

# ***LINUX LABS***

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***Welcome to open, non-proprietary systems:***

***"With a world without fences, who needs gates!"***

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## **INSTRUCTORS" NOTES**

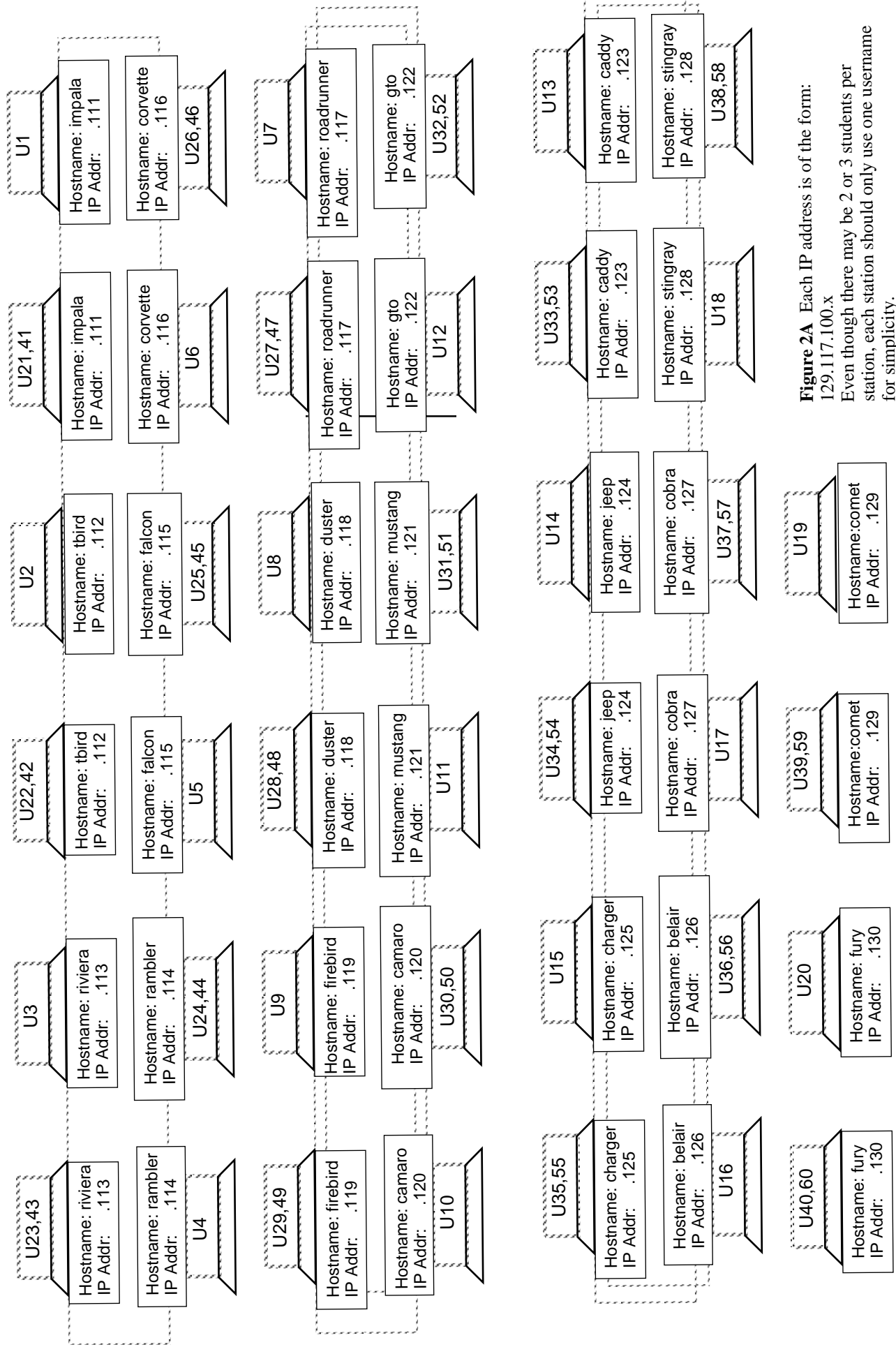
**66**

**NOTICE**

These are actual labs which have been tested for over 3 years in many sections of a networking class. You are free to copy them and modify them as you see fit. Each lab environment will be different. These labs are written for Slackware 3.6 distribution of Linux. Hope they are as useful to you and your classes as they were to me. The lab on the LAN Analyzer requires you to download three files from Linux sites. The names of those files are given in the lab.

The IP addresses which are used are not valid over the public Internet. These addresses are meant to be used in a stand-alone LAN which is not connected to the Internet.

NEW TCM LAB



**Figure 2A** Each IP address is of the form: 129.117.100.x

Even though there may be 2 or 3 students per station, each station should only use one username for simplicity.

# LINUX LAB #1

## **Purpose**

To install linux distribution of unix on a hard drive. Next lab will complete the installation by making the server network ready.

## **OVERVIEW**

### STEPS:

1. Preparaton and getting acquainted with the environment.
2. Boot the PC under Unix and partition the hard drive.
3. Shutdonw
4. Install Linux on your hard drive.
  - a. Format the swap space
  - b. Format the native partition
  - c. Select the packages to install
  - d. Install Linux Loader (LILO)
  - e. Configure the network

**In the next lab you will: Recompile the Kernel:** The kernel which comes with our CD distribution doesn't support the network which we have, so we must recompile the kernel. This will allow the operating system to see the Ethernet card.

## **STEP1. PREPARATION**

### ***Find the definitions of these Terms***

Interrupt

unix kernel

CMOS

BIOS

Partition

Swap partition = virtual memory

Ethernet card

words needed later:

    Daemon

    mounting

### ***Equipment Needed:***

1. The following CD ROM

WALNUT CREEK CD-ROMLinux **Slackware: 3.6**

1-800-786-9907

order@cdrom.com

Technical support:

support@cdrom.com

1-510-603-1234

## Walnut creek CDROM

Good place for LINUX software:

SUNSITE.UNC.EDU/LDP (the LDP has to be caps.)

### 2. HardDrive

Know your IP address from the map provided for your lab.

You will need to name your host as well. Locate your host name from the map.

### ***Important: Things to be careful of***

1. This lab is used by other courses to do other things. Please only use hard drives which are designated for you. Do not use any other hard drives. If your hard drive is not in your PC, let your instructor or the FA in the lab know that. Also, be careful where you sit and observe which system box belongs to the monitor which you are using.

Please respect the equipment

2. Don't go into the CMOS. or the setup.

3. Learn the proper care of the HardDrive.

Handle the drive carefully.

Don't drop it. Don't hit the teacher with it (use a more suitable device). etc.

**Don't pop it out while the power is on!**

4. Do not partition the hard drive that does not have a "U" on its label. For instance only partition hard drives labled U1, U2, U3, etc.

**Check for IRQ Conflits:** This has already been checked for you. I don't want you to go into setup. Mistakes there may create major problems. However, in general, one should be aware that IRQs have been checked so that the Ethernet card (IRQ of 11) and the SCSI card (IRQ of 10) are on different IRQs.

### TWO METHODS OF INSTALLING LINUX:

1. Create two diskettes which will allow the PC to boot under Unix before installation.

You will need two diskettes and will need to do INSTROCTORS PROCEDURE #1.

2. Boot the PC directly from the CD into UNIX. No diskettes are needed for this method. We'll use this method

## **STEP 2. PARTITION THE HARD DRIVE (30 mins.)**

1. Insert the HARD DRIVE in the bay. Make sure it is firmly seated in there and the key is all the way turned to the side. If you are not booted under unix, do it using the CD. Insert the Linux Slackware CD and turn on the machine.

boot: (press Enter)

2. Booting is complete using a minimum kernel. The PC is running unix. We now want to install unix on the harddrive. First we need to partition the hard drive. Create swap partition on the hda interface.

slackware login: **root** (enter)

# This hash mark as a prompt indicates that you are the superuser and you have to be careful in what you do. You have a minimum kernel available. Notice, you can't do pico, or even more.

3. This step will do the actual partitioning.

**#fdisk /dev/hda**

### 3a: clear the partitions:

command: **m** (find out the available commands)

command: **p** (stands for print) You may have some partitions already on the cartridge.

hd: Hard drive, sd: SCSI, a: First harddrive, 1: 1st partition.

If you do, then delete them as follows:

command : **d** (for delete. deleting old existing partitions.)

partition number: **1**

command : **d**

partition number: **2**

command: **p** Now there should be no partitions available on the cartridge.

### 3b: add Linux swap partition:

command: **n** (new partition)

**p** (for primary (not e for extended)

Only time we need extended is we go over 4 primary partitions.)

partition number (1 - 4) : **1**

first cylinder: **1**

last cylinder : **39**

command: **p**

72261 blocks . . . Linux native (We wanto make it a swap partition)

command: **t** (to change the type of partition.)

partition number : **1**

Hex code : **L** (list)

: **82** (for swap)

### 3c: add Linux native partition:

command: **n** (for new)

**p** (for primary)  
partition number (1 - 4) : **2**  
first cylinder: **40**  
last cylinder : **200**

3d: save partition table and exit:

command: **p** (The \* means the partition is active.)  
/dev/hda1    1    1    39                    72,000    82    Linux Swap  
/dev/hda2    40   40   200                   730,957+ 83    Linux Native  
command: **W** (for writing the partition information to the HD)  
:  
#

**STEP 3: PROPER WAY TO SHUT DOWN A UNIX MACHINE.**

1. Take the CD out.
2. #shutdown -h now  
Linux will also support CTL-ALT-DEL method of shutting itself down.  
"No more processes left ..."

However, that is specific only for Linux. In general, unix machines should be shutdown as shown. If the now option is omitted, then the system is shutdown after 5 or so minutes, giving messages to all users logged on to logout.

3. Once the system is brought down, hit the power switch.

**STEP 4: INSTALL LINUX ON THE Hard DRIVE.**

4a. Boot up again either using the CD , as before..

Insert the Linux Slackware CD and turn on the machine.

boot: (press Enter)

Booting is complete using a minimum kernel. The PC is running unix. We now want to install unix on the harddrive. First we need to partition the hard drive. Create swap partition on the hda interface.

```
slackware login: root (enter)
```

```
login: root
```

4b. Install the basic system

**#setup**

This is your main menu during setup

```
=====
```

```
HELP
```

```
KEYMAP
```

```
ADDSWAP
```

```
TARGET
```

```
SOURCE
```

```
SELECT
```

```
INSTALL
```

```
CONFIGURE
```

```
EXIT
```

SELECT addswap from this menu.

```
=[ADDSWAP]=
```

(The =[ . . . ]= symbol indicates the choices selected from a menu screen.)

```
<yes> Swap space detected. (better say "/dev/hda" for hard drive #1.)
```

```
Formatting Swap Partition.
```

```
(black screen momentarily appears.)
```

```
<exit> (swap space configured)
```

```
<yes> (for continue)
```

```
<ok> (Select Linux installation partition) /dev/hda2 Linux native
```

```
<ok> (Format Partition /dev/hda2) used to check for bad blocks - Quick Format
```

```
<ok> (4096 default inode)
```

```
Formatting . /dev/hda2 syJet light is on (takes a little time.)
```

```
<Exit> Done Adding Linux Partitions to /etc/fstab
```

```
<yes> Continue?
<OK> Install from CD ROM (1)
<ok> Autoscans for CD ROM
<OK> place disk in CDROM
    -- scanning --
<ok> Slackware Normal installation to hard drive
<yes> (continue)
```

STEP 4c. Now from the following menu , do not deselect anything. Leave as they are and press enter on OK.

```
A    Base
AP   Apps
D    Programs
F    FAQs
K    Kernel source because of network card, also can change hardware settings later.
N    Netwroking
X    Xwindow System
XAP  X applications
XV   XView to make it look like a sun station
Y    Games
<ok>
<yes> Continue
```

```
Select Prompting Mode    (This will take about 5 minutes. )
=[FULL]=
```

#### **STEP 4D.**

Next you will see this menu. Here pick only continue.

```
[Format]
[Simple]
[lilo]
[Continue]
```

```
=[Continue]=
<ok>
no modem
<no>
```

```
Fonts
<no>
```

LILO Installation

=[simple]=

=[MBR]= master boot record

### **STEP 4E: CONFIGURE NETWORKING**

At the next step you could say "No" and get back the # prompt. In that case, you would type #"netconfig" to start this part of the installation. In fact, in one of the very last labs when you are asked to change the subnet that you are on, instead of editing the startup file mentioned, this netconfig utility could be invoked. However, this utility will wipe out the existing /etc/hosts file if you have one and create a new one. In that case, a copy could be made of it. The /etc/hosts file is explained in lab 3.

Configure Network?

<yes>

Configuration Network

<ok>

Enter Hostname

=[ ]= Type it in your host name. **Use all lower case.**

Domain Name

=[**nj.devry.edu**]=

LOOPBACK only

<no>

IP ADDR

**DONT USE NUMBER PAD FOR THESE NUMBERS:**

=[129.117.100.x]= (type it in your IP address inplace of x.)

Netmask

**255.255.255.0**

GATEWAY

=[129.117.100.1]=

Name Server

<no>

Complete

<ok>

Mouse Configuration

=[ps2]=

GPM configuration

<yes>

Sendmail

=[SMTP+BIND]=

<ok>

Time zone

=[America/New York]=

Setup Complete

<ok>

linux setup

=[EXIT]=

<ok>

Here is a good place to stop if you need to.

If you are stopping, do these steps or else go on lab 2. Although it is nice to know that now your hard drive is self bootable before going on.

1. Eject the CD out if it is in there.
2. (On other systems you would do this: `#shutdown -h now`)  
CTL-ALT-DEL to start the booting up process. You may have to use the CTL and ALT keys on the left hand side and not the right hand side.
3. While it is rebooting, when it is doing a RAM check, turn off the power.
4. You could just type `#reboot`  
at boot: prompt press Enter  
hostname login: root

# LINUX LAB #2

***start from a cold boot here.***

## **PURPOSE:**

The hard drive now should be self bootable. However, its network card is not recognized by the operating system so we have to recompile the kernel and add the driver for the network card into the kernel.

## **Overview:**

### STEPS:

1. Check to make sure that the hard drive is self-bootable and also that the network is not recognized by Linux.
2. Select all the options that you want in the kernel when it is recompiled. Use menuconfig.
3. Recompile the kernel.
4. Are you now on the network?

## **STEP 1: This step shows you are not network ready.**

Remove the CD and boot the computer using the hard drive. You will get this prompt.

boot: (Press Enter)

Make sure the PC doesn't boot off the CD! This is confirmed by noticing the prompt for login is not "slackware" but the server name entered during the setup.

```
{Servername} Login: root
#ifconfig
```

Here, you will get only one interface, the local loopback interface. That means that you cannot ping or telnet to anyone else on the network. Do the following command using someoneelse's IP address. What message do you get? Use CTL-C to stop.

```
#ping 129.117.100.111
```

Now do a ping to your own server. Give the ping command for that. What message do you get?

```
#
```

Are you on the network?

**STEP 2**

```
#cd /usr/src/linux
/usr/src/linux #make mrproper
/usr/src/linux #make menuconfig
```

After you press enter, you will see the following menu.

The lines in the main menu with no numbers in parenthesis, such as the first one, are to be empty. There is an & in front of such lines. That is, if you press enter there, there should be nothing selected in the submenu window. For these items make sure all items are unselected. Pressing the spacebar will toggle between a \* (kernel support), M (module support), or space (no support)

For the items in the main menu where there is a number in parenthesis, choose the items in that submenu window that corresponds to that number. Submenu windows are given next.

```
----- Main Menu -----
& Code maturity level option -> [   ] Prompt . . .
  Loadable module support -> (1) No need to go into this submenu
  General setup -> (2) No need to go into this submenu
  Floppy, IDE, and other block devices -> (3) No need to go into
this submenu
  Networking options -> (4) No need to go into this submenu
& SCSI support -> [   ]
  Network device support -> (6)
& ISDN subsystem -> <   > ISDN
& CD-ROM drives -> [   ] Support non-SCSI/IDE Alttech 1st Mitsui
  File system -> (7)
  Character devices -> (8)
& Sound -> <   >Sound card support
& Kernel hacking -> [   ] Kernel profiling support
-----
  Load an alternate Configuration file   Dont press enter on this one.
  Save Configuration to an alternate file  Dont press enter on this one.
  <Select>   <Exit>   <Help>
```

When done with the checking all the submenus, you will get this message:

Do you wish to save your new kernel configuration?

<YES>

**IF AN ITEM IS NOT LISTED, LEAVE IT BLANK**

----- Submenu for (6) Network Device Support

```
[*] Network device support
<*> Dummy net
[*] Ethernet (10 or 100 Mbit)
[*] 3COM ISA
<*> 3c501
<*> 3c503
<*> 3c509
<*> 3c515
<*> 3c509/3c579
<*> 3C590          .../905) "Vortex/Boomerang"
```

----- Submenu for (7) File System

```
[*] Quota
<*> minix fs
<*> second
<*> xiafs
<*> Native language
<*> ISO9660
<*> DOS FAT
<*> MSDOS
<*> VFAT
[*] /proc
<*> NFS file system support
```

----- Submenu for (8) Character Devices

```
<*> Standard/
[*] Mouse
<*> PS/2 Mouse (aka .
[*] enhanced Realtime clock support
```

When done with the checking all the submenus, go to the main menu. Press Enter on <EXIT>.

You will get this message:

Do you wish to save your new kernel configuration?

<YES>

All this creates a .config file.

### **STEP 3**

```
# more .config          Type this more command for fun. BUT IS NOT necessary.
# make depend
# make clean
# make modules
# make modules_install (you may get a "No such file" message.
That's ok)
# make zlilo
    (5 Minutes)
```

### **STEP 4**

Now reboot and do:

```
# ifconfig.
```

Do you see two interfaces? lo0 and eth0?

can you ping your neighbor using her/his IP address?

If you can, then you are on the network and now the fun can begin!

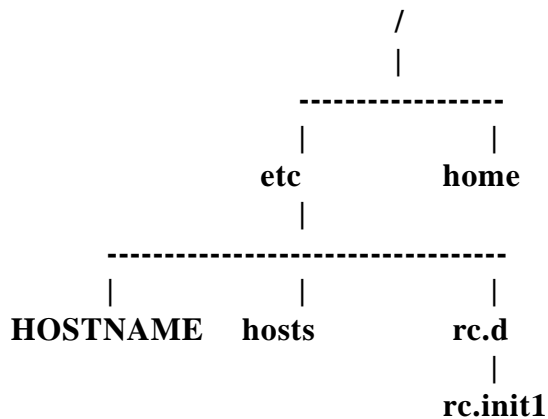
disregard this part: Method #2: Instead of doing all this, you can borrow a disk which is already made by someone else and do:

1. insert source disk already made into A drive and type:  
#diskcopy (no need for mounting)
2. When prompted, place in the destination diskette

# LINUX LAB #3

## Getting Your Host and Network Ready

- Objective:**
1. Give your server the correct host name if it is incorrect.
  2. Give your server the correct IP address if it is wrong.
  3. Add all hosts on the network to your server so that you can refer to hosts by their hostnames rather than by their IP addresses.



**If you were to change your hostname, it would have to be done in HOSTNAME and hosts. If you were to change your IP address, it would have to be done in hosts and rc.inet1.**

### 1. Get Your Server's's Hostname and IP Address.

a) Go to the figure on the page 6 of Linux Lab#1 and find the number of the PC at which you are sitting.

What is your PC number? U\_\_\_\_\_

Hostname: \_\_\_\_\_ (please use all lower case letters.)

IP Address: 129.117.100. \_\_\_\_\_

b) See the prompt on your system. Does the hostname given on the prompt match the hostname you are supposed to be? \_\_\_\_\_

Now do this command:

```
#ifconfig
```

You should see two interfaces. One is the local loopback interface and the other is the Ethernet interface. If you don't have both interfaces, see your instructor to get your cartridge corrected. In your ethernet interface, find out your IP address. Does it match what yours is supposed to have from step a? \_\_\_\_\_

## 2. Ping:

What is the number of your own PC? U\_\_\_\_\_

What is your own IP address? \_\_\_\_\_

Use this address in the ping command below.

```
#ping 129.117.100. _____
```

Do a <Ctrl>C to stop it.

Is your machine up?

What is the number of your neighbor's PC? U\_\_\_\_\_

What is his/her IP address? \_\_\_\_\_

Enter this address in the ping command below.

```
#ping 129.117.100. _____
```

Do a <Ctrl>C to stop it.

Is your neighbor's computer up?

You could try out all the PCs in the lab to see which ones are network ready.

2) Give your server the correct host name if it is incorrect.

```
#cd /etc
```

```
#more HOSTNAME      (Caps)
```

If the name of the host is correct, then do not edit it, just go down to step 3.

```
#pico HOSTNAME      (caps)
```

(Edit your hostname here, if necessary. Do not erase the ".nj.devry.edu". Also, use all lowercase.) (In pico, <Ctrl>K will kill one line and <Ctrl>U will undelete it.)

(Then save by doing <Ctrl>O and exit by <Ctrl>X)

Your prompt will still have the old hostname. It will be reset the next time you reboot.)

Type this command and reboot. Does it change your HOSTNAME?

```
#hostname myserver
```

### 3) The `/etc/hosts` file.

You also have to check your hostname in this step to see if it is correct. Here, you also add all the other server's IP addresses so that you can refer to them by their hostnames instead of their IP addresses. It worth doing this task since you will be using it during the entire semester.

Before you start: `<CTL>-K` will delete one line. `<CTL>-U` will undelete the last line deleted at the current position. If you do `<CTL>-U` 10 times, then the last line deleted will be copied 10 times.

```
#pico hosts
```

(Correct your hostname and/or IP address here. Notice, hostnames appear twice. Preserve the format: Add all the other host names which are on your network and their IP addresses here. )

```
129.117.100.120 camaro.nj.devry.edu    camaro
129.117.100.119 firebird.nj.devry.edu    firebird
                                                                    (etc.)
```

4) Now check your own IP address in this file in this directory.

```
#cd /etc/rc.d (This is the directory with all startup files.)
```

```
#more tc.inet1
```

If your IP address is right, don't go into pico. you may corrupt the `rc.inet1` file then you wont be able to start your server! go to step 5 instead.

To change your IP address in this startup file, first make a copy of it:

```
#cp rc.inet1 rc.inet1.orig
```

(orig stands for original) Now if you need the original, it's there.

```
#pico rc.inet1
```

(Find the IP address here and correct it. Preserve the format. Do not add extra spaces or change quotes or alter the format in anyway. Save the file and exit. Please be careful.)

5) Reboot your computer and recheck your hostname from the prompt and the IP addresss from `ifconfig` command. They should match with what you are supposed to have. Try the ping command and use hostnames instead of IP addresses. All servers which are running (and not in the process of rebooting) should be pingable.

## 6. Find Out Who is on the Network:

Find out each hostname as they entered it. Watch out for spelling.

Enter also each host's IP address. You only need to enter the last dotted number since the first three numbers are the same for all hosts.

# **LINUX LAB #4**

## ***Creating Accounts***

### **What you must have:**

A complete Linux system which is self bootable.

An IP address and hostname which is unique within the LAN

(Use “ipconfig” command to check this. If necessary, redo lab#4 again.)

### **Help each other:**

Throughout this lab, if you get stuck, ask students around you who correct results to help you.

The professor can't be in all locations.

### **Outline of the lab:**

Step 1. Give the root account a passwd. Keep it secret and write it down. give it to your partner and the instructor!

Step 2. Give yourself an account. For example, if your name is “john” then your login name should be “john” and your passwd should be john. USE ALL LOWER CASE. Of course, that is not so secure, but at least the root passwd is secure. Two partners on the same machine is to share an account.

(Not a good practice in real life.)

Step 3. Now create at least 4 other accounts so that accounts from at least 4 other servers can log into your server.

Step 4. Make sure you have accounts in at least 4 other servers. If not, ask administrators from other servers to add you.

Step 5. Test out the accounts. Can you log into other servers? Can others log into you? When you log into another server how can you tell who has accounts there? How can you tell who else is logged on?

### **Steps 1: Passwd protect the root account**

a) Boot up the computer. Log in as root.

```
login: root
```

```
#
```

Figure out a passwd for root. Remember to write down this passwd. If you forget it, then forget it. I still havent figured out how to crack it. you will have to do a complete reinstall, i think! For example, i chose iLtTT63,s as the passwd. It is easy to remember and hard to crack: It takes the first letter of each word in a song. "i Love to Tell The 63, Story" 63, is added to make the passwd more secure. In this lab it is not terribly important to make the root passwd that secure, but in real life, you would want to. To change root's passwd, enter:

```
#passwd
```

```
Enter passwd:iLtTT63,s      (The passwd is not echoed on the  
screen)
```

```
Too simple, Enter again anyway if you wish.
```

```
Enter passwd:iLtTT63,s
```

```
Reenter passwd:iLtTT63,s
```

```
done
```

When someone else like john needs to reset his passwd then you have to type:

```
#passwd john
```

b) Now follow these steps carefully:

[alt][f2] that is, hold down the alt key and and press the f2 function key. you will get another login window

```
login: root
```

```
passwd: *****
```

You have opened another virtual terminal. and this time, it will ask for a passwd for root.

(If you forgot your passwd, just do a [alt][f1] to go back to original terminal and reset passwd as in step a.)

c) You should be logged into root two times, once from [alt][f1] and once from [alt][f2] where you are now.

```
#who
```

```
root ...
```

```
root ...
```

d) logout of the [alt][f2] session.

```
#logout
```

```
login:
```

and you get the login: prompt back meaning no one is logged in the [alt][f2] terminal.

e) Do a [alt][f1]

```
#
```

you are back in terminal number 1 session.

**Step 2: Create an account for yourself.**

Create an account for yourself that is named after the first name of one of your own group members. Give yourself a password. See how the professor wants you to choose your passwords. You may just want to use your first name as the password as well. Then at least the root will be protected. Use this account when you don't need root privileges. It is better not to log in as root all the time because you might end up messing things up as root, inadvertently. However, if you are logged in as self, then you are protected. Now log out and log back in using this unprivileged account. The command is `adduser`.

*From now on, all steps should be done from this account, if possible.*

<ALT><F2> or <ALT><F3> or upto 6 different terminals can be accessed on Linux. You may try opening another terminal by doing that. See, on a windowing interface when you want to log in somewhere else, you just open another window. Right now we are in text mode, so we cant do that. Hence, the facility of having the different terminals using the ALT keys.

Your instructor may want you to login into <ALT><F1> as root and into <ALT><F2> as your self. Then it is easy to toggle back and forth from a privileged account into an unprivileged account as you need to.

As you go through the labs, if you see this prompt, %, that means you are logged in as your self. When you see this prompt, #, that means you must be logged in as root in order to do the privileged command.

a) make the account

**#adduser**

login name: **john** (Use all lower case for login name!)

(you will see items, just hit enter each time. Brackets give you default values.)

Full name: **John H. Doe**

room number[]

phone number[]

shell[bash]

home directory[/home/john]

(bunch of other stuff.)

password: **john**

password: **john**

retype: **john**

done

I dont remember all the prompts, but just hit enter on all the prompts. If you mess up, dont bother deleting the account, Just create a new one. The brackets mean if you hit enter, then it will just take the default.

b) Now test your account on the other terminal.

```
do a [alt][f2]
login: john
passwd: john
$
```

c) From now on, do all your email, ftp, telnets to other machines from the [alt][f2] terminal and use the [alt][f1] session to have root privileges on your own server.

**Steps 3 and 4: Make accounts for others and make sure you have accounts on other servers.**

a) Now create at least 4 accounts for 4 other students and make sure you have an account on at least 4 other servers. Use the first name, all lower case, for their account names and the same thing for their passwd.

b) Give the names of the accounts you created and the hostnames on which they are:

User #1:                               who is the administrator for host:

User #2:                               who is the administrator for host:

User #3:                               who is the administrator for host:

User #4:                               who is the administrator for host:

c) Remote Login:

By now you should have an account on 4 different servers on your network besides the one on your own server. List the hostnames of those 4 servers.

Hostname:                               Hostname:

Hostname:                               Hostname:

Using a telnet, try logging into each of the four hosts, one at a time.

Question: Why can you telnet using a hostname and not have to type the IP address of those hosts?

d) Changing Passwords:

Tell someone from another host who has an account on your host that they have forgotten their password. You cannot find out what their old password is, but you can give them a new password by entering:

```
#passwd {username}
```

For username, enter the actual username. Please remember to enter a username or else you will be changing the root password. Here, you won't be asked to enter the old password because you are logged in as a superuser.

**Step 5: Test your accounts on other servers.**

a) Let us test our account to comet. Go to [alt][f2] and log in as yourself if you are not:

```
impala login: john  
passwd: john
```

```
$telnet comet  
comet login: john  
passwd: john  
comet$
```

b) Who else has accounts on comet?

```
comet$more /etc/passwd
```

This file has some system accounts which we don't need to concern about for now.

Disregard the system files.

c) Who is actually logged in at that time on comet?

```
comet$who
```

```
=====
```

# LINUX LAB #5

## *Email and FTP*

### **Outline of this lab:**

- 1. Use telnet to find out who has accounts on other servers and to check if they are currently logged on.**
- 2. Send email. Read received email and reply to it.**
- 3. Use the .forward file to enable you to check all your mail from one location.**
- 4. Use ftp to transfer files to and from another server.**

**Do this lab using [alt][f2] and your own account. For example, suppose that you are john and you are the administrator for inpala. You should do this entire mail from john's account:**

```
[alt][f2]
-----
inpala login: john
passwd john
inpala$
```

### **Step 1. Who is on Which Host:**

In the last experiment administrators from four other servers created you accounts on their servers. Now telnet to the first host (using simply the hostname). From that host, log into the second host, and so on until you log into all other hosts. Last, from the fourth host, now log back into your own host. Each time you log into a new host, write down four lab students who have accounts on each host and whether they are logged in at that time or not.

Hostname	Users who have accounts	Are they logged on (Yes/No)?

Figure 3

Can you log on to your own host while being logged on to another host?

## Step 2. Straight Email

### INTRODUCTORY DISCUSSION:

Make sure that your `/etc/hosts` file has entries for all the hosts which your server will interact with.

- a) can you send mail directed to any host in this lab as long as it is turned on?  
Must you have an account on the host where the mail is being sent?
- b) can you send mail directed to any person on any host in this lab?  
Must that person have an account on that that host?
- c) If there is no response from a ping to a server, can you send mail to that server?
- d) If you send mail to a person who doesn't have an account on a server, what happens to that mail?

From your own account and not from root: Using pine, send mail to someone else (not to root) who does not have an account on your own host. Ask them to reply to your message. Have them include the message which you sent them. Save the file which you receive back as `lab4.email1` in your login directory. You may have to tell the person directly that they have mail from you.

(To Send mail to an IP address:

**26**      To: `userName@[                      ]` provide IP address in the brackets.)

```
impala$ pine
```

Use pine to send mail. Initially, you will get a welcome screen. Just press 'E' to exit it. Then when sending mail, use the login name followed by the IP address of the server where you want the mail to be sent. The IP address should be in brackets. For example,

```
To: chris@[129.117.100.129]
```

The username must be in lower case in order to send mail.

When replying, you must change the return address from the hostname format to the IP address in brackets format.

Instead of:

```
To: chris@comet
```

use:

```
To: chris@[129.117.100.129]
```

### Step 3. The .forward file

#### INTRODUCTORY DISCUSSION:

- state the purpose why someone would have a .forward file.
- Do you have the .forward file on the server where you usually check your mail or at other servers where you have accounts?
- If you have an account on your UNIX account on students at devry and one on hotmail, and you want to check all your mail on hotmail, where would the .forward file be placed?
- When someone is sending you email, do they need to know that your mail is going to be forwarded?
- What analogy can you draw from the postal system that explains the .forward file?

LAB STEPS: do these steps in your own account and not in root.

a) Create a file called .forward in one of the four hosts on which you have accounts. We will refer to this host as THE REMOTE HOST. THE LOCAL HOST is where the mail is going to be forwarded. Simply place your full email address of your own host in that file. This way if anyone sends you email to that host on which you have an account, it will be forwarded to your own host. What is the name of the host on which you have a .forward file?\_\_\_\_\_

b) Find someone who doesn't have an account on either your REMOTE host or your LOCAL host. What is that username?\_\_\_\_\_ and from which server will s/he be sending mail to you? \_\_\_\_\_.

c) Ask that person to send mail to you on your REMOTE host.

d) Here is a sample session for john who is the administrator for impala, who has an account on comet, and who wants to forward all his mail from comet to impala:

```
impala$ whoami
john
impala$ telnet comet
comet login: john
passwd: john
```

```
comet$ echo john@[129.117.100.111] > .forward
comet$ cat .forward
john@[129.117.100.111]
comet$
```

Now john has created the .forward file and asks someone to send him email to comet. Or he can do that, as well:

```
comet$ pine
To: john@[129.117.100.129]
comet$
```

He doesn't get the message on comet so he logs out of comet and gets back to impala.

```
comet$ logout
impala$ pine
```

Now he can check his mail.

#### Step 4: FTP:

For the following four questions, answer either "telnet" or "ftp".

Which unix command allows you to do all of the Unix shell commands remotely?

Which command does not allow you to transfer files?

Which command allows you to transfer files between servers?

Which command does not allow you to do all of the Unix shell commands?

Do this lab from your own account, not root.

a) Create a file on your own host under the login directory, called local.file. It should contain one or two lines, nothing elaborate.

b) Create a file called remote.file on one of the other hosts on which you have an account.

c) . Now type:

```
%ftp {remotehost}
```

The hostname should be the remote host name. You will be asked for your password.

What happens when you type a question mark?

How can you get help on a command on-line?

Do the following commands, and write under each one what they do. If you get an error, summarize it.

```
ftp>pwd
```

```
ftp>ls
```

```
ftp>cat remote.file
```

```
ftp>get remote.file
```

```
ftp>get local.file
```

```
ftp>put local.file
```

```
ftp>quit
```

d) Were you able to transfer **local.file**?

Confirm this transfer and write down your commands which allowed you to confirm this file transfer?

Were you able to transfer **remote.file**?

Confirm this transfer and write down your commands which allowed you to confirm this file transfer?

What are you doing (put or get) when you transfer a file from your host to the host you have ftp'd to?

What are doing (put or get) when you transfer a file from the host you have ftp'd to to your own host?

e) Here is a sample session for john.

**Instead of logging in and out of comet to do this lab, john simply opens two terminals to work from two servers, impala and comet.**

```
[alt][f2]      John is using this terminal session to do all his
commands from impala
-----
impala login: john
passwd: john
impala$ echo this is a local file > local.file
impala$ cat local.file
this is a local file
impala$ ls
local.file
```

```
[alt][f3]      John is using this terminal session to do all his
commands from comet
-----
impala login: john
passwd: john
impala$telnet comet
comet login: john
passwd: john
comet$echo this is a remote file > remote.file
comet$ls
remote.file
```

```
comet$cat remote.file
this is a remote file
comet$
```

Now the local.file is ready on impala and remote.file is ready on comet.

[alt][f2] John is now ready to do an ftp to comet.

-----

```
impala$ftp comet
```

```
login name: john
```

```
passwd: john
```

```
john logged in
```

```
ftp>get local.file
```

What error does he get

here?

```
ftp>put remote.file
```

What error does he get

here?

```
ftp>get remote.file
```

What message does he get here to indicate it was successful?

```
ftp>put local.file
```

What message does he get here to indicate it was successful?

```
ftp>get local.file
```

How come now he doesn't get an error while before he did?

```
ftp>quit
```

Now he confirms that remote file was received.

```
impala$ls
```

```
local.file  remote.file
```

```
impalan$cat remote.file
```

```
this is a remote file
```

```
impalan$
```

[alt][f3] John also confirms that the local file was placed.

-----

```
comet$ ls
```

```
local.file  remote.file
```

```
comet$cat local.file
```

```
this is a local file
```



- \* You need to be have an account on a server where you are NOT placed in the acctg group.
- \* You need to be placed in the acctg group on a server where you WILL create the acctgfile.
- \* You need to be placed in the acctg group on a server where you WILL NOT create the acctgfile.

Your instructor may want to create a grid like the one shown below so that everyone knows which role they are playing during each phase of the lab.

	<u>Server Name</u>	<u>impala</u>	<u>tbird</u>	<u>camaro</u>	<u>comet</u>
Server Administrator	laurel	charlie	abbott	oliver	
Person creating the file and who is in the acctg group	oliver	laurel	charlie	abbott	
Person who is NOT creating the file but IS in the group	abbott	oliver	laurel	charlie	
The Person who is NOT in the group at all.	charlie	abbot	oliver	laurel	

After you and your lab members decide on these items, answer these questions.

**On your own server:**

1. Who has accounts? (Give exact spelling)
  
2. Out of these accounts, who are you going to be placing in the acctg group?
  
3. **On which server** will you be placed in the acctg group by its administrator and where you WILL CREATE the acctgfile? CALL THIS SERVER\_3. We will refer to this server in the directions to follow.
  
4. **On which server** will you be placed in the acctg group by its administrator and where you will NOT create the acctg file? CALL THIS SERVER\_4.  
You will need to know who will be creating the acctgfile on SERVER\_4. CALL THE USER, USER\_4.
  
5. **On which server** will you not be placed in the acctg group, but where you have an account? CALL THIS SERVER\_5. You will need to know who will be creating the acctgfile on SERVER\_5 CALL THE USER, USER\_5.

Now that you have decided on the above users and servers, you can start the lab. Remember, do not go on to the next phase until you finish the previous phase.

**PHASE I: Create the acctg group on your own server.**

[alt][f1]

-----

```
#cd /etc
#cp group group.orig
```

This is a very important step in many of the labs, not just this one. Make a copy of the original /etc/group file in case, you need to restore it in the future. Next time that you may alter this file, do not copy it over the /etc/group.orig file, but copy it to /etc/group.bakup. You never know when you might currupt an important file. Remember that you are in root and what you may do here will affect your users and you. Always make a copy of an important file before altering it!

#**pico group** or any other editor to add the two groups. Create one group called acctg. Add at least two valid users in this groups. Make sure these users have accounts on your system and are spelled the same way.. Use the syntax of other lines in this file to figure out how you should add groups properly. Use 1001 as group ID.

Give two users you placed in the acctg group?\_\_\_\_\_, \_\_\_\_\_

This is done by going to the /etc directroy and editing the group file. Next to each group simply list each username who belongs to that group, separating each one by a comma.

This ends phase I.

Do you have another server where you are in the acctg group?

Do you have another server where you have an account but you are not in the acctg group?

If all the students are ready, then go to the next phase.

## PHASE II.

ALL THE COMMANDS IN THIS PHASE ARE DONE FROM SERVER\_3

**STEP 1.** Verify your information on SERVER\_3.

Now log into your own server as your self and telnet to a remote server , SERVER\_3. Here you are in the acctg group where you will create the acctgfile.

How do you check if you have an account?

How do you check if you are in the acctg group?

[alt][f2]

-----

```
$more /etc/passwd
```

```
$more /etc/group
```

If you are not in a group in the server you are logged in, find a server where you are. If all else fails, ask someone to add you to one of their groups.

From these files fill in these items:

- a) Name of the server where you belong to the acctg group
- b) Name of another user who belongs to your group
- c) Name of another user who has an account on this server but doesnt belong to your group.

**STEP 2.** Now create the acctgfile: Write down what the response is for each command, if there is one.

```
a) $echo echo I am executable > acctgfile
```

```
$ls -l
```

```
b) $chmod 740 acctgfile
```

```
c) $chgrp acctg acctgfile
```

```
d) $ls -l
```

```
e) $ls -l ..
```

Step a creates a file called acctgfile.

Step b changes the file permissions

Step c changes the group to acctg from user

Step d checks all that out

Step e checks to see if other users can change directories into your own login directory.

If a directory has "x" permission then they can go into that directory.

**STEP 3:** Now you test the owner's permissions. That is, can you read the file? Can you overWrite the file? And can you execute the file. Write the response for each command.

```
$cat acctgfile
```

```
$echo date >> acctgfile
```

```
$cat acctgfile
```

```
$acctgfile
```

```
$logout
```

Finally, log out of that remote server.

**PHASE III: Do not start this phase until the other lab members have finished their phase II.**

**STEP 1:** Log onto SERVER\_4.

The server where you are in the acctg group but where you did not create the file. Then change your working directory to the user who created the acctgfile on this server. We referred to this user as USER\_4. Write down all the responses from these commands.

```
$cd ~{USER_4's homedirectoryname}
```

```
$cat acctgfile
```

```
$echo hostname >> acctgfile
```

```
$acctgfile
```

```
$logout
```

Were you able to read the file?

Were you able to overwrite it?

Were you able to execute it?

**STEP 2:** Log onto SERVER\_5

The server where you are NOT in the acctg group. Then change your working directory to the user who created the acctgfile on this server. We referred to this user as USER\_5. Write down all the responses from these commands.

```
$cd ~{USER_5's homedirectoryname}
```

```
$cat acctgfile
```

```
$echo hostname >> acctgfile
```

```
$acctgfile
```

```
$logout
```

Was that person able to read the file?

Was that person able to overwrite it?

Was that person able to execute it?

# LINUX LAB #7

## Objectives:

Working with filesystems

This LAB has not been tested.

## STETS

1. Mounting filesystems
2. Exploring various commands
3. Using the dd command.

## STEP 1: *Mounting:*

### Mounting filesystems:

First you must log in as root.

Then create two directories called cdrom to mount the CDROM and diskette to mount the floppy as follow:

```
#cd /
```

```
#mkdir /cdrom
```

```
#mkdir /diskette
```

```
#df
```

**This tells you what file systems you have  
What filesystems exist?**

```
#df -h
```

**Which command shows the space on the  
file systems in MBytes? What information  
does df provide?**

```
#free
```

**What does this command provide?**

```
#free -m
```

Then Enter CD#1 in the CDROM drive and mount the cdrom as follows:

```
#mount /dev/cdrom /cdrom
```

```
#df
```

```
#df -h
```

```
#cd /cdrom
```

Now go to that directory.

```
#more {filename}
```

Locate a file, what is its name? .....

```
#cp {filename} ~{yourown loginname}
```

Then copy that file to your own home directory.

In order to change CD's you must first unmount it.

```
#umount /cdrom
```

Physically, change the CD to CD#2 and remount the new CD:

```
#mount /dev/cdrom /cdrom
```

```
#cd /cdrom
```

Now go to that directory.

```
#more {filename}
```

Locate a file , .....

```
#cp {filename} ~{yourown loginname}
```

Then copy that file to your own homedirectory.

5. Now you should have both of these files in your own directory. Let us get those file on a floppy.

```
#mount /dev/fd0 /diskette
```

Mount the diskette

Unable to load a particular character set. That's ok.

.....

```
#cd /diskette
```

Change the directory to it.

```
#cp ~{your own login name}/{filename} .
```

Copy the first file you got from the CD#1

```
#cp ~(your own login name}/{filename} .
```

Copy the second file from the CD#2

## ***STEP 2: Explore various commands.***

What do the following commands do? Also give what the options stand for using man pages.

```
#ps
```

```
#ps -aux
```

```
#uname -a
```

```
#killall -HUP bash
```

```
#reboot
```

Here is a command to kill sendmail.

```
#killall -HUP sendmail
```

What message do you get when someone tries to send mail to you?

Use these command to find out how to start it again. Write down the command.

```
#cd /etc/rc.d
```

```
/etc/rc.d#cat * | grep sendmail
```

```
#sendmail -bd -q15m
```

To find out what messages you saw while booting up, enter:

```
#dmesg | more
```

TO see how your BIOS interrupts are set:

```
#cat /proc/in*
```

```
#cat /proc/io*           I/O interrupts
#cat /proc/pci | more    PCI cards.
```

What do these commands show:

```
#groups
#id
#du          Do this command in various directories
#du /
#du -sh
#ifconfig -a
```

(the dummy interface can be set up so that packets too big are dumped there. using ipfw for that)

### **Step 3 How do you make a copy of a floppy**

Now dd doesn't care about filesystems or file formats. You can copy DOS, Macintosh, Unix, or any kind of diskette.

Instead of dd, you could use the cp command, but then you would first have to mount it. dd is faster.

Point 1.

Place the source disk in a: drive.

```
#dd if=/dev/fd0 of=imagefile
2880+0 records in
2880+0 reocrds out
```

if means input file.

Here the input file is from fd0 from /dev. No need to mount it. fd0 stands for the first the floppy drive.

of means output file. imagefile is a name I just made up. You could call it anything. It is being stored in the current working directory.

The number of records in must match the number of records out.

Point 2.

Remove the source disk from a: drive and insert the destination disk.

No need for that diskette to be formatted in any operating system.

```
#dd if=imagefile of=/dev/fd0
```

```
2880+0 records in
```

```
2880+0 reocrds out
```

That's it.

You should be able to copy a file from disk to another. Write the steps in detail. When to insert which disk and when to execute which command.

# LINUX LAB #8

## Securing Your server for remote login.

### 3. Allowing Only Yourself to su:

When you are logged in as yourself and you want to enable privileges, you don't have to log out and then log back in as root. While you are logged in, just type:

```
%su -
password:      And enter the password for root.
#adduser
#exit         After requiring superuser privileges, exit will return to your
              own prompt.
```

%

This is better than doing a telnet directly into your own machine as yourself and logging out when you need to do supervisor tasks. Then logging back in as root. In fact, logging in as root is no good because then the server can't identify who is it that logged in from outside. If the root passwd leaked out, then that person can log in as root and the system wouldnt have record of who it was who logged in as root.

Now let us make the root account a little more secure. If a person finds out what the root password is from one of your "trusted" group members, they could log in to root directly and cause havoc on your server. You wouldn't have any record who had logged in as root. A better way to allow your "trusted" group members to log into root is for them to log in as their self first and let them do the su command to log in as root. We can also pick who gets to do an su. Now login in directly as root will not be allowed unless they physically at your server.

1. On your own server login as root locally. Then do a [ALT][F2] and log in your own server again as self, not root. From [ALT][F2] log into to another server where you have an account and don't logout from that remote server for the duration of the lab. During the lab we will be switching from both sessions. [ALT][F1] will show you the session on your own server with root (#) privileges and [ALT][F2] will put you in the remote server. Pretend [ALT][F2] session is where you are at home and you are trying to log into your own server securely. So that only authorized people can get into server.

Own server

[ALT][F1]

=====

step 2.

Remote server

[ALT][F2]

=====

```
remote_server$telnet own_server
```

```
login : root
```

```
password: (root passwd)
```

```
own_server#
```

This is no goodthat you could directly log in as root. The server has no record who came in as root.

```
own_server#logout
remote_server$
```

### Step 3.

```
#cd /etc
#pico securetty
```

In this file you give permissions from where you can log into root. You have console, that is ok. You have tty1 to tty6, that is ok. Those for your [alt][f1] to [alt][f6] virtual terminals. The "S" terminals are for serial or modem logins. They wont hurt anything, *but the last four: tty0 to tty3, remove them.* They allow you to log in as root from remote locations. Now try:

```
remote_server$telnet own_server
login : root
password: (root passwd)
```

Can you remotely as root directly?  
What message do you get?

### Step 4.

Now try:

```
remote_server$telnet own_server
login : self
password: (self passwd)
own_server$su -
password: (root passwd)
own_server#exit
own_server$logout
remote_server$
```

Now can you enable root privileges?  
What does "su -" do?

### Step 5.

IF the root password leaks out can anyone else "su" to root?  
Try it by logging as someone else on your own server.

```
remote_server$telnet own_server
login : (someone else)
password: (else's passwd)
own_server$su -
```

unixby ramteke

```
password: (root passwd)
own_server#exit
own_server$logout
remote_server$
```

### Step 6.

We need to limit who can "SU -" to root.

```
#cd /etc
#pico login.defs
```

In this file, be careful that you dont mess up the file by mistake. Hit only up and down arrow until you find the line which says. It will take some time to find it. Be patient.

```
SU_WHEEL_ONLY no
```

Change the no to yes

### Step 7.

Now you have to define who belongs to the wheel group

```
#cd /etc
#pico group
```

In this file, be careful and add yourself to the root and wheel groups so no one else but yourself can su to root.

### Step 8.

Can any other user su to root?

```
remote_server$telnet own_server
login : (someone else)
password: (else's passwd)
own_server$su -
password: (root passwd)
?own_server#exit
own_server$logout
remote_server$
```

### Step 9.

what about you?

Can you su to root?

```
remote_server$telnet own_server
login : (self)
password: (own passwd)
own_server$su -
password: (root passwd)
?own_server#exit
own_server$logout
remote_server$
```

**LAB9A: Unix Administration****Objectives:**

Blocking certain IP addresses

**Blocking Certain IP addresses:****3. Preventing Telneting Into Your Server from Some Other Server**

You are getting a lot of Email from some other server into your server. Although Unix can handle a lot of processing, you want to stop this. One way is to deny services to specific servers.

Here we will not block Email but will block telneting.

A **daemon** is a program which is always running in the background. A server to which you can telnet, must have a telnet daemon running. This daemon is called telnetd. This way, whenever someone from another server tries to telnet to it, it can hear the request and provide a telnet connection. There are daemons for each of the different services that a server provides. If you providing ftp service, then your server, must have the ftpd daemon running. The daemon which provides web service, is called httpd. http is the protocol and the daemon or the program which keeps listening for web connections is called httpd.

When your local PC in the other lab is accessing one of these services, telnet, ftp, etc., it isn't running a daemon. In fact, your PCs in the alankay lab aren't running any daemons because they are not providing any services to others.

There is a master daemon which oversees all the other daemons. It is called /etc/inetd.conf Using pico, locate line from this file:

```
ftp stream tcp nowait root /user/sbin/tcpd wu.ftpd
```

This line is saying that, whenever it receives a connection for ftp, it looks up the port number in the /etc/services file. It expects a connection of type "stream tcp nowait." And it launches the daemon called "/usr/sbin/tcpd" using "wu.ftpd" as an argument. And it runs it as root.

From the /etc/services file, find the port number for these services:

telnet	_____	(Not an acronym, for remote login.)
ftp	_____	(File Transfer Protocol for file transfers.)
httpd	_____	(Hyper Text Transfer Protocol for web.)
smtpd	_____	(Simple Mail Transfer Protocol. for Email.)

Now add this line in the /etc/hosts.allow file:

```
in.telnetd:128.117.100.x:DENY
```

where x is the position of the last dotted decimal number of the specific server you want to exclude.

Now telnet to the other server whose address you used above and try telneting into your own server. Were you denied from logging in?

To deny everyone whose address begins with 128.117.100, you would add this line:

```
in.telnetd:128.117.100.:DENY
```

reference file:

```
#man hosts_options
```

## **LAB 9B: *Unix Security***

### **Dissabling Anonymous FTP**

Linux by default allows anonymous FTP. That means anyone can log into your server and start poking around. Many times on the web, that is what we want. We want to allow others to use the information which we have made available for others. Usually it is better to have a server dedicated just for such purposes so to protect your users from others. Here is how you would disable anonymous FTP.

First, telnet into another server. Then ftp into your own from there. Here is how your screen may look:

```
#telnet otherserver
login: self
password:          (not seen on the screen)
otherserver$ ftp ownserver
(login name:) anonymous
(password:) self@otherserver.nj.devry.edu    (not seen on the
screen)
ftp>
```

At this time, write the message you get that indicates that you were allowed to log in even if you don't have an account on the server.

Although you have an account on your own server, you didn't log in as your self but as "no one." You could have logged in as your self when you did the ftp, but then you would have to give your real password.

Now log out from your ftp connection and from your telnet:

```
ftp> quit
otherserver$
otherserver$logout
ownserver#
```

Go to the file called /etc/ftpusers

```
#cd /etc
#pico ftpusers
44
```

And add this line to the file: anonymous

```
root
uucp
news
anonymous          <- line which is added
```

This file already doesn't allow ftp for the root account and two others. Now anonymous will also be disallowed. Go through this dialogue again.

```
#telnet otherserver
login: self
password:          (not seen on the screen)
otherserver$ ftp ownserver
(login name:) anonymous
(password:) self@otherserver.nj.devry.edu    (not seen on the
screen)
ftp>
```

What is the message which indicated that you are not logged on?

You still have the ftp prompt, indicating that you are still connected to your own server.

But you are not logged on. Try typing user and this time give your self account and provide the correct password. Were you able to log in the ftp connection?

```
ftp> user
(username: ) self
(password:)
ftp> ?
```

Now close the connection as well.

```
ftp> close
```

At this time, your ftp connection is still closed with your own server. If you still have the ftp prompt, you are still running the ftp client program on the other server. If you don't then aren't.

Are you still running the ftp client on the other server?

Now establish the connection again. Do:

```
ftp> open 129.117.100.x
```

Where x is the last dotted decimal number for your own server.

```
ftp> quit
```

What two things did quit do?

# LINUX LAB #10

## WEB Administration Part I

### RUNNING X AND THE WEB SERVER/BROWSER

1. Starting X These settings are for Slackware 4.0

#**SuperProbe** (to show type of video card)

#**xf86config**

Press <Enter> for all choices unless specified.

Protocol # (1-10) **4** (for PS/2 mouse)

**n** (Emulate 3Button)

Mouse device: <Enter>

XKB **n**

Alt keys? **n**

Enter to continue <Enter>

2 31.5-35.1 SVGA 800 x 600

4 31.5, 35.15, 35.5 SVGA 1024 x 768, 800 x 600

(1 to 11) **4**

1 50-70

2 50-90

3 50-100

4 40-150

(1 to 5) **4**

Enter an identifier: **asdf**

Enter an identifier: **asdf**

Enter an identifier: **asdf**

see database? **n**

1 MONO

2 16-color

3 256-color

(1 - 4) **4**

link? **y**

/bin? **y**

1 256k

2 512k

3 1024k

4 2048k

5 4096k

Video RAM

(1- 11) **8**

(1-6) **6**

kbytes **8192**

Enter an identifier: **asdf**

Enter an identifier: **asdf**

Enter an identifier: **asdf**

RAMDAC: **q**

(1-12) : <Enter>

X-probeonly **n**

```
(1 - 5)      1
(1-12)      543
            n
            5
write?      y
```

### #startx

You may have to adjust the screen settings.

(now you are in x. Do <Ctl><Alt><Backspace> to break out of windows.

(in navigator, EDIT -> Preferences -> Navigator -> [http://localhost/] )

These may not work:

```
<CTL><ALT>+   changes resolution   Some displays konk out on these commands.
<CTL><ALT>F2   changes terminal
<CTL><ALT>F7   back to xwinodws terminal
```

How do you open a terminal session?

Start NETSCAPE and try to adjust the window by clicking on the maximize button. Acce[t all license agreements and OK on all error messages until you get the NETSCAPE window.

To view a page, enter the following on Netscape window:

```
http://129.117.100.x
```

Where x is the server you want to view.

Edit the home page of your server, edit the following file:

```
1. Start -> Shell -> XTERM
2. # cd /var/lib/apache/share/htdocs/
3. # pico index.html
```

Edit it by replacing "IT WORKS!" phrase with "YOU ARE ON IMPALA" or whatever your server name is. Also change the colors of the page.

To create a link for let's say malibu,

```
<A HREF="http://129.117.100.73/">malibu</A>
```

Create a link on your server to the server who has the next highest IP address. If you are on IMPALA, for instance, you should create a link to TBIRD. and so on.

Lab 13 will use xwindows. again

**To create a web page on someone else's web server:**

1. Login to a remote server where you are not the administrator.

```
$ cd
$~ mkdir public_html
$~ chmod 705 public_html
$~ cd /home
$ chmod 705 kris (Instead of kris, insert your username.)
$ cd ~/public_html
$ pico index.html
    (Now enter this file, save, and exit.)
```

```
<html>
  <body>
    <H3>
      This is a test
    </H3>
  </body>
</html?
```

2. Through netscape, enter:

```
http://129.117.100.111/~kris
```

(Instead of kris, insert your username and instead of 111 insert number of the server where you created the web page.)

This should test the web page you created on the other server.

# LINUX LAB #11

## **Network Administration Part I**

Objective: ARP, NETSTAT, and IFCONFIG

Contents:

1. Checking the ARP tables with one other server
2. Checking the ARP tables with one new server

### **1. Checking the arp table when working with one other server.**

Divide the class in pairs of two servers each. The two servers within each pair will be communicating and experimenting with each other.

Log in as root. Do not go to any other server.

Your arp tables should be empty. Enter:

**#arp -a**

There should be no output for this command. That means that the arp table is empty. If it isn't then enter:

**#arp -d** {IP address of the node to be deleted.}

Now, no one does any communication, that is logging in, ftp, Email, or anything to any other server!

- a) Only one person do a ping to his/her partner server in the pair.  
And record the first two sets of times obtained from that one server.

Then both do the following and record the output:

**#arp -a**

What happened to the arp table of the person who did a ping?

What happened to the arp table of the server which was pinged?

- b) Now the other person do a ping to his partner.  
And record the first two sets of times.

Was the first set of times shorter or longer? To what do you attribute that?

Did the arp table become bigger? Why or why not?

## 2. Checking the arp table when working with a different server.

Find someone from a third server and tell them not to do any thing. That you will be sending them mail. Then send mail using pine

send: **username@[IP addr]**

Now check your arp table. Was a new entry made in your arp table?

Check the other person's arp table to whom you sent Email.

Was an entry added to that server's arp table?

How do you find your Ethernet or MAC (Media Access Control)

or NIC or physical address? From your arp table or from the other server's?

What is your NIC address?

What is the vendor's code for your NIC address?

What is this other server's NIC address?

What is the code of that server's NIC vendor?

Using the man page for arp, find the following information about it:

a) What does arp stand for?

b) What does the -a switch do?

c) What does the -d switch do?

d) How do you add an entry manually to the arp table?

### **Network Administration Part III**

Purpose:

Study your own interfaces as they were set during installation.  
Evaluating your own subnet

1) Type and copy down your output:

```
#netstat -ain
```

2) Type and copy down your output. (Only the items which are referred to in the questions below.)

```
#ifconfig
```

a. What is the name of your local interface? \_\_\_\_\_

b. What is the name of your ethernet interface? \_\_\_\_\_

3. Answer the following questions for the **local interface** using the output from the netstat -ain command the ifconfig command:

The IP address:

The MTU (Media Transfer Unit or packet size):

Is Broadcast turned on?

Is the interface running or not?

Does it say loopback?

4. Answer the following questions for the **ethernet interface** using the output from the

netstat -ain command the ifconfig command:

The IP address:

The MTU (Media Transfer Unit or packet size):

What page in the Networks text book gives this number in a figure?

Is Broadcast turned on?

Is the interface running or not?

Does it say loopback?

What is the Hardware address in hex?

Out of the 12 hex digits for the hardware address, find one person in your lab who doesn't have the same vendor code as you in the lab. Give that person's

server name:

and his complete hardware address.

Out of the 12 hex digits for the hardware address, find one person in your lab who has the same serial number as you in the lab. Give that person's

server name:

and his complete hardware address.

How many packets were received with no errors?

How many packets were received with errors?

How many packets were dropped or discarded because of errors?

How many packets were transmitted?

# LINUX LAB #12

## Network Administration Part IV

Objective: Create logical subnets in your own lab.

1. From the ifconfig write these down correctly. You will be changing these later on and you will need these numbers to reset them:

a. From the output, what is your

IP address:

Netmask:

Broadcast address?

b. From the above three numbers, find your

Network address:

Host number:

c. How many bits are currently used for your network address?

How many bits are currently used for your host address?

d. Make a list of four other servers which are now turned on in lab. Give their server names and the last decimal number for their IP address:

PC1

PC2

PC3

PC4

2.

a. Now divide yourselves into 4 groups. (So if there are 18 servers, you could have 2 groups of 4 servers each and 2 groups of 5 servers each, or whatever.)

That will enable you to divide yourselves into four logical subnets.

In order to that, we will first have to calculate the new values of these addresses and masks. Everyone in this lab will use the same three first numbers. The last digit will differ, however.

IP address: 129.117.100.ip  
Netmask: 255.255.255.240

ip is to be yet given.  
mask is the same for all servers.

Network addr: 129.117.100.network network is yet to be given  
 Broadcast addr: 129.117.100.bcast bcast is yet to be given

b. With a netmask of 255.255.255.240 given, answer the following questions:

How many bits will be used for your network address?

How many bits will be used for your host address?

3. Below the numbers have been calculated for four subnets and 5 hosts within each subnet. From the instructor or the class, decide which host you are and in which subnet.

New numbers For your host:

Your subnet number is \_\_\_\_\_

Your host number within that subnet is \_\_\_\_\_

Convert the numbers for your host into dotted decimal.

subnet mask \_\_\_\_\_

subnet address \_\_\_\_\_

Broadcast address \_\_\_\_\_

IP address \_\_\_\_\_

4. New addresses for other hosts:

Below find one host in each of the other three subnets and write down its IP address in dotted decimal and the Subnet number they are in.

Also write down the PC number or "U" number

Subnet number \_\_\_\_\_ IP address \_\_\_\_\_ U \_\_\_\_\_

Subnet number \_\_\_\_\_ IP address \_\_\_\_\_ U \_\_\_\_\_

Subnet number \_\_\_\_\_ IP address \_\_\_\_\_ U \_\_\_\_\_

**Subnet One**

Subnet mask: 1111 1111 1111 1111 1111 1111 1111 0000

Subnet Addr: 1000 0001 0111 0101 0110 0100 0001 0000

Bcast Addr: 1000 0001 0111 0101 0110 0100 0001 1111

IP Addr:

Hostname1 1000 0001 0111 0101 0110 0100 0001 0001

Hostname2 1000 0001 0111 0101 0110 0100 0001 0010

Hostname3 1000 0001 0111 0101 0110 0100 0001 0011

Hostname4 1000 0001 0111 0101 0110 0100 0001 0100

Hostname5 1000 0001 0111 0101 0110 0100 0001 0101

**Subnet Two**

```

Subnet mask: 1111 1111      1111 1111      1111 1111      1111 0000
Subnet Addr: 1000 0001      0111 0101      0110 0100      0010 0000
Bcast Addr:  1000 0001      0111 0101      0110 0100      0010 1111

IP Addr:
Hostname1    1000 0001      0111 0101      0110 0100      0010 0001
Hostname2    1000 0001      0111 0101      0110 0100      0010 0010
Hostname3    1000 0001      0111 0101      0110 0100      0010 0011
Hostname4    1000 0001      0111 0101      0110 0100      0010 0100
Hostname5    1000 0001      0111 0101      0110 0100      0010 0101
    
```

**Subnet Three**

```

Subnet mask: 1111 1111      1111 1111      1111 1111      1111 0000
Subnet Addr: 1000 0001      0111 0101      0110 0100      0011 0000
Bcast Addr:  1000 0001      0111 0101      0110 0100      0011 1111

IP Addr:
Hostname1    1000 0001      0111 0101      0110 0100      0011 0001
Hostname2    1000 0001      0111 0101      0110 0100      0011 0010
Hostname3    1000 0001      0111 0101      0110 0100      0011 0011
Hostname4    1000 0001      0111 0101      0110 0100      0011 0100
Hostname5    1000 0001      0111 0101      0110 0100      0011 0101
    
```

**Subnet Four**

```

Subnet mask: 1111 1111      1111 1111      1111 1111      1111 0000
Subnet Addr: 1000 0001      0111 0101      0110 0100      0100 0000
Bcast Addr:  1000 0001      0111 0101      0110 0100      0100 1111

IP Addr:
Hostname1    1000 0001      0111 0101      0110 0100      0100 0001
Hostname2    1000 0001      0111 0101      0110 0100      0100 0010
Hostname3    1000 0001      0111 0101      0110 0100      0100 0011
Hostname4    1000 0001      0111 0101      0110 0100      0100 0100
Hostname5    1000 0001      0111 0101      0110 0100      0100 0101
    
```

5. Now reconfigure your server using the numbers written in step 3 above.

```
# cd /etc
```

```
# cd rc.d
```

```
# cp rc.inet1 rc.inet1.orig // you do this incase you mess up and need to get the old rc.inet1.
```

```
# pico rc.inet1
```

Carefully change IP address, Netmask, Network, and Bcast addresses in this file. Exit and reboot.

6. Which hosts can you ping and telnet to in your own subnet?

7. Which hosts can you ping and telnet to which are not in your own subnet?

# LINUX LAB #13

## Network Administration Part IV

Contents:

Overview:

- Steps 1 to 3. Install the software from 3 disks
- Step 4. Start X-windows, x-terminal, Ethereal and capture a packet
- Step 5. Save the screen shot using XV
- Step 6. Copy the screen shot file to dos diskette
- Step 7. Using Word for Windows, the file and print it on a printer.

Remember when swapping a diskette with the floppy drive, first you have to unmount it. Remove the old diskette and insert the next one. Then you have to mount it. Follow steps below.

### TROUBLESHOOTING

#### Installing A LAN Analyzer:

1) insert the **GTK** disk in: (Enter only the bold characters.)

```
#mount /dev/fd0 /mnt          (That is "fd 'zero'")
```

(you may get: " Unable to load NLS .... " that's ok.)

```
#cd /usr/src
```

```
/usr/src#cp /mnt/gtk* .
```

(Dont forget the dot.) takes a littel while

```
/usr/src#umount /mnt
```

(Remove the GTK disk and give it to the next team who needs it.)

2) Insert the **PCAP** disk in:

```
#mount /dev/fd0 /mnt
```

```
#cd /usr/src
```

```
/usr/src#cp /mnt/lib* .
```

(Dont forget the dot.)

```
/usr/src#umount /mnt
```

(Remove the PCAP disk.)

3) Insert the **ANALYZER** disk in:

```
#mount /dev/fd0 /mnt
```

```
#cd /usr/src
```

```
/usr/src#cp /mnt/ether* .
```

(Dont forget the dot.)

```
/usr/src#umount /mnt
```

(Remove the disk.)

4) Now configure and install the files. First the GTK file:

```
#cd /usr/src
```

```
/usr/src#tar -zxvf gtk_104.tgz
```

```
/usr/src#cd gtk+-1.0.6/
```

```
/usr/src/gtk+-1.0.6#./configure
```

```
/usr/src/gtk+-1.0.6#make install (±5 5 minutes)
```

Then the PCAP file:

```
#cd /usr/src
/usr/src#tar -zxvf libpcap4.tgz
/usr/src#cd libpcap-0.4/
/usr/src/libpcap-0.4#./configure
/usr/src/libpcap-0.4#make
/usr/src/libpcap-0.4#make install
/usr/src/libpcap-0.4#mkdir /usr/local/include/net
/usr/src/libpcap-0.4#make install-incl
```

Finally the analyzer file:

```
#cd /usr/src
/usr/src#tar -zxvf ethereal.tgz
/usr/src#cd ethereal-0.4.1/
/usr/src/ethereal-0.4.1#./configure
/usr/src/ethereal-0.4.1#make
/usr/src/ethereal-0.4.1#make install
```

#### 4. Capture some packets.

Now start X\_Windows. Remember in Windows95, ALT-TAB will switch between different tasks that are running. Will bring up one window in front of the other.

To start an XTERM window, you may, press Start button -> Shell -> XTERM

Later you will need to start XV application.

For that you can do: Start Button -> Application -> XV (red fish)

```
#startx
```

Start Xterm window

```
#touch ethereal.out
```

```
#ethereal (This will show a window:
```

1. [EDIT]

[PREFERENCES] ->

[FILE: /root/ethereal.out]

<Save> (save first then ok)

<OK>

2. [TOOLS] -> Capture

[FILE: ethereal.out]

3. you will get a little window.

ASK someone to just do a telnet to you so you can capture some TCP segments in your LAN Analyzer. When you do, press STOP. The little window will tell you how many TCP packets are captured in the buffer.

Notice that there are three windows which are displayed. The first one shows the packet numbers which are captured. If one of these packets are highlighted with the mouse, then the next two windows are shown. The last one shows the raw data of the ethernet frame and the middle one



6) Now you can see the file on NetScape

**Let's save it to a DOS diskette.** First insert a blank DOS diskette

```
# cd /
```

```
# mkdir /floppy
```

```
# mount /dev/fd0 /floppy
```

```
# ls -l q*          (you should see the qual.jpg file which you saved above.)
```

```
# cp q* /floppy    (copy the file to floppy)
```

```
# umount /floppy   (unmount the floppy)
```

7) **Now print the file which you captured through windows..**

1. Go to the regular lab.

2. Start Word for windows

3. Inert -> Picture -> From File -> [a:\qual.jpg] enter.

4. File -> print

# LINUX LAB #17

## **Windows 95 Netowkring**

### **Objectives:**

Install NIC  
share and use

### **Lab Name: Windows 95 Networking.**

#### Overview:

2. Get Windows95 partition network ready
  2. Configure the NIC (then reboot)
  3. Install TCP/IP (then reboot)
  4. Configure the TCP/IP address and hostname (then reboot again)
5. Do simple commands through windows.
6. Do simple file sharing using Windows95.
7. Remove Network capabilities for the PC for the next semester students.

### **Questions:**

1. What do you see in the window labeled "The following network components are installed?"
  
2. Besides for Protocol, what other choices do you have?
  
3. Complete the names of the network adapters you see.  
  
Existing \_\_\_\_\_ Driver  
  
Existing \_\_\_\_\_ Driver
  
4. Complete the sentence: "This wizard will complete the installation of ....."
  
5. Which disk does it want?
  
6. Which disk does it want?
  
7. Select Network Protocol. Which manufacturers do you see?

8. When Microsoft is highlighted, which Network Protocols do you see?

## 2) Configure the NIC

Start -> Settings -> Control Panel -> Network ->

At this point answer Question 1.

Add . . . ->

At this point answer Question 2.

adapter

-> Have Disk . . . -> Browse -> (double click on C:\ then double click on  
3Com then double click on  
1

At this point answer Question 3.

[oemsetup.inf] -> OK -> [C:\3COM\1] -> OK

-> Scroll down and Select [3C905B-TX] -> OK -> OK ->

Please restart PC -> OK

This restarts PC.

You may get a message, " Cannot find device vnetsup.vxd" just hit enter.

### Update Device Driver Wizard

At this point answer Question 4.

Next ->

Other Locations -> [C:\3COM\1] Enter

Finish ->

(X) Insert Disk (At this point answer Question 5.) -> OK

-----Copy Files From ...

[C:\3COM\1] -> OK

### Network

OK

You may get screen here or maybe later.

### Identification Tab

HOST            **Impala**            (Enter your correct hostname. Impala is just an example.)

WORKGROUP    **CIS238**            (Enter workgroup name. Same name for all.)

### Insert Disk

(X) At this point answer Question 6 .OK ->

### Copying Files

From

[C:\3COM\2] -> OK

(X) Insert Win95 Disk CD ROM

Copying Files ...

[C:\win95]

Systems Settings Change

Do you want to restart? YES

While restarting,

You may get a message about DHCP. Press NO.

Enter Network Password

CANCEL

Start -> Settings -> Control Panel -> Network ->

Configure tab should show 3C905B-TX installed.

-> OK

When asked to insert the CD, enter this path:

[C:\WIN95]

When asked to reboot, press enter on YES.

### **3) Install TCP/IP protocol**

Start -> Control Panel -> Network -> Add . . . ->

At this point answer Question 7.

protocol ->

Microsoft -> TCP/IP -> OK

Then reboot

At this point answer Question 8.

#### 4) Configure TCP/IP settings.

Start -> Control Panel -> Network -> TCP/IP ->

Properties -> set IP address and subnet mask.

Do You want to Restart? YES

#### 5) Do some simple TCP/IP commands.

Go to a MS-DOS window and at the command prompt do the following:

a)

**wini**`ipcfg` Copy down the box and information in it.

What unix command is this one like?

What are the designations for your interfaces.

b) Do a ping to a host that is up. Copy down the output.

How is this ping output different from that obtained in unix?

Do a ping to a host that is not up. Copy down the error message.

c) Do a ping to Hostname instead of an IP address.

What display do you get?

d) Do a telnet to an IP address.

How is telnet different and similar to telnet in unix?

e) What Command shows the arp table? Give Command and its output when there are entries in the table.

Give the command of the output when the table is empty.

f) Does "netstat -ain" work?

g) Does "ipconfig" work?

h) From the windows GUI, start the Internet explorer. Can you attach to the web servers in the lab?  
What do you have to type in the Locator section?

### 7) To Remove TCP/IP, Network Card . . .

Start -> Settings -> Control Panel -> Network ->  
Highlight [3COM Fast Ethernet 3C905B-TX] -> Remove

Restart?

YES

Update Device Driver Wizard?

Next ->

Finish



# ***Instructor's Manual For Linux Labs by Ramteke***

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***Copy down everyone's root password for when they can't remember.***

Use a slash through a zero and the letter 'Z'.

Make sure you don't confuse the number 5 and the letter S.

Draw three underlines under capitals.

Position Password for section

section

section

# ***INSTRUCTOR PROCEDURE #1 FOR LINUX LABS make boot disks***

***PART 2. CREATE INSTALLATION DISKS (30 mins.) If your PC is bootable via the CD drive, then you may skip this part. In that case, go directly to PART 3.***

You will need a removable hard drive with a DOS/Win95-98 startup setup. Do not use your own hard drive here, but be careful that you don't mess up the hard drive in the bay.

This part can be done on any DOS machine. You could just start your machine under DOS.

You may go to DOS prompt via Win95 or WinNT. (PASSWORD: **telecom**)

## **IN THE NEXT STEP DO NOT FORMAT THE HARD DRIVE!**

1. Format the two disks labeled, **Boot** and **Root**. Make sure there are no bad sectors on them. When data will be written to these disks (using rawrite), no error checking or verifying will take place. Do a `chkdsk` on A: to make sure the disks are good.

The bootdisk contains a bootstrap loader and a minikernel needed to do the install

```
C:\> format a:
```

```
C:\> chkdsk a:
```

2. Insert Slackware CD in the CD drive.

3. First create the Root disk. Insert the **Root** diskette in A: drive. and go to E: E drive. this is the CD.

```
C:\> E:
```

```
E:\>cd rootdsk
```

```
E:\ROOTDSKS> EDIT README
```

(It is optional to read the README file, this is where you find out which files you will need to rawrite. If you were to install on a different PC, this will tell you which files you will need to rawrite to the two diskettes.)

```
E:\ROOTDSKS> RAWRITE
```

```
Enter source file name: color.gz
```

```
Enter destination drive: a:
```

```
Please enter a formatted diskette in a: drive <Enter>
```

```
:
```

```
Track 74 . . .
```

```
done
```

4. Now create the Boot disk. Insert the Boot diskette in A: drive.

```
D:\>cd \bootdsk.144  
D:\BOOTDSKS.144>edit which.one
```

(This is also optional.) find the file in the table that crosses: harddrive : SCSI and Sony CD33a CDROM ~~which is cd31a.s~~

Place in the disk labeled Installation **Boot**. this will contain hardware information and the kernel)

```
E:\BOOTDSKS> edit which.one  
E:\BOOTDSKS.144>rawrite  
Enter source file name: aha2x4x.s  
Enter destination drive: a:  
:  
Track 35 ... done  
E:\BOOTDSKS.144>dir a: (Here is a good question,
```

What operating system are you running right now?  
Why do you get an error on this dir command?  
In which operating system is this diskette formatted?

## ***To boot the PC under UNIX using these two diskette:***

2. Remove the CD
3. Place the Boot diskette in A: drive.
4. Turn off the power if it is on, wait a few seconds and turn it back on. This is called a cold boot. It is OK to do that with DOS but not in unix.  
Place the BOOT disk and as soon as you turn on the PC.  
:  
boot: (enter) (wait a while it shows 10 dots, etc.)  
:

VFS: Insert Root Disk (now change the diskettes. Insert the Root diskette.)

# ***INSTRUCTOR PROCEDURE #3 FOR LINUX LABS Clean filesystem & reset passwd***

## ***What to do when you forget the root password.***

To reset the password on the Cartridge:

1. Boot from the installation Boot Disk (blue) This is done so I get a prompt for the rootdisk and I don't go to the SyJet.

2. Use the Recovery disk as the rootdisk when asked to insert it.

3. Log in as root. No password is asked.

(Now the kernel is in RAM. The filesystem is also in RAM and the RAM is acting as the harddrive. Hence, the RAM is now referred to as the RAMDISK.

4. Enter:

```
#/bin/e2fsck /dev/hda2
```

This checks the filesystem. It should say that it checks it "clean."

5. Enter:

```
#mount -t ext2 /dev/sda2 /mnt
```

t stands for type of filesystem which is extended-2. This mounts the SyJet under /mnt. /mnt should be directory under /.

6. Normally the shadow file is in /etc/shadow but now it is mounted under /mnt.

Enter:

```
#vi /mnt/etc/shadow
```

Delete any cryptic characters from the password entry of root. It should look like:

```
root::9805:0: . . . etc.
```

There should be nothing between the first set of colons for root.

Quit and save out of vi

7. Enter

```
#reboot
```

# ***INSTRUCTOR PROCEDURE #4 FOR LINUX LABS***

## ***Copy using the dd command***

### ***How do you make a copy of a cartridge using an external drive***

Get the external SyJet drive. It should have a power supply with a chord and a SCSI cable. You can change the SCSI-ID of the external drive using a pen and pressing the up/down switches on the back of the unit. The SCSI-ID is displayed between the switches. The SCSI-ID on the internal drive is set at 4. So if the ID for the external is set higher than 4, then the PC will boot off the internal one. If the SCSI-ID on the external is set lower than 4, then the PC will boot off the external one.

Insert the source cartridge in the internal drive.

Set the SCSI-ID of the external to 6 and place the destination cartridge in the external drive.

Now boot the PC using the red disk. It should boot off the internal drive.

```
#dd if=/dev/sda2 of=/dev/sdb2  
1461914+0 records in  
1461914+0 reocrds out
```

This takes about 12 minutes.

if means input file and of means output file.

sd stands for SCSI disk

sda stands for first SCSI disk (internal) and sdb stands for second SCSI disk (external).

sda2 stands for the second partition where the Linux Native partition was created.

Look at Linux Lab #4 to find out how to set the hostname and the IP address of the new cartridge which you just created.

# ***INSTRUCTOR PROCEDURE #5 FOR LINUX LABS***

## ***check outgoing mail que***

### ***Check the outgoing mail queue***

<code>\$mailq</code>	Checks the mail queue
<code>#cd /var/spool/mqueue</code>	
<code>#ls</code>	Shows the bodies and headers
<code>#rm *</code>	deletes all mail.Be careful!!

# ***INSTRUCTOR PROCEDURE #6 FOR LINUX LABS***

## ***Continuing with an incomplete install***

### ***How to go back into setup to fix the install***

Place the CD in the CD drive.

```
#mount /dev/cdrom /cdrom
```

You didn't have to do this step before because the installation did it for you.

```
#setup
```

These are choices you may get on the main menu:

```
=====
```

```
HELP
```

```
MAKE TAGS
```

```
ADDSWAP
```

```
TARGET
```

```
SOURCE
```

```
DISKSETS
```

```
INSTALL
```

```
CONFIGURE
```

```
EXIT
```

Pick SOURCE from main menu.

Then CD ROM

Now pick SELECT DISKSETS from main menu.

Refer back to Linux Lab #2 to find out which are to be redone.

Now pick INSTALL from main menu.

When asked to configure your system, answer NO. It was already configured, like the networking stuff and etc.

If you need to only reconfigure the network use:

```
#netconfig
```

# ***INSTRUCTOR PROCEDURE #7 FOR LINUX LABS***

## **GHOSTING hard drive:**

Overview:

1. Ghost the hard drive from the CD

### **1) Ghosting the hard drive**

for the two Linux partions and a windows 95 partion.

This process will make the hard drive bootable through either Linux or Win95.

If you are running Linux, then you must go to Lab 4 and edit the /etc/HOSTNAME and the /etc/rc.d/rc.inet1 file to reflect the correct hostname and IP address.

1. Put in the CD made by John Goswick and a hard drive which will be overwritten.
2. Boot up the PC, select #1 selection which says, "Load Toshiba CD ROM Driver"

```
A: |> D:  
D: \> ghost
```

3. Now you will get a ghostly gray and blue screen. Select the items as follow:

#### About Norton Ghost

OK (Enter)

(Select the items in **BOLD**)

```
LOCAL -----> DISK ----->| To Disk (Use down arrow twice)  
LPT Partition | To Partition  
Quit Check |-> FROM IMAGE
```

#### File Name To Load Image From ( Use the Down Arrow once)

LINUX.GHO (Press Enter)

#### Select Local Destination Drive

1 4111 (Press Enter)

unixby ramteke

<u>Partition</u>	<u>Type</u>		<u>New Size</u>	<u>Old Size</u>	<u>Data Size</u>
1	82	Swap	196	196	196
2	83	Linux	1372	1372	1372
3	0b	FATTY32	<del>2533</del> 784	784	292
Free-----					

Using the TAB key and the down arrow if necessary, highlight the box in the 3rd partition. Then BACKSPACE to delete the number that's there (2533) and change it to 784. Other numbers will change. Now TAB to highlight OK then press Enter.

### Question

Proceed? (Press Enter on YES)

Wait!!! for 10 minutes.

Clone Complete

Reset Computer

Remove CD.

Now reboot and run

#netconfig

to give the hostname and IP address. The hosts file may need to be updated.