

CSIS0230A Principle of Operating Systems (Class A)

Tutorial 3

Linux installation

Facing you is a computer with literally no software: no OS, disk is not partitioned, etc. The hardware is good, though: it includes all the things that you need to make a desktop system, with good network connection. You also know all the network parameters, which are in a note besides the computer. Your goal is simple: to install Redhat 6.2 into it, and upgrade the kernel to 2.2.19 by downloading the source from the network and compiling it. Normally you have to search the web in order to get all the software you need. But since we only have one hour, all of them are already placed into the following URL: <http://www.csis.hku.hk/~c0230a/t03/>.

Now you can go ahead and try installing the whole thing, using the “Tutorial 3 reading” as reference. You don’t need to modify the BIOS setting: it has been done for you. When partitioning the disk, make a 128M swap space, a 1024M root filesystem, a 64M /boot filesystem. Make the root password `tutorial`, create one user account `guest`, with the password `guest1`. Do a custom install, choosing X, KDE, WWW utilities, Network utilities, Emacs, Development tools and kernel development tools. When configuring the new kernel, simply reuse the configuration of the Redhat provided kernel, and use defaults in all “oldconfig” options. If you encounter problems, try the “cheat list” below. Good luck.

1. **If graphical mode installation fails** in the middle with the screen turning blank, try installing under text mode, by typing `text` on the LILO prompt when you boot up the CD-ROM. This happens because Redhat tries to use the *plug-and-play* interface of the monitor but the monitor don’t support it (well... plug-and-pray).
2. **Don’t know what video card you’re using?** It is an i810 video card, which is not supported by Redhat 6.2. So skip the configuration of the video card at the time of installation. Do the following after installation completes: From the URL above, there are two RPM files, one being a precompiled RPM (with extension `.rpm`), the other being a source RPM (with extension `.src.rpm`). The first RPM contains a replacement X server `/usr/X11R6/bin/XFCom_i810`. The other contains the source of a kernel module needed for this X server to work. After compiling and installing the packages, you should be able to start the X server by typing the pathname of the replacement X server. Then make a symbolic link from `/etc/X11/X` to the replacement X server (by typing `ln -s /usr/X11R6/bin/XFCom_i810 /etc/X11/X`), so that `startx` works.
3. **How should I configure the X server?** Normally you should type `xf86config`, which creates a file `/etc/X11/XF86Config`. But to reduce the time needed, we have prepared the file for you. Just grab it from the above URL, and move it to the right directory.
4. **How to surf without X?** Use the text-mode browser called `lynx`. A few commands: use `g` (goto) to enter a new URL, `<up-arrow>` and `<down-arrow>` to choose a link, `<right-arrow>` to follow a link, `<left-arrow>` to go back, `d` (download) to download a link, and `q` (quit) to quit `lynx`.
5. **What to do if kernel compilation complains that the kernel is too big?** Don’t panic. Now type `make bzImage` and `make bzlilo`. This allows a bigger kernel. The kernel file will then be located in `vmlinuz`.
6. **Am I running the new kernel?** Type `uname -a`.
7. **`startx` no longer work after kernel recompilation!** Still remember that you compiled a kernel module? That is kernel version dependent, so compile and upgrade it.