

<b>Title:</b>	Slackers Slackware System Part 1: Installing Slackware
<b>Author:</b>	Ian Johnson
<b>Grouping:</b>	4 or 5
<b>Prerequisites</b>	Ability to read instructions on a CRT
<b>Time:</b>	At least an hour, probably more
<b>Breakpoints:</b>	Many, although you'll find it easier if you finish the install in one go!
<b>Courses</b>	B.Sc. CRTS, CS. SWEng, CIS
<b>Requirements</b>	A UQC109 system with Jaz Drive



## Introduction

3P27 is our networking laboratory, the centre of the room holds dual-boot MS-Windows-NT and Slackware Linux systems. Around the outside of the room are systems that are used for other purposes. Several of these are equipped with Iomega Jaz drives. For the series of practicals for which this worksheet is intended to get you started, these are the machines you need.

## Iomega Jaz Drives

The Iomega Jaz drive is a 2 Gigabyte removable hard-drive. You insert your platter (or disk) in the slot, press the eject button to remove. For all practical purposes you can treat these as hard drives, and for the machines in this laboratory, they are the only non-floppy drives in the computers.

## Slackware Linux

Slackware linux is a full-featured traditional linux distribution. Installation is quite straightforward and at most points you are offered advice from the installation scripts. More information is available from <http://www.slackware.org/>

Many books on linux are available, as well as copious documentation from the Linux Documentation Project. If you want to become comfortable with linux, you will need

to read around. Local copies of some documentation, together with pointers to some excellent tutorials from IBM are available from:

<http://www.csm.uwe.ac.uk/~irjohnso/uqc109s2.html>

## Installing Linux

In order to install linux, you will need to know where to find the installation media (it is available as an NFS export from Kenny on /dump/slakware). You will also need to get an operating system running in order to install the full operating system. As you often need to remember information such as the type of SCSI controller you have, or your IP address, you should keep a log book and record these.

### 1) *Identify your hardware*

Linux can be temperamental at times! It is best to know the system you are working with well. When you decide to build a new kernel, you will need to know what hardware you want support for. At a minimum identify the following, and write them in your log:

- ***Processor family*** – Different processors support different features, when you build a kernel it must be build for either your processor, or one which is supported by the processor you have. If in doubt, 386 is usually safe, but rarely optimal.
- ***Disk controllers & Disks*** – IDE and/or SCSI? If SCSI make and model of controller, If IDE, type of controller. How many disks? How large? What type?
- ***Network adaptor*** – Make, model, type & chipset. It may be useful later if you record the MAC address. This is often printed on the interface card, or can be discovered with *ifconfig*.
- ***Video adaptor*** – Type, make, model, chipset, size of video RAM. These are often needed for configuring X-windows.
- ***Mouse type & number of buttons***
- ***Keyboard type, number of keys and layout***

### 2) *Make installation disks*

In order to install an operating system, you need an operating system! The first step therefore is to build a set of disks to start your computer with. Images for these are contained in the Slackware distribution on Kenny (in /dump/slakware/rootdsk & /dump/slakware/bootdsk.144). As you will be installing via NFS you will need to build three disks:

- **A boot disk** – That contains a kernel that supports your hardware. For the machines you are using, you require support for SCSI (in particular the SCSI controller fitted to the machine you are using). There is a file called "WHICH.ONE" to help you select.
- **A root disk** – The "normal" root disk image is called *color.gz*.
- **A network support disk** – Needed to add network support so you can use NFS. The image *network.dsk* is in the rootdsk directory

To make these disks you need to use a utility *rawritent.exe*, on NT or *rawrite.exe* on windows9x systems, or *dd* on a unix system. To use *dd* you need to have write permission on the raw device */dev/fd0*. You can use *ls -ls /dev/fd0* to check this.

To make a disk using *dd* is simple. (If in doubt use the *man* facility)

```
dd if="/path_to_file/image_name" of="/dev/fd0"
```

So for the normal root disk, if you have copied *color.gz* into the current directory, you would type:

```
dd if="./color.gz" of="/dev/fd0"
```

Once you have your disks, label them and you are ready to proceed.

### 3) **Boot the system!**

Insert the boot disk you've made and restart the computer. When prompted, insert the root disk and press enter. You will be prompted to change the keyboard map, enter *I* to do so, select *uk.map* and then exit the utility (read how!).

You are now ready to log in as *root*.

You are now ready to start the install. All of the utilities and scripts prompt you for what to do. If in doubt, read the help!

### 4) **Partition the Jaz disk**

The Jaz drive will be */dev/sda* (SCSI Disk A – the first in your system). To start the partitioning tool, type:

```
fdisk /dev/sda
```

You will need to decide how you want to divide up your disk. Unix file systems are logically represented by a tree. The root partition "/" is at the top, with each node in the tree either a partition (or another disk), a directory, or a remotely mounted file system.

A typical top level directory structure for a unix system could be:

/etc	(configuration files)
/usr	(system files)
/var	(variable data, news, mail and print spool files)
/home	(users home directories)
/bin	(important system binaries)
/sbin	(statically linked system binaries)
/lib	(libraries)
/tmp	(temporary files)

Generally, if the "/" partition becomes full, very bad things can happen! As a result it is a good idea to separate areas that users may write to on to different partitions to the system files. Unfortunately, the more you divide, the less flexible the space you have can be used, so partitioning a disk is usually a compromise, and generally speaking the smaller the disk you're working with the less partitions you are likely to want.

As the Jaz disk is 2 Gb, The most sensible strategy is probably to have 3 partitions:

- /home - say 40 Mb to hold your groups work)
- swap – ideally you'd have twice your physical RAM. In this case 64 Mb is probably sensible.
- / - to hold everything else.

This is just a guide, choose a sensible strategy, and write in your log book what partitions you have created, for what and their number.

The partition number is important. Linux drive device names are of the form:

*/dev/ITx*

where I is the device type (S = SCSI; H = IDE), T is the device type (d for disk) and x is the partition number. As a result, the third partition on the second IDE disk would be */dev/hdb3*.

Try to stick to primary partitions (unless you need more than 4), extended partitions can have confusing numbers!

**IMPORTANT:** You will need to set the bootable flag on the partition you intend to use for /. You will need to set the file system type to "Linux native" for your data partitions, and Linux swap" for your swap partition. You will also need to make sure you write the partition table to disk.

## **5) Start Networking**

If you type *network* at the command prompt, you will be prompted to insert the network support disk. Do so, and when it is mounted your prompt changes from # to

*network*>. Follow the instructions to autoprobe for your network adapter. Once it has been found, you can continue.

## 6) ***Install!***

Once your network interface is working, you are ready to begin the install proper. Type *setup* to start the setup utility. **Use the help system!**

- Follow the setup menu in order
- Remember to enable swap
- Remember you want a Network (NFS) Install

You will need to know your IP-address. Your Jaz cartridge has a number written on it in gold. This is the last digit in your IP address which is of the form

***164.11.222.X***

Where *X* is the digit on the cartridge

You will also need to know your netmask (*255.255.255.0*)

The IP address of your gateway (kenny *164.11.222.200*)

The IP address of the NFS server (kenny *164.11.222.200*)

Where Slackware Linux is (*/dump/slakware* on kenny)

When setup tries to start the NFS service it prints all success and error messages to the screen. Check these. If something has gone wrong, you have a network problem, (or have entered some of the details wrongly!)

- You will probably not be able to install everything! Be selective. Remember you will need at least one kernel, and emacs is probably a good idea (unless you like vi)

## 7) ***Naming your machine***

DNS entries for *student-X* have been created where X is the number on your Jaz drive. This is the most sensible name for your system, although you can use another if you wish.