is the login name of the user you are creating, and follow the instructions to set up the user. Then you can logout and login again as the new user.

To start the X Window system, type "startx" (without quotes).

If the system fails to start the GUI interface, you might need to re-configure it. To do that, as root, type "*vasm*" and choose "XSETUP" to go through a graphical interface to configure your xserver or choose "XTEXT" to use a text based but menu driven configuration utility.

7.2 <u>Multiple Consoles</u>
Linux has 6 consoles so you can login as several users. Just press Ctrl-Alt-F1 until Ctrl-Alt-F6 to switch the console.

7.3 <u>Starting the GUI</u>
VectorLinux boots by default to a text mode, which can be changed later by the user.
To start the GUI simply type
$ startx
If your X-Window has run properly, you can set it to be launched automatically when the system boots.
For that, enter the command
$ vbootset
and select runlevel 4 or 5 as your default runlevel.

7.4 <u>System Administration</u>
If you want to further configure your system, you can launch VASM (Vector Administrative and Services Menu).
$ vasm

7.5 <u>Reboot and Shutdown</u>
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.

8. Enjoy the fruits of your labor

Please join our message forum as you can get great information and help there to enhance your VectorLinux experience (http://www.vectorlinux.com/forum/index.php).

9. 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) 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 mdsum integrity check , then you could try burning the file at a slower speed or use a different brand of 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 cb
Installation not complete
Please press enter to activate this console

Those errors are usually related to old hardware, and It could mean that you need to pass some commands to the boot process.

Some commands you could 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
  linux noapm
  linux pci=noacpi
  linux acpi=off
  linux apm=off

Error type 4:
Your SCSI or SATA hard drive is not available to install VL on it.

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

Error type 5:
Installing from CD-ROM fails with this error: "*mount: /dev/scd7 is not a valid block device*"

Your CD-ROM or CD-RW 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.

10. Credits
Copyright 2004 Vector Linux
Released under [GNU Free Document License [http://www.gnu.org/licenses/fdl.html]
Contributed By: Joe1962, Johnvan, Kocil, Monty67, Mutiny, robomop, Shallow Hal, SuSe-Refugee, UKBill.