

LINUX COMMANDS

Ifconfig command

ifconfig in short “interface configuration”. IT is used for displaying current network configuration information, setting up an ip address, netmask or broadcast address to an network interface, creating an alias for network interface, setting up hardware address and enable or disable network interfaces.

```
karthik@ubuntu:~$ ifconfig
```

//This will show all the running network connections in the system. Below ens33 indicates Ethernet connection and lo indicates localhost connection.

```
ens33  Link encap:Ethernet HWaddr 00:0c:29:37:fd:19
```

```
    inet addr:192.168.237.147 Bcast:192.168.237.255 Mask:255.255.255.0
```

```
    inet6 addr: fe80::543e:8fe3:5871:4b0f/64 Scope:Link
```

```
    UP BROADCAST RUNNING MULTICAST MTU:1500 Metric:1
```

```
    RX packets:204652 errors:0 dropped:0 overruns:0 frame:0
```

```
    TX packets:55208 errors:0 dropped:0 overruns:0 carrier:0
```

```
    collisions:0 txqueuelen:1000
```

```
    RX bytes:281491466 (281.4 MB) TX bytes:4388249 (4.3 MB)
```

```
lo      Link encap:Local Loopback
```

```
    inet addr:127.0.0.1 Mask:255.0.0.0
```

```
    inet6 addr: ::1/128 Scope:Host
```

```
    UP LOOPBACK RUNNING MTU:65536 Metric:1
```

```
    RX packets:9557 errors:0 dropped:0 overruns:0 frame:0
```

```
    TX packets:9557 errors:0 dropped:0 overruns:0 carrier:0
```

```
    collisions:0 txqueuelen:1
```

```
    RX bytes:4705608 (4.7 MB) TX bytes:4705608 (4.7 MB)
```

```
karthik@ubuntu:~$ ifconfig lo
```

// this command will show all information about localhost network configuration.

```
lo    Link encap:Local Loopback
      inet addr:127.0.0.1  Mask:255.0.0.0
      inet6 addr: ::1/128 Scope:Host
      UP LOOPBACK RUNNING  MTU:65536  Metric:1
      RX packets:9557 errors:0 dropped:0 overruns:0 frame:0
      TX packets:9557 errors:0 dropped:0 overruns:0 carrier:0
      collisions:0 txqueuelen:1
      RX bytes:4705608 (4.7 MB) TX bytes:4705608 (4.7 MB)
```

```
karthik@ubuntu:~$ sudo ifdown lo
```

//This command will stop the running localhost connection.

```
karthik@ubuntu:~$ sudo ifup lo
```

//This command will start the localhost connection.

PING Command

PING (Packet INternet Groper) command is the best way to test connectivity between two nodes. Whether it is Local Area Network (LAN) or Wide Area Network (WAN).

```
karthik@ubuntu:~$ ping www.google.com
```

//This command will check whether internet connection is working or not. If there is no packet loss then its working correctly.

```
PING www.google.com (173.194.200.147) 56(84) bytes of data.
```

64 bytes from oq-in-f147.1e100.net (173.194.200.147): icmp_seq=1 ttl=128 time=30.3 ms

64 bytes from oq-in-f147.1e100.net (173.194.200.147): icmp_seq=2 ttl=128 time=33.7 ms

64 bytes from oq-in-f147.1e100.net (173.194.200.147): icmp_seq=3 ttl=128 time=32.6 ms

64 bytes from oq-in-f147.1e100.net (173.194.200.147): icmp_seq=4 ttl=128 time=34.7 ms

64 bytes from oq-in-f147.1e100.net (173.194.200.147): icmp_seq=5 ttl=128 time=33.4 ms

^C

--- www.google.com ping statistics ---

5 packets transmitted, 5 received, 0% packet loss, time 4006ms

rtt min/avg/max/mdev = 30.334/32.959/34.702/1.482 ms

karthik@ubuntu:~\$ ping -c 5 www.google.com

//In Linux ping command keep executing until you interrupt. Ping with -c option exit after N number of request.

Traceroute command

Traceroute tracks the route packets taken from an IP network on their way to a given host.

karthik@ubuntu:~\$ traceroute www.google.com

Tracing route to google.com [2607:f8b0:4000:801::200e]

over a maximum of 30 hops:

1 2 ms 2 ms 1 ms 2605:6000:3f8c:2400:a95:2aff:fe54:eb22

2 * * * Request timed out.

3 12 ms 20 ms 21 ms 2605:6000:0:4::e:c28d

```

4  13 ms   9 ms   16 ms  2605:6000:0:4::c:118
5  29 ms   29 ms   30 ms  agg36.dl1atxl301r.texas.rr.com [2605:6000:0:4::c:268]
6  35 ms   29 ms   30 ms  2001:1998:0:4::526
7  23 ms   26 ms   30 ms  2001:4860:1:1:0:1ea3:0:10
8  483 ms  43 ms   23 ms  2001:4860:0:e02::1
9  28 ms   25 ms   25 ms  2001:4860:0:1::1df7
10 26 ms   27 ms   30 ms  dfw25s08-in-x0e.1e100.net [2607:f8b0:4000:801::200e]

```

karthik@ubuntu:~\$ traceroute -p 80 google.com

//To traceroute with particular port number

Netstat command

It will print all network connections, routing tables, interface statistics, masquerade connections, and multicast memberships.

karthik@ubuntu:~\$ netstat

Active Internet connections (w/o servers)

Proto	Recv-Q	Send-Q	Local Address	Foreign Address	State
tcp6	32	0	192.168.237.147:36020	pillar03.atlassia:https	CLOSE_WAIT
tcp6	32	0	192.168.237.147:36024	pillar03.atlassia:https	CLOSE_WAIT
tcp6	1	0	localhost:47224	localhost:8888	CLOSE_WAIT
tcp6	32	0	192.168.237.147:36030	pillar03.atlassia:https	CLOSE_WAIT

.....

karthik@ubuntu:~\$ netstat -a

// To listen only UDP port

karthik@ubuntu:~\$ netstat -at

//To listen only TCP ports.

```
karthik@ubuntu:~$ netstat -lx
```

```
//To listen unix ports.
```

```
karthik@ubuntu:~$ netstat -g
```

```
//To display IPv4 and IPv6 Information
```

DIG command

Dig (domain information groper) query DNS related information like A Record, CNAME, MX Record etc. This command mainly use to troubleshoot DNS related query.

```
karthik@ubuntu:~$ dig www.premierpottedtrees.com
```

```
www.premierpottedtrees.com. IN      A
```

```
;; ANSWER SECTION:
```

```
www.premierpottedtrees.com. 5      IN      CNAME    premierpottedtrees.com.
```

```
premierpottedtrees.com. 5      IN      A        198.71.233.7
```

```
;; Query time: 232 msec
```

```
;; SERVER: 127.0.1.1#53(127.0.1.1)
```

```
;; WHEN: Thu Jan 26 00:41:58 PST 2017
```

```
;; MSG SIZE rcvd: 85
```

TOP command

This command is used to show all the running processes within your Linux environment

```
karthik@ubuntu:~$ top
```

```
top - 00:46:48 up 8:54, 1 user, load average: 0.09, 0.04, 0.01
```

```
Tasks: 288 total, 1 running, 284 sleeping, 3 stopped, 0 zombie
```

```
%Cpu(s): 0.7 us, 1.4 sy, 0.0 ni, 97.5 id, 0.5 wa, 0.0 hi, 0.0 si, 0.0 st
```

```
KiB Mem : 4028788 total, 199620 free, 3024828 used, 804340 buff/cache
```

KiB Swap: 4192252 total, 3246064 free, 946188 used. 665188 avail Mem

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1210	root	20	0	426396	50564	25228	S	5.3	1.3	6:52.87	Xorg
66591	karthik	20	0	664300	38384	28052	S	3.3	1.0	0:27.88	gnome-ter+
2822	karthik	20	0	1159952	91836	27116	S	1.7	2.3	9:16.25	compiz
61897	jira	20	0	4719380	1.185g	9136	S	1.0	30.8	23:20.68	java

.....etc

//Press ‘z’ option in running top command will display running process in color which may help you to identified running process easily.

//Press ‘c’ option in running top command, it will display absolute path of running process.

//You can kill a process after finding PID of process by pressing ‘k’ option in running top command without exiting from top window as shown below.

Free command

Display amount of free and used memory(RAM) in the system.

karthik@ubuntu:~\$ free

	total	used	free	shared	buff/cache	available
Mem:	4028788	2834968	395232	17268	798588	861448
Swap:	4192252	943568	3248684			

Line 1: Indicates Memory details like total available RAM, used RAM, Shared RAM, RAM used for buffers, RAM used of caching content.

Line 2: Indicates total buffers/Cache used and free.

Line 3: Indicates total swap memory available, used swap and free swap memory size available.

karthik@ubuntu:~\$ free -m

//it will show in mb.

	total	used	free	shared	buff/cache	available
Mem:	3934	2768	386	16	779	841
Swap:	4093	920	3173			

Display RAM in human readable formats like in KB's, MB's, GB's, TB's

free -k

free -m

free -g

free -tera

Df command

karthik@ubuntu:~\$ df -h

//Disk Space Usage in Human Readable Format

Filesystem	Size	Used	Avail	Use%	Mounted on
udev	2.0G	0	2.0G	0%	/dev
tmpfs	394M	12M	383M	3%	/run
/dev/sda1	16G	13G	2.7G	82%	/
tmpfs	2.0G	620K	2.0G	1%	/dev/shm
tmpfs	5.0M	4.0K	5.0M	1%	/run/lock
tmpfs	2.0G	0	2.0G	0%	/sys/fs/cgroup
tmpfs	394M	0	394M	0%	/run/user/121
tmpfs	394M	72K	394M	1%	/run/user/100

Du command

To estimate file space usage.

```
karthik@ubuntu:~$ du /home/karthik/Desktop/practice
```

// To find out the disk usage summary of a /home/Karthik/Desktop/Practice directory tree and each of its sub directories.

```
2.4M    /home/karthik/Desktop/practice/neww
12K     /home/karthik/Desktop/practice/ram
4.0K    /home/karthik/Desktop/practice/thik/sai
8.0K    /home/karthik/Desktop/practice/thik
5.2M    /home/karthik/Desktop/practice
.....
```

Nc command

nc is the command which runs netcat, a simple Unix utility that reads and writes data across network connections, using the TCP or UDP protocol.

```
karthik@ubuntu:~$ nc -zv www.permiepottedtrees.com 40-400
```

//This command will listen to port numbers ranging from 40 to 400 in the given website.

```
karthik@ubuntu:~$ nc 127.0.0.1 8080
//This will listen to 8080 port in localhost
```

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SCP command

scp copies files between hosts on a network. It uses ssh(1) for data transfer, and uses the same authentication and provides the same security as ssh(1). scp will ask for passwords or passphrases if they are needed for authentication.

Lsof command

Simply typing lsof will provide a list of all open files belonging to all active processes.

```
karthik@ubuntu:~$ lsof
```

//It will list all the active processes.


```
karthik@ubuntu:~$ lsof -u Karthik
```

// In order to find the list of files opened by a specific users.

```
karthik@ubuntu:~$ lsof -p 1753
```

// List all open files by a specific process

```
karthik@ubuntu:~$ lsof -i
```

COMMAND	PID	USER	FD	TYPE	DEVICE	SIZE/OFF	NODE	NAME
nc	4862	karthik	3u	IPv4	77569	0t0	TCP	*:51388 (LISTEN)