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BASICS & Warnings

NOTE For LibreWriter .odt

Size when viewing Cntl+ Wheel

Size if it gets hidden Alt+Space+R Resize .odt

When removing, deleting, cleaning, upgrading, etc **WATCH IT**

MY PHILOSOPHY

DO NOT RUN A TERMINAL COMMAND UNLESS YOU UNDERSTAND EXACTLY WHAT IT WILL DO! THAT IS WHY THE INTERNET IS THERE!

e.g. ASK -”WHAT DOES rm command do?”

-BACKUP BEFORE CHANGING THINGS

KEYBOARD SHORT CUTS USING VIRTUAL BOX MAY REFER TO UBUNTU OR TO THE VBOX ITSELF OR TO THE WINDOWS HOST – WATCH IT!!

(Win (super) + A for example opens win 10 Notifications NOT DASH)

Go to Top – win 10 Cntl+Fn+ home

SOME REFERENCES

Ubuntu Linux Unleashed Helmke =UL (Book)

Watching Linux Tv IS this the best Ubuntu yet (Many Videos)

<https://www.youtube.com/channel/UChkws8rD7PNNITF17q1wOCw>

Beginner's Guide to the Bash Terminal

2,050,740 views 1:14:36 Joe Collins

<https://www.youtube.com/watch?v=oxuRxtR02Ag>

The 50 Most Popular Linux & Terminal Commands - Full Course for Beginners

1,296,992 views 5:00:16 (Good TOC to locate topics)

<https://www.youtube.com/watch?v=ZtqBQ68cfJc>

BASIC TERMINAL COMMANDS (UL PAGE 139)

HELP man, --help

Screen clear, Add tab

\$ clear Or New window in a tab - click + in upper right of screen

History

harman@harman-VirtualBox:~\$ history > history1.txt (Create file with history of commands)

harman@harman-VirtualBox:~\$ cat history1.txt

- 1 whoami
- 2 2 sudo adduser haarman vboxsf 249 entries ?

harman@harman-VirtualBox:~\$ less history1.txt (37 on a page)

- 1 whoami
- 2 sudo adduser haarman vboxsf
- 3 sudo adduser harman vboxsf
- 4 history

Script

\$ **man script** (Show options for script – copy keyboard strokes)

All you have to do is to run it: Not so easy to read.

\$ **script <file.txt>**

Script started, output file is **typescript** if no file is specified

This is especially useful if you want to have a journal for yourself or as a way to document what you did for others.

harman@harman-VirtualBox:~\$ **script script1.txt**

harman@harman-VirtualBox:~\$ **harman@harman-VirtualBox:~\$ ls | grep script1**

script1.txt

harman@harman-VirtualBox:~\$ **gedit script_6_26_2021.txt**

Directory commands **cd**, **pwd**, **mkdir**, **rmdir**

\$ **cd** cd ~ (home) cd .. (Up 1) cd - (Previous) cd ../../ (2 levels up) cd / UL PAGE 145

harman@harman-VirtualBox:~\$ **cd Desktop/**

harman@harman-VirtualBox:~/Desktop\$ **cd /opt/ros**

harman@harman-VirtualBox:/opt/ros\$ **cd -**

/home/harman/Desktop

harman@harman-VirtualBox:~\$ **pwd** (Print working directory)

/home/harman

\$ **mkdir ubuntuIntro**

(Use Option -v for Verbose with action commands like this)

\$ **cd ubuntuIntro/**

harman@harman-VirtualBox:~/ubuntuIntro\$

Listing Directory contents **ls**

\$ **ls -la** UL PAGE 118 Type, Link, owner, Group Size Last access FileName

harman@harman-VirtualBox:~\$ **man ls**

-a, --all

-l use a long listing format

do not ignore entries starting with .

harman@harman-VirtualBox:~\$ **ls -la** (Use \$ **ls --help**)

total 1108

```

drwxr-xr-x 19 harman harman 4096 Jun 15 11:48 .
drwxr-xr-x 3 root root 4096 Jun 9 23:00 ..
-rw----- 1 harman harman 2145 Jun 15 12:46 .bash_history
-rw-r--r-- 1 harman harman 220 Jun 9 23:00 .bash_logout
-rw-r--r-- 1 harman harman 3771 Jun 12 17:51 .bashrc
drwx----- 22 harman harman 4096 Jun 10 21:03 .cache
drwx----- 17 harman harman 4096 Jun 12 15:23 .config .....

```

(ls -a, -h, -l, -s, --sort UL PAGE 157)

harman@harman-VirtualBox:~\$ ls -lahs

```

total 1.1M
4.0K drwxr-xr-x 19 harman harman 4.0K Jun 15 13:39 .
4.0K drwxr-xr-x 3 root root 4.0K Jun 9 23:00 ..
4.0K -rw----- 1 harman harman 2.1K Jun 15 12:46 .bash_history
4.0K -rw-r--r-- 1 harman harman 220 Jun 9 23:00 .bash_logout
4.0K -rw-r--r-- 1 harman harman 3.7K Jun 12 17:51 .bashrc .....

```

(\$ ls -laR > ListContents.txt To save listing of files, directories)

\$ cd, ls, clear, cp, man, mv, pwd, mkdir, chmod, history

(UL PAGE 122-133)

Display File Contents cat, less, diff

cat (Pg 132) , less (Pg 152-154) ,

harman@harman-VirtualBox:~/Desktop\$ cat TestOfTextFile.txt

```

Test of text file (Contents of file)

```

eg: cat <name> vs. less <name> less is page by page

harman@D104-45931:~\$ diff turtlesim1.py turtlesim2.py

```

1c1 <#!/usr/bin/env python turtlesim1.py
---
>#!/usr/bin/env python turtlesim2.py 32,34c32,34
< move_cmd.linear.x = 0.3# Modify this value to change speed
< # Turn at 0 radians/s
< move_cmd.angular.z = 0
---
```

```
>move_cmd.linear.x = 2.0 # Modify this value to change speed
>          # Turn at 1.8 radians/s
>   move_cmd.angular.z = 1.8
```

Command help, man (Manual), whatis, which

```
$ command - - help or $ command -h
```

```
man <name> UL PAGE 111 $ man man Help with Manual UL PAGE 29
```

```
$ apropos $ apropos dmesg >dmesg (1) - print or control the kernel ring buffer UL PAGE 112
```

```
$ apropos man – Long list eg: $ apropos apt-get or $ man apt-get
```

```
apt-get (8) - APT package handling utility -- command-line interface
```

```
harman@harman-VirtualBox:~$ whatis ls
```

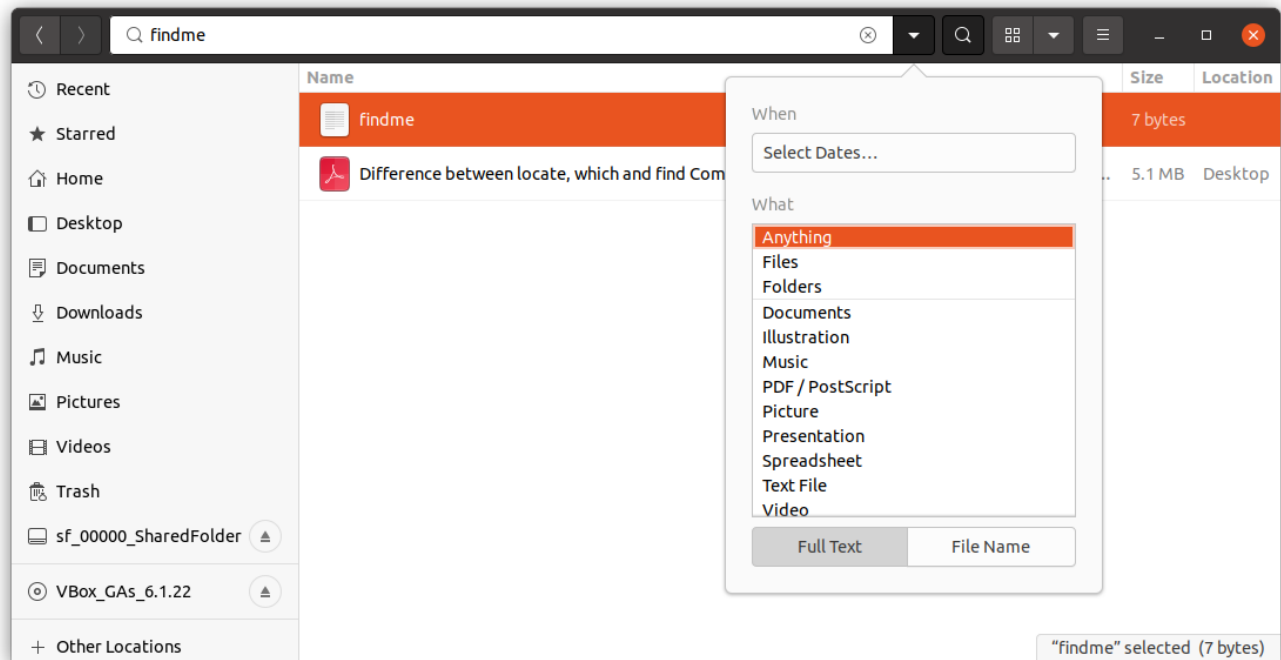
```
ls (1) - list directory contents
```

```
which mkdir (UL PAGE 164)
```

```
harman@harman-VirtualBox:~$ which mkdir (Location & Command)
```

```
/usr/bin/mkdir
```

Find Things & Information GUI, find, locate, whereis



```
harman@harman-VirtualBox:~/Desktop$ find -name "*.txt" (UL PAGE 149)
```

```
./TestOfTextFile.txt
```

locate (Install if needed)

```
sudo apt install mlocate
```

```
harman@harman-VirtualBox:~$ locate findme
```

```
/home/harman/findme
```

\$ whereis eg: \$ apropos whereis whereis (1)- locate the binary, source, and manual page files for a command

\$ whereis synaptic

```
synaptic: /usr/sbin/synaptic /usr/share/synaptic /usr/share/man/man8/synaptic.8.gz
```

Information

\$ info <name>, cat, dir, dmesg, **grep**, info, ls, man, pwd, top, whereis, who, whoami

UL PAGE 139 SUMMARY

GREP

```
harman@harman-VirtualBox:~/Desktop$ grep " of text file" *
```

```
grep: Screenshots and screencasts_files: Is a directory
```

```
TestOfTextFile.txt:Test of text file
```

Reading Documents LibreWriter, gedit, nano, evince, LaTeX

LibreOffice UL page 56-57

Alt+Space+R Resize .odt

```
evince harman@harman-VirtualBox:~/Desktop$ evince VboxKeys.pdf
```

Evince is the default document viewer for PDF (Portable Document Format) and PostScript files but can also display other formats, such as images.

LaTeX UL Page 60

Viewing GIMP

This is the official website of the GNU Image Manipulation Program (GIMP).

<https://www.gimp.org/> (May need to install this)

Execute Files Source, chmod

```
#Test of Source with txt file (TestOfSource.txt)
```

```
ls
```

```
date
```

```
time
```

-Result of execution of ls, date, time

```
harman@harman-VirtualBox:~/Desktop$ source TestOfSource.txt
```

```
Foxy_Install_6_21_2021
```

```
FOXY_Install_6_21_2021
```

```
FoxyPlay_6_22_2021 ....
```

```
TestOfSource.txt
```

```
Turtlesim_ROS2_Play.odt
```

```
Ubuntu_20_04_setup
```

```
Sat 26 Jun 2021 02:04:57 PM CDT
```


MAKE A FILE EXECUTABLE chmod

chmod – Changes the access permissions of one or more files. Only users with permission or ownership of a file can change that file's permissions.

- **chmod 777 filename** gives owner, group and others read, write and execute privileges (+x option does this also)

chmod 755 filename gives owner read, write, execute privileges; group and others get read and execute privileges

\$ gedit NewProgram.py (Create a simple program and then save.)

\$ ls -la

```
drwxrwxr-x 2 tlharmanphd tlharmanphd 4096 Aug 12 16:07 .
drwxr-xr-x 76 tlharmanphd tlharmanphd 4096 Aug 12 15:45 ..
-rw-rw-r-- 1 tlharmanphd tlharmanphd 73 Aug 12 16:00 NewerFile.txt
-rw-rw-r-- 1 tlharmanphd tlharmanphd 69 Aug 12 16:07 NewProgram.py
```

(Note that NewProgram.py is not executable – no x)

\$ chmod +x NewProgram.py

\$ ls -l

```
-rw-rw-r-- 1 tlharmanphd tlharmanphd 73 Aug 12 16:00 NewerFile.txt
-rwxrwxr-x 1 tlharmanphd tlharmanphd 69 Aug 12 16:07 NewProgram.py
```

(The NewProgram.py is now executable according to the file permissions.)

LOG FILES AND SIZE, SYSTEM INFORMATION

harman@harman-VirtualBox:~\$ **cd /var/log**

harman@harman-VirtualBox:/var/log\$ **ls -la**

harman@harman-VirtualBox:/var/log\$ **sudo du -hs /var/log**

[sudo] password for harman:

919M /var/log

Commands Running Programs

\$ kill, killall, ps, top, watch (UL PAGE 139 SUMMARY)

harman@harman-VirtualBox:~\$ ps

```
PID TTY      TIME CMD
12619 pts/0    00:00:00 bash
13533 pts/0    00:00:00 ps
```

Size free, df, du, meminfo, top, fdisk -l, GUI

\$ free

```
total          used          free          shared buff/cache   available (UL PAGE 115)
Mem:    12897140 17577796  8114704      50588   3024640  10766404
Swap:   459260    0         459260
```

\$ df x-special/nautilus-clipboard

copy

file:///home/harman/Desktop/df_%20from%202021-06-12%2014-09-04.png

df

display

```
harman@harman-VirtualBox: ~
Codename:   focal
harman@harman-VirtualBox:~$ df
Filesystem      1K-blocks      Used Available Use% Mounted on
udev            6418456         0  6418456   0% /dev
tmpfs           1289716         1440  1288276   1% /run
/dev/sda5       9736500      7976432  1245764   87% /
tmpfs           6448568         0  6448568   0% /dev/shm
tmpfs           5120           4     5116   1% /run/lock
tmpfs           6448568         0  6448568   0% /sys/fs/cgroup
/dev/loop0      56832          56832     0 100% /snap/core18/1988
/dev/loop2     224256         224256     0 100% /snap/gnome-3-34-1804/66
/dev/loop1      56832          56832     0 100% /snap/core18/2066
/dev/loop3     224256         224256     0 100% /snap/gnome-3-34-1804/72
/dev/loop4      52352          52352     0 100% /snap/snap-store/518
/dev/loop5      66432          66432     0 100% /snap/gtk-common-themes/1514
/dev/loop6     66688          66688     0 100% /snap/gtk-common-themes/1515
/dev/loop7     52224          52224     0 100% /snap/snap-store/542
/dev/loop8     32896          32896     0 100% /snap/snapd/12057
/dev/loop9     31872          31872     0 100% /snap/snapd/11036
/dev/sda1       523248         4     523244   1% /boot/efi
00000_SharedFolder 981750780 619754480 361996300 64% /media/sf_00000_SharedFolder
tmpfs          1289712         52  1289660   1% /run/user/1000
/dev/sr0        59590          59590     0 100% /media/harman/VBox_GAs_6.1.22
harman@harman-VirtualBox:~$
```

harman@harman-VirtualBox:~\$ du -h

UL PAGE 148

```
1.7M  ./Pictures
916K  ./config/libreoffice/4/user/backup
16K   ./config/libreoffice/4/user/basic/Standard
28K   ./config/libreoffice/4/user/basic
1016K ./config/libreoffice/4/user/database/biblio
1.0M  ./config/libreoffice/4/user/database
8.0K  ./config/libreoffice/4/user/autotext
4.0K  ./config/libreoffice/4/user/psprint
```

```
4.0K  ./config/libreoffice/4/user/config/soffice.cfg/modules/swriter/popupmenu
4.0K  ./config/libreoffice/4/user/config/soffice.cfg/modules/swriter/toolbar
4.0K
```

```
harman@harman-VirtualBox:/proc$ cat /proc/meminfo      (UL PAGE 115)
MemTotal:    12897144 kB
MemFree:     10323256 kB
MemAvailable: 11707544 kB
Buffers:     56196 kB
Cached: .....
```

GUI Disk Space

Show Applications Disks or Disk Usage Analyzer (Visual indication of disk usage)

TOPS **Stop** PID, User ... 11

```
harman@harman-VirtualBox:~$ pwd
/home/harman
harman@harman-VirtualBox:~$ top

top - 15:13:10 up 2:03, 1 user, load average: 0.12, 0.30, 0.33
Tasks: 199 total, 1 running, 192 sleeping, 0 stopped, 6 zombie
%Cpu(s): 3.8 us, 2.6 sy, 0.0 ni, 93.6 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 12594.9 total, 9334.4 free, 1421.8 used, 1838.7 buff/cache
MiB Swap: 448.5 total, 448.5 free, 0.0 used. 10866.6 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+  COMMAND
  941 harman    20   0 655320 168752 59872 S   3.8   1.3   1:36.07 Xorg
 1223 harman    20   0 3953576 519528 139904 S   1.3   4.0   4:58.63 gnome-shell
 5318 harman    20   0 823620  51640 38596 S   1.3   0.4   0:01.64 gnome-terminal
 9345 harman    20   0  20492   3724  3224 R   1.3   0.0   0:00.04 top
```

```
1256 harman 20 0 3832968 395884 134840 S 2.3 3.1 2:02.12 gnome-shell
 974 harman 20 0 628428 144060 61916 S 2.0 1.1 0:58.43 Xorg
2612 harman 20 0 829076 55676 40672 S 1.3 0.4 0:07.81 gnome-terminal-
1169 harman 20 0 163996 2732 2360 S 0.3 0.0 0:06.24 VBoxClient
1454 harman 20 0 354052 27984 17904 S 0.3 0.2 0:00.33 gsd-wacom
6402 harman 20 0 20516 3692 3164 R 0.3 0.0 0:00.04 top
```

The top program provides a dynamic real-time view of a running system.

```
sudo fdisk -l
harman@harman-VirtualBox:~$ sudo fdisk -l
[sudo] password for harman:
Disk /dev/loop0: 55.48 MiB, 58159104 bytes, 113592 sectors
```

Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/loop1: 218.102 MiB, 229629952 bytes, 448496 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Device	Boot	Start	End	Sectors	Size	Id	Type
/dev/sda1	*	2048	1046527	1044480	510M	b W95	FAT32
/dev/sda2		1052670	20969471	19916802	9.5G	5	Extended
/dev/sda5		1052672	20969471	19916800	9.5G	83	Linux

Environment Variable Echo

```
$ echo 'Hello World' UL PAGE 148
```

Permissions & Users & Groups users, groups, adduser

```
harman@harman-VirtualBox:~$ users
```

```
harman
```

```
harman@harman-VirtualBox:~$ groups          (Added vboxsf for shred files)
```

```
harman adm cdrom sudo dip plugdev lpadmin lxd sambashare vboxsf
```

```
$ ls -la Show all about files
```

```
$ ls -la UL PAGE 118 Type, Link, owner, Group Size Last access FileName
```

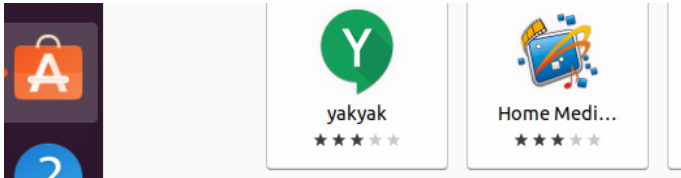
```
harman@harman-VirtualBox:~$ ls -la
```

```
total 1108
```

```
drwxr-xr-x 19 harman harman 4096 Jun 15 11:48 .....
```

```
harman@harman-VirtualBox:~$ ls -ld UL PAGE 122
```

```
drwxr-xr-x 19 harman harman 4096 Jun 15 11:48 .
```



General Permission & User Commands & Make Executable:

\$ chmod (UL 147) , chgrp, chown, getfacl,,

\$ chmod -c (Show Changes)

Install Packages `sudo apt-get` Advanced Package Tool

\$ sudo apt-get update -y or \$ sudo apt update UL PAGE 95-100 TABLE 9.1

\$ sudo apt upgrade

\$ sudo apt-get install -y evince

\$ apt-cache search <Name>

Ubuntu Software in Favorites Search for Packages and apps

Snappy Package Manager - UL Page 103, snap

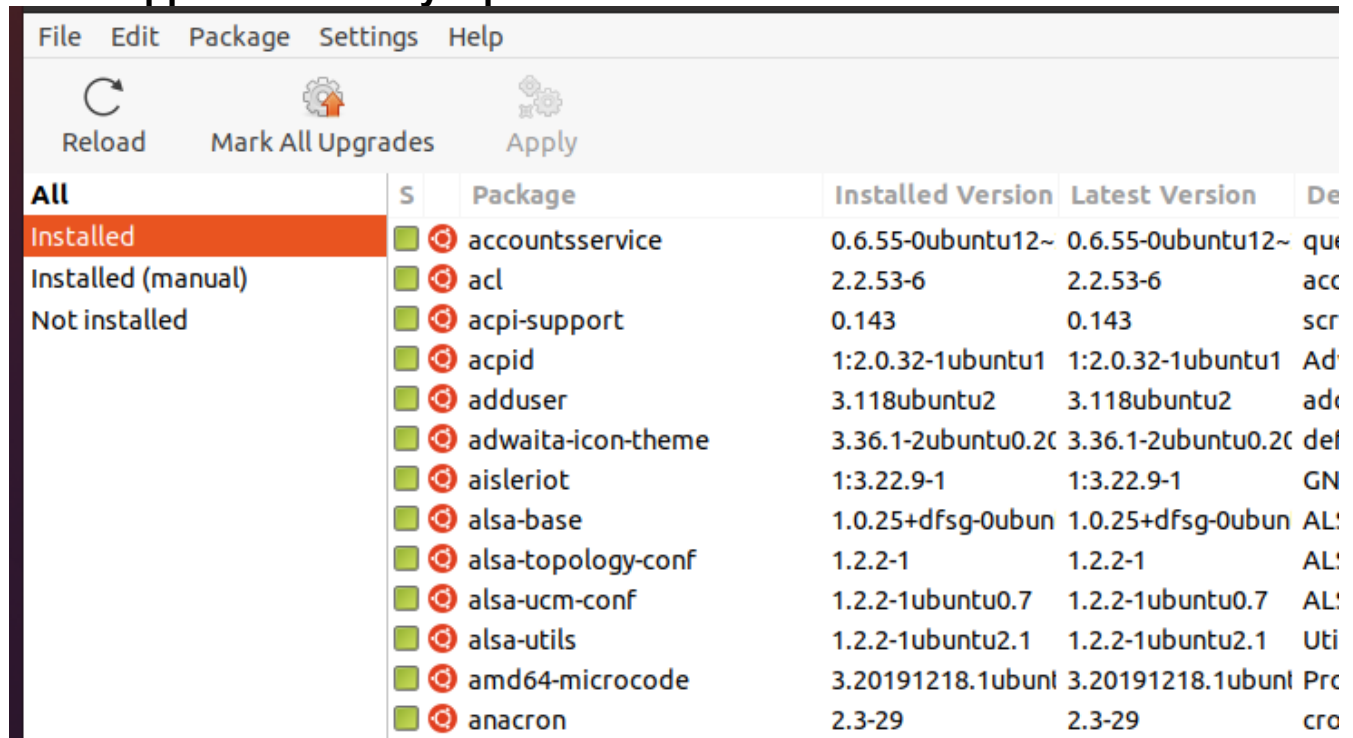
harman@harman-VirtualBox:~\$ snap

The snap command lets you install, configure, refresh and remove snaps.

Snaps are packages that work across many different Linux distributions, enabling secure delivery and operation of the latest apps and utilities.

Usage: snap <command> [<options>...]

Show Applications > Synaptic UL PAGE -94



The screenshot shows the Synaptic Package Manager window. The menu bar includes File, Edit, Package, Settings, and Help. Below the menu bar are three buttons: Reload, Mark All Upgrades, and Apply. The main window is divided into a left sidebar and a main table. The sidebar has a tree view with categories: All, Installed, Installed (manual), and Not installed. The 'Installed' category is selected. The main table lists packages with columns for S (Status), Package, Installed Version, Latest Version, and Description. The packages listed are: accountsservice, acl, acpi-support, acpid, adduser, adwaita-icon-theme, aisleriot, alsa-base, alsa-topology-conf, alsa-ucm-conf, alsa-utils, amd64-microcode, and anacron.

All	S	Package	Installed Version	Latest Version	De
Installed	■ ⊗	accountsservice	0.6.55-0ubuntu12~	0.6.55-0ubuntu12~	que
Installed (manual)	■ ⊗	acl	2.2.53-6	2.2.53-6	acc
Not installed	■ ⊗	acpi-support	0.143	0.143	scr
	■ ⊗	acpid	1:2.0.32-1ubuntu1	1:2.0.32-1ubuntu1	Ad
	■ ⊗	adduser	3.118ubuntu2	3.118ubuntu2	ad
	■ ⊗	adwaita-icon-theme	3.36.1-2ubuntu0.20	3.36.1-2ubuntu0.20	def
	■ ⊗	aisleriot	1:3.22.9-1	1:3.22.9-1	GN
	■ ⊗	alsa-base	1.0.25+dfsg-0ubun	1.0.25+dfsg-0ubun	AL!
	■ ⊗	alsa-topology-conf	1.2.2-1	1.2.2-1	AL!
	■ ⊗	alsa-ucm-conf	1.2.2-1ubuntu0.7	1.2.2-1ubuntu0.7	AL!
	■ ⊗	alsa-utils	1.2.2-1ubuntu2.1	1.2.2-1ubuntu2.1	Uti
	■ ⊗	amd64-microcode	3.20191218.1ubunt	3.20191218.1ubunt	Pro
	■ ⊗	anacron	2.3-29	2.3-29	cro

DPKG

<https://man7.org/linux/man-pages/man1/dpkg.1.html>

```
harman@harman-VirtualBox:~$ dpkg -l          (A cast of thousands – really!)
```

aptitude terminal-based package manager

aptitude is a package manager with a number of useful feature (Need to install)

<https://www.thegeekstuff.com/2014/08/aptitude-command/>

Compiling and Build From Source UL Page 100-102

System & User Information `echo` Environmental variables, `hostnamectl`, `whoami`, `hostname`

```
harman@harman-VirtualBox:~$ echo $SHELL
/bin/bash
```

```
harman@harman-VirtualBox:~/Desktop$ hostnamectl
```

```
harman@harman-VirtualBox:~$ hostnamectl
Static hostname: harman-VirtualBox
Icon name: computer-vm; Chassis: vm
Machine ID: 6cbc826fb3764ca8a02e443ddf499c4e
Boot ID: b1ca3958c5bf49f08dbb76ba79d494a9
Virtualization: oracle
Operating System: Ubuntu 20.04.5 LTS
Kernel: Linux 5.13.0-39-generic
Architecture: x86-64
```

UPGRADED in 2022
Kernel

```
harman@harman-VirtualBox:~/Desktop$ whoami
```

```
harman
```

```
harman@harman-VirtualBox:~$ echo "$HOSTNAME"
```

```
harman-VirtualBox
```

General System Information -`Version` `lsb_release`, `$SHELL` `cpuinfo`, `uname`, `lsmod`

The `lsb_release` utility displays LSB (Linux Standard Base) information about the Linux distribution

```
harman@harman-VirtualBox:~$ lsb_release -a
```

```
No LSB modules are available.
```

```
Distributor ID: Ubuntu
```

```
Description: Ubuntu 20.04.5 LTS
```

```
Release: 20.04
```

```
Codename: focal
```

```
harman@harman-VirtualBox:/proc$ cat /proc/cpuinfo (UL PAGE 116)
```

```
processor       : 0; vendor_id   : GenuineIntel;
```

```
model name     : Intel(R) Core(TM) i9-9980HK CPU @ 2.40GHz
```

```
harman@harman-VirtualBox:~$ uname -r (get name and information about current kernel)
```

```
5.13.0-39-generic
```

```
harman@harman-VirtualBox:~$ lsmod | grep vbox (The lsmod command shows a list of the currently loaded kernel modules.)
```

```
vboxsf          81920 1
vboxvideo       36864 0
vboxguest       364544 6 vboxsf
ttm              102400 2 vmwgfx,vboxvideo
drm_kms_helper  217088 2 vmwgfx,vboxvideo
drm              552960 6 vmwgfx,drm_kms_helper,vboxvideo,ttm
```

System Logs /var/log/syslog

```
harman@harman-VirtualBox:~$ cd /var/log
```

```
harman@harman-VirtualBox:/var/log$ ls
```

```
alternatives.log dmesg      hp          syslog.3.gz
apt              dmesg.0    installer  ubuntu-advantage.log
auth.log        dmesg.1.gz journal    unattended-upgrades
boot.log        dmesg.2.gz kern.log    vboxadd-install.log
boot.log.1      dmesg.3.gz lastlog     vboxadd-setup.log
boot.log.2      dmesg.4.gz openvpn     vboxadd-setup.log.1
boot.log.3      dpkg.log   private    vboxadd-setup.log.2
bootstrap.log   faillog    speech-dispatcher vboxadd-setup.log.3
bttmp          fontconfig.log syslog      vboxadd-setup.log.4
cups           gdm3       syslog.1    vboxadd-uninstall.log
dist-upgrade   gpu-manager.log syslog.2.gz wtmp
```

dmesg – Tons of system data **UL Page 21**

```
harman@harman-VirtualBox:/var/log$ dmesg or dmesg > dmesg.txy
```

```
zless <name>.gz Read compressed file
```

```
harman@harman-VirtualBox:/var/log$ zless dmesg.1.gz
```

System Directories dir, ls -la, tree, GUI

```
harman@harman-VirtualBox:~$ dir
```

```
Desktop Downloads How\ to\ install\ Tweak\ Tool\ on\ Ubuntu\ 20.04\ .pdf newfile.save Public
Templates Videos
Documents findme Music
```

```
cd /usr; ls X server UL PAGE33-39
```

```
bin games include lib lib32 lib64 libexec libx32 local sbin share src
```

```
harman@harman-VirtualBox:/var$ ls -la UL Page 117
```

```
total 56
drwxr-xr-x 14 root root 4096 Feb 9 12:56 .
drwxr-xr-x 20 root root 4096 Jun 9 22:59 ..
drwxr-xr-x 2 root root 4096 Jun 14 16:16 backups
drwxr-xr-x 17 root root 4096 Jun 10 19:48 cache .....
drwxrwsr-x 2 root mail 4096 Feb 9 12:47 mail
```

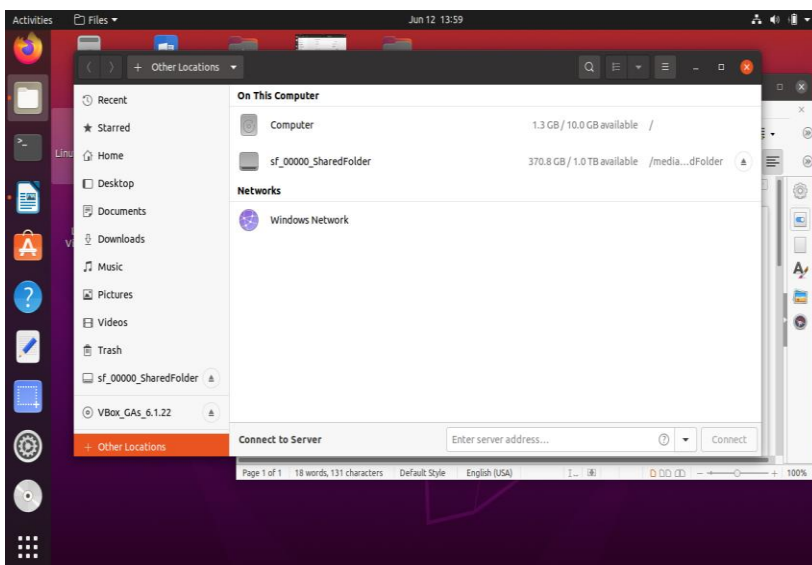

tree

harman@harman-VirtualBox:/var\$ tree /var/log (Tree loaded to Ubuntu)

```
/var/log
├── alternatives.log
├── apt
│   ├── eipp.log.xz
│   ├── history.log
│   └── term.log
├── auth.log
├── boot.log
├── boot.log.1
├── boot.log.2
├── boot.log.3
├── bootstrap.log
├── btmp
├── cups
│   ├── access_log
│   ├── access_log.1
│   ├── access_log.2.gz
│   ├── access_log.3.gz
│   └── error_log
├── dist-upgrade
├── dmesg
├── dmesg.0
├── dmesg.1.gz
├── dmesg.2.gz
├── dmesg.3.gz
└── dmesg.4.gz
```

FILES

file:///home/harman/Desktop/Files_%202021-06-12%2013-59-18.png



Directory Structure

Directory	Content
bin	Essential command binaries
boot	Static files of the boot loader
dev	Device files
etc	Host-specific system configuration
home	User home directories
lib	Essential shared libraries and kernel modules
media	Contains mount points for replaceable media
mnt	Mount point for mounting a file system temporarily
proc	Virtual directory for system information
root	Home directory for the root user
run	Run-time variable data
sbin	Essential system binaries
sys	Virtual directory for system information
tmp	Temporary files
usr	Secondary hierarchy
var	Variable data
srv	Data for services provided by the system
opt	Add-on application software packages

Hardware Devices

\$ sudo lshw,

harman@harman-VirtualBox:~\$ sudo lsusb

Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub

Bus 002 Device 002: ID 80ee:0021 VirtualBox USB Tablet

Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub

PRINTER OFFICEJET 4630 10.0.0.223 KAREN'S PRINTER

x-special/nautilus-clipboard

copy

file:///home/harman/Desktop/pwd_top_2021-06-12%2015-16-26.png

Network Stuff ping, ifconfig,

harman@harman-VirtualBox:~\$ ping rice.edu (May need to load \$sudo apt install iputils-ping)

PING rice.edu (128.42.207.44) 56(84) bytes of data.

64 bytes from 128.42.207.44 (128.42.207.44): icmp_seq=1 ttl=242 time=18.5 ms

64 bytes from 128.42.207.44 (128.42.207.44): icmp_seq=2 ttl=242 time=17.0 ms

64 bytes from 128.42.207.44 (128.42.207.44): icmp_seq=3 ttl=242 time=17.3 ms

--- rice.edu ping statistics --- 6 packets transmitted, 6 received, 0% packet loss, time 5031ms

harman@harman-VirtualBox:~\$ ping uhcl.edu

PING uhcl.edu (129.7.80.131) 56(84) bytes of data.

64 bytes from www.uhcl.edu (129.7.80.131): icmp_seq=1 ttl=47 time=32.8 ms

64 bytes from www.uhcl.edu (129.7.80.131): icmp_seq=2 ttl=47 time=28.7 ms

harman@harman-VirtualBox:~\$ ifconfig

enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500

inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255

Display Settings Virtual Box

SETTINGS - DISPLAY

1280 X 768 16:10 SCALE 100% (SCALED IN VBOX MANAGER 200%)