

Installing The Linux Operating System

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This book will provide some hints on how to install the Linux operating system, especially on older computer with less ram memory. This subject is mainly complicated by the support for peripheral devices.

Downloading The Linux Version Section 1

Download an iso file for the version of linux

Check a file against its md5 checksum. (download the file filename.md5.txt)

```
md5sum -c filename.iso.md5.txt
```

Or check the downloaded file with

```
md5sum file
```

(compare the displayed value with the 'md5' value on the download site)

Burning The Downloaded File To Disk Section 2

Burn at a slow speed?? Dont use the computer for other tasks??

Burn the iso to a compact disk, using the 'burn image' or 'burn iso' mode of the cd recording software.

To check if the iso on the cd is good

```
dd if=/dev/cdrom | md5sum
```

```
dd if=/dev/cdrom of=/dev/stdout | md5sum /dev/stdin
```

```
dd if=/dev/cdrom of=image.iso ~ (dumps the cd data to 'image.iso')
```

```
md5sum
```

Live Cds Section 3

'live cds' are compact disks which can run a version (or distribution) of linux without installing it to the computer hard disk

```
http://www.livedclist.com/ a list of linux live cds
```

Linux On A Usb Section 4

pendrivelinux.org

good simple instructions for getting a variety of distributions on a usb 'pendrive'

oo- - download an 'iso' of the linux distribution. - use some program to install that iso to the usb pendrive - go into the bios on startup and change the boot settings to usb, if possible - multiple distributions on one stick is possible but harder

Unetbootin?

If hardware doesn't work a module needs to be installed

See all modules which have been loaded

```
lsmmod
```

Load a particular module

```
modprobe ...
```

Remove the ralink wireless card driver

```
modprobe -r rt2860sta
```

```
rmmod rt2860sta      ~(the same)
```

Show information for the given module

```
modinfo rt3090sta
```

5.1 Blacklisting Modules

If the kernel loads incorrect modules (or device drivers) it may be necessary to 'blacklist' them, that is, prevent these erroneous modules from loading.

Black list a module

```
sudo vim /etc/modprobe.d/blacklist.conf
```

```
type ... blacklist modulename
```

5.2 Compile A Module

each module needs to be compiled for a particular kernel. If a particular peripheral is not working then a module may need to be compiled and installed.

Find the technical specification of the peripheral or hardware which is not functioning

```
lspci, lshw, lsusb, linuxinfo etc
```

Make sure that the kernel headers and a compiler is installed

```
sudo apt-get install build-essential linux-headers-generic
```

Download the source for the module for that peripheral or a compatible one

```
wget ...
```

Unpack the module sources

```
tar ...
```

Change directory to the module source folder

```
cd ...
```

Compile the module

```
sudo make; sudo make install
```

Build dependencies between modules

```
depmod -a
```

Load the module

```
modprobe modulename
```

Unload a module

```
modprobe -r modulename
```

5.3 Software

Burncdcc

Checking Hardware

Look at the Linux start up messages

```
■ dmseg      ~(here you can see what hardware was detected)
```

Use `lspci` to get the names of chipsets of hardware

```
■ lspci
```

```
■ lspci -vv   ~(provides a more detailed listing)
```

See lots of hardware info

```
■ lshw
```

Debugging Usb Devices

<http://www.basicconfig.com/linux/mount>

Check if a usb device has been recognised

```
■ lsusb
```

Plug in the usb device and look in `/proc/scsi`

```
■ cat /proc/scsi/scsi
```

(the make and model of the device should be displayed)

See what drive the usb device is attached to

```
■ dmesg | grep sd
```

Check PCI devices

```
■ cat /proc/pci
```

```
■ lspci
```

Rescan the the scsi bus to (hopefully) detect a new device

```
■ echo "- - -" > /sys/class/scsi_host/hostX/scan
```

Linux Modules

Check what modules are installed

```
■ lsmod
```

Cpu Information

Get information about the cpu

```
■ cat /proc/cpuinfo
```

Get information about Ram memory

```
■ cat /proc/meminfo
```

See what Linux version is running

```
■ cat /proc/version
```

Cd Recording Software

Infrarecord (www.infrarecorder.org) for windows