

Network Laboratory

Assignment II (2 weeks)

Summary of the steps for setting up your computer

1. Install Some Virtualization Platform (preferably **VirtualBox**) on your computer
2. Download Free Dos 1.2 distribution from <http://www.freedos.org/download/>. Choose the USB “Full” Installer (<http://www.freedos.org/download/download/FD12FULL.zip>) as the distribution since it contains all the additional (other than the base operating system) additional application programs which are useful for the assignment.
3. Run VirtualBox and create a virtual machine (VM) with an NIC (for which you can have a packet driver). You may choose PCnet-PCI II (Am79C970A) as your NIC since a packet driver installer for this NIC (C:\FDOS\NETWORK\PCNTPK.COM) is available with FreeDos1.2.
4. Install Free Dos 1.2 from the installer you have already downloaded on the VM you have just created. Choose the Full Installation with Source option at this stage.
5. Boot the newly created VM where you have just installed Free Dos 1.2. Explore this operating system to be familiar with its commands. You may use the **help** command to know about various commands.
6. Run the **FDIMPLES** command to install and manage the application packages you want under Free Dos. At this stage you may install application programs under **Development**, **Editors** and **Networking** packages.
7. You may look at the C:\AUTOEXEC.BAT file (by running the editor program EDIT and opening the file). This file contains the commands that Free Dos executes immediately after booting (like .bashrc or .profile files in your home directory under Linux)
8. If you have successfully added a compatible NIC while creating the VM (Step 3 above) and installed the NETWORKING package under Free Dos (Step 6 above), then **most likely** you have a working network at your Free Dos VM. You can test that by running command like “ping -c 5 10.2.0.1” which, as under Linux, will send 5 packets to the machine 10.2.0.1 and should receive response from there. You may run C:\DILLO\BIN\DILLO which is a Graphical Web Browser like Firefox/Google Chrome.
9. Getting a working network at Free Dos needs running a few commands for installing necessary **layers** (like Data Link, Network, Transport, etc.). If you have a working network at your Free Dos VM, you must have guessed that the C:\AUTOEXEC.BAT file contains those commands which have been executed at booting time. Actually C:\AUTOEXEC.BAT calls C:\FDOS\BIN\FDNET.BAT which in turn contains those commands.
10. In this assignment you have to develop a program which assumes the presence of only the data link layer (provided by the packet driver under Free Dos). In C:\AUTOEXEC.BAT file, you may, therefore, comment out the line that calls C:\FDOS\BIN\FDNET.BAT and put the command C:\FDOS\NETWORK\PCNTPK.COM int=0x60 which installs the packet driver against the software interrupt number 0x60 (HEX 60, Decimal 96). That is, from within your program you can use the 80X86 instruction “INT 60H” to invoke the packet driver functions.