Name – Bramha Nimbalkar

Roll no -7

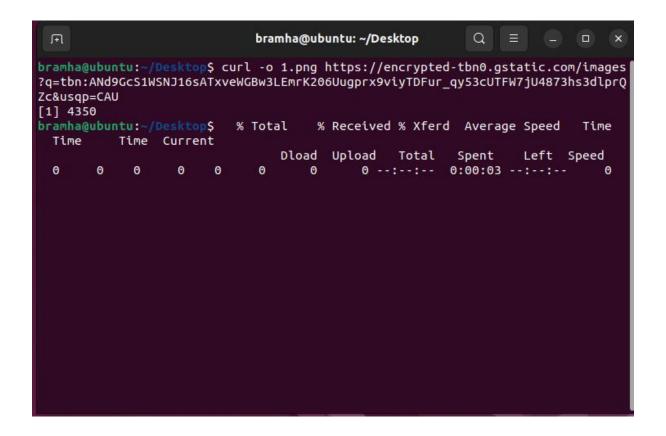
SRN - 202100381

ASSIGNMENT 2

Ping -PING (Packet Internet Groper) command is used to check the network connectivity between host and server/host. This command takes as input the IP address or the URL and sends a data packet to the specified address with the message "PING" and get a response from the server/host this time is recorded which is called latency.

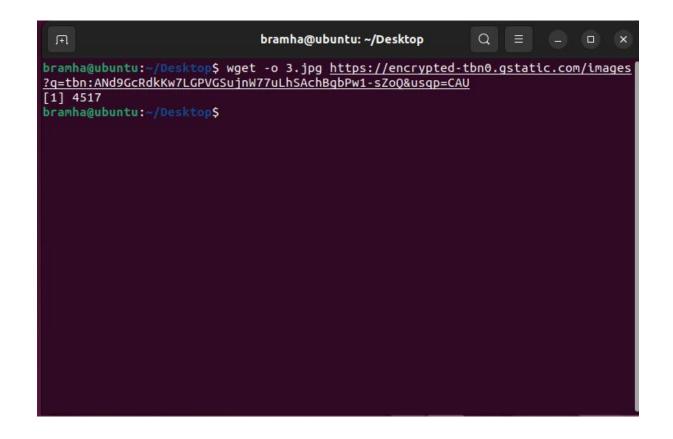
```
bramha@ubuntu: ~/Desktop
bramha@ubuntu:~/Desktop$ ping volp.in
PING volp.in (108.159.46.69) 56(84) bytes of data.
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=1 ttl=242 time=263 ms
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=2 ttl=242 time=56.5 ms 64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=3 ttl=242 time=811 ms
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=4 ttl=242 time=247
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=5 ttl=242 time=119 ms
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69):
                                                                                                               icmp seq=6 ttl=242 time=318 ms
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69):
                                                                                                               icmp_seq=7
                                                                                                                                ttl=242 time=277 ms
                                                                                                               icmp_seq=8 ttl=242 time=401 ms
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69):
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69):
                                                                                                               icmp_seq=9 ttl=242 time=230 ms
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69):
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69):
                                                                                                               icmp seq=10 ttl=242 time=430 ms
                                                                                                               icmp seq=11 ttl=242 time=547 ms
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69):
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69):
                                                                                                               icmp_seq=12 ttl=242 time=523 ms
icmp_seq=13 ttl=242 time=239 ms
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=14 ttl=242 time=89.1 ms 64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=15 ttl=242 time=300 ms
64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=16 ttl=242 time=376 ms 64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=17 ttl=242 time=611 ms 64 bytes from server-108-159-46-69.pnq50.r.cloudfront.net (108.159.46.69): icmp_seq=18 ttl=242 time=320 ms
```

Curl - Curl is a command-line tool to transfer data to or from a server, using any of the supported protocols (HTTP, FTP, IMAP, POP3, SCP, SFTP, SMTP, TFTP, TELNET, LDAP, or FILE). *curl* is powered by Libcurl. This tool is preferred for automation since it is designed to work without user interaction. curl can transfer multiple files at once.



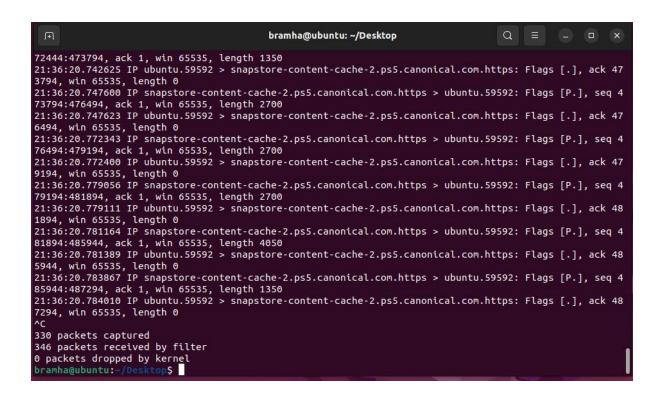
Wget - Wget is the non-interactive network downloader which is used to download files from the server even when the user has not logged on to the system and it can work in the background without hindering the current process.

wget is a free utility for non-interactive download of files from the Web. It supports HTTP, HTTPS, and FTP protocols, as well as retrieval through HTTP proxies.

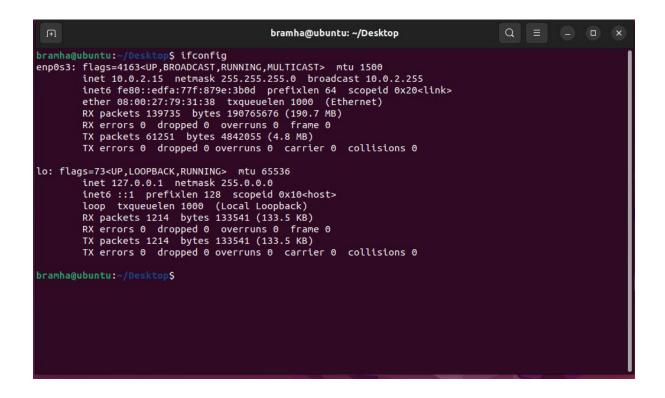


tcpdump - tcpdump is a packet sniffing and packet analyzing tool for a System Administrator to troubleshoot connectivity issues in Linux. It is used to capture, filter, and analyze network traffic such as TCP/IP packets going through your system. It is many times used as a security tool as well.

```
Q ≡
                                               bramha@ubuntu: ~/Desktop
bramha@ubuntu:~/Desktop$ sudo tcpdump
[sudo] password for bramha:
Sorry, try again.
[sudo] password for bramha:
tcpdump: verbose output suppressed, use -v[v]... for full protocol decode
listening on enp0s3, link-type EN10MB (Ethernet), snapshot length 262144 bytes
21:36:19.317367 IP snapstore-content-cache-2.ps5.canonical.com.https > ubuntu.59592: Flags [P.], seq 1
70871776:170878470, ack 3007017310, win 65535, length 6694
21:36:19.317596 IP ubuntu.59592 > snapstore-content-cache-2.ps5.canonical.com.https: Flags [.], ack 66
94, win 65535, length 0
21:36:19.318714 IP ubuntu.58442 > 192.168.43.1.domain: 38740+ PTR? 15.2.0.10.in-addr.arpa. (40)
21:36:19.339343 IP snapstore-content-cache-2.ps5.canonical.com.https > ubuntu.59592: Flags [P.], seq 6
694:10744, ack 1, win 65535, length 4050
21:36:19.339664 IP ubuntu.59592 > snapstore-content-cache-2.ps5.canonical.com.https: Flags [.], ack 10
744, win 65535, length 0
21:36:19.341764 IP snapstore-content-cache-2.ps5.canonical.com.https > ubuntu.59592: Flags [P.], seq 1
0744:14794, ack 1, win 65535, length 4050
21:36:19.341955 IP ubuntu.59592 > snapstore-content-cache-2.ps5.canonical.com.https: Flags [.], ack 14
794, win 65535, length 0
21:36:19.345223 IP snapstore-content-cache-2.ps5.canonical.com.https > ubuntu.59592: Flags [P.], seq 1
4794:17494, ack 1, win 65535, length 2700
21:36:19.345278 IP ubuntu.59592 > snapstore-content-cache-2.ps5.canonical.com.https: Flags [.], ack 17
494, win 65535, length 0
21:36:19.346370 IP snapstore-content-cache-2.ps5.canonical.com.https > ubuntu.59592: Flags [P.], seq 1
7494:18844, ack 1, win 65535, length 1350
21:36:19.346618 IP ubuntu.59592 > snapstore-content-cache-2.ps5.canonical.com.https: Flags [.], ack 18
844, win 65535, length 0
21:36:19.348676 IP snapstore-content-cache-2.ps5.canonical.com.https > ubuntu.59592: Flags [P.], seq 1
```



Ifconfig - ifconfig(interface configuration) command is used to configure the kernel-resident network interfaces. It is used at the boot time to set up the interfaces as necessary. After that, it is usually used when needed during debugging or when you need system tuning. Also, this command is used to assign the IP address and netmask to an interface or to enable or disable a given interface.



Netstat - Netstat command displays various network related information such as network connections, routing tables, interface statistics, masquerade connections, multicast memberships.

F						bramha@ubuntu: ~/Desktop
bramha@ubuntu:-/DesktopS netstat						
Active Internet connections (w/o servers)						
Proto	Recv-Q	Send-	Q Local Address	For	eign Addres	ss State
tcp	0	(0 ubuntu:41104	bor	07s35-in-f1	LO.1:https TIME_WAIT
tcp	0	(0 ubuntu:44694	wha	tsapp-cdn-s	shv-:https ESTABLISHED
tcp	0	(0 ubuntu:41836	49.	44.234.99:h	nttps ESTABLISHED
tcp	0	(0 ubuntu:39022	55.	65.117.34.b	oc.g:https ESTABLISHED
udp	0		0 ubuntu:bootpc		teway:bootp	os ESTABLISHED
			sockets (w/o ser			2450 - 1
	RefCnt		Type	State	I-Node	Path
	2	[j	SEQPACKET	CONNECTED	64619	
	3		STREAM	CONNECTED	60962	/run/user/1000/gvfsd/socket-YcpssRe4
	3		STREAM	CONNECTED	23450	
	3	[]	STREAM	CONNECTED	23446 23404	/sun/usos/1000/pipouiso 0
	3	[]	STREAM STREAM	CONNECTED	24733	/run/user/1000/pipewire-0
	3		STREAM	CONNECTED	21757	/run/systemd/journal/stdout
10 may 20 may 10 may	3	11	STREAM	CONNECTED	24659	
Park (800) 100 (100)	3	† †	STREAM	CONNECTED	22361	/run/user/1000/pulse/native
	2	ti	STREAM	CONNECTED	67759	
	3	ii	STREAM	CONNECTED	24946	/run/user/1000/at-spi/bus
	3	Ìί	STREAM	CONNECTED	24131	
unix	3	ìί	STREAM	CONNECTED	20453	/run/dbus/system_bus_socket
unix	3	ΪÍ	STREAM	CONNECTED	58218	/run/user/1000/at-spi/bus
unix	3	į į	STREAM	CONNECTED	28865	/run/systemd/journal/stdout
unix	3	į į	STREAM	CONNECTED	19281	/run/systemd/journal/stdout
	3	[]	DGRAM	CONNECTED	15966	
	2	[]	STREAM	CONNECTED	63100	
	3	[]	STREAM	CONNECTED	36614	
	3	[]	STREAM	CONNECTED	26480	/run/user/1000/wayland-0
	3	[]	STREAM	CONNECTED	16131	/run/systemd/journal/stdout
	3	[]	STREAM	CONNECTED	19368	/run/dbus/system_bus_socket
	3	[]	STREAM	CONNECTED	21008	
	3	[j	STREAM	CONNECTED	55165	
	3	Ĺj	STREAM	CONNECTED	23383	
1000	3		STREAM	CONNECTED	23382	
	3	ł ł	STREAM STREAM	CONNECTED	23052 66020	/run/systemd/journal/stdout
	3	t	STREAM	CONNECTED	67006	/ rail/ systema/ journat/ studet
	3	t	STREAM	CONNECTED	27054	/run/dbus/system_bus_socket
	2	ΪÍ	DGRAM	COMMECTED	22308	Tranfadas/3/3 seeri_503_30ckcc
100000000000000000000000000000000000000	3	† †	STREAM	CONNECTED	23853	/run/systemd/journal/stdout
	3	† †	STREAM	CONNECTED	19363	/run/dbus/system_bus_socket
	3	i i	STREAM	CONNECTED	26393	
	2	ii	DGRAM		26953	
	3	įί	STREAM	CONNECTED	22333	/run/user/1000/bus
	2	įί	SEQPACKET	CONNECTED	61788	
	3	[]	STŘEAM	CONNECTED	24956	@/home/bramha/.cache/ibus/dbus-UgoJmnAe
unix	3	į į	STREAM	CONNECTED	26350	/run/user/1000/bus
	3	[]	STREAM	CONNECTED	16055	/run/systemd/journal/stdout
	3	[]	STREAM	CONNECTED	40741	
	3	[]	STREAM	CONNECTED	27673	
	3	[]	STREAM	CONNECTED	24969	
	3	[]	STREAM	CONNECTED	22490	
	3	[]	STREAM	CONNECTED	26920	William Company Co.
	3	[]	STREAM	CONNECTED	60020	/run/user/1000/bus
	3	[]	STREAM	CONNECTED	24919	
unix	3		STREAM	CONNECTED	21004	/run/svstemd/iournal/stdout

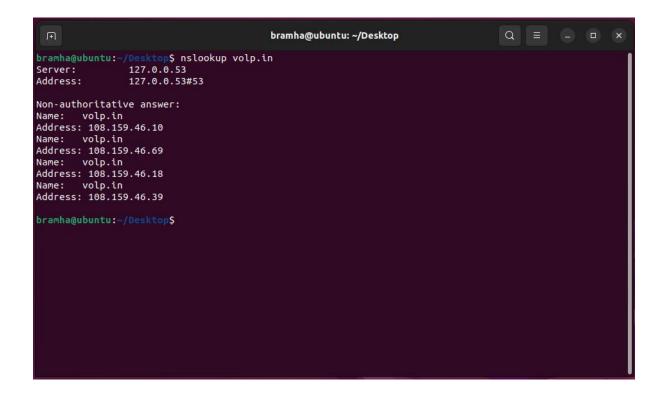
Dig - dig command stands for Domain Information Groper. It is used for retrieving information about DNS name servers. It is basically used by network administrators. It is used for verifying and troubleshooting DNS problems and to perform DNS lookups.

```
Q ≡
                                                  bramha@ubuntu: ~/Desktop
bramha@ubuntu:~/Desktop$ dig volp.in
; <<>> DiG 9.18.12-0ubuntu0.22.04.2-Ubuntu <<>> volp.in
;; global options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 55901
;; flags: qr rd ra; QUERY: 1, ANSWER: 4, AUTHORITY: 0, ADDITIONAL: 1
;; OPT PSEUDOSECTION:
; EDNS: version: 0, flags:; udp: 65494
;; QUESTION SECTION:
:volp.in.
                                                 Α
;; ANSWER SECTION:
volp.in.
                             60
                                       IN
                                                          108.159.46.18
volp.in.
volp.in.
                             60
                                                          108.159.46.10
                             60
                                                           108.159.46.69
volp.in.
                                                          108.159.46.39
;; Query time: 504 msec
;; SERVER: 127.0.0.53#53(127.0.0.53) (UDP)
;; WHEN: Tue Aug 29 21:39:19 IST 2023
;; MSG SIZE rcvd: 100
```

Traceroute - **traceroute** command in Linux prints the route that a packet takes to reach the host. This command is useful when you want to know about the route and about all the hops that a packet takes.

```
bramha@ubuntu:~/Desktop$ traceroute volp.in
traceroute to volp.in (108.159.46.10), 30 hops max, 60 byte packets
1 _gateway (10.0.2.2) 0.732 ms 0.685 ms 0.668 ms
2 ***
3 ***
4 ***
5 ***
6 ***
7 *^C
bramha@ubuntu:~/Desktop$
```

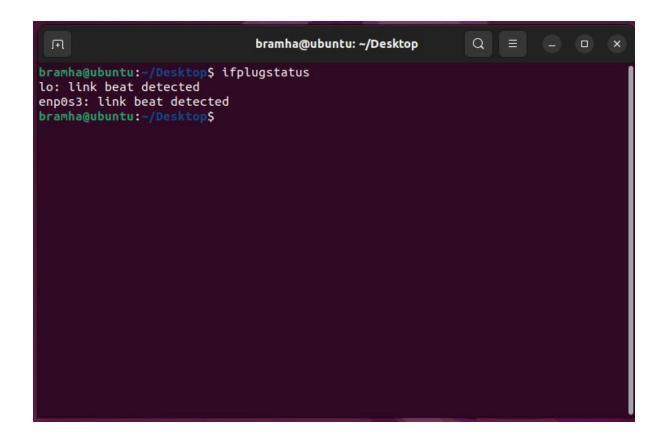
Nslookup - Nslookup (Name Server Lookup) is a useful command for getting information from the DNS server. It is a network administration tool for querying the Domain Name System (DNS) to obtain domain name or IP address mapping or any other specific DNS record. It is also used to troubleshoot DNS-related problems.



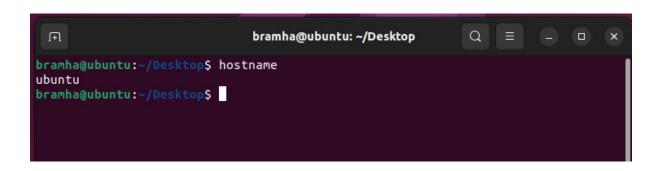
Whois - Whois is a command-line utility used in Linux systems to retrieve information about domain names, IP addresses, and network devices. The data received by Whois consists of the name and contact information of the domain or IP address owner, the registration and expiration date, the domain registrar, and the server information.

```
bramha@ubuntu: ~/Desktop
 bramha@ubuntu:~/Desktop$ whois volp.in
Domain Name: volp.in
Registry Domain ID: D414400000005891663-IN
Registrar WHOIS Server:
Registrar URL: https://www.gandi.net/
Updated Date: 2023-05-07T11:25:162
Croation Date: 2418.04.10T02:51:207
Updated Date: 2023-05-07T11:25:16Z
Creation Date: 2018-04-10T03:51:20Z
Registry Expiry Date: 2025-04-10T03:51:20Z
Registrar: Gandi SAS
Registrar IANA ID: 81
Registrar Abuse Contact Email:
Registrar Abuse Contact Phone:
Domain Status: clientTransferProhibited http://www.icann.org/epp#clientTransferProhibited
Registry Registrant ID: REDACTED FOR PRIVACY
Registrant Name: REDACTED FOR PRIVACY
Registrant Organization: Vishwakarma Global Education services
Registrant Street: REDACTED FOR PRIVACY
Registrant State/Province: MH
Registrant Postal Code: REDACTED FOR PRIVACY
 Registrant Postal Code: REDACTED FOR PRIVACY
Registrant Country: IN
Registrant Phone: REDACTED FOR PRIVACY
Registrant Phone Ext: REDACTED FOR PRIVACY
Registrant Fax: REDACTED FOR PRIVACY
Registrant Fax Ext: REDACTED FOR PRIVACY
Registrant Email: Please contact the Registrar listed above
Registry Admin ID: REDACTED FOR PRIVACY
Admin Name: REDACTED FOR PRIVACY
Admin Organization: REDACTED FOR PRIVACY
Admin Street: REDACTED FOR PRIVACY
Admin City: REDACTED FOR PRIVACY
      Registrant Postal Code: REDACTED FOR PRIVACY
   Admin Street: REDACTED FOR PRIVACY
Admin City: REDACTED FOR PRIVACY
Admin Postal Code: REDACTED FOR PRIVACY
Admin Country: REDACTED FOR PRIVACY
Admin Phone: REDACTED FOR PRIVACY
Admin Phone Ext: REDACTED FOR PRIVACY
Admin Phone Ext: REDACTED FOR PRIVACY
Admin Phone PRIVACY
Admin Phone PRIVACY
Admin Privacy REDACTED FOR PRIVACY
  Admin Phone Ext: REDACTED FOR PRIVACY
Admin Fax: REDACTED FOR PRIVACY
Admin Fax: REDACTED FOR PRIVACY
Admin Email: Please contact the Registrar listed above
Registry Tech ID: REDACTED FOR PRIVACY
Tech Name: REDACTED FOR PRIVACY
Tech Organization: REDACTED FOR PRIVACY
Tech Street: REDACTED FOR PRIVACY
Tech Street: REDACTED FOR PRIVACY
Tech Street: REDACTED FOR PRIVACY
Tech City: REDACTED FOR PRIVACY
Tech City: REDACTED FOR PRIVACY
   Tech City: REDACTED FOR PRIVACY
Tech State/Province: REDACTED FOR PRIVACY
Tech Postal Code: REDACTED FOR PRIVACY
    Tech Country: REDACTED FOR PRIVACY
Tech Phone: REDACTED FOR PRIVACY
Tech Phone Ext: REDACTED FOR PRIVACY
   Tech Fax: REDACTED FOR PRIVACY
Tech Fax Ext: REDACTED FOR PRIVACY
Tech Email: Please contact the Registrar listed
```

Ifplugstatus - This command tells us whether a cable is plugged into our network interface or not. In the screenshot below, **link beat detected** means it is plugged in. In our system, lo and wlan0 are plugged in while eth0 is unplugged.



Hostname - hostname command in Linux is used to obtain the <u>DNS</u> (<u>Domain Name System</u>) name and set the system's hostname or domain name. A hostname is a name given to a computer and attached to the network. Its main purpose is to uniquely identify over a network.



HOST - Linux host command displays domain name for given IP address or vice-versa. It also performs DNS lookups related to the DNS query. The host command's default behavior displays a summary of its command-line arguments and supported options.

```
bramha@ubuntu:~/Desktop$ host volp.in
volp.in has address 108.159.46.18
volp.in has address 108.159.46.39
volp.in has address 108.159.46.69
volp.in has address 108.159.46.10
volp.in mail is handled by 1 aspmx.l.google.com.
volp.in mail is handled by 10 alt3.aspmx.l.google.com.
volp.in mail is handled by 15 onvmwjfyt5amb4irfn7ywwqgz677ru6hy4mrc7zoj3ynntrqg2
na.mx-verification.google.com.
volp.in mail is handled by 5 alt1.aspmx.l.google.com.
volp.in mail is handled by 5 alt2.aspmx.l.google.com.
bramha@ubuntu:~/Desktop$
```