# my Unix/Gnu Linux cheat sheat

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# Contents

# 1 Links

1. sed useful commands `http://www.catonmat.net/blog/wp-content/uploads/2008/09/sed1line.txt`

2. apt and dpkg cheat sheet `http://www.cyberciti.biz/tips/linux-debian-package-management-cheat-sheet.html`

3. scripting tutorial `http://linuxconfig.org/bash-scripting-tutorial`

4. `http://www.cyberciti.biz/faq/linux-unix-bsd-xargs-construct-argument-lists-utility/` has good commands to learn from, on xargs

5. good hints on writing robust scripts `http://www.davidpashley.com/articles/writing-robust-shell-scripts/`

# 2    To use rsync for backup from 2 drives on windows from mounted shared folder using VBOX

Assuming `/media/G` and `/media/E` are 2 different shared folders mounted allready and you are now inside Linux in VBox then do

```
rsync -av  --delete /media/G /media/E
```

# 3    How to remove colors from terminal

```
alias ls='ls --color=never'
```

# 4    How to convert files in current folder from png to eps

```
#!/bin/bash
  for file in *.png; do
          filename=${file%.*}
          convert "$filename.png" "$filename.eps"
  done
```

# 5    How to change extension of files in current folder

To change extension from .PNG to lowe case .png

```
#!/bin/bash
for file in *.PNG; do
    f=${file%.*}
    mv "$f.PNG" "$f.png"
done
```

# 6    recusrive tree search for string in files

```
grep -H -r "string I am searching for"  *
```

This should also work

```
grep -H -r 'string I am searching for' *
```

also this

```
find . -type f -exec grep -l 'string' {} \;
```

# 7    recusrive tree search for string in files with specific extension

```
find . -name "*.txt" -print0 | xargs -0 egrep 'string'
```

# 8    recusrive tree search for string in files, where the string is at start of a line

```
find . -name "*.txt" -exec egrep -l '^string' {} \;
```

# 9    recusrive tree search for string in files, print file name and the line with match

```
find . -type f -print0 | xargs -0 grep -H 'documentclass'
```

# 10   recusrive tree search for string in files, print file name only where match found

```
find . -type f -name *.tex -print0 | xargs -0 grep -l 'documentclass'
```

# 11   How to resize images in current folder based on width only

This example looks for all png files in current folder and will make thumbnails (shrink) any image that has a width larger than say 200 pixels. The height of the image is adjusted so that aspect ratio remain the same as originally was.

Edit as needed

```bash
#!/bin/bash
shopt -s nullglob
FILES=*.png
for file in $FILES
do
    f=${file%.*}
    echo "file is $file and f is $f"
    convert "$f.png[200x>]" "$f"_thumb.png
done
```

This example is as above except that the resizing is limited to enlarging the images to say 200 pixels. Edit as needed

```bash
#!/bin/bash
shopt -s nullglob
FILES=*.png
for file in $FILES
do
    f=${file%.*}
    echo "file is $file and f is $f"
    convert "$f.png[200x<]" "$f"_thumb.png
done
```

Reference:

1. http://askubuntu.com/questions/135477/how-can-i-scale-all-images-in-a-folder-to-the-same-width

2. http://www.cyberciti.biz/faq/bash-loop-over-file/

# 12    How to find image width and height?

Can use the `file` command. But the ouptput has to be parsed. easier to use `imageinfo`

```
>sudo apt-get install imageinfo  #install if needed
>w=`imageinfo --width foo.png`
>echo $w
81


>h=`imageinfo --height foo.png`
>echo $h
24
```

Reference:

1. `http://stackoverflow.com/questions/4670013/fast-way-to-get-image-dimens ions-not-filesize`


# 13    How to resize animated gif file without losing the animation?

Useful trick to know

```
convert big.gif -coalesce coalesce.gif
convert -size 200x100 coalesce.gif -resize 200x10 small.gif
```

reference: `http://stackoverflow.com/questions/718491/resize-animated-gif-file- without-destroying-animation`


# 14    How to batch convert all .png files to .jpg?

Thanks to `http://www.turnkeylinux.org/blog/png-vs-jpg`

```
apt-get install imagemagick

#one file
convert -flatten -background white file.png file.jpg

#batch
for f in *.png; do
    n=$(echo $f|sed 's/.png/.jpg/');
    convert -flatten -background white $f $n
done
```

# 15 How to install Linux on VBox
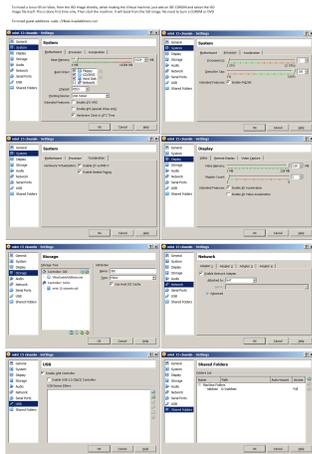
# 16 to use shared folders on a VBOX with Linux guest to windows

If you get this error from Virtual box

```
VT-x is disabled in the BIOS for all cpu modes
```

Then go to BIOS (boot PC and press F2) and enable it.

Make sure first the windows folder is added to shared folder in VBox settings for the VM. Then boot the VM. Now inside Linux create a mount point where to mount the shared folder to

```
>sudo mkdir /mnt/g
>sudo mkdir /mnt/g/public_html
>ls -l  /mnt
drwxr-xr-x  2 root root 4096 Jun 22 17:02 /mnt/g/

>cd /mnt
>sudo chown -hR me:me g
>ls -l
drwxr-xr-x  2 me   me   4096 Jun 22 17:02 g
```

Now mount the shared folder, making sure it is owned by me

```
>sudo ./win_mount.sh
>cat win_mount.sh
mount -t vboxsf -o uid=1000,gid=1000 public_html /mnt/g/public_html
```

Watch out. some Linux OS might use gid=1001. So check first.

## 17  How to make sure virtual box linux is running fast?

Make sure that is OFF. Start windows power shell (as ADMIN), and type

```
bcdedit /set hypervisorlaunchtype off
```

Now reboot windows. Must reboot.

Now can start virtual box. Check the icon on the lower right corner of the vbox linux terminal. If no Turtle sign shows up but V sign, then good, it means Vbox is in fast mode.

To start SWL again, do

```
bcdedit /set hypervisorlaunchtype auto
```

From powershell as ADMIN and reboot windows again.

## 18  join AVI files to one

Thanks to `http://www.torrent-invites.com/showthread.php?t=194756`

```
sudo apt-get install mencoder mplayer
cat *.avi > movie.avi
mencoder -forceidx -oac copy -ovc copy movie.avi -o movie_final.avi
```

## 19  How to change premissions recursive?

This will change all permissions on all files and folder

```
chmod -R 0755  folder_name
```

## 20  How to delete lines from file that starts with #?

This will change the file, backup is made to `INPUT.txt.bak`

```
sed -i.bak '/^#/d' INPUT.txt
```

## 21 How to search all tree and find file with specific name and then delete lines from this file that starts with #?

the `-I {}` is the marker, which says the file name is `{}`

```
find . -type f -name INPUT.txt -print0 | xargs -0 -I {}  sed -i.bak '/^#/d' {}
```

The above could also be done like this

```
find . -type f -name INPUT.txt -print0 | xargs -0 sed -i.bak '/^#/d'
```

But I found using explicit marker for the argument more clear. This is useful. If using a command that needs more than one argument, the marker is needed anyway, so might as well get used to using it. Marker can be anything. So this works also

```
find . -type f -name INPUT.txt -print0 | xargs -0 -I file  sed -i.bak '/^#/d'
    file
```

## 22 tree command

`tree -n -L 1 --charset nwildner` prints one level only and this `tree -n -i -L 1 -d .` does not print indentation lines

## 23 How copy selected files in one tree to another keeping same tree structure?

see `http://unix.stackexchange.com/questions/83593/copy-specific-file-type-keeping-the-folder-structure`

# 24  How to increase file handles limit for a process?

`ulimit -n` to find the limit, and to increase it to say 2048, type `ulimit -S -n 2048`

# 25  How to unzip a file using PHP on server?

Put this in a file foo.php and put it in the folder to unzip the file on the server and type the URL to this file

```php
<?php
    //phpinfo();
    //echo exec('whoami');

    $command = "unzip file.zip   > /dev/null 2>/dev/null &";
    $output = shell_exec($command);
        echo "<pre>Done !</pre>";
?>
```

# 26  How to increase open file limit?

type `unlimt -a` to see all limits. To change open file limit, edit the file **/etc/security/limits.conf** as root and add these lines

```
* soft nofile 4096
* hard nofile 4096
```

I rebooted after this just in case (may be reboot is not needed). Now it works. When I do

```
>ulimit -n
4096
```

Reference: thanks to lornix answer

# 27  How to run sudo command without getting command not found error?

Use `sudo -E env "PATH=$PATH"  command`. Reference http://superuser.com/question s/709515/command-not-found-when-using-sudo

# 28 How to replace spaces in file names and folder with underscore?

```
find /tmp/ -depth -name "* *" -execdir rename 's/ /_/g' "{}" \;
```

Above is thanks to Dennis Williamson from http://stackoverflow.com/questions/2709 458/bash-script-to-replace-spaces-in-file-names

Seems to work well.

# 29 How to convert DOS file to Unix?

```
tr -d '\015' < file.txt > new_file.txt
```

Just make sure not to use the same file above, else it will be wiped out.

http://stackoverflow.com/questions/2613800/how-to-convert-dos-windows-newli ne-crlf-to-unix-newline-n-in-bash-script

or just do `sudo apt-get install dos2unix` and type `dos2unix foo.txt` it will overwrite the file ok.

# 30 bulk file renaming in bash, to remove name with spaces, leaving trailing digits

Thanks to Avinash Raj, use this command `rename 's/.*\s//' *.pdf` see http://stacko verflow.com/questions/34469075/bulk-file-renaming-in-bash-to-remove-name-wit h-spaces-leaving-trailing-digits

# 31 How to convert djvu files to pdf?

Install `sudo apt-get install djvulibre-bin`. To convert multiple files, I wrote this small script

```bash
#!/bin/bash
#dj2pdf.sh    script to convert djvu files to pdf
set -x
for file in $1; do
    filename=${file%.*}
    ddjvu -format=pdf -quality=100 "$filename.djvu" "$filename.pdf"
done
```

To convert one file, type `dj2pdf   file.djvu` and to convert multiple files, type `dj2pdf   "*.djvu"`

## 32 How to test the C compiler quickly?

```
echo "void main(){printf(\"hello world\n\");}" |gcc -x c - -o /tmp/hello;/tmp/
    hello
```

## 33 How to delete files with some extension inside specific folder over tree?

thanks to Anderson M. Gomes http://unix.stackexchange.com/questions/270071/how-to-delete-all-files-with-specific-extension-in-specific-named-folders-in-lar

Here is the code

```
#to check
$ find /path/to/source -type d -name 'rules' -exec find '{}' -mindepth 1 -
    maxdepth 1 -type f -iname '*.pdf' -print ';'

#to delete
$ find /path/to/source -type d -name 'rules' -exec find '{}' -mindepth 1 -
    maxdepth 1 -type f -iname '*.pdf' -print -delete ';'
```

## 34 How to download a web page using wget?

An example,

```
wget --recursive --no-clobber --page-requisites --html-extension --convert-links
     --restrict-file-names=windows --domains the_domain_name.com --no-parent http
    ://blabla_blabla
```

## 35 How to delete folders inside tree with only specific name?

Answers thanks to https://stackoverflow.com/questions/13032701/how-to-remove-folders-with-a-certain-name

```
cd top_level
rm -rf `find . -type d -name folder_name_to_remove`
```

Or

```
cd top_level
find . -type d -name foo -a -prune -exec rm -rf {} \;
```

## 36 How to delete files with specific names inside tree?

```
cd top_level
find . -name "file_name" -print
find . -name "file_name" -delete
```

## 37 How to sort files in tree by date changed?

This will list all files in tree, showing date file changed with latest changed at bottom of listing shown.

```
find . -type f -printf '%TY-%Tm-%Td %TT %p\n' | sort
```

Thanks to https://stackoverflow.com/questions/5566310/how-to-recursively-find-and-list-the-latest-modified-files-in-a-directory-with-s

## 38 How print longest line in file?

```
awk '{ if ( length > x ) { x = length; y = $0 } }END{ print y }' ./file.tex
```

Thanks to Keith Thompson at https://unix.stackexchange.com/questions/24509/how-to-print-the-longest-line-in-a-file

## 39 How to change all spaces to underscore in folder names in tree?

Use

```
sudo apt install detox
detox -n --dry-run *  #dry run, to test, does nothing.
detox *
```

This will change all folder names below where it is issued and changes any space in the name to underscore.

# 40   apt useful commands

To just update a program to its latest without knowing the version number do, say want to update gfortran

```
sudo apt-get upgrade gfortran
```

To update the distribution do

```
sudo apt-get dist-upgrade
```

# 41   How to start a command after some time

To start a command after some time, say 30 minutes do `sleep 30m &&  ./my_script`

To start a command after some time, say 2 hrs do `sleep 2h &&  python ./script.py`

The above can be canceled before the time elapses, and the command will not run.

# 42   How to mount shared windows folder from Linux guest using VMWARE?

Updated Nov 2024

First make sure to select shared folder when installing the Linxu guest using vmware. I choose `G:\public_html\`. This is not done by default. Had to use preference in vmare workstation to see the shared folder. Do this before installing Linux. Just select the above folder.

After installing the Linux guest, these are the steps

```
cd /mnt
sudo mkdir -p g
sudo mkdir -p g/public_html
sudo chown -hR me:me g            <--- THis is important.
sudo /usr/bin/vmhgfs-fuse .host:/public_html /mnt/g/public_html -o subtype=vmhgfs-
    fuse,allow_other
```

The above makes folder `/mnt/g/public_html` which maps to `G:\public_html` on windows.

if you get stuck inside Virtual box, type CTRL-ALT to get out to windows.

Make sure to turn off optimize mouse for gamming in setting if mouse is stuck inside virtual machine.

Need to issue the above mount command each time you boot linux.

`https://browser.geekbench.com/v6/cpu/8902886` is geek benhc mark for xfce4 linux endouvour os, score is 2823

`https://browser.geekbench.com/v6/cpu/8904701` is geek benhc mark for xfce4 linux manjaro os single scroe is 2857

# 43 How to Change color for title bar for terminal on Linux manjaro?

`desktop->Applications->Settings->Setting manager->Window manager` and select them Daloa. THere are other light ones. But I liked this one more.

# 44 How to make guest OS (windows) see USB devices on Linux Host

Make sure you are in vboxsers group

`sudo usermod -a -G vboxusers <useruame>`

logout and login. Now try to add USB 2.0 to VBox USB in settings of the window virtual machine. It should now be enabled.

# 45 How to remove a network disk in windows?

in windows DOS, type

`net use G: /delete`

Where `G:` is say the network disk

# 46 How to share folder using windows as guest and linux as host?

Made my `/home/me/data/` as shared folder in VBox setting. So shared folder shows as `data` then.

Booted VBox windows 7. Then in windows typed in DOS

Type `net use G: \\vboxsvr\data`

So now it shows in windows as derive G

# 47    How to find files on linux?

sudo updatedb then locate file_name

find command can also be used follows

```
find . -iname "*process_input*"
```

The above command says to find file name anywhere in the tree starting at current location and below, where the file name has the above string anywhere in the name.

The -iname options says to search case insensetive.

# 48    How to check is samba is running?

smbclient -L localhost if it asks for password, type it. It is then running.

# 49    How to see what printers are there in Linux?

lpstat -p

or do http://localhost:631/printers/ and select Printers from the menu. The above is CUSP interface.

# 50    How to extract first frame of animated gif file as png image?

convert 'moving_disk.gif[0]' moving_disk.png

# 51    How to change title of Linux termina?

Thanks to https://askubuntu.com/questions/22413/how-to-change-gnome-terminal-title type

PROMPT_COMMAND='echo -ne "\033]0;TITLE HERE\007"'

This will change the title in the terminal banner, normally located in the upper left corner.

To make the terminal title be the full path of the current folder, type

PROMPT_COMMAND='echo -ne "\033]0;$PWD\007"'

To make the terminal title be the last folder in full path of the current folder, type

PROMPT_COMMAND='echo -ne "\033]0;$(basename $(pwd))\007"'

# 52  How to slow down or speed up an existing animated gif file?

Thanks to `http://blog.floriancargoet.com/slow-down-or-speed-up-a-gif-with-ima gemagick/`

`identify -verbose your.gif` grep Delay| give current delay between each frame in 100'th of second. So it it say **50x100** then the delay is half second. To change the delay to one second between each frame do

`convert -delay 100x100 your.gif your_slow.gif`

So to make the time 0.25 second between each frame do

`convert -delay 25x100 your.gif your_slow.gif`

It looks like **6x100** is min time betweeb frames that browsers support. But this could depend on which browser.

# 53  Misc. useful linux commands

1. `cd -` goes back to last directory

2. `reset` clears and resets the terminal

3. if you type `apt update` then want to do it again by adding `sudo` then no need to retype everything, just type `sudo !!` then the `!!` will copy the last command

4. `history` followed by `!nn` where **nn** is the command number show in history, will run that command

5. To run 2 commands one after the other, but stop if one fail, do `cmd1; cmd2; cmd3` The above will stop if one of these commands fail. If you use `cmd1&& cmd2&& cmd3` then it will not stop if one command fail. so using `;` is more safe.

6. `command` column t| is useful command to format messy output into columns so easier to read

# 54  How to find files that changed before sometime ago?

use the command `find . -type f -mmin -150` to find files that changed within 150 minutes ago. And the command `find . -type f -mmin +150` to find files that changed longer than 150 minutes ago.

# 55  How to change how window bars and windows (terminals) look like?

on xfce, right click on the `desktop->applications->settings manager->windows manager->` then select a theme. The theme Moheli looks good.

# 56  How to test Linux performance using sysbench ?

Install `sysbench` which is avaliable in all installation managers.

Use `>sysbench --help` for help. No man pages?

Then do

```
>sysbench cpu run
sysbench 1.0.20 (using system LuaJIT 2.0.5)


Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Prime numbers limit: 10000


Initializing worker threads...

Threads started!

CPU speed:
    events per second:  3983.04

General statistics:
    total time:                          10.0005s
    total number of events:              39839
```

```
Latency (ms):
           min:                                  0.23
           avg:                                  0.25
           max:                                 20.25
           95th percentile:                      0.26
           sum:                               9943.89

Threads fairness:
     events (avg/stddev):           39839.0000/0.00
     execution time (avg/stddev):   9.9439/0.00
```

And

```
>sysbench memory run
sysbench 1.0.20 (using system LuaJIT 2.0.5)

Running the test with following options:
Number of threads: 1
Initializing random number generator from current time


Running memory speed test with the following options:
  block size: 1KiB
  total size: 102400MiB
  operation: write
  scope: global

Initializing worker threads...

Threads started!

Total operations: 74842059 (7482566.83 per second)

73087.95 MiB transferred (7307.19 MiB/sec)


General statistics:
     total time:                      10.0013s
     total number of events:          74842059

Latency (ms):
           min:                                  0.00
           avg:                                  0.00
           max:                                 10.37
```

```
        95th percentile:                      0.00
        sum:                               4017.76

Threads fairness:
    events (avg/stddev):           74842059.0000/0.00
    execution time (avg/stddev):   4.0178/0.00
```

or

```
>sysbench --threads=5 memory run
sysbench 1.0.20 (using system LuaJIT 2.0.5)

Running the test with following options:
Number of threads: 5
Initializing random number generator from current time


Running memory speed test with the following options:
  block size: 1KiB
  total size: 102400MiB
  operation: write
  scope: global

Initializing worker threads...

Threads started!

Total operations: 89536061 (8944801.69 per second)

87437.56 MiB transferred (8735.16 MiB/sec)


General statistics:
    total time:                          10.0028s
    total number of events:              89536061

Latency (ms):
        min:                                  0.00
        avg:                                  0.00
        max:                                 46.68
        95th percentile:                      0.00
        sum:                              27564.97

Threads fairness:
```

```
    events (avg/stddev):           17907212.2000/1640514.61
    execution time (avg/stddev):   5.5130/0.11
```

or

```
>sysbench --threads=5 cpu run
sysbench 1.0.20 (using system LuaJIT 2.0.5)


Running the test with following options:
Number of threads: 5
Initializing random number generator from current time


Prime numbers limit: 10000


Initializing worker threads...

Threads started!

CPU speed:
    events per second:  6707.45

General statistics:
    total time:                     10.0036s
    total number of events:         67111

Latency (ms):
        min:                                 0.23
        avg:                                 0.74
        max:                                56.90
        95th percentile:                     2.22
        sum:                             49553.41

Threads fairness:
    events (avg/stddev):           13422.2000/856.28
    execution time (avg/stddev):   9.9107/0.03
```

And

```
>sysbench --threads=5 --file_test_mode="seqwr" fileio run
sysbench 1.0.20 (using system LuaJIT 2.0.5)


Running the test with following options:
Number of threads: 5
```

```
Initializing random number generator from current time


Extra file open flags: (none)
128 files, 16MiB each
2GiB total file size
Block size 16KiB
Periodic FSYNC enabled, calling fsync() each 100 requests.
Calling fsync() at the end of test, Enabled.
Using synchronous I/O mode
Doing sequential write (creation) test
Initializing worker threads...

Threads started!


File operations:
    reads/s:                    0.00
    writes/s:                   36.47
    fsyncs/s:                   101.22

Throughput:
    read, MiB/s:                0.00
    written, MiB/s:             0.57

General statistics:
    total time:                         10.1126s
    total number of events:             753

Latency (ms):
        min:                                    0.00
        avg:                                    66.82
        max:                                    655.80
        95th percentile:                        337.94
        sum:                                    50315.70

Threads fairness:
    events (avg/stddev):            150.6000/63.87
    execution time (avg/stddev):    10.0631/0.04
```

To use on windows go to `https://github.com/akopytov/sysbench` but need WSL to use.

The compiled tests are

```
ompiled-in tests:
```

```
fileio - File I/O test
cpu - CPU performance test
memory - Memory functions speed test
threads - Threads subsystem performance test
mutex - Mutex performance test
```

Reference `https://linuxconfig.org/how-to-benchmark-your-linux-system`

# 57  How to test Linux performance using geekbench ?

Installed geekbench on Linux Majoaro using the installation manager (from AUR).

Then did

```
>geekbench --help
Geekbench 5.4.5 Tryout : https://www.geekbench.com/

Usage:

  geekbench [ options ]

Options:

  -h, --help                print this message
  --unlock EMAIL KEY        unlock Geekbench using EMAIL and KEY


  --cpu                     run the CPU benchmark
  --sysinfo                 display system information and exit
[0911/024243:WARNING:src/halogen/cuda/cuda_library.cpp(1465)] Cannot find or load
    CUDA library.
[0911/024243:WARNING:src/halogen/cl/opencl_library.cpp(691)] Cannot find or load
   OpenCL library.
[0911/024243:WARNING:src/halogen/vulkan/vulkan_common.h(28)] VulkanException:
   vkCreateInstance(&info, nullptr, &instance) returned -9 (
   VK_ERROR_INCOMPATIBLE_DRIVER)

  If no options are given, the default action is to run the CPU benchmark.
```

To run the tests did

```
>geekbench --sysinfo
System Information
  Operating System          Manjaro Linux
  Kernel                    Linux 5.15.53-1-MANJARO x86_64
  Model                     innotek GmbH VirtualBox
```

```
   Motherboard                   Oracle Corporation VirtualBox
   BIOS                          innotek GmbH VirtualBox


Processor Information
   Name                          Intel Core i9-12900K
   Topology                      1 Processor, 6 Cores
   Identifier                    GenuineIntel Family 6 Model 151 Stepping 2
   Base Frequency                3.19 GHz
   L1 Instruction Cache          32.0 KB x 6
   L1 Data Cache                 48.0 KB x 6
   L2 Cache                      1.25 MB x 6
   L3 Cache                      30.0 MB x 6


Memory Information
   Size                          50.9 GB
```

Then now run the full test

```
>geekbench
Geekbench 5.4.5 Tryout : https://www.geekbench.com/


Geekbench 5 requires an active Internet connection when in tryout mode and
automatically uploads benchmark results to the Geekbench Browser.

Buy a Geekbench 5 license from the Primate Labs Store to enable offline use
and unlock other features:

   https://store.primatelabs.com/v5


Enter your Geekbench 5 license using the following command line:

   geekbench --unlock <email> <key>

   Running Gathering system information
System Information
   Operating System              Manjaro Linux
   Kernel                        Linux 5.15.53-1-MANJARO x86_64
   Model                         innotek GmbH VirtualBox
   Motherboard                   Oracle Corporation VirtualBox
   BIOS                          innotek GmbH VirtualBox


Processor Information
   Name                          Intel Core i9-12900K
   Topology                      1 Processor, 6 Cores
```

```
    Identifier                    GenuineIntel Family 6 Model 151 Stepping 2
    Base Frequency                3.19 GHz
    L1 Instruction Cache          32.0 KB x 6
    L1 Data Cache                 48.0 KB x 6
    L2 Cache                      1.25 MB x 6
    L3 Cache                      30.0 MB x 6

Memory Information
    Size                          50.9 GB


Single-Core
    Running AES-XTS
    Running Text Compression
    Running Image Compression
    Running Navigation
    Running HTML5
    Running SQLite
    Running PDF Rendering
    Running Text Rendering
    Running Clang
    Running Camera
    Running N-Body Physics
    Running Rigid Body Physics
    Running Gaussian Blur
    Running Face Detection
    Running Horizon Detection
    Running Image Inpainting
    Running HDR
    Running Ray Tracing
    Running Structure from Motion
    Running Speech Recognition
    Running Machine Learning

Multi-Core
    Running AES-XTS
    Running Text Compression
    Running Image Compression
    Running Navigation
    Running HTML5
    Running SQLite
    Running PDF Rendering
    Running Text Rendering
    Running Clang
```

```
    Running Camera
    Running N-Body Physics
    Running Rigid Body Physics
    Running Gaussian Blur
    Running Face Detection
    Running Horizon Detection
    Running Image Inpainting
    Running HDR
    Running Ray Tracing
    Running Structure from Motion
    Running Speech Recognition
    Running Machine Learning


Uploading results to the Geekbench Browser. This could take a minute or two
depending on the speed of your internet connection.

Upload succeeded. Visit the following link and view your results online:

  https://browser.geekbench.com/v5/cpu/17190798

Visit the following link and add this result to your profile:

  https://browser.geekbench.com/v5/cpu/17190798/claim?key=464173
```

The result is
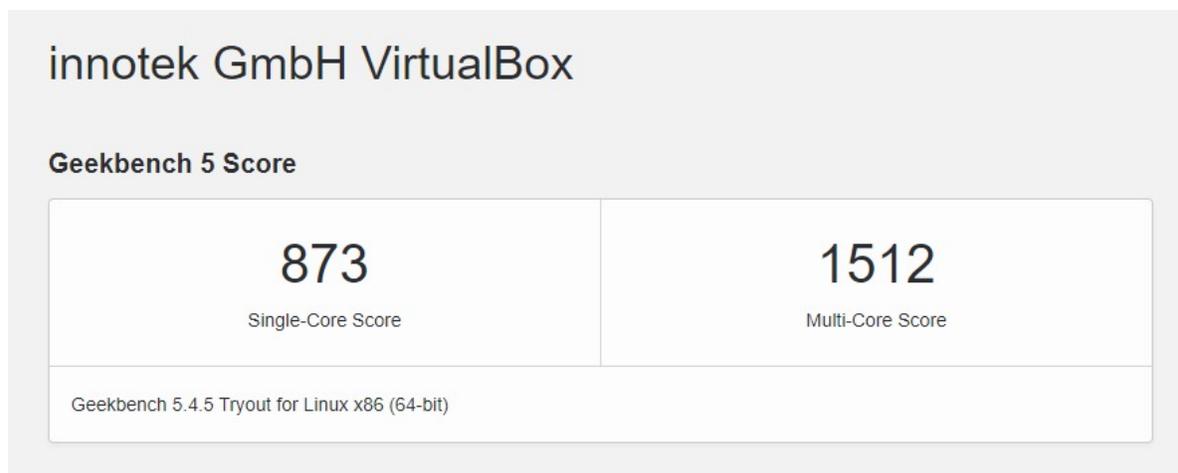


Figure 1: Benchmarks before disabling hyper V

The above was run on Virtual box. It shows it is slow peformance. So I disabled Hyper-V on windows 10. Using instructions given in `https://www.wintips.org/fix-virtualbox-run`

ning-very-slow-in-windows-10-11/ (make sure to follow all instructions, include issuing the command line and rebooting windows).

In addition to the above, I made sure in VBox setting to use KVM for virtualization. See https://superuser.com/questions/945910/how-to-select-paravirtualization-inte rface-in-virtualbox

The peformance now is much better.
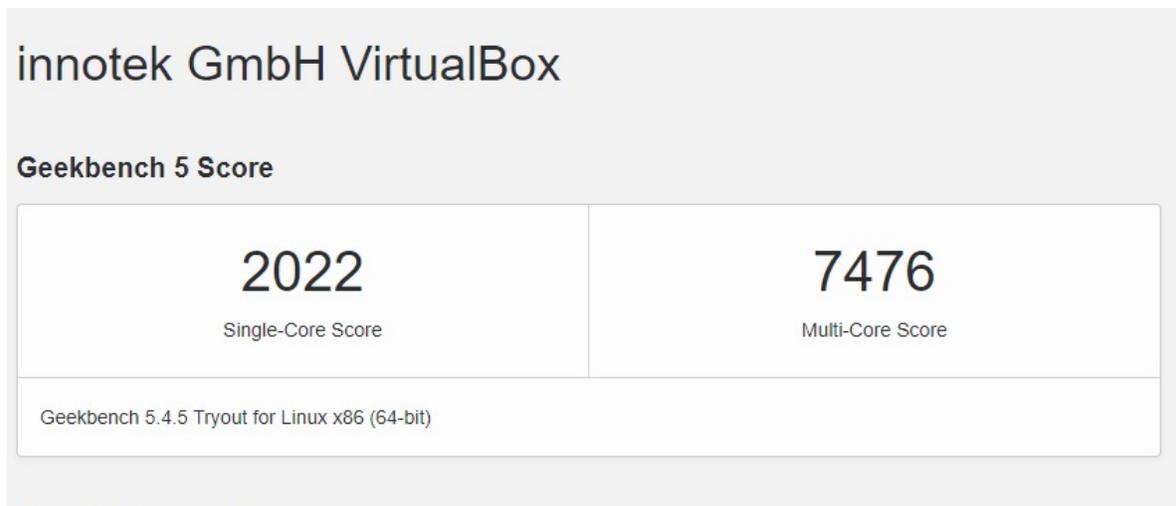


Figure 2: Benchmarks after disabling hyper V

# 58    How to stop window to snap/expand automatically when top edge hit the top of the desktop ?

This is the most stupid and annoying feature in Linux desktop and impossible to find how to turn it off. Googling around, this worked

```
xfconf-query -c xfwm4 -p /general/tile_on_move -s false
```

No wonder Linux will never ever make it on the desktop.

# 59    How to find line number which is longest in file?

```
awk '{ print length(), NR | "sort -rn" }' index.tex | head -n 1
```

This prints 2 numbers on the screen. The first number is the actual length and the second number is the line number itself in the file.

Thanks to Attila O. https://askubuntu.com/questions/375832/how-to-get-longest-line-from-a-file

# 60   How to change line in all files in tree?

Suppose we wanted to replace text in any line in files in some tree.

Do

```
#!/bin/bash

cd $HOME/my_tree

find . -name "fricas_listA.txt"|while read fname; do
  echo "processing $fname"
  sed -i 's/algorithm="fricas"/algorithm=""fricas""/g'  $fname
done
```

The above replaces `algorithm="fricas"` by `algorithm=""fricas""` everywhere in all files called `fricas_listA.txt` in the tree. To apply this to all text file, replace `-name "fricas_listA.txt"` by `-name "*.txt"`

# 61   How to delete lines in all files in tree that contain some specific text?

Suppose we wanted to delete all lines that has some word, say `window` in them.

Do

```
#!/bin/bash

cd $HOME/my_tree

find . -name "*.txt"|while read fname; do
  echo "processing $fname"
  sed -i '/windows/d' $fname
done
```

# 62 How to remove some text from a line (but not delete the whole line)

Suppose we wanted to delete only the word `window` from any line.

Do

```bash
#!/bin/bash

cd $HOME/my_tree

find . -name "*.txt"|while read fname; do
  echo "processing $fname"
  sed -i 's/windows//g' $fname
done
```

# 63 How to make window automatically resize in virtual box?

If the linux distro does not automatically resize the virtual box window when you resize it by hand, try this command

```
sudo VBoxClient --display
```

This worked for me on EOS using xfce4 window manager, where I found the windows does not resize. Strange since guess editions seems to work, as I am able to copy/paste from windows to linux and vis versa. It is only the terminal was not resizing.

# 64 How to install Linux on its own PC?

These are notes I made when installing Linux EOS/Arch on its own PC.

to install brave browser on EOS/arch do

```
curl -fsS https://dl.brave.com/install.sh | sh
```

To install pacman GUI manager

```
sudo pacman -Syu
yay -S pamac-aur
```

To mount windows NTFS drive to linux, do

```
sudo mkdir /mnt/g
```

now mount it, make sure to use same uid and gid as id shows there is no need to change owner on g above, which is owned by root as the mount command below will automatically changed it to user also

```
>id
uid=1000(me) gid=1001(me) groups=1001(me),3(sys),981(rfkill),998(wheel),1000(
    autologin)
```

Now do

```
>sudo mount -t ntfs-3g -o uid=1000,gid=1001 /dev/sdb1 /mnt/g


#or


sudo mount -t ntfs-3g -o uid=1000,gid=1001 /dev/sdc1 /mnt/g
```

Make sure to do **/dev/sdb1** and not just **/dev/sdb** which is what `fdisk -l` shows. i.e. add 1 at end.

```
sudo fdisk -l
```

You see, all files are now owned by me

```
ls -l /mnt/g
total 16
drwxrwxrwx 1 me me    0 Jul 14  2020 '$RECYCLE.BIN'
drwxrwxrwx 1 me me    0 Apr 14  2022  nabbasi
drwxrwxrwx 1 me me 8192 Apr 15  2022  public_html
drwxrwxrwx 1 me me    0 Mar 20  2021 'System Volume Information'
drwxrwxrwx 1 me me    0 May 16  2021  Users
```

To unmount do

```
sudo umount /mnt/g
```

If you get this error

```
>sudo mount -t ntfs-3g -o uid=1000,gid=1001 /dev/sdc1 /mnt/g
The disk contains an unclean file system (0, 0).
Metadata kept in Windows cache, refused to mount.
Falling back to read-only mount because the NTFS partition is in an
unsafe state. Please resume and shutdown Windows fully (no hibernation
or fast restarting.)
Could not mount read-write, trying read-only
```

Then do this

```
>sudo umount /mnt/g
```

```
>sudo ntfsfix /dev/sdc1
Mounting volume... The disk contains an unclean file system (0, 0).
Metadata kept in Windows cache, refused to mount.
FAILED
Attempting to correct errors...
Processing $MFT and $MFTMirr...
Reading $MFT... OK
Reading $MFTMirr... OK
Comparing $MFTMirr to $MFT... OK
Processing of $MFT and $MFTMirr completed successfully.
Setting required flags on partition... OK
Going to empty the journal ($LogFile)... OK
Checking the alternate boot sector... OK
NTFS volume version is 3.1.
NTFS partition /dev/sdc1 was processed successfully.
>
```

Now it mount OK

```
>sudo mount -t ntfs-3g -o uid=1000,gid=1001 /dev/sdc1 /mnt/g
>
```

to install bootles

```
sudo pacman -Syu flatpak

flatpak install bottles
```

# 65   How to make tar.gz and how to extract it?

To make a folder, say `foo/` to `foo.tar.gz` do

```
tar -czf foo.tar.gz foo/
```

And to extract it do

```
tar -xzf foo.tar.gz
```

For faster operations and to see progress do this. To make `.tar.gz`

```
tar cf - folder_name/ | pv | pigz > folder_name.tar.gz
```

To extract do

```
pigz -dc folder_name.tar.gz | pv | tar xf -
```

If `pv` is not installed, just remove this option from above.

pigz should be in the system. If not then do `sudo pacman -Sy pigz`

# 66   How to find size of folder?

```
du -sh current_version/
```

Gives

```
27G     current_version/
```

The options `-sh` is to make it show summary

# 67   How to use rsync to backup my system

I had USB drive. These are the steps to use to back up all my `/home/me` to the disk.

First I formatted the disk. Use `lsblk` command to find the disk, then did

```
>sudo mkfs.ext4 /dev/sda1


[sudo] password for me:
mke2fs 1.47.3 (8-Jul-2025)
/dev/sda1 contains a ntfs file system labelled 'WD_BLACK'
Proceed anyway? (y,N) y
Creating filesystem with 1953506048 4k blocks and 244191232 inodes
Filesystem UUID: c86d2d6a-6f9a-4b82-8f12-e1f5606c0cea
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968,
        102400000, 214990848, 512000000, 550731776, 644972544, 1934917632


Allocating group tables: done
Writing inode tables: done
Creating journal (262144 blocks): done
Writing superblocks and filesystem accounting information: done



#this is the command to mount
sudo mount /dev/sda1 /mnt/usb

#do this below ONLY very first time. This will make the backup owned by me
#do not need to do this after first time.
#and not root
cd /mnt
sudo chown -hR me:me usb
```

```
>mkdir /mnt/usb/home
>mkdir /mnt/usb/home/me



#this is the command for backup

>rsync -aXAH --delete --info=progress2 --no-i-r  /home/me/ /mnt/usb/home/me
    218,080,111   0%   71.46MB/s     0:00:02 (xfr#2363, to-chk=20132874/20181006)
file has vanished: "/home/me/.config/BraveSoftware/Brave-Browser/Default/Sessions
    /Session_13397846758118404"
    310,456,164   0%  783.36kB/s     0:06:26 (xfr#2690, to-chk=0/20181006)
rsync warning: some files vanished before they could be transferred (code 24) at
    main.c(1338) [sender=3.4.1]

#anytime want to make backup, now just issue the above again.
```

So anytime to back all my **/home/me** just do the above command. Make sure to mount the usb disk after rebooting.

# 68    How to extrat first page of pdf file?

```
pdftk file.pdf  cat 1 output title.pdf
```

# 69    How to remove snapd from Linux?

```
snap list
snap remove my-snap-name
sudo pacman -Rns snapd
sudo rm -rf /var/snap
sudo rm -rf /snap
sudo rm -rf /var/lib/snapd
```

# 70  How to kill brave when it hangs?

```
killall -9 brave
```

# 71  How to install xampp on Arch based?

```
sudo pacman -Syu
paru -S xampp
```

# 72  How to mount ntfs disk on linux?

```
sudo mount -t ntfs /dev/sda1 /mnt/usb/
```

# 73  How to find all disks?

```
sudo lsblk
```

# 74  How to format disk to ext4?

```
>sudo mkfs.ext4 /dev/nvme0n1p1

mke2fs 1.47.3 (8-Jul-2025)
Discarding device blocks: done
Creating filesystem with 976754176 4k blocks and 244195328 inodes
Filesystem UUID: 1547035d-ee34-4cec-9ba8-53bb8ba548eb
Superblock backups stored on blocks:
        32768, 98304, 163840, 229376, 294912, 819200, 884736, 1605632, 2654208,
        4096000, 7962624, 11239424, 20480000, 23887872, 71663616, 78675968,
        102400000, 214990848, 512000000, 550731776, 644972544

Allocating group tables: done
Writing inode tables: done
Creating journal (262144 blocks): done
Writing superblocks and filesystem accounting information: done
```

# 75 How to add disk to linux and make it mount automatically each time?

I have 2 separate SSD drives for data and one SSD for system. The system had two partitions /dev/nvme1n1p2 and /dev/nvme1n1p1 and the other 2 disks are /dev/nvme0n1p1 and /dev/nvme2n1p1

```
>lsblk
NAME          MAJ:MIN RM  SIZE RO TYPE MOUNTPOINTS
sda             8:0    0  7.3T  0 disk
sda1            8:1    0  7.3T  0 part /mnt/usb
zram0         253:0    0   92G  0 disk [SWAP]
nvme1n1       259:0    0  3.6T  0 disk
nvme1n1p1 259:1    0  300M  0 part /boot/efi
nvme1n1p2 259:2    0  3.6T  0 part /home
                                     /var/cache
                                     /var/log
                                     /var/tmp
                                     /srv
                                     /root
                                     /
nvme0n1       259:3    0  3.6T  0 disk
nvme0n1p1 259:6    0  3.6T  0 part
nvme2n1       259:4    0  3.6T  0 disk
nvme2n1p1 259:7    0  3.6T  0 part
```

First find the disks UUID

```
>sudo blkid
[sudo] password for me:
/dev/nvme0n1p1: UUID="1547035d-ee34-4cec-9ba8-53bb8ba548eb" BLOCK_SIZE="4096"
    TYPE="ext4" PARTLABEL="primary" PARTUUID="43a9df89-2975-4ae5-ac97-0549415fab33
    "
/dev/nvme2n1p1: UUID="880c669a-8fdf-4c97-a24c-3324fbd628eb" BLOCK_SIZE="4096"
    TYPE="ext4" PARTLABEL="primary" PARTUUID="aa4e4716-52a7-4cbc-b7fb-fe383de7716a
    "

/dev/nvme1n1p2: UUID="5e30d7e8-0996-4b55-98a7-e9aedc9bd208" UUID_SUB="5f3f4605-5
    f3d-4648-b2c8-165f7e3976c1" BLOCK_SIZE="4096" TYPE="btrfs" PARTLABEL="root"
    PARTUUID="77473a50-46da-4e13-8016-cb88ede5ea6e"
/dev/nvme1n1p1: UUID="35DB-43D7" BLOCK_SIZE="512" TYPE="vfat" PARTUUID="d51f9313
    -706d-476b-ae3f-b877ff7347de"
```

Now edit `etc/fstab` as root and add entry for the other two disks so they are mounted auto-

matically. I mounted one disk at `/home/me/public_html` and the second disk to `/home/me/nabbasi`.
Created these folders first.

```
# /etc/fstab: static file system information.
# <file system>              <mount point>  <type>  <options>  <dump>  <pass>
UUID=1547035d-ee34-4cec-9ba8-53bb8ba548eb  /home/me/public_html ext4  defaults  0
     0
UUID=880c669a-8fdf-4c97-a24c-3324fbd628eb /home/me/nabbasi  ext4   defaults  0 0
```

Make sure to do `sudo chown -hR me:me /home/me/public_html` and `sudo chown -hR me:me /home/me/`
first time. Need to do this one time only so these folder are not owned by root.

Now when rebooting, these two disk will automatically be mounted.

# 76    How to handle error VirtualBox can't enable the AMD-V extension?

July 19, 2025

on linux, was trying to start virtual box windows 10, and got the error "VirtualBox can't enable the AMD-V extension. Please disable the KVM kernel extension".

The fix is to do

```
sudo modprobe -r kvm_amd kvm
```

# 77    How to use X applications on wayland desktop on arch based Linux?

As of June 2025, X is no longer installed by default. logging out and trying to select X as desktop instead of wayland does not work since this choice is not there.

To install it do

```
sudo pacman -Syu plasma-x11-session
```

Now logout and on the login screen the choice of X11 plasma will be there in the small menu on the lower corner of the screen.

I needed to run on X11, since the appliation peek, which captures animation gif file from screen only works on X11. And all others I tried that do not need X11, were not good at all. On windows I used to use LICEcap for making animation gif files. But this is not available on Linux.