

WEEK 1 – Project

Command to check linux distribution name & version of OS : `lsb_release -a`

```
vboxuser@Raak:~$ lsb_release -a
No LSB modules are available.
Distributor ID: Ubuntu
Description:    Ubuntu 24.04.3 LTS
Release:        24.04
Codename:       noble
vboxuser@Raak:~$
```

File and directories :

```
vboxuser@Raak:~$ mkdir devops_project
vboxuser@Raak:~$ cd devops_project
vboxuser@Raak:~/devops_project$ touch plan.txt network_report.txt
vboxuser@Raak:~/devops_project$ cp/devops_project/plan.txt/tmp
bash: cp/devops_project/plan.txt/tmp: No such file or directory
vboxuser@Raak:~/devops_project$ cp plan.txt /tmp/
vboxuser@Raak:~/devops_project$ ls
network_report.txt  plan.txt
vboxuser@Raak:~/devops_project$ ls tmp
ls: cannot access 'tmp': No such file or directory
vboxuser@Raak:~/devops_project$ ls /tmp
plan.txt
snap-private-tmp
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-colord.service-aJQDdg
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-fwupd.service-g0JUoJ
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-ModemManager.service-VW7jLM
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-polkit.service-o6cLAa
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-power-profiles-daemon.service-uxhqsg
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-switcheroo-control.service-mzA4Ai
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-systemd-logind.service-nlRT55
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-systemd-oomd.service-sgvdRJ
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-systemd-resolved.service-tN0vP0
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-systemd-timesyncd.service-58FMbU
systemd-private-25bb1f089b344a8d90c07236dbbf9ab7-upower.service-VszsFS
vboxuser@Raak:~/devops_project$ rm plan.txt
vboxuser@Raak:~/devops_project$ ls
network_report.txt
vboxuser@Raak:~/devops_project$
```

Files & Permissions :

```
vboxuser@Raak:~/devops_project$ cd ..
vboxuser@Raak:~$ sudo useradd devstudent
[sudo] password for vboxuser:
vboxuser@Raak:~$ sudo groupadd devops_team
vboxuser@Raak:~$ sudo usermod -aG devops_team devstudent
vboxuser@Raak:~$ touch secrets.txt
vboxuser@Raak:~$ sudo chown devstudent:devops_team secrets.txt
vboxuser@Raak:~$ sudo chmod 600 secrets.txt
vboxuser@Raak:~$ ls -l secrets.txt
-rw----- 1 devstudent devops_team 0 Nov 14 11:21 secrets.txt
vboxuser@Raak:~$
```

File compression :

```
vboxuser@Raak:~$ wget https://google.com/index.html
--2025-11-14 11:27:06-- https://google.com/index.html
Resolving google.com (google.com)... 142.251.43.46, 2404:6800:4007:834::200e
Connecting to google.com (google.com)|142.251.43.46|:443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://www.google.com/index.html [following]
--2025-11-14 11:27:07-- https://www.google.com/index.html
Resolving www.google.com (www.google.com)... 142.250.77.132, 2404:6800:4007:80f::2004
Connecting to www.google.com (www.google.com)|142.250.77.132|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html'

index.html                                [ <=> ] 1

2025-11-14 11:27:08 (38.2 MB/s) - 'index.html' saved [19838]

vboxuser@Raak:~$ ls
Desktop      Documents  index.html  Music      Pictures  secrets.txt  snap      Vide
devops_project Downloads  malls      new_devops Public     shopping    Templates
vboxuser@Raak:~$ gzip index.html
vboxuser@Raak:~$ ls
Desktop      Documents  index.html.gz  Music      Pictures  secrets.txt  snap      V
devops_project Downloads  malls          new_devops Public     shopping    Templates
```

Package management:

```
vboxuser@Raak:~$ sudo apt install curl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
curl is already the newest version (8.5.0-2ubuntu10.6).
0 upgraded, 0 newly installed, 0 to remove and 81 not upgraded.
vboxuser@Raak:~$ sudo apt install htop
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Suggested packages:
  lm-sensors
The following NEW packages will be installed:
  htop
0 upgraded, 1 newly installed, 0 to remove and 81 not upgraded.
Need to get 171 kB of archives.
After this operation, 434 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu noble/main amd64 htop amd64 3.3.0-4build1 [171
Fetched 171 kB in 2s (109 kB/s)
Selecting previously unselected package htop.
(Reading database ... 150446 files and directories currently installed.)
Preparing to unpack .../htop_3.3.0-4build1_amd64.deb ...
Unpacking htop (3.3.0-4build1) ...
Setting up htop (3.3.0-4build1) ...
Processing triggers for desktop-file-utils (0.27-2build1) ...
Processing triggers for hicolor-icon-theme (0.17-2) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu3) ...
Processing triggers for man-db (2.12.0-4build2) ...
vboxuser@Raak:~$ sudo apt install net-tools
Reading package lists... Done
Building dependency tree... Done
```

Which and Versions :

```
vboxuser@Raak:~$ which curl
/usr/bin/curl
vboxuser@Raak:~$ curl --version
curl 8.5.0 (x86_64-pc-linux-gnu) libcurl/8.5.0 OpenSSL/3.0.13 zlib/1.3 brotli/1.1.0 zstd/1.5.2 (+libidn2/2.3.7) libssh/0.10.6/openssl/zlib nghttp2/1.59.0 librtmp/2.3 OpenLDAP/2.6.7
Release-Date: 2023-12-06, security patched: 8.5.0-2ubuntu10.6
Protocols: dict file ftp ftps gopher gophers http https imap imaps ldap ldaps mqtt pop3 p
s smtp smtps telnet tftp
Features: alt-svc AsynchDNS brotli GSS-API HSTS HTTP2 HTTPS-proxy IDN IPv6 Kerberos Large
hreadsafe TLS-SRP UnixSockets zstd
vboxuser@Raak:~$ which htop
/usr/bin/htop
vboxuser@Raak:~$ htop --version
htop 3.3.0
vboxuser@Raak:~$ which ifconfig
/usr/sbin/ifconfig
vboxuser@Raak:~$ ifconfig --version
net-tools 2.10
vboxuser@Raak:~$
```

Networking Commands :

1. Ifconfig : Displays IP address, MAC address , UP or DOWN status

```
vboxuser@Raak:~$ 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
    inet6 fd17:625c:f037:2:5642:1052:1a9f:9337 prefixlen 64 scopeid 0x0<global>
    inet6 fd17:625c:f037:2:a00:27ff:feef:a77e prefixlen 64 scopeid 0x0<global>
    inet6 fe80::a00:27ff:feef:a77e prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:ef:a7:7e txqueuelen 1000 (Ethernet)
    RX packets 3907 bytes 5275341 (5.2 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1627 bytes 138819 (138.8 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 263 bytes 25290 (25.2 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 263 bytes 25290 (25.2 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

vboxuser@Raak:~$
```

2. ping google.com -c4 : To check the connectivity by transmitting 4 packets. This command indicates packets transmitted, received and packet loss

```
vboxuser@Raak:~$ ping google -c4
ping: google: Temporary failure in name resolution
vboxuser@Raak:~$ ping google.com -c4
PING google.com (142.251.43.46) 56(84) bytes of data.
64 bytes from pnmaaa-av-in-f14.1e100.net (142.251.43.46): icmp_seq=1 ttl=255 time=229 ms
64 bytes from pnmaaa-av-in-f14.1e100.net (142.251.43.46): icmp_seq=2 ttl=255 time=7.31 ms
64 bytes from pnmaaa-av-in-f14.1e100.net (142.251.43.46): icmp_seq=3 ttl=255 time=4.99 ms
64 bytes from pnmaaa-av-in-f14.1e100.net (142.251.43.46): icmp_seq=4 ttl=255 time=5.25 ms
```

3. Traceroute : It is used to deduct network paths and connectivity issues.

```
vboxuser@Raak:~$ traceroute google.com
Command 'traceroute' not found, but can be installed with:
sudo apt install inetutils-traceroute # version 2:2.4-3ubuntu1, or
sudo apt install traceroute          # version 1:2.1.5-1
```

4. Nslookup : To know the IP address of a browser. i.e, converts domain name into IP address

```
vboxuser@Raak:~$ nslookup google.com
Server:          127.0.0.53
Address:         127.0.0.53#53

Non-authoritative answer:
Name:   google.com
Address: 142.251.43.46
Name:   google.com
Address: 2404:6800:4007:834::200e
```