Computer Network (LAB Session – 10)

Study of basic network command and Network configuration commands.

1.Below is the list of some important network configuration command in Linux. Find the usage of the commands and also explore what is the equivalent command in windows for performing the similar task.

Explain the usage of the commands and observe the result of the command (Either windows or Linux)

A) Ping
B) Nslookup
C) Traceroute
D) Host
E) Netstat
F) Arp
G) Ifconfig /Ipconfig

- Here by, All the command is very useful for and needed to gathering information given below listed:

1) Ping = > (Send Test Packets)

It mostly used for Sending test packet in which our pc sends to 4 packets to server or website or another pc(target).

Ping URL or IPADDRESS to see if you reach an internet destination. If successfully reach then receive 4 packets other wise get lost 4 packets.

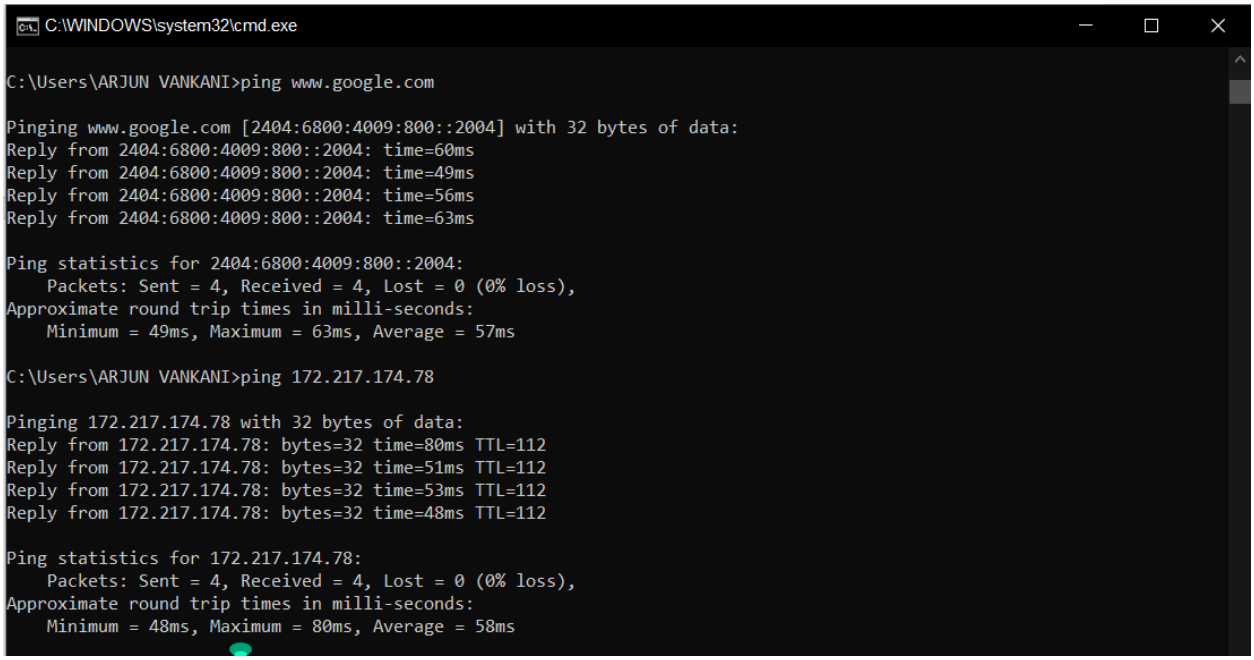


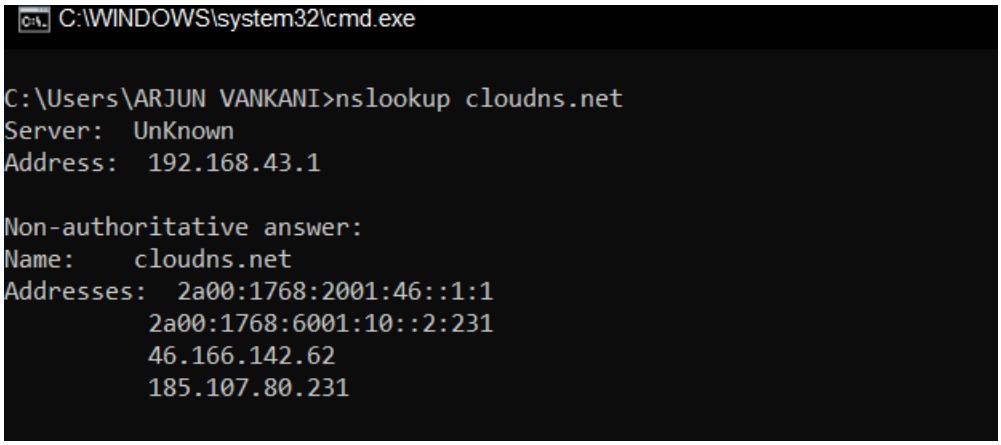
Figure (01)

In Figure (01), we sent the destination URL like google.com and see the result of Received: 4 packets in given time Otherwise its result is request timeout. And below Ping 172.217.174.78 is Ip address to send request.

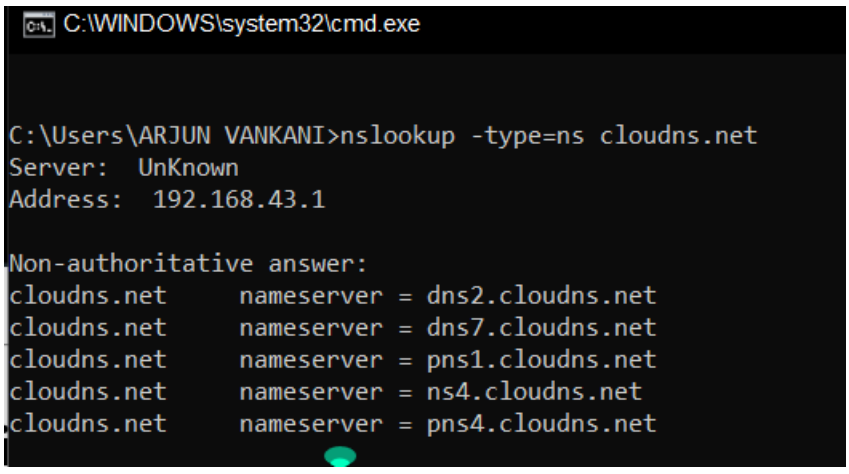
2)Nslookup: (Network Administration Command-line Tool)

It’s used for querying the Domain Name System to obtain name or Ip address mapping information. Main use of Nslookup is for troubleshooting DNS related problem. It can be use in interactive and non-interactive mode.

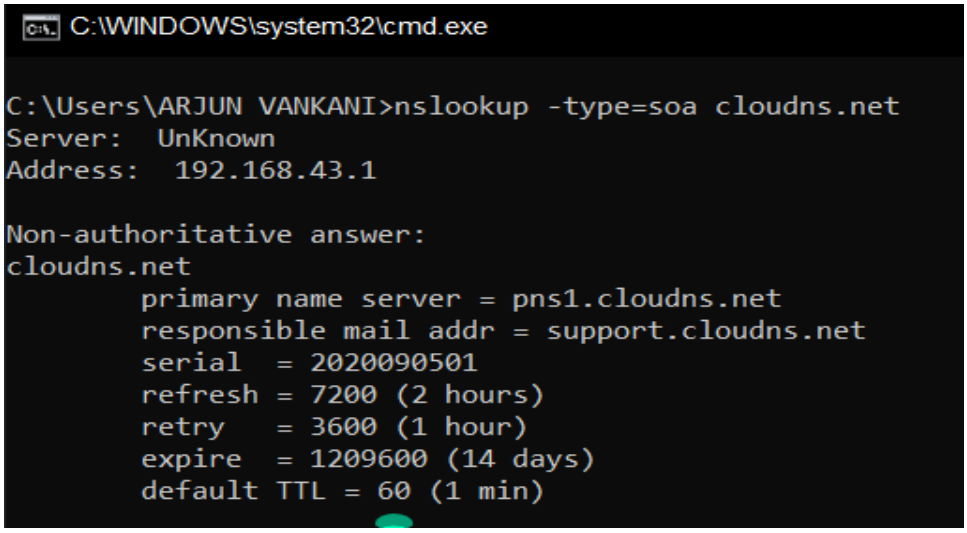
- To find a record of domain (How many records?)



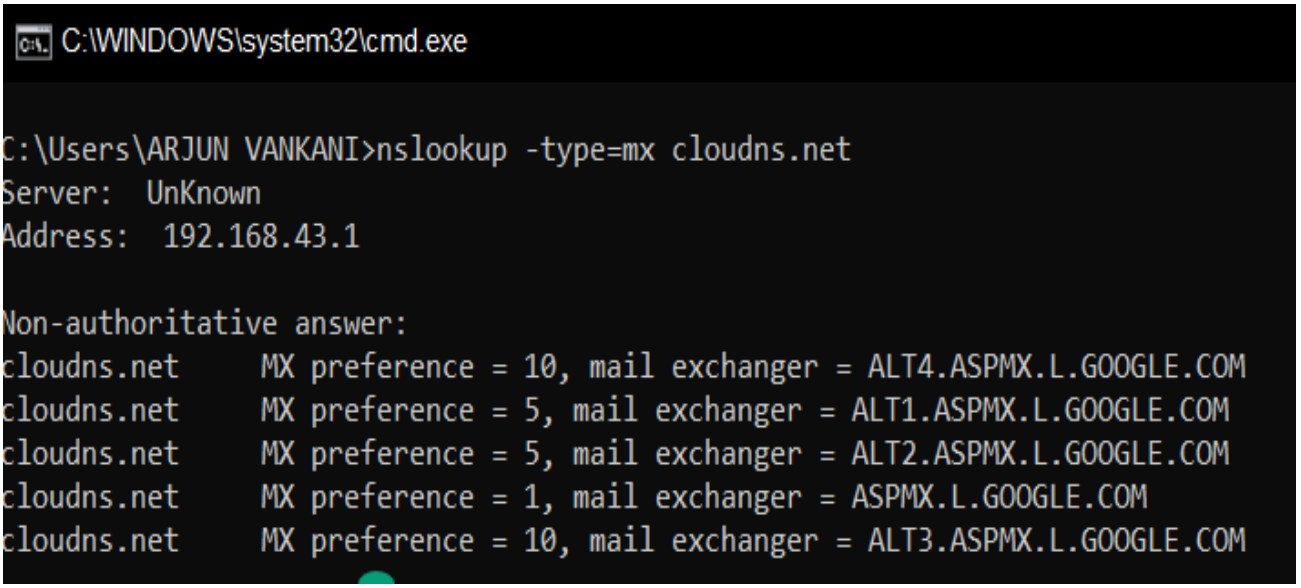
- To check NS record of domain (Name server for DNS Zone)



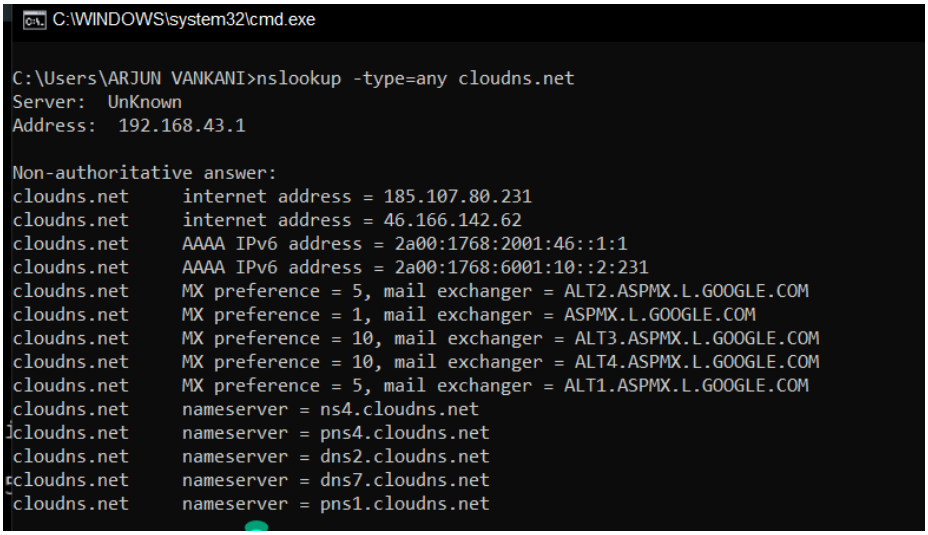
- To query the SOA record (Start of Authority Record)



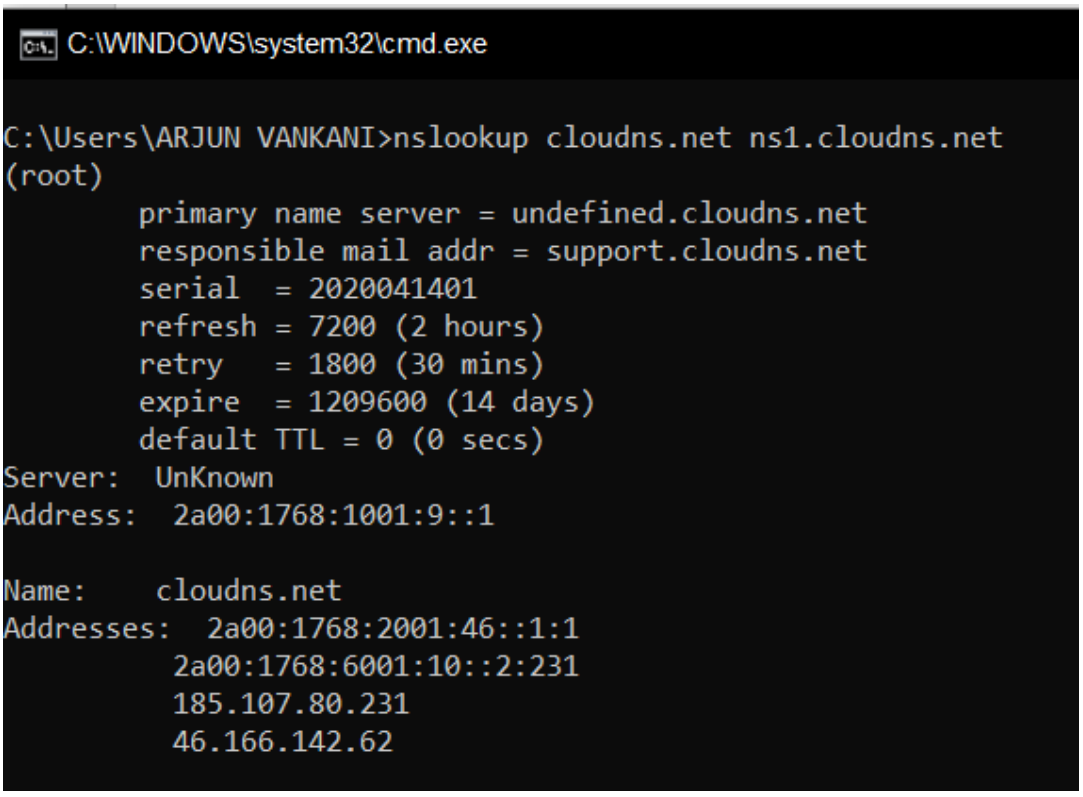
- To find the MX record responsible (Mail exchanger)



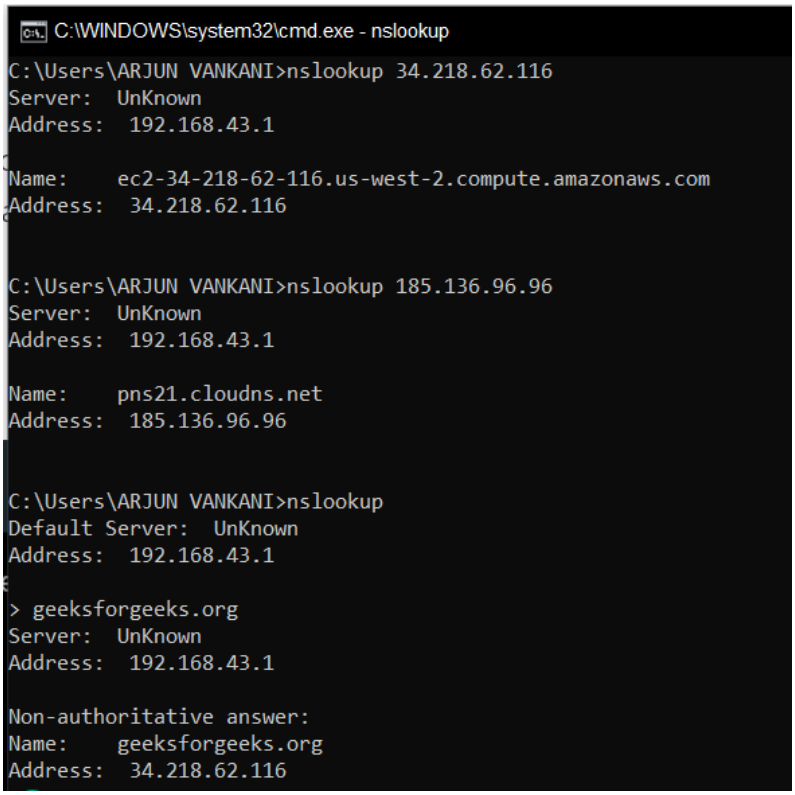
- To find all available DNS record



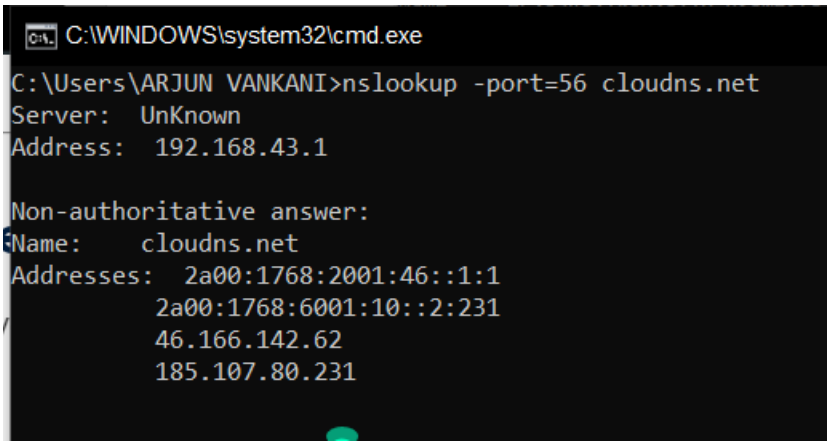
- To check the specific DNS server



- To check reverse DNS lookup



- To change the port number for the Connection



- To change the timeout interval for reply

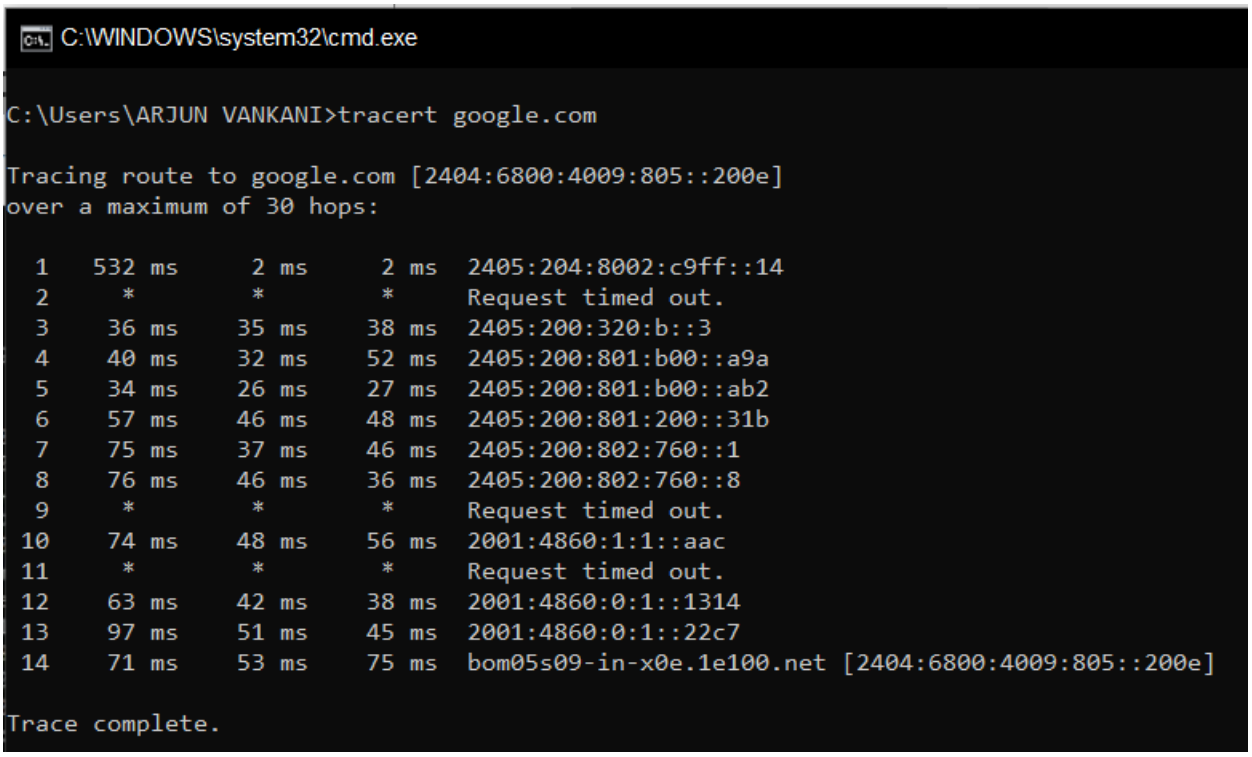
```
C:\WINDOWS\system32\cmd.exe

C:\Users\ARJUN VANKANI>nslookup -timeout=10 google.com
Server:  UnKnown
Address:  192.168.43.1

Non-authoritative answer:
Name:    google.com
Addresses:  2404:6800:4009:815::200e
          216.58.199.174
```

- To enable debug mode

```
C:\WINDOWS\system32\cmd.exe

C:\Users\ARJUN VANKANI>nslookup -debug cloudns.net
------------
Got answer:
    HEADER:
        opcode = QUERY, id = 1, rcode = NXDOMAIN
        header flags:  response, want recursion, recursion avail.
        questions = 1,  answers = 0,  authority records = 0,  additional = 0

    QUESTIONS:
        1.43.168.192.in-addr.arpa, type = PTR, class = IN

------------
Server:  UnKnown
Address:  192.168.43.1

------------
Got answer:
    HEADER:
        opcode = QUERY, id = 2, rcode = NOERROR
        header flags:  response, want recursion, recursion avail.
        questions = 1,  answers = 2,  authority records = 0,  additional = 0

    QUESTIONS:
        cloudns.net, type = A, class = IN
    ANSWERS:
    ->  cloudns.net
        internet address = 185.107.80.231
        ttl = 1800 (30 mins)
    ->  cloudns.net
        internet address = 46.166.142.62
        ttl = 1800 (30 mins)

------------
Non-authoritative answer:
------------
Got answer:
    HEADER:
        opcode = QUERY, id = 3, rcode = NOERROR
        header flags:  response, want recursion, recursion avail.
        questions = 1,  answers = 2,  authority records = 0,  additional = 0

    QUESTIONS:
        cloudns.net, type = AAAA, class = IN
    ANSWERS:
    ->  cloudns.net
        AAAA IPv6 address = 2a00:1768:6001:10::2:231
        ttl = 1800 (30 mins)
    ->  cloudns.net
        AAAA IPv6 address = 2a00:1768:2001:46::1:1
```

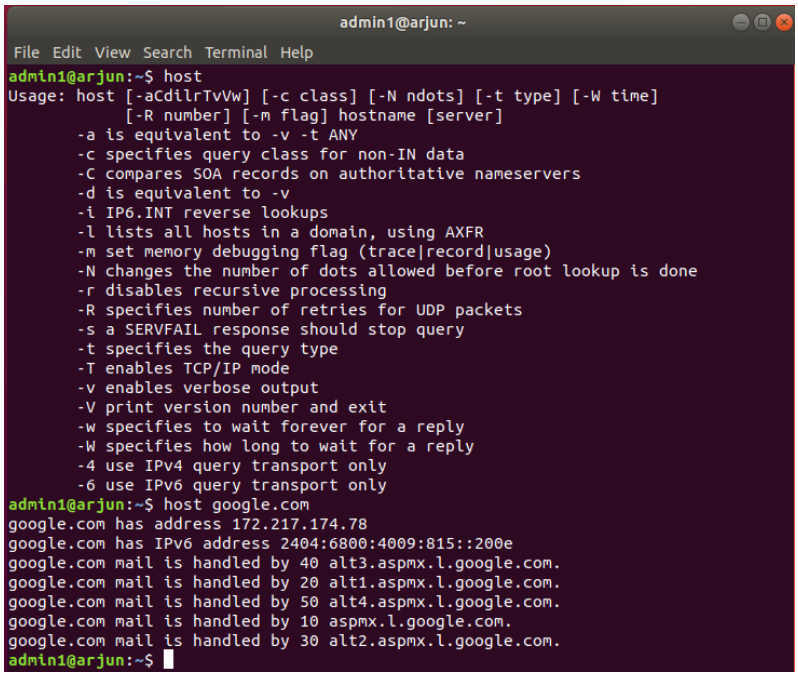
3)Traceroute (TRACERT)

- Traceroute and Tracert are computer network diagnostic commands for displaying possible(paths) and measuring transit delays of packets across an (IP) network.
- This command is a fascinating windows command to use, and curious to see the path of our internet traffic takes to get from our browser to remote system.
  This provide Three information
  1) Number of hops before getting to the destination
  2) Time it takes to get to each hop
  3) The IP and sometimes the name of hop
  ➔ (*) represent Time out -> that's why change path.

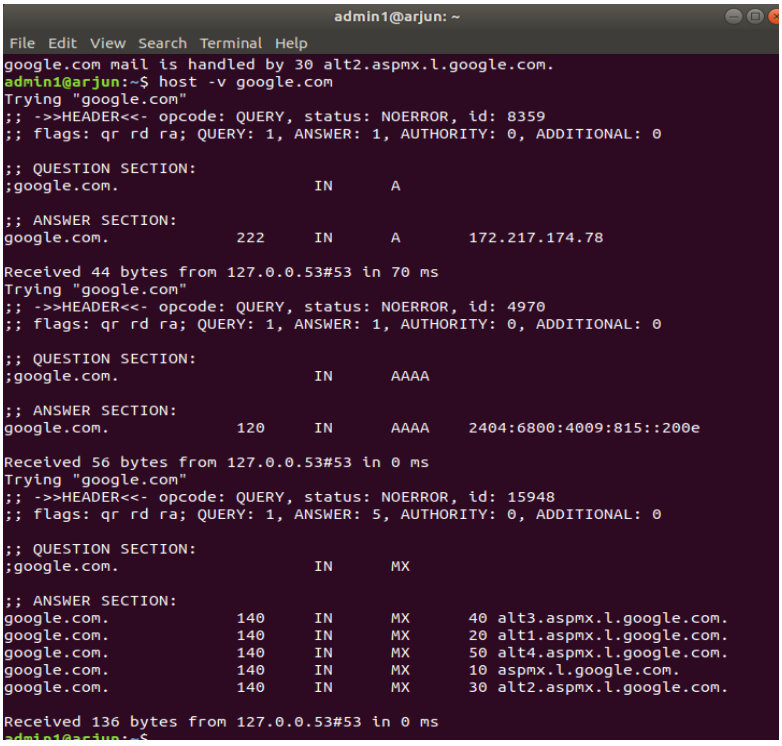


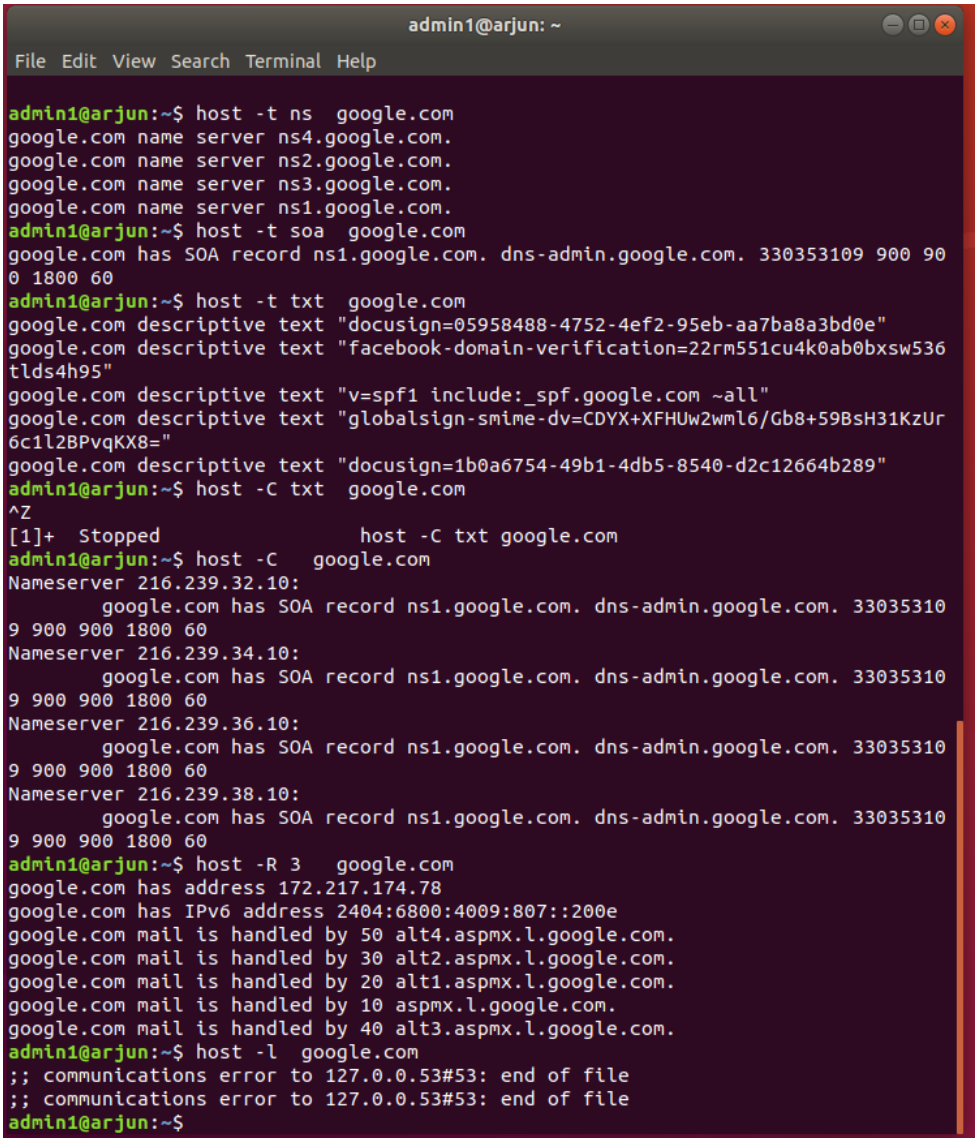
4) Host

It is used for DNS lookup operation in Linux, It finds particular domain name or IP address etc..



- -v used for verbose output

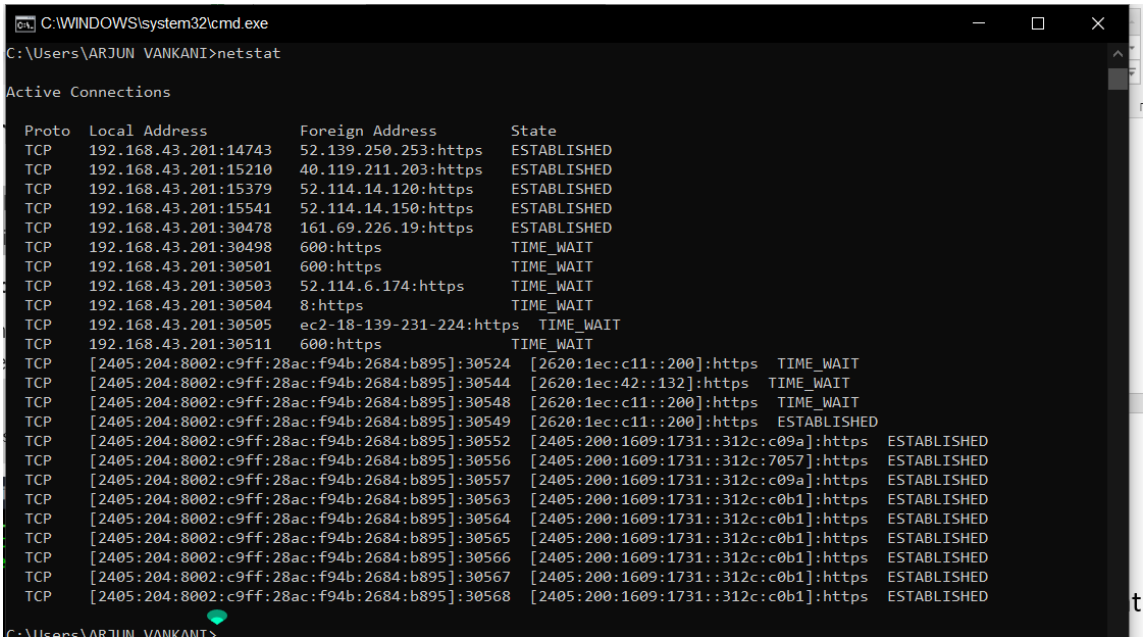




- -t is used for specific type of query
- -t SOA is for record
- -t txt used for print txt record
- -c used for, in order to compare the SOA records on authoritative nameservers
- -r used for retries entry and try fails
- -l for list all hosts in domain

5)Netstat (Network Statistics)

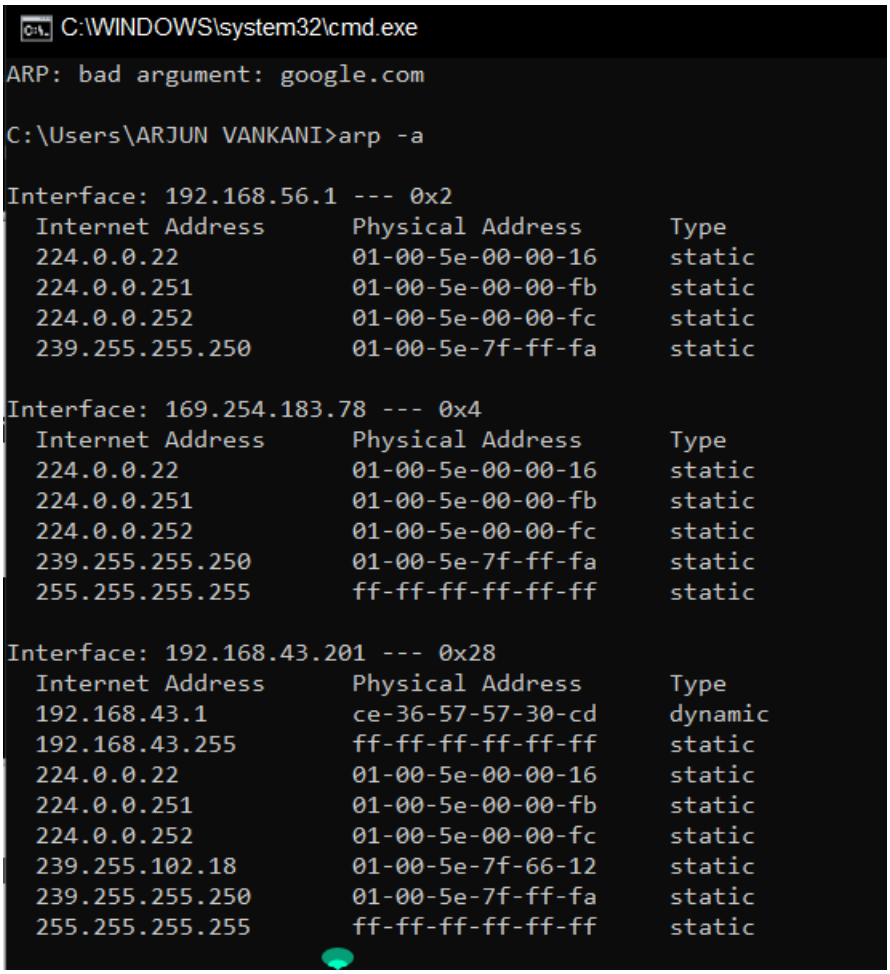
- Netstat command displays various network related information such as network connections, routing tables, interface statistics, masquerade connections, multicast memberships etc.



- -a for list out all connection-> to show listening and non-listening socket
- -at for list out TCP port
- -au for list out UDP port
- -l list only listening port
- -lt for TCP listening and -lu for UDP listening

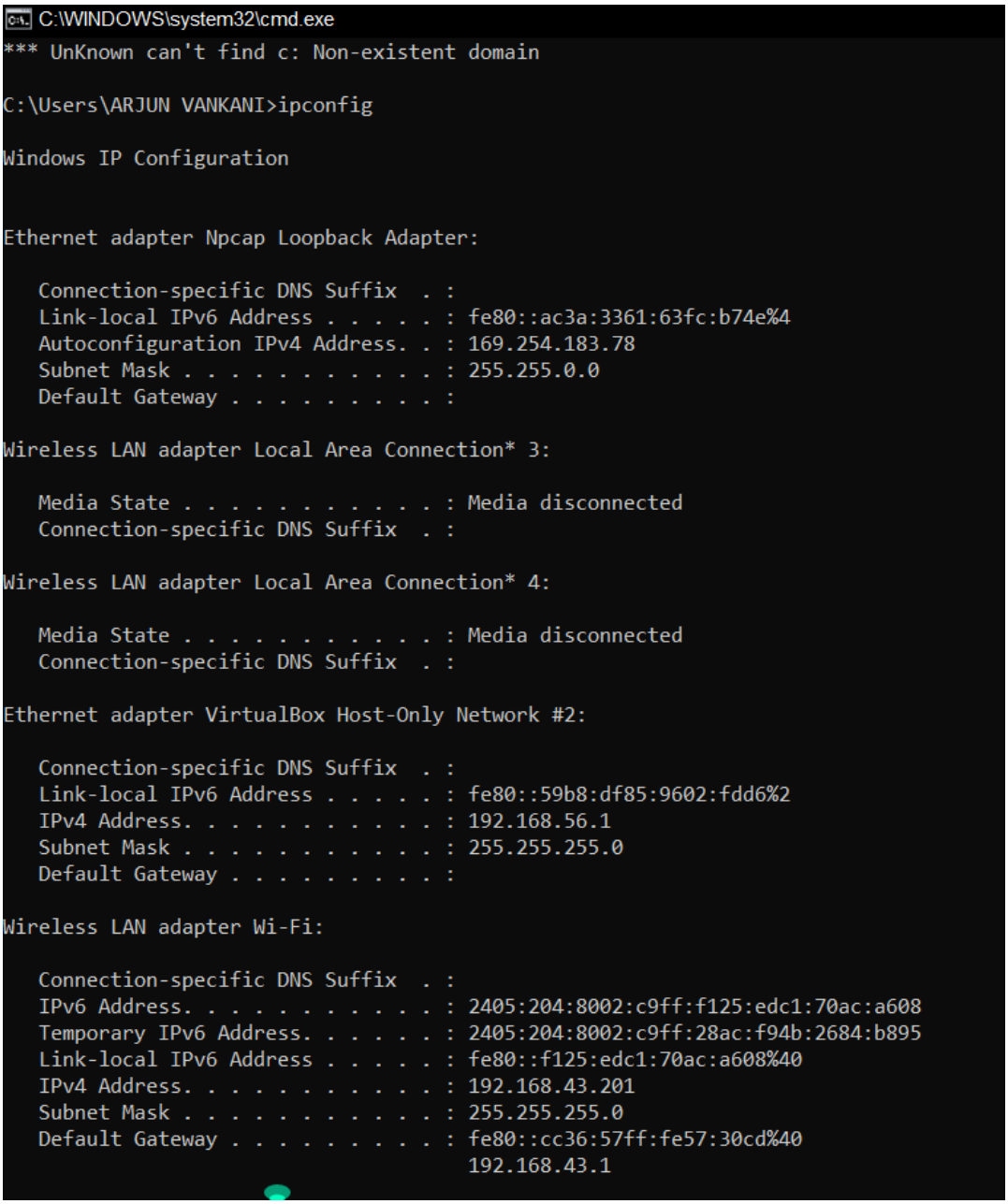
6)Arp (Address Resolution Protocol)

- Using the ARP command allows you to display and modify the Address Resolution Protocol (ARP) cache.
- An ARP cache is a simple mapping of IP addresses to MAC addresses. Each time a computer's TCP-Ip stack uses ARP to determine MAC address for an IP address, it records the mapping in the ARP cache so that future ARP lookups go faster.



7) Ifconfig / Ipconfig

- Ipconfig in windows system used for gathering information about all IPv4 / IPv6 address and all connection given below.



Another indispensable and frequently used utility that is used for finding network information about your local machine-like IP addresses, DNS addresses etc.

1)Ipconfig/all -> display all network setup

2)Ipconfig/release -> release IP address

3)Ipconfig/renew -> renew ip address

4)Ipconfig/? -> shows help

5)Ipconfig/flushdns -> flush the dns cache

- **Assoc is used for Fix file associations**
- **Powercfg -> POWER configuration**
- **Systeminfo -> gives system information**
- **Tasklist -> all list out task running on our pc**
- **Taskkill -> kill or stop process.**
- **Cipher -> It used without any switches to quickly ascertain which files and folders in a given directory are encrypted.**