247-305-VA
LAB #3, Fall 2020
Advanced Linux commands

Objective:

To get familiar with some advance command of Linux

Procedure

Try the following steps, explain the result and get screenshots and attached to the document. For username, use your name.

Part 1:

Create new users, "adduser"

1. Log in to your server as the root user.
2. Use the **adduser** command to add a new user to your system.

   Be sure to replace username with the user that you want to create.

adduser username

Set and confirm the new user's password at the prompt. A strong password is highly recommended!

```
Set password prompts:
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
```

Follow the prompts to set the new user's information. It is fine to accept the defaults to leave all of this information blank.

```
User information prompts:
Changing the user information for username
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n]
```

```
root@beaglebone:/# ls
bin   dev  home  lost+found  mnt  proc  run   selinux  sys  usr
boot  etc  lib   media       opt  root  sbin  srv      tmp  var
root@beaglebone:/# adduser leonardo
Adding user `leonardo' ...
Adding new group `leonardo' (1001) ...
Adding new user `leonardo' (1001) with group `leonardo' ...
Creating home directory `/home/leonardo' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for leonardo
Enter the new value, or press ENTER for the default
        Full Name []: Leonardo Fusser
        Room Number []:
        Work Phone []:
        Home Phone []:
        Other []:
Is the information correct? [Y/n] Y
Adding new user `leonardo' to extra groups ...
Adding user `leonardo' to group `dialout' ...
Adding user `leonardo' to group `i2c' ...
Adding user `leonardo' to group `spi' ...
Adding user `leonardo' to group `cdrom' ...
Adding user `leonardo' to group `floppy' ...
Adding user `leonardo' to group `audio' ...
Adding user `leonardo' to group `video' ...
Adding user `leonardo' to group `plugdev' ...
Adding user `leonardo' to group `users' ...
root@beaglebone:/#
```

New user "*leonardo*" created with fixed password

New user permissions

3. Now in a new window log in as this new user and try to do sudo su. What happens?
   Command fails because user "leonardo" is not a superuser.

```
leonardo@beaglebone:~$ logout

Debian GNU/Linux 7 beaglebone ttyO0

BeagleBoard.org Debian Image 2015-11-12

Support/FAQ: http://elinux.org/Beagleboard:BeagleBoneBlack_Debian

default username:password is [debian:temppwd]

The IP Address for usb0 is: 192.168.7.2
beaglebone login: leonardo
Password:
Last login: Thu Nov 12 19:25:44 UTC 2015 on ttyO0
Linux beaglebone 3.8.13-bone79 #1 SMP Tue Oct 13 20:44:55 UTC 2015 armv7l

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
leonardo@beaglebone:~$ sudo su
[sudo] password for leonardo:
leonardo is not in the sudoers file.  This incident will be reported.
leonardo@beaglebone:~$
```

Logged in as new user "*leonardo*" and trying ***sudo su*** command

4. Try the following commands: sudo ls -la /root. What happens?
   Command still fails because "leonardo" is still not a superuser.

```
leonardo@beaglebone:~$ logout

Debian GNU/Linux 7 beaglebone ttyO0

BeagleBoard.org Debian Image 2015-11-12

Support/FAQ: http://elinux.org/Beagleboard:BeagleBoneBlack_Debian

default username:password is [debian:temppwd]

The IP Address for usb0 is: 192.168.7.2
beaglebone login: leonardo
Password:
Last login: Thu Nov 12 19:25:29 UTC 2015 on ttyO0
Linux beaglebone 3.8.13-bone79 #1 SMP Tue Oct 13 20:44:55 UTC 2015 armv7l

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leonardo@beaglebone:~$ sudo ls -la/root

We trust you have received the usual lecture from the local System
Administrator. It usually boils down to these three things:

    #1) Respect the privacy of others.
    #2) Think before you type.
    #3) With great power comes great responsibility.

[sudo] password for leonardo:
leonardo is not in the sudoers file.  This incident will be reported.
leonardo@beaglebone:~$
```

Logged in as new user "*leonardo*" and trying ***sudo ls -la/root*** command

Change the priorities of this user to allow it to access super user powers, usemod

5. Back in the root user window use the **usermod** command to add the user to the sudo group.

usermod -aG sudo username

By default, on Ubuntu, members of the sudo group have sudo privileges.

```
root@beaglebone:/# ls
bin   dev  home  lost+found  mnt  proc  run   selinux  sys  usr
boot  etc  lib   media       opt  root  sbin  srv      tmp  var
root@beaglebone:/# cd /home
root@beaglebone:/home# ls -i
2104 debian   653 leonardo
root@beaglebone:/home# usermod -aG sudo leonardo
root@beaglebone:/home#
```

Using ***usermod -aG*** command for new user "*leonardo*"

(logged in as user "*root*" to change user "*leonardo*" to superuser privileges)

6. Test sudo access on new user account (in the window with the new-user login)

Use the su command to switch to the new user account.

su username

As the new user, verify that you can use sudo by prepending "sudo" to the command that you want to run with superuser privileges.

sudo command_to_run

For example, you can list the contents of the /root directory, which is normally only accessible to the root user.

sudo ls -la /root

The first time you use sudo in a session, you will be prompted for the password of the user account. Enter the password to proceed.

Output:

[sudo] password for username:

If your user is in the proper group and you entered the password correctly, the command that you issued with sudo should run with root privileges.

```
leonardo@beaglebone:~$ logout

Debian GNU/Linux 7 beaglebone ttyO0

BeagleBoard.org Debian Image 2015-11-12

Support/FAQ: http://elinux.org/Beagleboard:BeagleBoneBlack_Debian

default username:password is [debian:temppwd]

The IP Address for usb0 is: 192.168.7.2
beaglebone login: leonardo
Password:
Last login: Thu Nov 12 19:34:42 UTC 2015 on ttyO0
Linux beaglebone 3.8.13-bone79 #1 SMP Tue Oct 13 20:44:55 UTC 2015 armv7l

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permitted by applicable law.
leonardo@beaglebone:~$ sudo ls -la /root
[sudo] password for leonardo:
total 32
drwx------  5 root root 4096 Nov 12  2015 .
drwxr-xr-x 22 root root 4096 Nov 12 19:12 ..
-rw-------  1 root root 1406 Nov 12 19:32 .bash_history
-rw-r--r--  1 root root  570 Jan 31  2010 .bashrc
drwxr-xr-x  8 root root 4096 Nov 12 19:27 .c9
drwxr-xr-x  3 root root 4096 Nov 12 19:24 .cache
drwxr-xr-x  3 root root 4096 Nov 12 19:27 .node-gyp
-rw-r--r--  1 root root  140 Nov 19  2007 .profile
leonardo@beaglebone:~$
```

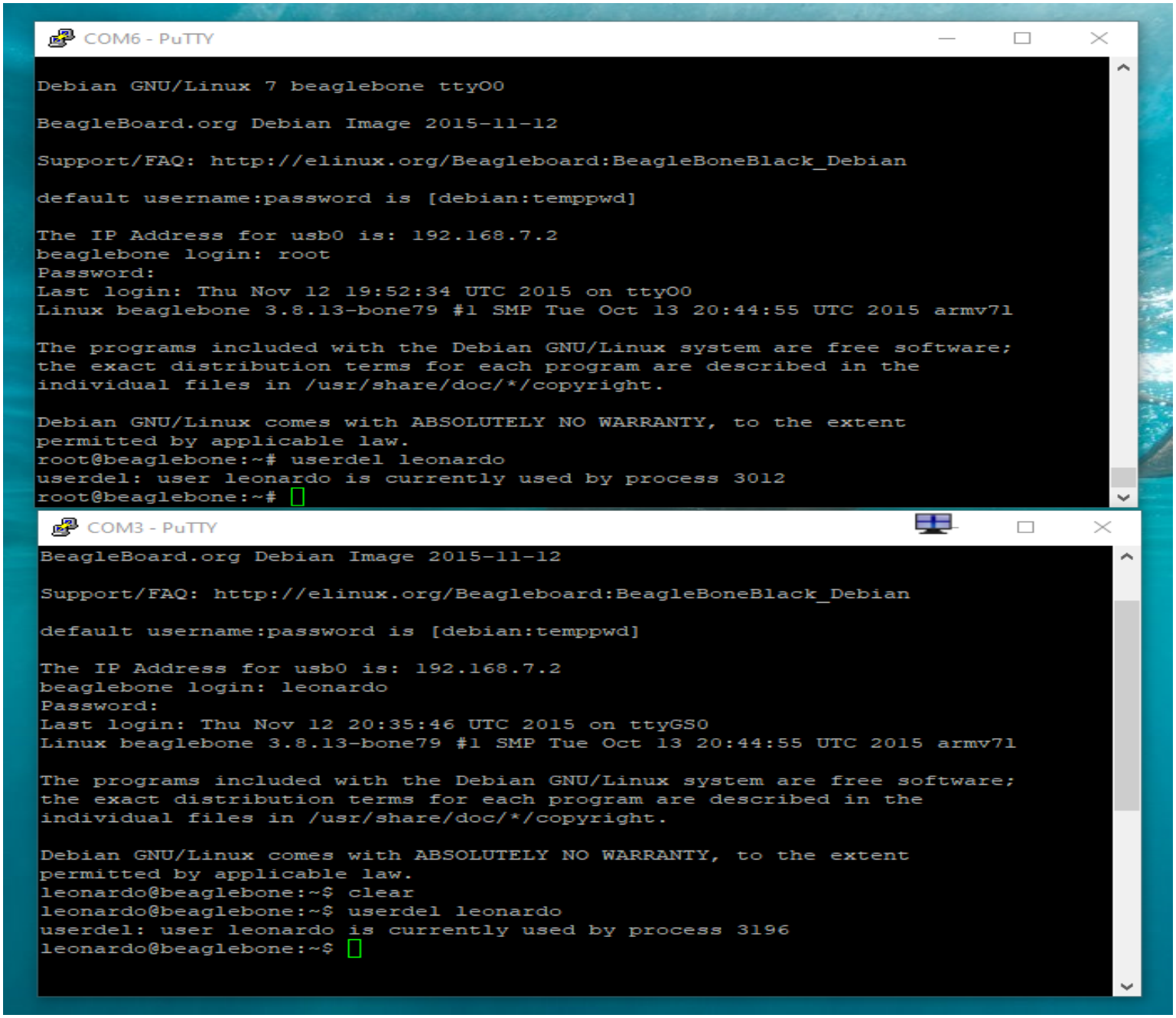
Testing command ***sudo ls -la/root*** again with superuser privileges on account "*leonardo*"

7. Delete a user!

Create a new user just so you can delete it by using: userdel new-user

Try deleting the user while he is logged into another window!

Then log him out and try again



Top window: logged in as "*root*"

Bottom window: logged in as "*leonardo*"

Trying to delete user "*leonardo*" from "*root*" window (fails) using ***userdel*** command

```
root@beaglebone:~# userdel leonardo
root@beaglebone:~#
```

With user "*leonardo*" logged out, ***userdel*** command is used again and works

(deleted user "*leonardo*" using user "*root*")

8. Password change command

To change your own password type:

```
$ passwd          (guidelines: must be longer than 8 characters)
```

You will get

```
(current) UNIX password:
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
```

```
root@beaglebone:/# ls
bin   dev  home  lost+found  mnt  proc  run   selinux  sys  usr
boot  etc  lib   media       opt  root  sbin  srv      tmp  var
root@beaglebone:/# cd /home
root@beaglebone:/home# ls
debian  leonardo
root@beaglebone:/home# passwd
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@beaglebone:/home#
```

Changed "*root*" password using ***passwd*** command

9. Password change command from the superuser.

If you forget the password of your new user you are out of luck! Unless you are superuser!

Logon as superuser and change the password of your user:

```
passwd user_name
```

```
leonardo@beaglebone:/home$ logout

Debian GNU/Linux 7 beaglebone ttyO0

BeagleBoard.org Debian Image 2015-11-12

Support/FAQ: http://elinux.org/Beagleboard:BeagleBoneBlack_Debian

default username:password is [debian:temppwd]

The IP Address for usb0 is: 192.168.7.2
beaglebone login: root
Password:
Last login: Thu Nov 12 19:44:33 UTC 2015 on ttyO0
Linux beaglebone 3.8.13-bone79 #1 SMP Tue Oct 13 20:44:55 UTC 2015 armv7l

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individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
root@beaglebone:~# ls
root@beaglebone:~# cd ..
root@beaglebone:/# ls
bin   dev  home  lost+found  mnt  proc  run   selinux  sys  usr
boot  etc  lib   media       opt  root  sbin  srv      tmp  var
root@beaglebone:/# cd /home
root@beaglebone:/home# ls
debian  leonardo
root@beaglebone:/home# passwd leonardo
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
root@beaglebone:/home#
```

Changed password for user "*leonardo*" using ***passwd*** command while logged in as superuser ("*root*")

Part 2

1. Other Linux commands

Try every command in ALL the PowerPoints up to now. Try the man and the --help for each command. Search on google if you need.

Understand each command, use each command, explore.

```
root@beaglebone:/home# man --help
Usage: man [OPTION...] [SECTION] PAGE...

  -C, --config-file=FILE      use this user configuration file
  -d, --debug                 emit debugging messages
  -D, --default               reset all options to their default values
      --warnings[=WARNINGS]   enable warnings from groff

 Main modes of operation:
  -f, --whatis                equivalent to whatis
  -k, --apropos               equivalent to apropos
  -K, --global-apropos        search for text in all pages
  -l, --local-file            interpret PAGE argument(s) as local filename(s)
  -w, --where, --path, --location
                              print physical location of man page(s)
  -W, --where-cat, --location-cat
                              print physical location of cat file(s)

  -c, --catman                used by catman to reformat out of date cat pages
  -R, --recode=ENCODING       output source page encoded in ENCODING

 Finding manual pages:
  -L, --locale=LOCALE         define the locale for this particular man search
  -m, --systems=SYSTEM        use manual pages from other systems
  -M, --manpath=PATH          set search path for manual pages to PATH

  -S, -s, --sections=LIST     use colon separated section list

  -e, --extension=EXTENSION   limit search to extension type EXTENSION

  -i, --ignore-case           look for pages case-insensitively (default)
  -I, --match-case            look for pages case-sensitively

      --regex                 show all pages matching regex
      --wildcard              show all pages matching wildcard

      --names-only            make --regex and --wildcard match page names only,
                              not descriptions

  -a, --all                   find all matching manual pages
  -u, --update                force a cache consistency check

      --no-subpages           don't try subpages, e.g. 'man foo bar' => 'man
                              foo-bar'

 Controlling formatted output:
  -P, --pager=PAGER           use program PAGER to display output
  -r, --prompt=STRING         provide the `less' pager with a prompt

  -7, --ascii                 display ASCII translation of certain latin1 chars
  -E, --encoding=ENCODING     use selected output encoding
      --no-hyphenation, --nh turn off hyphenation
      --no-justification,                          --nj   turn off justification
  -p, --preprocessor=STRING   STRING indicates which preprocessors to run:
                              e - [n]eqn, p - pic, t - tbl,
g - grap, r - refer, v - vgrind

  -t, --troff                 use groff to format pages
  -T, --troff-device[=DEVICE]    use groff with selected device

  -H, --html[=BROWSER]        use www-browser or BROWSER to display HTML output
  -X, --gxditview[=RESOLUTION]   use groff and display through gxditview
                              (X11):
                              -X = -TX75, -X100 = -TX100, -X100-12 = -TX100-12
```

Using the ***man --help*** command

2. **More Linux commands**

Do the same for the following commands:

tail head ps less more whatis whereis which whoami

grep fdisk userdel

```
root@beaglebone:~# whereis

Usage:
 whereis [options] file

Options:
 -f <file>  define search scope
 -b         search only binaries
 -B <dirs>  define binaries lookup path
 -m         search only manual paths
 -M <dirs>  define man lookup path
 -s         search only sources path
 -S <dirs>  define sources lookup path
 -u         search from unusual enties
 -V         output version information and exit
 -h         display this help and exit

See how to use file and dirs arguments from whereis(1) manual.
root@beaglebone:~#
```

Using ***whereis*** command

```
root@beaglebone:~# whoami
root
root@beaglebone:~#
```

Using ***whoami*** command

```
root@beaglebone:~# fdisk
Usage:
 fdisk [options] <disk>    change partition table
 fdisk [options] -l <disk> list partition table(s)
 fdisk -s <partition>      give partition size(s) in blocks

Options:
 -b <size>             sector size (512, 1024, 2048 or 4096)
 -c[=<mode>]           compatible mode: 'dos' or 'nondos' (default)
 -h                    print this help text
 -u[=<unit>]           display units: 'cylinders' or 'sectors' (default)
 -v                    print program version
 -C <number>           specify the number of cylinders
 -H <number>           specify the number of heads
 -S <number>           specify the number of sectors per track

root@beaglebone:~#
```

Using ***fdisk*** command

example you should be able to tell me what I am trying to do with the following command:

```
grep  test  /etc/*  >  file_test
```

```
root@beaglebone:~# grep test /etc/* > file_test
grep: /etc/acpi: Is a directory
grep: /etc/alternatives: Is a directory
grep: /etc/apache2: Is a directory
grep: /etc/apm: Is a directory
grep: /etc/apparmor.d: Is a directory
grep: /etc/apt: Is a directory
grep: /etc/avahi: Is a directory
grep: /etc/bash_completion.d: Is a directory
grep: /etc/binfmt.d: Is a directory
grep: /etc/bluetooth: Is a directory
grep: /etc/ca-certificates: Is a directory
grep: /etc/calendar: Is a directory
grep: /etc/chatscripts: Is a directory
grep: /etc/chromium: Is a directory
grep: /etc/ConsoleKit: Is a directory
grep: /etc/console-setup: Is a directory
grep: /etc/cron.d: Is a directory
grep: /etc/cron.daily: Is a directory
grep: /etc/cron.hourly: Is a directory
grep: /etc/cron.monthly: Is a directory
grep: /etc/cron.weekly: Is a directory
grep: /etc/dbus-1: Is a directory
grep: /etc/default: Is a directory
grep: /etc/dhcp: Is a directory
grep: /etc/dictionaries-common: Is a directory
grep: /etc/dpkg: Is a directory
grep: /etc/emacs: Is a directory
grep: /etc/fonts: Is a directory
grep: /etc/fstab.d: Is a directory
grep: /etc/gconf: Is a directory
grep: /etc/gdb: Is a directory
grep: /etc/groff: Is a directory
grep: /etc/gtk-2.0: Is a directory
grep: /etc/gtk-3.0: Is a directory
grep: /etc/hostapd: Is a directory
grep: /etc/ifplugd: Is a directory
grep: /etc/init: Is a directory
grep: /etc/init.d: Is a directory
grep: /etc/initramfs-tools: Is a directory
grep: /etc/insserv: Is a directory
grep: /etc/insserv.conf.d: Is a directory
grep: /etc/iproute2: Is a directory
grep: /etc/javascript-common: Is a directory
grep: /etc/kbd: Is a directory
grep: /etc/kernel: Is a directory
grep: /etc/ldap: Is a directory
grep: /etc/ld.so.conf.d: Is a directory
grep: /etc/libnl-3: Is a directory
grep: /etc/lightdm: Is a directory
grep: /etc/logcheck: Is a directory
grep: /etc/logrotate.d: Is a directory
grep: /etc/menu-methods: Is a directory
grep: /etc/modprobe.d: Is a directory
grep: /etc/modules-load.d: Is a directory
grep: /etc/network: Is a directory
grep: /etc/openal: Is a directory
grep: /etc/opt: Is a directory
grep: /etc/pam.d: Is a directory
grep: /etc/pcmcia: Is a directory
grep: /etc/perl: Is a directory
grep: /etc/pkcs11: Is a directory
grep: /etc/pm: Is a directory
```

3. Going further

If you didn't do before, work on understanding the:

- redirect vs the pipe…… > vs |
- shutdown vs halt