

my Unix/Gnu Linux cheat sheat

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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-arguments-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 already 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 recursive 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 recursive tree search for string in files with specific extension

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

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

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

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

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

10 recursive 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

```
#!/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

```
#!/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 output 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-dimensions-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?

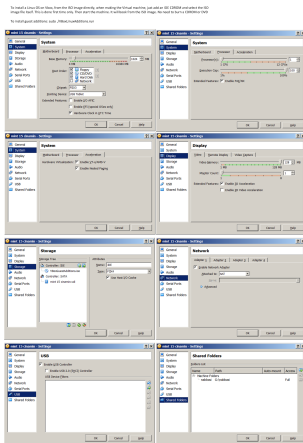
Thanks to <http://www.turnkeylinux.org/blog/png-vs-jpg>

```
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/public_html
>ls -l /media
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 nwindner` 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
    //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 `unlmt -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/questions/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/2709458/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-newline-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://stackoverflow.com/questions/34469075/bulk-file-renaming-in-bash-to-remove-name-with-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

```
#!/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

#to delete
$ find /path/to/source -type d -name 'rules' -exec find '{}' -mindepth 1 -maxdepth 1 -type f
```

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_b
```

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 Linux 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
```

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 gaming 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 bench mark for xfce4 linux endouavour os, score is 2823

<https://browser.geekbench.com/v6/cpu/8904701> is geek bench 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 Dala. 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 vboxusers group

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

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 drive G

47 How to find files on linux?

sudo updatedb then locate file_name can also use find but locate is faster.

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 CUPS 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.floriancargoeet.com/slow-down-or-speed-up-a-gif-with-imagemagick/>

`identify -verbose your.gif` `grep Delay|` give current delay between each frame in 100'th of second. So if 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 between 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 -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 available 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

ompile-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 libra
[0911/024243:WARNING:src/halogen/cl/opencl_library.cpp(691)] Cannot find or load OpenCL libr
[0911/024243:WARNING:src/halogen/vulkan/vulkan_common.h(28)] VulkanException: vkCreateInstan

  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

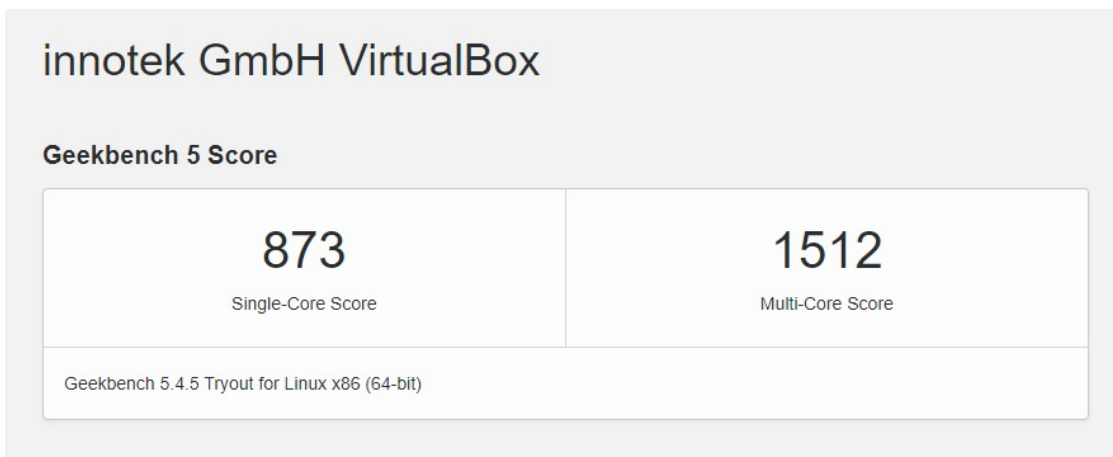


Figure 1: Benchmarks before disabling hyper V

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

The performance now is much better.

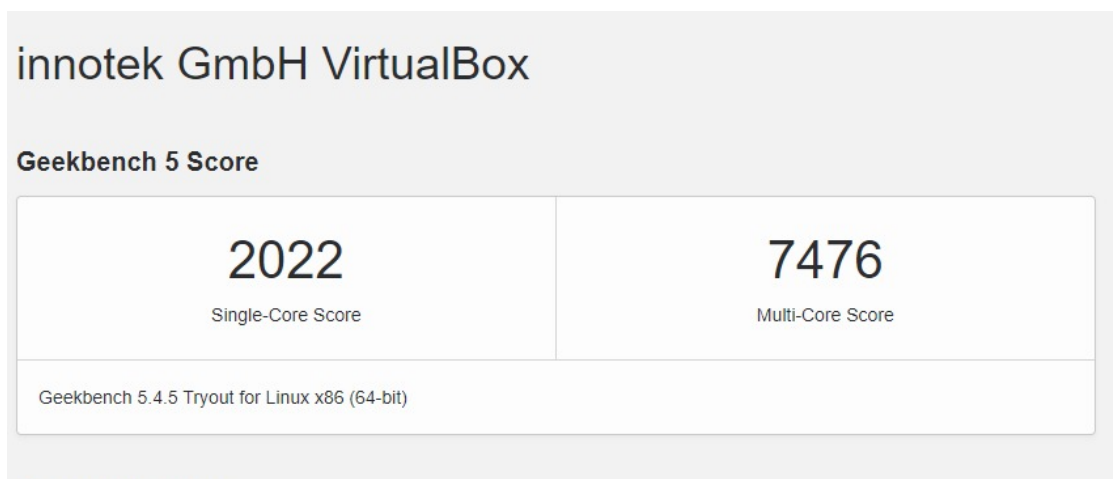


Figure 2: Benchmarks after disabling hyper V

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

```
#!/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
```

66 How to find size of folder?

```
du -sh current_version/
```

Gives

```
27G    current_version/
```

The options -sh is to make it show summary