VectorLinux 4.0
Installation Guide (ver. 3.6)

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1. System Requirements

- VectorLinux 4.0 Download Edition (minimum requirements):

    Pentium Classic 200 MHz
    64 MB of RAM
    At least 640 MB free hard disc space plus swap partition

- VectorLinux 4.0 SOHO Edition (minimum requirements):

    Pentium 233MMX
    128 MB of RAM
    Video Card supported by XFree86 4.3 (IGP and nVidia drivers included)
    2.5 GB free hard disk space

- VectorLinux 4.0 SOHO Edition (*recommended* system specs.):

    Pentium II 300 MHz
    256 MB of RAM
    Video Card supported by XFree86 4.3 (IGP and nVidia drivers included)
    6 GB free hard disk space

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 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.

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.

VL requires at least two partitions, one where the system is installed, and a swap partition, used for virtual memory. You have several options on how to set up these partitions:

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 Integrity check in Windows

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 Integrity check in Linux

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 CD Install

This is by far the easiest way to install, so if your computer can boot from the CD, use this method. Just boot from the CD and follow the instructions on the screen. Couldn't be easier!

Set your computer to boot from CD. Follow the procedure for changing boot order described in section 4.3, but this time set your first boot device to CD.

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

Some older computers do not recoqnize the boot routines used to boot the VL cd. If yours is one of those, see in section 4.2 how to make the “boot” and “root” floppies. Boot with the floppies and the installer will find the VL CD **(1)(2)**.

Notes:

(1) This method is not available for VectorLinux 4.0 SOHO Edition, this is caused by the latest kernels being too big to fit into a single floppy disc.
(2) You might also need to do this with SCSI CD drives.

4.2 FLOPPY / HD Install

If you do not have a CD Rom drive, you'll need to prepare the “root” and “boot” floppies from the image files on the "disks" directory in VL's CD (see section 4.2.1) **(1)**. Place the VL files somewhere on your computer where they can be found during the install process (see section 4.2.2).

Set your computer to boot from floppy. Follow the procedure for changing boot order described in section 4.3, but this time set your first boot device to “drive A”.

Note:
(1) This method is not available for VectorLinux 4.0 SOHO Edition, this is caused by the latest kernels being too big to fit into a single floppy disc.

4.2.1 How to transfer the img file to a floppy:

- from Windows you can use rawrite. This is available in the "dostools" directory on the CD and in our ftp site.

- from Linux, issue the following command to write an image to a floppy:

dd if=diskimagename.img of=/dev/fd0

4.2.2 Where do I place the VL files?

Create a "veclinux" directory at the top/root level of a Windows or Linux partition. The "veclinux" folder should contain the veclinux.bz2 file, xfree43.bz2 (assuming you want to install a graphical interface, which most users will want), and a kernel image (choose one). So a standard install might have a veclinux directory that looks like this:

veclinux/
veclinux.bz2
xfree43.bz2
krnlide.bz2

4.2.3 Which kernel should I choose?

krnlide.bz2 - for computers without a SCSI interface
krnlscsi.bz2 - for computers with a SCSI interface

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

4.3 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. Just remember to change your settings back to booting from the hard drive when you're 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 Install Process Step by Step

If you boot from a CD, after some initial start up messages, you'll be taken directly to the install screens. If you boot from a floppy, after the boot floppy loads, you'll be asked to insert the root floppy, and after this loads, you'll be taken to the install screens.

Either way, you'll soon arrive at 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

2. Select keyboard map

Note:

At the moment of this writing , the provided list of keymaps to choose from is rather limited.
As from VL4.0 SOHO (rc2), this will be fixed.
In earlier versions you need to download the files *kmapset* and *KMAPSET-README* after you have a working system and follow the instructions in the latter.
These files are available for download at the VL-ftp-site.
If your keymap is already present in the provided list, this is a moot point, of course.

3. Choose to edit partition map or install to 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.

4. Find install media

5. Select partition where you want to install VectorLinux. You need to type in the name of the partition, i.e. /dev/hda2.

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

7. Check files for errors before install.

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

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

10. Install kernel - nothing you can do here; The “heart” of the system is being installed

11. 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.

12. In SOHO 4.0 you will be asked to provide a password for root and given an opportunity to set up additional users. Do so (it is not wise to run Linux, or any operating system, as root).

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. Please **DO NOT** skip this configuration step at installation time.

6.1 Set up Lilo

Lilo is 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.

7. Using the system for the first time

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 the operative system as root isn't a good thing, so next you'll need to 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.

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://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
l*inux noapm*
linux pci=noacpi
linux acpi=off
linux apm=off

Error type 4:
Your SCSI hard drive is not available to install VL on it.
(and you probably have some error like this when you are asked for the root floppy disk -that is the second one-)

The required driver for you SCSI card is not being loaded, and therefore your disks are not seen by the install routine. You should use this floppy image as boot disk instead of the one in the VL install CD: http://slackware.oregonstate.edu/slackware-9.0/bootdisks/adaptec.s (If that link ever becomes outdated, do a google search for a slackware 9.0 "adaptec.s" bootdisk).

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).

10.Credits

Contributed By: Joe1962, Johnvan, Monty67,Shallow Hal, SuSe-Refugee, UKBill.