

# **Networking & System Administration Lab**

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ROLL NO:11

# 1.Ping & traceroute tests

Ping and Trace Route tests can help to identify any connection issues between your network and a specified server (or website) address.

## PING test

The PING command is used to test the connection and latency between two network connections. The PING command sends packets of information to a specified IP Address and then measures the time it takes to get a response from the specified computer or device.

## Trace Route test

The TRACERT command is used to conduct a similar test to PING, but instead of displaying the time it takes to connect, it looks at the exact server hops required to connect your computer to the server.

You should already have the CMD prompt dialogue box open, after performing the PING test above.

```
Microsoft Windows [Version 10.0.19043.1202]
(c) Microsoft Corporation. All rights reserved.

C:\Users\nibin>ping www.google.com

Pinging www.google.com [142.250.77.164] with 32 bytes of data:
Reply from 142.250.77.164: bytes=32 time=112ms TTL=119
Reply from 142.250.77.164: bytes=32 time=21ms TTL=119
Reply from 142.250.77.164: bytes=32 time=24ms TTL=119
Reply from 142.250.77.164: bytes=32 time=22ms TTL=119

Ping statistics for 142.250.77.164:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 21ms, Maximum = 112ms, Average = 44ms

C:\Users\nibin>tracert www.google.com

Tracing route to www.google.com [142.250.77.164]
over a maximum of 30 hops:

  0  72 ms  101 ms  3 ms  192.168.1.1
  1   6 ms   6 ms   6 ms  100.77.128.1
  2  33 ms  23 ms  27 ms  10.1.3.6
  3 120 ms 101 ms 101 ms 72.14.212.92
  4  22 ms  25 ms  22 ms 216.239.54.67
  5 106 ms 106 ms 94 ms 209.85.142.247
  6 134 ms 100 ms 101 ms maa05s17-in-f4.1e100.net [142.250.77.164]

Trace complete.

C:\Users\nibin>
```

# 1.Nslookup

Microsoft Windows includes a tool called NSLOOKUP that you can use via the command prompt. This tool can be used to check DNS records propagation and resolution using different servers, and perform other troubleshooting steps.

```
C:\Users\nibin>nslookup aesajce.com
Server:  UnKnown
Address:  103.140.17.242
```

- Type **nslookup -q=XX** where XX is a type of a DNS record. Some of the available types are MX, A, CNAME, and TXT. The records are then displayed, to exit the tool type **exit**
- To use **nslookup** as a troubleshooting tool, you can set the specific type of record to lookup for a domain by using the **-type=record\_type** where **record\_type** is A, CNAME, MX, PTR, NS, ANY.  
Type **nslookup -type=ns domain\_name** where domain\_name is the domain for your query and hit **Enter**. Now the tool will display the name servers for the domain you specified.

```
C:\Users\nibin>nslookup google.com
Server:  UnKnown
Address:  103.140.17.242

Non-authoritative answer:
Name:    google.com
Addresses:  2404:6800:4007:82b::200e
           142.250.196.46

C:\Users\nibin>nslookup -q=WX google.com
unknown query type: WX
Server:  UnKnown
Address:  103.140.17.242

Non-authoritative answer:
DNS request timed out.
   timeout was 2 seconds.
Name:    google.com
Address:  142.250.196.46

C:\Users\nibin>nslookup -type=ns google.com
Server:  UnKnown
Address:  103.140.17.242

Non-authoritative answer:
google.com      nameserver = ns3.google.com
google.com      nameserver = ns4.google.com
google.com      nameserver = ns1.google.com
google.com      nameserver = ns2.google.com
```

## 2.Netstat

On Windows 10, netstat (network statistics) has been around for a long time, and it's a command-line tool that you can use in Command Prompt to display statistics for all network connections. It allows you to understand open and connected ports to monitor and troubleshoot networking problems for system or applications.

```
C:\Users\nibin>netstat
```

```
Active Connections
```

Proto	Local Address	Foreign Address	State
TCP	127.0.0.1:49669	LAPTOP-8MQED7V9:49670	ESTABLISHED
TCP	127.0.0.1:49670	LAPTOP-8MQED7V9:49669	ESTABLISHED
TCP	127.0.0.1:49671	LAPTOP-8MQED7V9:49672	ESTABLISHED
TCP	127.0.0.1:49672	LAPTOP-8MQED7V9:49671	ESTABLISHED
TCP	127.0.0.1:49674	LAPTOP-8MQED7V9:49675	ESTABLISHED
TCP	127.0.0.1:49675	LAPTOP-8MQED7V9:49674	ESTABLISHED
TCP	127.0.0.1:49676	LAPTOP-8MQED7V9:49677	ESTABLISHED
TCP	127.0.0.1:49677	LAPTOP-8MQED7V9:49676	ESTABLISHED
TCP	127.0.0.1:49678	LAPTOP-8MQED7V9:49679	ESTABLISHED
TCP	127.0.0.1:49679	LAPTOP-8MQED7V9:49678	ESTABLISHED
TCP	127.0.0.1:49680	LAPTOP-8MQED7V9:49681	ESTABLISHED
TCP	127.0.0.1:49681	LAPTOP-8MQED7V9:49680	ESTABLISHED
TCP	127.0.0.1:49682	LAPTOP-8MQED7V9:49683	ESTABLISHED
TCP	127.0.0.1:49683	LAPTOP-8MQED7V9:49682	ESTABLISHED
TCP	127.0.0.1:49684	LAPTOP-8MQED7V9:49685	ESTABLISHED
TCP	127.0.0.1:49685	LAPTOP-8MQED7V9:49684	ESTABLISHED
TCP	127.0.0.1:49686	LAPTOP-8MQED7V9:49687	ESTABLISHED
TCP	127.0.0.1:49687	LAPTOP-8MQED7V9:49686	ESTABLISHED
TCP	127.0.0.1:49688	LAPTOP-8MQED7V9:49689	ESTABLISHED
TCP	127.0.0.1:49689	LAPTOP-8MQED7V9:49688	ESTABLISHED
TCP	192.168.1.5:50048	20.198.162.78:https	ESTABLISHED
TCP	192.168.1.5:50057	maa05s13-in-f1:https	TIME_WAIT
TCP	192.168.1.5:52895	maa03s43-in-f14:https	ESTABLISHED
TCP	192.168.1.5:53300	117.18.237.29:http	CLOSE_WAIT
TCP	192.168.1.5:53417	sf-in-f188:5228	ESTABLISHED
TCP	192.168.1.5:55115	maa03s38-in-f22:https	ESTABLISHED
TCP	192.168.1.5:55320	59:https	ESTABLISHED
TCP	192.168.1.5:59410	75:https	ESTABLISHED
TCP	192.168.1.5:60242	maa05s09-in-f3:https	TIME_WAIT
TCP	192.168.1.5:60243	20.190.146.34:https	TIME_WAIT
TCP	192.168.1.5:60244	20.189.173.3:https	TIME_WAIT
TCP	192.168.1.5:60246	20.198.162.78:https	ESTABLISHED
TCP	192.168.1.5:60247	219:https	ESTABLISHED
TCP	192.168.1.5:60338	85:https	ESTABLISHED
TCP	192.168.1.5:60675	maa03s38-in-f22:https	TIME_WAIT
TCP	192.168.1.5:60820	219:https	TIME_WAIT
TCP	192.168.1.5:60938	maa03s28-in-f2:https	TIME_WAIT
TCP	192.168.1.5:60939	40.126.17.133:https	ESTABLISHED
TCP	192.168.1.5:63960	dns:https	CLOSE_WAIT
TCP	192.168.1.5:64579	s3-us-west-2-r-w:https	CLOSE_WAIT
TCP	192.168.1.5:64580	s3-us-west-2-r-w:https	CLOSE_WAIT



## netstat -n

command to display active connections showing numeric IP address and port number instead of trying to determine the names .

## netstat -n INTERVAL

In the command, make sure to replace INTERVAL for the number (in seconds) you want to redisplay the information.

Active Connections				
Proto	Local Address	Foreign Address	State	
TCP	127.0.0.1:49669	127.0.0.1:49670	ESTABLISHED	
TCP	127.0.0.1:49670	127.0.0.1:49669	ESTABLISHED	
TCP	127.0.0.1:49671	127.0.0.1:49672	ESTABLISHED	
TCP	127.0.0.1:49672	127.0.0.1:49671	ESTABLISHED	
TCP	127.0.0.1:49674	127.0.0.1:49675	ESTABLISHED	
TCP	127.0.0.1:49675	127.0.0.1:49674	ESTABLISHED	
TCP	127.0.0.1:49676	127.0.0.1:49677	ESTABLISHED	
TCP	127.0.0.1:49677	127.0.0.1:49676	ESTABLISHED	
TCP	127.0.0.1:49678	127.0.0.1:49679	ESTABLISHED	
TCP	127.0.0.1:49679	127.0.0.1:49678	ESTABLISHED	
TCP	127.0.0.1:49680	127.0.0.1:49681	ESTABLISHED	
TCP	127.0.0.1:49681	127.0.0.1:49680	ESTABLISHED	
TCP	127.0.0.1:49682	127.0.0.1:49683	ESTABLISHED	
TCP	127.0.0.1:49683	127.0.0.1:49682	ESTABLISHED	
TCP	127.0.0.1:49684	127.0.0.1:49685	ESTABLISHED	
TCP	127.0.0.1:49685	127.0.0.1:49684	ESTABLISHED	
TCP	127.0.0.1:49686	127.0.0.1:49687	ESTABLISHED	
TCP	127.0.0.1:49687	127.0.0.1:49686	ESTABLISHED	
TCP	127.0.0.1:49688	127.0.0.1:49689	ESTABLISHED	
TCP	127.0.0.1:49689	127.0.0.1:49688	ESTABLISHED	
TCP	192.168.1.5:49442	142.250.195.86:443	TIME_WAIT	
TCP	192.168.1.5:49445	52.98.59.18:443	ESTABLISHED	
TCP	192.168.1.5:49448	117.18.232.200:443	CLOSE_WAIT	
TCP	192.168.1.5:49449	13.107.246.254:443	ESTABLISHED	
TCP	192.168.1.5:49450	204.79.197.222:443	ESTABLISHED	
TCP	192.168.1.5:49451	40.126.17.133:443	ESTABLISHED	
TCP	192.168.1.5:49468	142.250.196.78:443	ESTABLISHED	
TCP	192.168.1.5:50048	20.198.162.78:443	ESTABLISHED	
TCP	192.168.1.5:52895	142.250.195.238:443	TIME_WAIT	
TCP	192.168.1.5:53292	142.250.196.66:443	ESTABLISHED	
TCP	192.168.1.5:53417	74.125.24.188:5228	ESTABLISHED	
TCP	192.168.1.5:53837	142.250.67.65:443	ESTABLISHED	
TCP	192.168.1.5:53838	35.247.144.219:443	ESTABLISHED	
TCP	192.168.1.5:55320	35.201.104.59:443	ESTABLISHED	
TCP	192.168.1.5:59546	142.250.195.86:443	ESTABLISHED	
TCP	192.168.1.5:60246	20.198.162.78:443	ESTABLISHED	
TCP	192.168.1.5:60338	35.201.97.85:443	ESTABLISHED	
TCP	192.168.1.5:63157	8.8.8.8:443	ESTABLISHED	
TCP	192.168.1.5:64579	52.218.181.193:443	CLOSE_WAIT	
TCP	192.168.1.5:64580	52.218.224.73:443	CLOSE_WAIT	

## netstat -a

The netstat -a command displays all active and inactive connections, and the TCP and UDP ports the device is currently listening.

```
C:\Users\nibin>netstat -a
Active Connections

Proto Local Address          Foreign Address         State
TCP   0.0.0.0:135             LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:445             LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:3306            LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:5040            LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:6646            LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:33060           LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:49664           LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:49665           LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:49666           LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:49667           LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:49668           LAPTOP-8MQED7V9:0      LISTENING
TCP   0.0.0.0:49673           LAPTOP-8MQED7V9:0      LISTENING
TCP   127.0.0.1:27017          LAPTOP-8MQED7V9:0      LISTENING
TCP   127.0.0.1:49669          LAPTOP-8MQED7V9:49670  ESTABLISHED
TCP   127.0.0.1:49670          LAPTOP-8MQED7V9:49669  ESTABLISHED
TCP   127.0.0.1:49671          LAPTOP-8MQED7V9:49672  ESTABLISHED
TCP   127.0.0.1:49672          LAPTOP-8MQED7V9:49671  ESTABLISHED
TCP   127.0.0.1:49674          LAPTOP-8MQED7V9:49675  ESTABLISHED
TCP   127.0.0.1:49675          LAPTOP-8MQED7V9:49674  ESTABLISHED
TCP   127.0.0.1:49676          LAPTOP-8MQED7V9:49677  ESTABLISHED
TCP   127.0.0.1:49677          LAPTOP-8MQED7V9:49676  ESTABLISHED
TCP   127.0.0.1:49678          LAPTOP-8MQED7V9:49679  ESTABLISHED
TCP   127.0.0.1:49679          LAPTOP-8MQED7V9:49678  ESTABLISHED
TCP   127.0.0.1:49680          LAPTOP-8MQED7V9:49681  ESTABLISHED
TCP   127.0.0.1:49681          LAPTOP-8MQED7V9:49680  ESTABLISHED
TCP   127.0.0.1:49682          LAPTOP-8MQED7V9:49683  ESTABLISHED
TCP   127.0.0.1:49683          LAPTOP-8MQED7V9:49682  ESTABLISHED
TCP   127.0.0.1:49684          LAPTOP-8MQED7V9:49685  ESTABLISHED
TCP   127.0.0.1:49685          LAPTOP-8MQED7V9:49684  ESTABLISHED
TCP   127.0.0.1:49686          LAPTOP-8MQED7V9:49687  ESTABLISHED
TCP   127.0.0.1:49687          LAPTOP-8MQED7V9:49686  ESTABLISHED
TCP   127.0.0.1:49688          LAPTOP-8MQED7V9:49689  ESTABLISHED
TCP   127.0.0.1:49689          LAPTOP-8MQED7V9:49688  ESTABLISHED
TCP   192.168.1.5:139         LAPTOP-8MQED7V9:0      LISTENING
TCP   192.168.1.5:49235      maa03s29-in-fl:https   ESTABLISHED
```

## netstat -b

The netstat -b command lists all the executables (applications) associated with each connection. Sometimes, applications may open multiple connections.

## netstat -e

The netstat -e command generates a statistic of the network interface, which shows information like the number of bytes, unicast and non-unicast sent and received packets. You can also see discarded packets and errors and unknown protocols, which can you troubleshoot networking problems.

```
Microsoft Windows [Version 10.0.19043.1202]
(c) Microsoft Corporation. All rights reserved.

C:\Users\nibin>netstat -b
The requested operation requires elevation.

C:\Users\nibin>netstat -e
Interface Statistics
```

	Received	Sent
Bytes	2973437600	154413434
Unicast packets	3309502	1126251
Non-unicast packets	9149	27741
Discards	0	0
Errors	0	0
Unknown protocols	0	

```
C:\Users\nibin>
```

## 1. ipconfig

Displays all current TCP/IP network configuration values and refreshes Dynamic Host Configuration Protocol (DHCP) and Domain Name System (DNS) settings. Used without parameters, ipconfig displays Internet Protocol version 4 (IPv4) and IPv6 addresses, subnet mask, and default gateway for all adapters.

### PARAMETERS:

**/all:** Displays the full TCP/IP configuration for all adapters. Adapters can represent physical interfaces, such as installed network adapters, or logical interfaces, such as dial-up connections.

**/displaydns:** Displays the contents of the DNS client resolver cache, which includes both entries preloaded from the local Hosts file and any recently obtained resource records for name



queries resolved by the computer. The DNS Client service uses this information to resolve frequently queried names quickly, before querying its configured DNS servers.

**/flushdns:** Flushes and resets the contents of the DNS client resolver cache. During DNS troubleshooting, you can use this procedure to discard negative cache entries from the cache, as well as any other entries that have been added dynamically.

**/registerdns:** Initiates manual dynamic registration for the DNS names and IP addresses that are configured at a computer. You can use this parameter to troubleshoot a failed DNS name registration or resolve a dynamic update problem between a client and the DNS server without rebooting the client computer. The DNS settings in the advanced properties of the TCP/IP protocol determine which names are registered in DNS.

```
C:\Users\nibin>ipconfig

Windows IP Configuration

Ethernet adapter VirtualBox Host-Only Network:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::5:87d5:7110:3e18%12
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Wireless LAN adapter Local Area Connection* 1:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Wireless LAN adapter Local Area Connection* 2:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Wireless LAN adapter Wi-Fi:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::7d1f:3fa:4729:cfb1%16
    IPv4 Address. . . . . : 192.168.1.5
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter Bluetooth Network Connection:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

C:\Users\nibin>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : LAPTOP-8MQED7V9
    Primary Dns Suffix . . . . . : 
    Node Type . . . . . : Hybrid
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter VirtualBox Host-Only Network:

    Connection-specific DNS Suffix  . : 
    Description . . . . . : VirtualBox Host-Only Ethernet Adapter
    Physical Address. . . . . : 0A-00-27-00-00-0C
    DHCP Enabled. . . . . : No
```



```

NetBIOS over Tcpip. . . . . : Enabled
Wireless LAN adapter Local Area Connection* 1:
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . : 
    Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter
    Physical Address. . . . . : DA-C0-A6-9B-65-FF
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
Wireless LAN adapter Local Area Connection* 2:
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . : 
    Description . . . . . : Microsoft Wi-Fi Direct Virtual Adapter #2
    Physical Address. . . . . : D8-C0-A6-9B-65-FF
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
Wireless LAN adapter Wi-Fi:
    Connection-specific DNS Suffix . : 
    Description . . . . . : Realtek RTL8723DE 802.11b/g/n PCIe Adapter
    Physical Address. . . . . : D8-C0-A6-9B-65-FF
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . : fe80::7d1f:3fa:4729:cfb1%16(Preferred)
    IPv4 Address. . . . . : 192.168.1.5(Preferred)
    Subnet Mask . . . . . : 255.255.255.0
    Lease Obtained. . . . . : 13 September 2021 18:56:37
    Lease Expires . . . . . : 14 September 2021 18:56:37
    Default Gateway . . . . . : 192.168.1.1
    DHCP Server . . . . . : 192.168.1.1
    DHCPv6 IAID . . . . . : 148422822
    DHCPv6 Client DUID. . . . . : 00-01-00-01-27-37-1A-F8-9C-EB-E8-9F-64-69
    DNS Servers . . . . . : 103.140.17.242
    . . . . . : 8.8.8.8
    NetBIOS over Tcpip. . . . . : Enabled
Ethernet adapter Bluetooth Network Connection:
    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix . : 
    Description . . . . . : Bluetooth Device (Personal Area Network)
    Physical Address. . . . . : D8-C0-A6-9B-65-FE
    DHCP Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
C:\Users\nibin>

```

## Other Networking Commands

### 1. Hostname Command

A very simple command that displays the host name of your machine. This is much quicker than going to the control **panel>system** route.

### 2. getmac Command

Another very simple command that shows the MAC address of your network interfaces

### 3.arp Command

This is used for showing the address resolution cache. This command must be used with a command line switch arp -a is the most common.

### 4. Nbtstat

Diagnostic tool for troubleshooting netBIOS problems.

### 5. Net Command

Used for managing users,service,shares etc..

```
Microsoft Windows [Version 10.0.19043.1202]
(c) Microsoft Corporation. All rights reserved.

C:\Users\nibin>net
The syntax of this command is:

NET
    [ ACCOUNTS | COMPUTER | CONFIG | CONTINUE | FILE | GROUP | HELP |
      HELPMMSG | LOCALGROUP | PAUSE | SESSION | SHARE | START |
      STATISTICS | STOP | TIME | USE | USER | VIEW ]

C:\Users\nibin>D:
D:\>net
The syntax of this command is:

NET
    [ ACCOUNTS | COMPUTER | CONFIG | CONTINUE | FILE | GROUP | HELP |
      HELPMMSG | LOCALGROUP | PAUSE | SESSION | SHARE | START |
      STATISTICS | STOP | TIME | USE | USER | VIEW ]

D:\>
```

```
D:\>nbtstat
```

```
Displays protocol statistics and current TCP/IP connections using NBT  
(NetBIOS over TCP/IP).
```

```
NBTSTAT [ [-a RemoteName] [-A IP address] [-c] [-n]  
          [-r] [-R] [-RR] [-s] [-S] [interval] ]
```

```
-a (adapter status) Lists the remote machine's name table given its name  
-A (Adapter status) Lists the remote machine's name table given its  
                        IP address.  
-c (cache)           Lists NBT's cache of remote [machine] names and their IP addresses  
-n (names)           Lists local NetBIOS names.  
-r (resolved)        Lists names resolved by broadcast and via WINS  
-R (Reload)          Purges and reloads the remote cache name table  
-S (Sessions)        Lists sessions table with the destination IP addresses  
-s (sessions)        Lists sessions table converting destination IP  
                        addresses to computer NETBIOS names.  
-RR (ReleaseRefresh) Sends Name Release packets to WINS and then, starts Refresh
```

```
RemoteName  Remote host machine name.  
IP address  Dotted decimal representation of the IP address.  
interval    Redisplays selected statistics, pausing interval seconds  
             between each display. Press Ctrl+C to stop redisplaying  
             statistics.
```

```
D:\>
```



# ping

```
user@parrot:~$ ping google.com
PING google.com (142.250.196.78) 56(84) bytes of data:
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=1 ttl=119 time=22.7 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=2 ttl=119 time=22.4 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=3 ttl=119 time=21.4 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=4 ttl=119 time=21.5 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=5 ttl=119 time=21.7 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=6 ttl=119 time=20.8 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=7 ttl=119 time=21.3 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=8 ttl=119 time=21.1 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=9 ttl=119 time=21.5 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=10 ttl=119 time=21.6 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=11 ttl=119 time=22.8 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=12 ttl=119 time=101 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=13 ttl=119 time=21.1 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=14 ttl=119 time=21.5 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=15 ttl=119 time=22.2 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=16 ttl=119 time=20.8 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=17 ttl=119 time=21.8 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=18 ttl=119 time=21.3 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=19 ttl=119 time=33.7 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=20 ttl=119 time=20.8 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=21 ttl=119 time=21.6 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=22 ttl=119 time=22.7 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=23 ttl=119 time=22.1 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=24 ttl=119 time=23.6 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=25 ttl=119 time=20.7 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=26 ttl=119 time=21.7 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=27 ttl=119 time=21.7 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=28 ttl=119 time=21.3 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=29 ttl=119 time=21.1 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=30 ttl=119 time=22.9 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=31 ttl=119 time=22.2 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=32 ttl=119 time=22.6 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=33 ttl=119 time=23.1 ms
64 bytes from maa03s46-in-f14.1e100.net (142.250.196.78): icmp_seq=34 ttl=119 time=20.8 ms
```





## Route

```
[*]-[user@parrot]-[~]
└─ $route
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
default          192.168.1.1    0.0.0.0         UG    100    0      0 eth0
192.168.1.0      0.0.0.0        255.255.255.0   U     100    0      0 eth0
[user@parrot]-[~]
└─ $route -n
Kernel IP routing table
Destination      Gateway         Genmask         Flags Metric Ref    Use Iface
0.0.0.0          192.168.1.1    0.0.0.0         UG    100    0      0 eth0
192.168.1.0      0.0.0.0        255.255.255.0   U     100    0      0 eth0
[user@parrot]-[~]
└─ $route -Cn
Kernel IP routing cache
Source           Destination     Gateway         Flags Metric Ref    Use Iface
[user@parrot]-[~]
└─ $ip route
default via 192.168.1.1 dev eth0 proto dhcp metric 100
192.168.1.0/24 dev eth0 proto kernel scope link src 192.168.1.8 metric 100
[user@parrot]-[~]
└─ $
```



## Traceroute

```
[*]-[user@parrot]-[~]
$traceroute google.com
traceroute to google.com (142.250.196.78), 30 hops max, 60 byte packets
 1  192.168.1.1 (192.168.1.1)  3.838 ms  4.853 ms  7.310 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  * * *
```

```
30  * * *
[user@parrot]-[~]
$traceroute -d google.com
traceroute to google.com (142.250.196.78), 30 hops max, 60 byte packets
setsockopt SO_DEBUG: Permission denied
[*]-[user@parrot]-[~]
$
```

## Nslookup

```
[user@parrot]~$ traceroute -d google.com
traceroute to google.com (142.250.196.78), 30 hops max, 60 byte packets
setsockopt SO_DEBUG: Permission denied
[*]-[user@parrot]~$ nslookup google.com
Server:      103.140.17.242
Address:     103.140.17.242#53

Non-authoritative answer:
Name:   google.com
Address: 142.250.196.78
Name:   google.com
Address: 2404:6800:4007:82b::200e

[user@parrot]~$ nslookup -q-wx google.com
*** Invalid option: q-wx
Server:      103.140.17.242
Address:     103.140.17.242#53

Non-authoritative answer:
Name:   google.com
Address: 142.250.196.78
Name:   google.com
Address: 2404:6800:4007:82b::200e
```

```
[user@parrot]~$ nslookup -q-wx google.com
*** Invalid option: q-wx
Server:      103.140.17.242
Address:     103.140.17.242#53

Non-authoritative answer:
Name:   google.com
Address: 142.250.196.78
Name:   google.com
Address: 2404:6800:4007:82b::200e

[user@parrot]~$ nslookup -type=soa google.com
Server:      103.140.17.242
Address:     103.140.17.242#53

Non-authoritative answer:
google.com
    origin = ns1.google.com
    mail addr = dns-admin.google.com
    serial = 396194125
    refresh = 900
    retry = 900
    expire = 1800
    minimum = 60

Authoritative answers can be found from:
```

```
[user@parrot]~$ nslookup -type=a google.com
Server:      103.140.17.242
Address:     103.140.17.242#53

Non-authoritative answer:
Name:   google.com
Address: 142.250.196.78

[user@parrot]~$
```



## Ifconfig

```
[user@parrot]-[~]
$ifconfig
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.8 netmask 255.255.255.0 broadcast 192.168.1.255
    inet6 fe80::cf3a:cc49:d2fc:4813 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:48:2c:b2 txqueuelen 1000 (Ethernet)
    RX packets 1451 bytes 116815 (114.0 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 739 bytes 63647 (62.1 KiB)
    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 28 bytes 1568 (1.5 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 28 bytes 1568 (1.5 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

```
[user@parrot]-[~]
$ifconfig -a
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.1.8 netmask 255.255.255.0 broadcast 192.168.1.255
    inet6 fe80::cf3a:cc49:d2fc:4813 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:48:2c:b2 txqueuelen 1000 (Ethernet)
    RX packets 1465 bytes 117655 (114.8 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 739 bytes 63647 (62.1 KiB)
    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 28 bytes 1568 (1.5 KiB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 28 bytes 1568 (1.5 KiB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

[user@parrot]-[~]
$ifconfig -s
Iface    MTU     RX-OK RX-ERR RX-DRP RX-OVR    TX-OK TX-ERR TX-DRP TX-OVR Flg
eth0      1500    1467    0      0  0      739    0      0      0  BMRU
lo        65536    28     0      0  0      28     0      0      0  LRU
```

```
[user@parrot]~  
$ ifconfig -v  
eth0: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500  
    inet 192.168.1.8 netmask 255.255.255.0 broadcast 192.168.1.255  
    inet6 fe80::cf3a:cc49:d2fc:4813 prefixlen 64 scopeid 0x20<link>  
    ether 08:00:27:48:2c:b2 txqueuelen 1000 (Ethernet)  
    RX packets 1471 bytes 118015 (115.2 KiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 739 bytes 63647 (62.1 KiB)  
    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 28 bytes 1568 (1.5 KiB)  
    RX errors 0 dropped 0 overruns 0 frame 0  
    TX packets 28 bytes 1568 (1.5 KiB)  
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0  
  
[user@parrot]~  
$
```