

Files and Directories:

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Nov 16 16:40
deepan@deep: /tmp

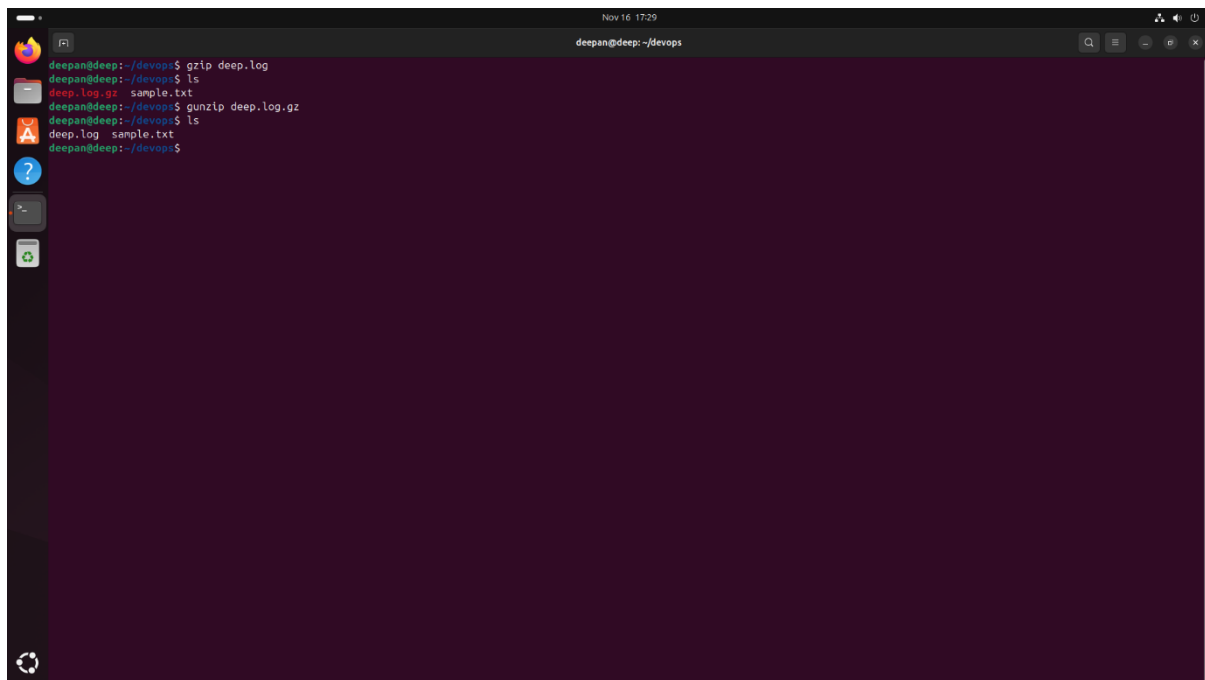
deepan@deep:/$ cd /home
deepan@deep:/home$ sudo mkdir devops_project
deepan@deep:/home$ cd devops_project
deepan@deep:/home/devops_project$ sudo touch plan.txt
deepan@deep:/home/devops_project$ sudo touch network_report.txt
deepan@deep:/home/devops_project$ ls
network_report.txt  plan.txt
deepan@deep:/home/devops_project$ cp plan.txt /tmp
deepan@deep:/home/devops_project$ sudo rm plan.txt
deepan@deep:/home/devops_project$ ls
network_report.txt
deepan@deep:/home/devops_project$ cd ..
deepan@deep:/home$ cd ..
deepan@deep:/$ cd /tmp
deepan@deep:/tmp$ ls
plan.txt
snap-private-tmp
systemd-private-8df7b95c80554eaaa957106875bd7573-colord.service-ezmaqH
systemd-private-8df7b95c80554eaaa957106875bd7573-ModemManager.service-rNS7kq
systemd-private-8df7b95c80554eaaa957106875bd7573-polkit.service-04Gik3
systemd-private-8df7b95c80554eaaa957106875bd7573-power-profiles-daemon.service-P6PJRH
systemd-private-8df7b95c80554eaaa957106875bd7573-switcheroo-control.service-0mjyDW
systemd-private-8df7b95c80554eaaa957106875bd7573-systemd-logind.service-HnrV0u
systemd-private-8df7b95c80554eaaa957106875bd7573-systemd-oomd.service-j4gvvL
systemd-private-8df7b95c80554eaaa957106875bd7573-systemd-resolved.service-tAeGhi
systemd-private-8df7b95c80554eaaa957106875bd7573-systemd-timesyncd.service-c6XaZ4
systemd-private-8df7b95c80554eaaa957106875bd7573-ubuntu-advantage-desktop-daemon.service-S8d82I
systemd-private-8df7b95c80554eaaa957106875bd7573-upower.service-5nY1Et
deepan@deep:/tmp$
```

Users & Permissions:

```
Nov 16 18:16
deepan@deep: ~/devops

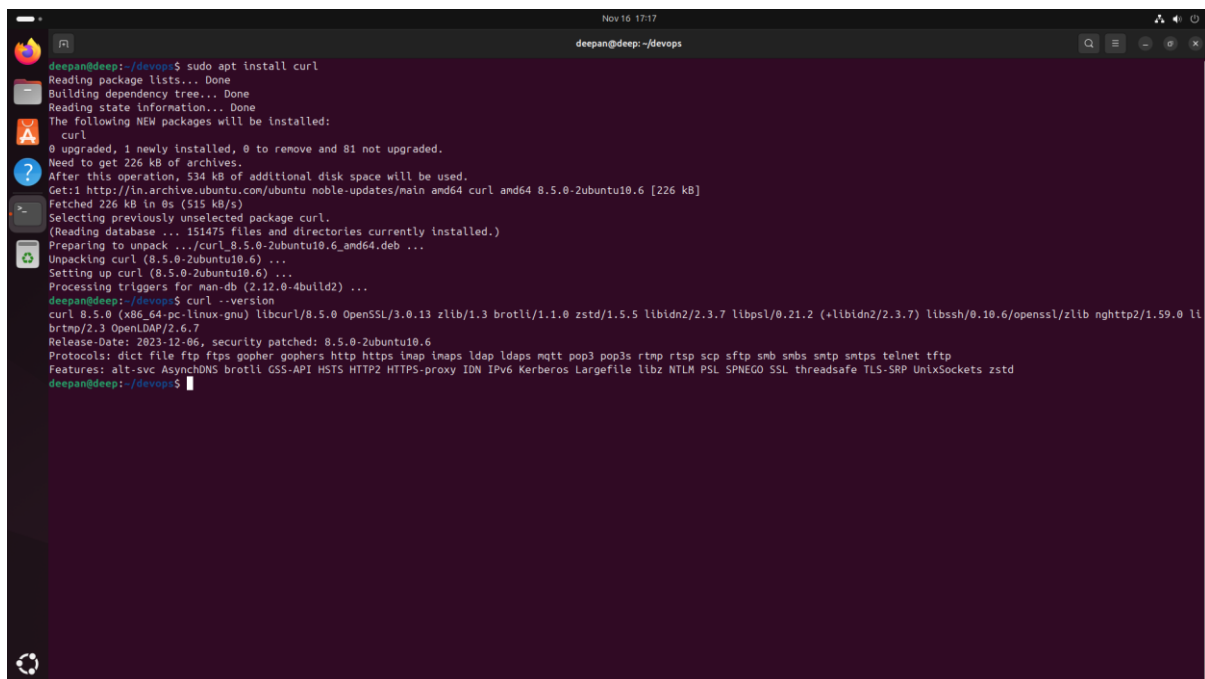
deepan@deep:~/devops$ sudo adduser devstudent
info: Adding user 'devstudent' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'devstudent' (1001) ...
info: Adding new user 'devstudent' (1001) with group 'devstudent (1001)' ...
warn: The home directory '/home/devstudent' already exists. Not touching this directory.
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for devstudent
Enter the new value, or press ENTER for the default
  Full Name []:
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
Is the information correct? [Y/n] y
info: Adding new user 'devstudent' to supplemental / extra groups 'users' ...
info: Adding user 'devstudent' to group 'users' ...
deepan@deep:~/devops$ sudo addgroup devops_team
info: Selecting GID from range 1000 to 59999 ...
info: Adding group 'devops_team' (GID 1002) ...
deepan@deep:~/devops$ sudo usermod -s /devops_team devstudent
deepan@deep:~/devops$ groups devstudent
devstudent : devstudent users devops_team
deepan@deep:~/devops$ sudo touch secrets.txt
deepan@deep:~/devops$ sudo chown devstudent:devstudent secrets.txt
deepan@deep:~/devops$ ls
deep.log  sample.txt  secrets.txt
deepan@deep:~/devops$ cat secrets.txt
cat: secrets.txt: Permission denied
deepan@deep:~/devops$
```

File Compression:



```
Nov 16 17:29
deepan@deep: ~/devops
deepan@deep:~/devops$ gzip deep.log
deepan@deep:~/devops$ ls
deep.log.gz  sample.txt
deepan@deep:~/devops$ gunzip deep.log.gz
deepan@deep:~/devops$ ls
deep.log  sample.txt
deepan@deep:~/devops$
```

Package Management:

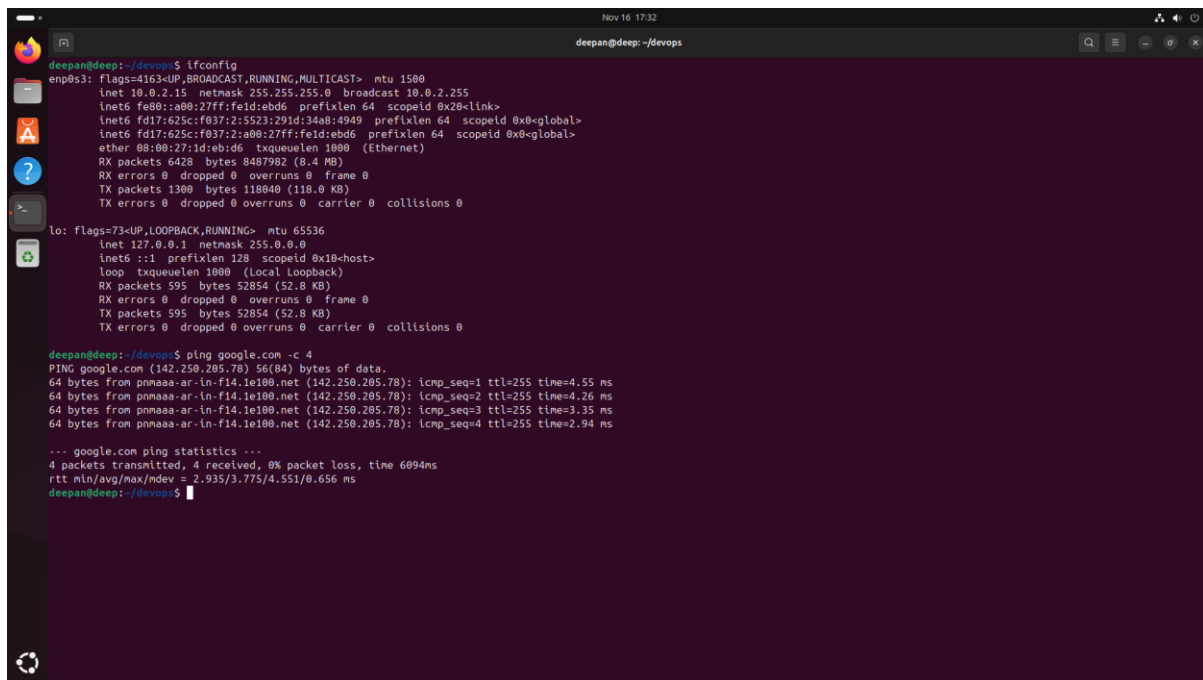


```
Nov 16 17:17
deepan@deep: ~/devops
deepan@deep:~/devops$ sudo apt install curl
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  curl
0 upgraded, 1 newly installed, 0 to remove and 81 not upgraded.
Need to get 226 kB of archives.
After this operation, 534 kB of additional disk space will be used.
Get:1 https://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0-2ubuntu10.6 [226 kB]
Fetched 226 kB in 0s (515 kB/s)
Selecting previously unselected package curl.
(Reading database ... 151475 files and directories currently installed.)
Preparing to unpack .../curl_8.5.0-2ubuntu10.6_and64.deb ...
Unpacking curl (8.5.0-2ubuntu10.6) ...
Setting up curl (8.5.0-2ubuntu10.6) ...
Processing triggers for man-db (2.12.0-4build2) ...
deepan@deep:~/devops$ 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/1.5.5 libidn2/2.3.7 libpsl/0.21.2 (+libidn2/2.3.7) libssh/0.10.6/openssl/zlib nghttp2/1.59.0 ll
brtmp/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 pop3s rtsp scp sftp smb smbs smtp smtps telnet tftp
Features: alt-svc AsynchDNS brotli GSS-API HSTS HTTP2 HTTPS-proxy IDN IPV6 Kerberos Largefile libz NTLM PSL SPNEGO SSL threadsafe TLS-SRP UnixSockets zstd
deepan@deep:~/devops$
```

```
Nov 16 17:20
deepan@deep: ~/devops
deepan@deep:~/devops$ 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, 484 kB of additional disk space will be used.
Get:1 https://in.archive.ubuntu.com/ubuntu noble/main amd64 htop amd64 3.3.0-4build1 [171 kB]
Fetched 171 kB in 0s (372 kB/s)
Selecting previously unselected package htop.
(Reading database ... 151482 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) ...
deepan@deep:~/devops$ htop --version
htop 3.3.0
deepan@deep:~/devops$
```

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Nov 16 17:21
deepan@deep: ~/devops
deepan@deep:~/devops$ sudo apt install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  net-tools
0 upgraded, 1 newly installed, 0 to remove and 81 not upgraded.
Need to get 204 kB of archives.
After this operation, 811 kB of additional disk space will be used.
Get:1 https://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 net-tools amd64 2.10-0.1ubuntu4.4 [204 kB]
Fetched 204 kB in 0s (539 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 151492 files and directories currently installed.)
Preparing to unpack .../net-tools_2.10-0.1ubuntu4.4_amd64.deb ...
Unpacking net-tools (2.10-0.1ubuntu4.4) ...
Setting up net-tools (2.10-0.1ubuntu4.4) ...
Processing triggers for man-db (2.12.0-4build2) ...
deepan@deep:~/devops$ apt show net-tools
Package: net-tools
Version: 2.10-0.1ubuntu4.4
Priority: optional
Section: net
Origin: Ubuntu
Maintainer: Ubuntu Developers <ubuntu-devel-discuss@lists.ubuntu.com>
Original-Maintainer: net-tools Team <team+net-tools@tracker.debian.org>
Bugs: https://bugs.launchpad.net/ubuntu/+filebug
Installed-Size: 811 kB
Depends: libc6 (>= 2.38), libselinux1 (>= 3.1-)
Homepage: http://sourceforge.net/projects/net-tools/
Task: ubuntu-kylin-desktop, ubuntu-kylin-desktop, ubuntu-kylin-desktop-minimal
Download-Size: 204 kB
APT-Manual-Installed: yes
APT-Sources: http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages
Description: NET-3 networking toolkit
 This package includes the important tools for controlling the network
 subsystem of the Linux kernel. This includes arp, ifconfig, netstat,
 rarp, nameif and route. Additionally, this package contains utilities
 relating to particular network hardware types (plipconfig, slattach,
 nli-tool) and advanced aspects of IP configuration (iptunnel, ipnaddr).
 .
 In the upstream package 'hostname' and friends are included. Those are
 not installed by this package, since there is a special 'hostname'.deb.
N: There is 1 additional record. Please use the '-a' switch to see it
deepan@deep:~/devops$
```

Run and shortly explain outputs of the following commands:



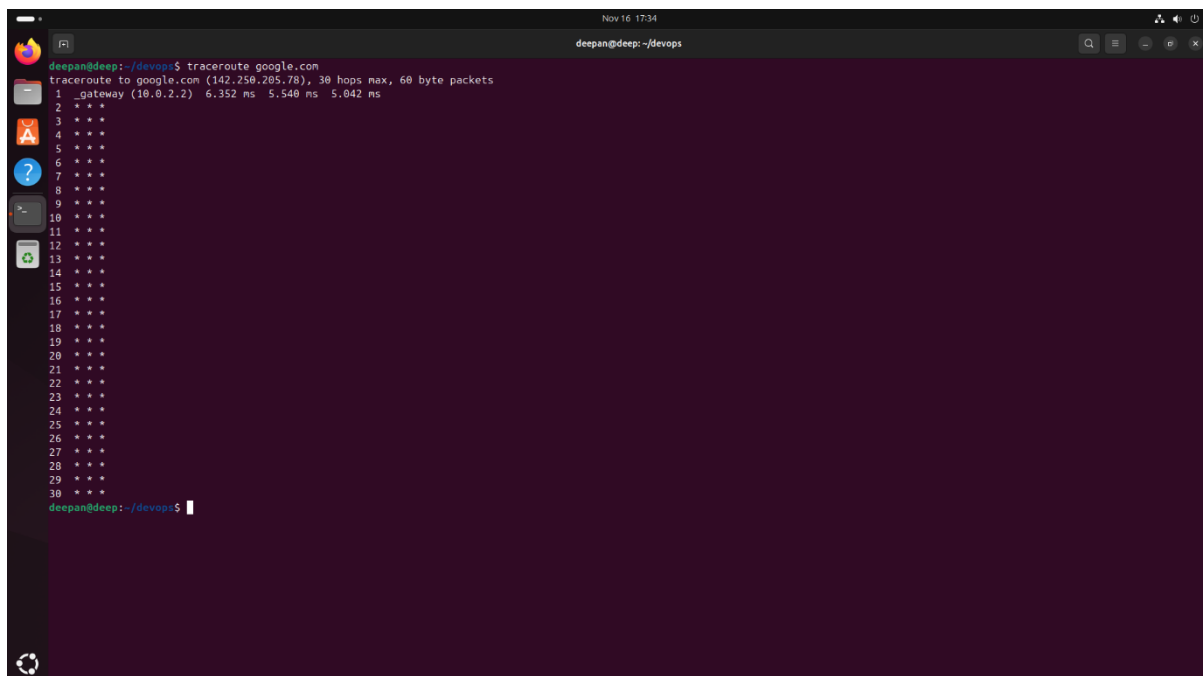
```
Nov 16 17:32
deepan@deep: ~/devops
deepan@deep:~/devops$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 10.0.2.15 netmask 255.255.255.0 broadcast 10.0.2.255
    inet6 fe80::a00:27ff:fe1d:ebd6 prefixlen 64 scopeid 0x20<link>
    inet6 fd17:625c:f037:2:5523:291d:34a8:4949 prefixlen 64 scopeid 0x0<global>
    inet6 fd17:625c:f037:2:a00:27ff:fe1d:ebd6 prefixlen 64 scopeid 0x0<global>
    ether 08:00:27:1d:eb:d6 txqueuelen 1000 (Ethernet)
    RX packets 6428 bytes 8487982 (8.4 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 1300 bytes 118040 (118.0 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 595 bytes 52854 (52.8 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 595 bytes 52854 (52.8 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

deepan@deep:~/devops$ ping google.com -c 4
PING google.com (142.250.205.78) 56(84) bytes of data.
64 bytes from pnnmaa-ar-in-f14.1e100.net (142.250.205.78): icmp_seq=1 ttl=255 time=4.55 ms
64 bytes from pnnmaa-ar-in-f14.1e100.net (142.250.205.78): icmp_seq=2 ttl=255 time=4.26 ms
64 bytes from pnnmaa-ar-in-f14.1e100.net (142.250.205.78): icmp_seq=3 ttl=255 time=3.35 ms
64 bytes from pnnmaa-ar-in-f14.1e100.net (142.250.205.78): icmp_seq=4 ttl=255 time=2.94 ms

--- google.com ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 6094ms
rtt min/avg/max/mdev = 2.935/3.775/4.551/0.656 ms
deepan@deep:~/devops$
```

- **ifconfig:** shows IP address of the network.
- **ping google.com -c 4:** shows response time (ms), packet loss percentage.



```
Nov 16 17:34
deepan@deep: ~/devops
deepan@deep:~/devops$ traceroute google.com
traceroute to google.com (142.250.205.78), 30 hops max, 60 byte packets
 1  gateway (10.0.2.2)  6.352 ms  5.540 ms  5.042 ms
 2  * * *
 3  * * *
 4  * * *
 5  * * *
 6  * * *
 7  * * *
 8  * * *
 9  * * *
10  * * *
11  * * *
12  * * *
13  * * *
14  * * *
15  * * *
16  * * *
17  * * *
18  * * *
19  * * *
20  * * *
21  * * *
22  * * *
23  * * *
24  * * *
25  * * *
26  * * *
27  * * *
28  * * *
29  * * *
30  * * *
```

- **traceroute google.com:** shows the path taken by packets to reach google.com

```
Nov 16 17:35
deepan@deep: ~/devops
deepan@deep:~/devops$ nslookup google.com
Server:      127.0.0.53
Address:     127.0.0.53#53

Non-authoritative answer:
Name:   google.com
Address: 142.250.205.78
Name:   google.com
Address: 2404:6800:4007:808::200e

deepan@deep:~/devops$ netstat -tln
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 127.0.0.53:53           0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.1:631           0.0.0.0:*               LISTEN
tcp        0      0 127.0.0.54:53           0.0.0.0:*               LISTEN
tcp6       0      0 :::1:631                :::*                    LISTEN
udp        0      0 0.0.0.0:5353            0.0.0.0:*               *
udp        0      0 0.0.0.0:45100           0.0.0.0:*               *
udp        0      0 127.0.0.54:53           0.0.0.0:*               *
udp        0      0 127.0.0.53:53           0.0.0.0:*               *
udp6       0      0 :::5353                 :::*                    *
udp6       0      0 :::54767                 :::*                    *
```

- **nslookup google.com:** Shows IP address of google.com
- **netstat -tln:** shows current listening network ports, t=TCP,u=UDP,l=listening,n=show numeric addresses
- **curl ifconfig.me:** show public IP address