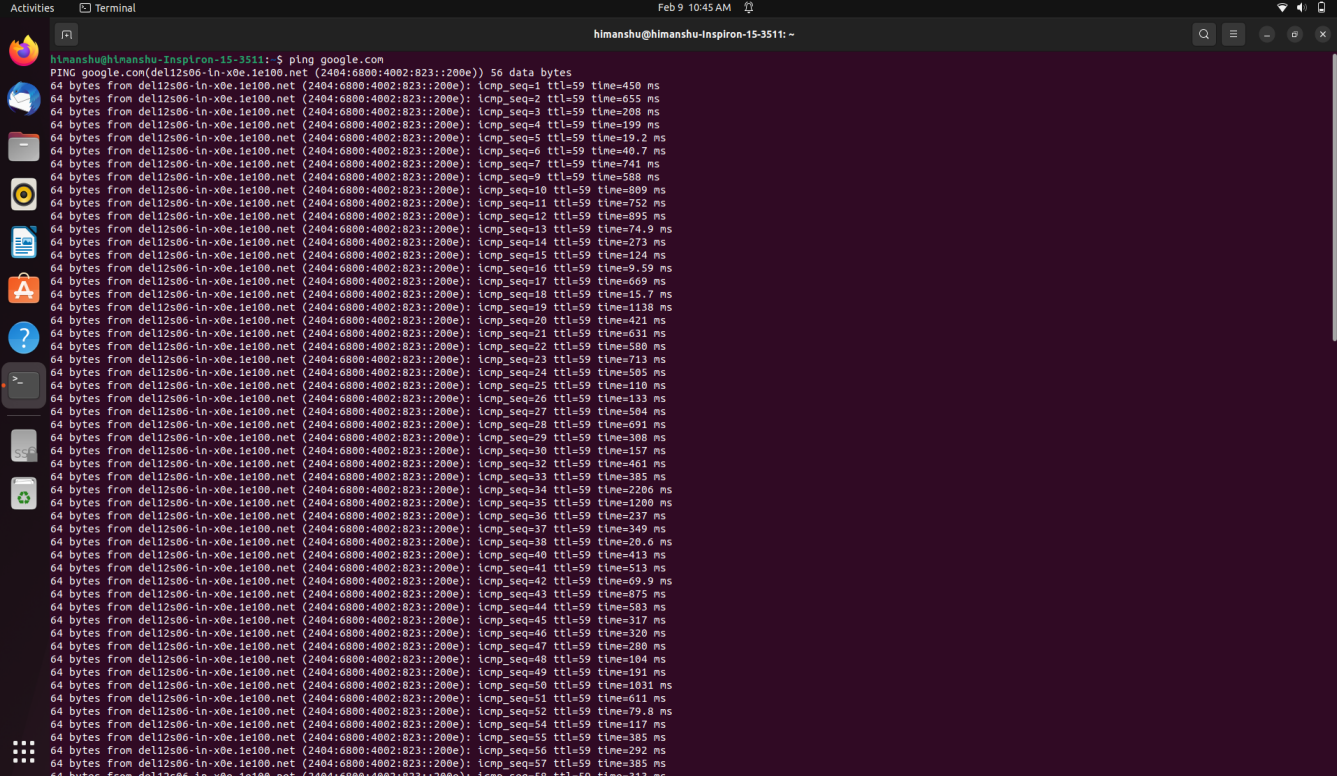


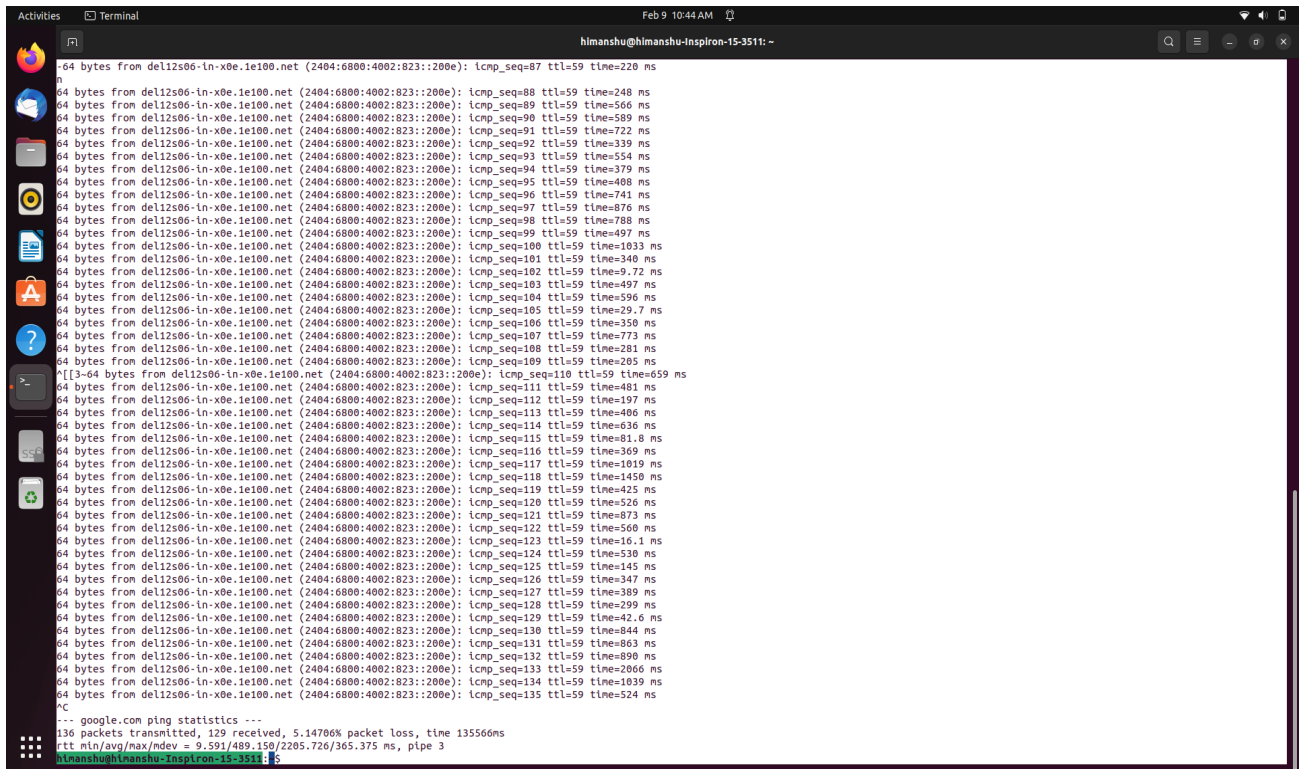
. PING COMMAND

A ping (pocket internet -network groper).

Ping is the primary TCP/IP command used to troubleshoot connectivity ,reachability ,and name resolution . used without parameters , this command displays help content . You can also use this command to test both the computer name and the IP address of the computer .



```
himanshu@himanshu-inspiron-15-3511: ~  
$ ping google.com  
PING google.com (del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e)) 56 data bytes  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=1 ttl=59 time=450 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=2 ttl=59 time=655 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=3 ttl=59 time=208 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=4 ttl=59 time=199 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=5 ttl=59 time=19.2 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=6 ttl=59 time=40.7 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=7 ttl=59 time=741 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=9 ttl=59 time=588 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=10 ttl=59 time=809 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=11 ttl=59 time=752 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=12 ttl=59 time=895 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=13 ttl=59 time=74.9 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=14 ttl=59 time=273 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=15 ttl=59 time=124 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=16 ttl=59 time=9.59 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=17 ttl=59 time=669 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=18 ttl=59 time=15.7 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=19 ttl=59 time=1138 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=20 ttl=59 time=421 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=21 ttl=59 time=631 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=22 ttl=59 time=580 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=23 ttl=59 time=713 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=24 ttl=59 time=505 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=25 ttl=59 time=110 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=26 ttl=59 time=133 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=27 ttl=59 time=504 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=28 ttl=59 time=691 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=29 ttl=59 time=308 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=30 ttl=59 time=157 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=32 ttl=59 time=461 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=33 ttl=59 time=385 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=34 ttl=59 time=2706 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=35 ttl=59 time=1200 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=36 ttl=59 time=237 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=37 ttl=59 time=349 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=38 ttl=59 time=20.6 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=40 ttl=59 time=413 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=41 ttl=59 time=513 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=42 ttl=59 time=69.9 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=43 ttl=59 time=875 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=44 ttl=59 time=583 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=45 ttl=59 time=317 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=46 ttl=59 time=320 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=47 ttl=59 time=280 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=48 ttl=59 time=104 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=49 ttl=59 time=191 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=50 ttl=59 time=1031 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=51 ttl=59 time=611 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=52 ttl=59 time=79.8 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=54 ttl=59 time=117 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=55 ttl=59 time=385 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=56 ttl=59 time=292 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=57 ttl=59 time=385 ms  
64 bytes from del12s06-ln-x0e.1e100.net (2404:6800:4002:823::200e): icmp_seq=58 ttl=59 time=313 ms
```

A terminal window titled 'himanshu@himanshu-Inspiron-15-3511: ~' showing the output of a telnet command. The output consists of a long list of lines, each starting with '64 bytes from del12s06-ln-x0e.1e100.net' followed by a timestamp in parentheses and a line number. The timestamps are in the format (2404:6800:4002:823::200e): icmp_seq=XX ttl=59 time=XXX ms, where XX ranges from 87 to 135. The final line shows a summary of the connection statistics: '--- google.com ping statistics ---', '136 packets transmitted, 129 received, 5.14706% packet loss, time 135560ms', and 'rtt min/avg/max/mdev = 9.591/489.150/2205.726/365.375 ms, pipe 3'. The terminal window has a dark background and a light-colored text. The title bar shows 'Activities', 'Terminal', and the date 'Feb 9 10:44 AM'.

. TELNET COMMAND

TELNET stands for Teletype network protocol .

In linux , the telnet command is used to create a remote connection with a system over a TCP/IP network . It allows us to administrate other systems by the terminal . We can run a program to conduct administration .

```

himanshu@himanshu-Inspiron-15-3511:~$ sudo apt-get install telnetd -y
[sudo] password for himanshu:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  libflashrom1 libftdi1-2 liblvm13
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  openbsd-inetd tcpd
The following NEW packages will be installed:
  openbsd-inetd tcpd telnetd
0 upgraded, 3 newly installed, 0 to remove and 19 not upgraded.
Need to get 92.2 kB of archives.
After this operation, 318 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 tcpd amd64 7.6.q-31build2 [25.2 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 openbsd-inetd amd64 0.20160825-5 [26.3 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu jammy/universe amd64 telnetd amd64 0.17-44build1 [40.7 kB]
Fetched 92.2 kB in 7s (14.0 kB/s)
Selecting previously unselected package tcpd.
(Reading database ... 202923 files and directories currently installed.)
Preparing to unpack .../tcpd_7.6.q-31build2_amd64.deb ...
Unpacking tcpd (7.6.q-31build2) ...
Selecting previously unselected package openbsd-inetd.
Preparing to unpack .../openbsd-inetd_0.20160825-5_amd64.deb ...
Unpacking openbsd-inetd (0.20160825-5) ...
Selecting previously unselected package telnetd.
Preparing to unpack .../telnetd_0.17-44build1_amd64.deb ...
Unpacking telnetd (0.17-44build1) ...
Setting up tcpd (7.6.q-31build2) ...
Setting up openbsd-inetd (0.20160825-5) ...
Created symlink /etc/systemd/system/multi-user.target.wants/inetd.service → /lib/systemd/system/inetd.service.
Setting up telnetd (0.17-44build1) ...
Adding user telnetd to group utmp
Processing triggers for man-db (2.10.2-1) ...
himanshu@himanshu-Inspiron-15-3511:~$ ifconfig
Command 'ifconfig' not found, did you mean:
  command 'ifconfig' from deb net-tools (1.60+git20181103.0eebece-1ubuntu5)
Try: sudo apt install <deb name>
himanshu@himanshu-Inspiron-15-3511:~$ ifconfig
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 10359  bytes 1106909 (1.1 MB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 10359  bytes 1106909 (1.1 MB)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
    inet 192.168.122.1  netmask 255.255.255.0  broadcast 192.168.122.255
    ether 52:54:00:01:8a:ed  txqueuelen 1000  (Ethernet)
    RX packets 0  bytes 0 (0.0 B)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 0  bytes 0 (0.0 B)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

```

```

himanshu@himanshu-Inspiron-15-3511:~$ telnet 192.168.122.1
Trying 192.168.122.1...
Connected to 192.168.122.1.
Escape character is '^]'.
Ubuntu 22.04.1 LTS
himanshu-Inspiron-15-3511 login:
Login timed out after 60 seconds.
Connection closed by foreign host.
himanshu@himanshu-Inspiron-15-3511:~$

```

. NC (NETCAT) COMMAND

The nc (or NETCAT) utility is used for just about anything under the sun involving TCP or UDP . It can open TCP connections , send UDP packets , listen on arbitrary TCP and UDP ports , do port scanning , and deal with both IPV4 and IPV6 .

```
himanshu@himanshu-Inspiron-15-3511:~$ nc
usage: nc [-46CDdFhklNnrStUuvZz] [-I length] [-i interval] [-M ttl]
        [-m minttl] [-O length] [-P proxy_username] [-p source_port]
        [-q seconds] [-s sourceaddr] [-T keyword] [-V rtable] [-W recvlimit]
        [-w timeout] [-X proxy_protocol] [-x proxy_address[:port]]
        [destination] [port]
himanshu@himanshu-Inspiron-15-3511:~$ nc -zvw 2
usage: nc [-46CDdFhklNnrStUuvZz] [-I length] [-i interval] [-M ttl]
        [-m minttl] [-O length] [-P proxy_username] [-p source_port]
        [-q seconds] [-s sourceaddr] [-T keyword] [-V rtable] [-W recvlimit]
        [-w timeout] [-X proxy_protocol] [-x proxy_address[:port]]
        [destination] [port]
himanshu@himanshu-Inspiron-15-3511:~$
```