## Installing Linux

To install Linux you must boot linux from floppy, CDROM, DVD, memory stick or network.

## The DVDs

Several recent DVDs are found in the `/sdb` directory of `jaguar`

The install DVD is bootable (except on machines with a very old BIOS).

The install directory is called `slackware`
Example: `/sdb/slack13.37/slackware`

The DVDs also contain source code to the various packages.



## RAM Disk

A portion of RAM is reserved to act as though it were a hard-drive.

When booting to do an install, RAM disk is the `/` drive, that is, where all the install utilities, scripts and libraries reside.

Ramdisk is usually an image. The image is a Linux file system, so you could simply copy the image into ram.

For efficiency, when downloaded or stored on disk, the image is compressed;
you decompress before (while) you are copying the image to RAM.

With CD booting, RAM disk allows you to switch CDs.
With DVD booting, it increases the install speed.

## Network Booting

The Boot Client
1) The hardware (ROM BIOS) must support a net boot.
2) The BIOS must be set to allow net boot.
3) For our BIOS you need to hit the F12 key during the boot sequence to tell the client to try booting from the network first.

Boot Server:
Your boot server must be running both dhcpd and tftpd.
dhcpd does the lookups and reports to the client
tftpd does the file transfers

a) dhcpd gives the client an ip address.
b) dhcpd tells the client the name of the file to download and run
This file is usually called `pxelinux` and it is the boot loader for the operating system.
c) `pxelinux` reads its configuration file(s) off the boot server
c.1) it downloads the kernel (`bzImage`)
c.2) it downloads and decompresses the root filesystem (`initrd.img`).
c.3) it boots the kernel.



## Partitioning a Disk

You usually need:
A Linux native partition (82) marked as active/bootable
A Linux swap partition.

Other possibilities:
A user partition, so the users can't squeeze out the OS
A partition for `/var` so the expandable log files are kept separate from other things.
Partitions on a second drive for more space.

The disk is partitioned using the standard `fdisk` facility.

## Building a Disk (Repeat)

The install (`setup`) program will do these if you select the menu items. (If you have 4MB or less you will need to turn swapping on before starting the install).

Set up the swap partition for swapping using the standard `mkswap` command.

Set up the native partition file system using the standard `mke2fs` command.

Setup script:

Add swap–
1) Runs `mkswap`, remembers the entry for the `fstab` (can't do anything with it until the fstab is on the drive).
2) Turns swapping on for the partition.

Select targets–
1) Runs `mke2fs`, remembers the entry for the `fstab`
2) Mounts the partition so you can install files on it.



## The Install Groups (Disk Sets)

The install is organized into groups, for example the base install is group `a` and the files for that group are in subdirectory `a`

Each directory has several compressed tar files
`tar` then `xz`
These can be extracted by the package tool.
`pkgtool`: menu extract program for after install
You can extract packages manually using `tar` and `source install/doinst.sh`.

Disk sets are thematic: a–base install, d–development tools, n–networking stuff, x–X11 windows stuff...

Install: pick disk sets, make picks within each disk set

History: these are called disk sets because they used to come on floppies, for example the `a` disk set contained 5 floppies.

## Install (setup) Steps

Warning: do not type ahead, the script is badly sensitive to this.

Set up swap: you also decided this at `fdisk` time. You have one swap partition, choose it; set it up, turn it on. Notes: this part of the dialogue will also cause the swap entry to be made in your (new) `fstab` on the hard drive you are loading.

Select partitions: you decided this at `fdisk` time. You have one partition, no choices.

Source: NFS, from jaguar. jaguar has the disk sets under `/sdb/slack13.37/slackware`

Disk sets: Do this carefully. (Some of the stuff I ask you to load is necessary for the later projects.)
You may load extra stuff.
Do not to load `cups` or you will have two competing printing systems installed.



## Configuration

Build a new USB boot stick:
We boot from the network, so no.

Lilo: You've done this by hand. What this part of the script does is build a lilo.conf and then run lilo. You don't need special parameters, you want no wait, standard screen resolution, master boot record and the sda drive.

Where to find your modem and mouse:
On other installations, you will need to know about your hardware, for this one, I tell you in the handout.

Your network address and name:
On the front of your machine. For the numbers, the defaults got you to the NFS disks so they should be correct.

Install Services:
This will do the `chmod a+x` for the `rc` files. The services to be used are listed in the handout.

Setup the Time and Default X server as specified in the handout.

Set the root password to the old value.

## Post Configuration Steps

(After reboot)
We are setting up some that are not usually used in a home install, like NIS, NFS. The script doesn't handle these so they need to be done by hand after we've booted to the new system.

You should have done all of this in previous projects. You'll need your old homeworks with such things as the DNS, NIS, and NFS information.
Therefore, I sketch out what is to be done.

## Notes

packages: may be added later using the package tool or using `tar` and `install/doinst.sh`