

Date:27.07.2024

Exp no : 1A BASIC NETWORKING COMMANDS IN WINDOWS OPERATING SYSTEM

Aim:-

To implement basic networking commands in the Windows operating system.

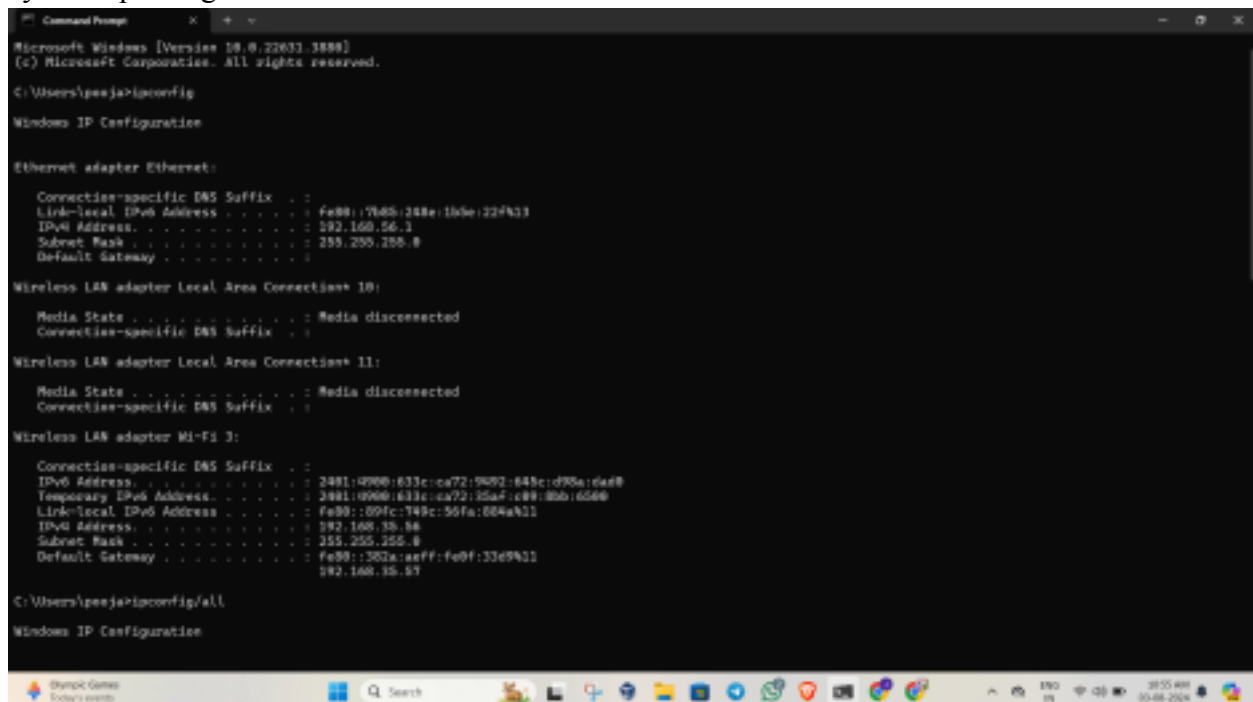
1. IPCONFIG

The IPCONFIG network command provides a comprehensive view of information regarding the IP address configuration of the device we are currently working on.

The IPConfig command also provides us with some variation in the primary command that targets specific system settings or data, which are:

- IPConfig/all - Provides primary output with additional information about network adapters.
- IPConfig/renew - Used to renew the system's IP address.
- IPConfig/release - Removes the system's current IP address.

Syntax: ipconfig



```
Microsoft Windows [Version 10.0.22631.3888]
(c) Microsoft Corporation. All rights reserved.

C:\Users\pooja>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix . : 
    Link-local IPv6 Address . . . . . : fe80::7485:248e:1b5e:2274%3
    IPv4 Address. . . . . : 192.168.56.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 

Wireless LAN adapter Local Area Connection* 10:

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

Wireless LAN adapter Local Area Connection* 11:

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

Wireless LAN adapter Wi-Fi 3:

    Connection-specific DNS Suffix . : 
    IPv6 Address. . . . . : 2481:4900:633c:ca72:9692:645c:d95a:daa8
    Temporary IPv6 Address. . . . . : 2481:4900:633c:ca72:32a7:c89:80b:6500
    Link-local IPv6 Address . . . . . : fe80::89fc:749c:56fa:004a%11
    IPv4 Address. . . . . : 192.168.35.84
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : fe80::302a:aaff:fe0f:33e9%11
                                     192.168.35.57

C:\Users\pooja>ipconfig/all

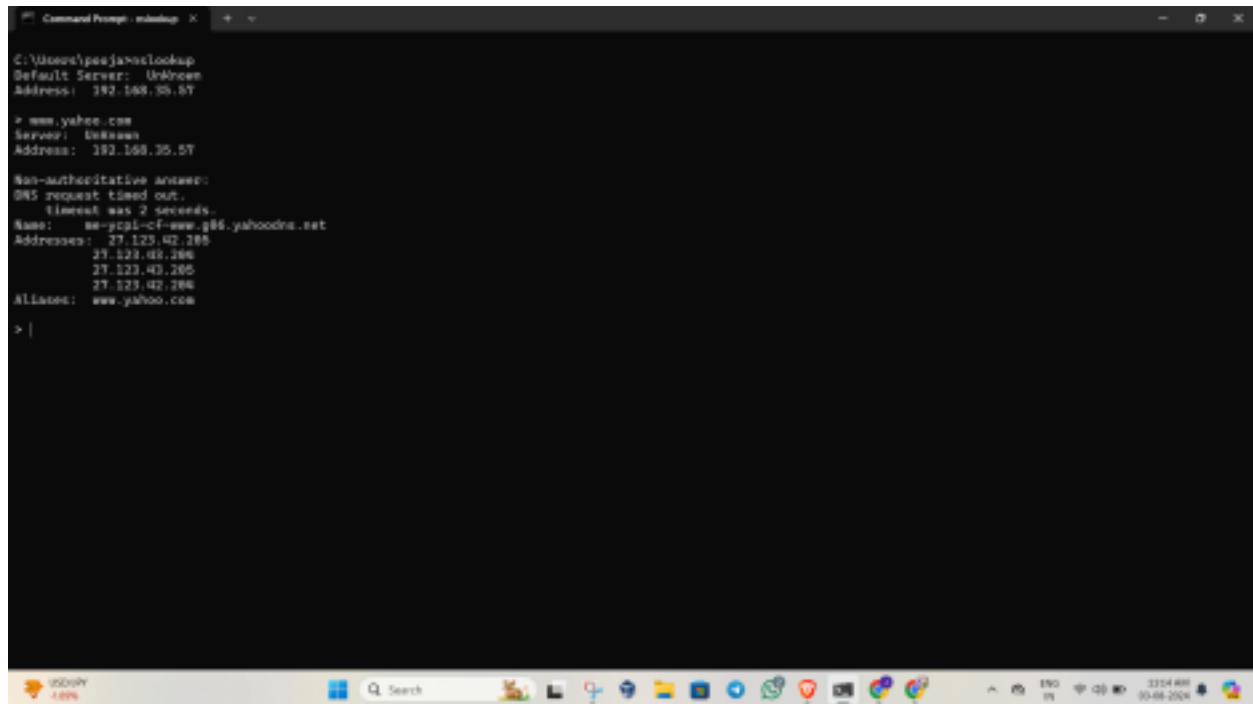
Windows IP Configuration
```

2. NSLOOKUP

The NSLOOKUP command is used to troubleshoot network connectivity issues in the system. Using the nslookup command, we can access the information related to our system's DNS server,

i.e., domain name and IP address.

Syntax: nslookup



```
C:\Users\pasja>nslookup
Default Server: Unknown
Address: 192.168.35.57

> www.yahoo.com
Server: Unknown
Address: 192.168.35.57

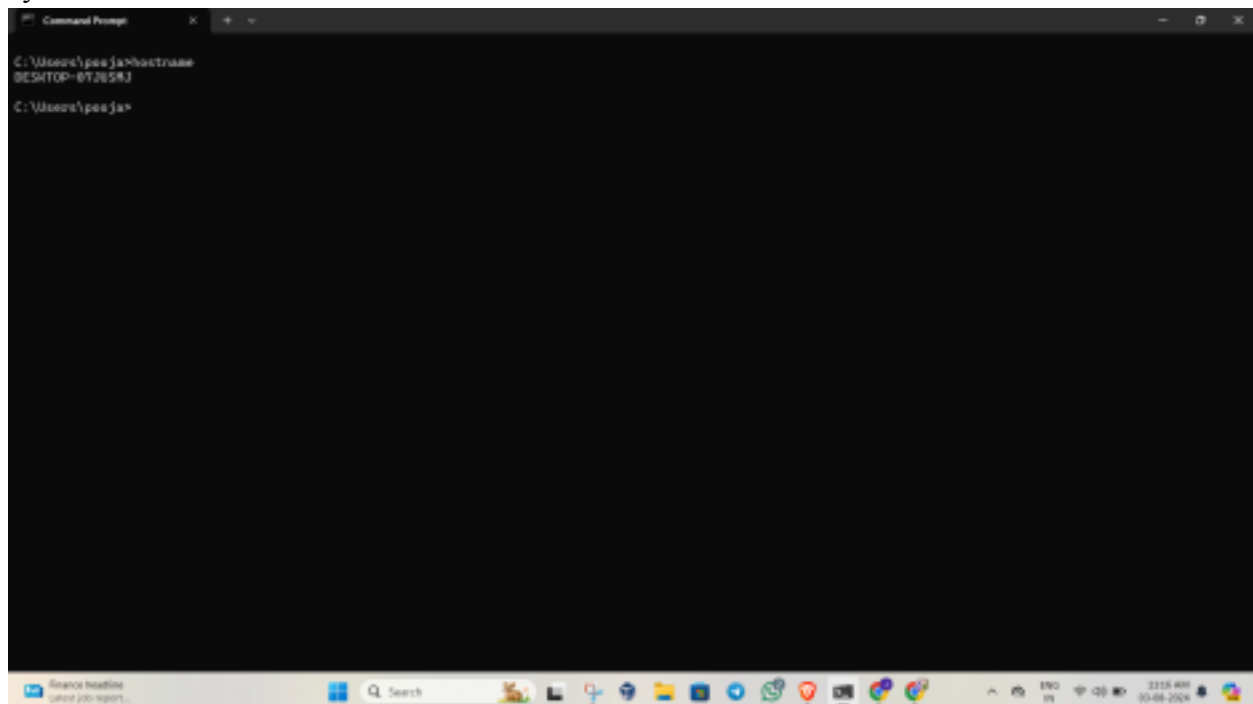
Non-authoritative answer:
DNS request timed out.
    timeout was 2 seconds.
Name:   ns-ycpi-cf-www.g86.yahoodns.net
Address: 17 123.42.188
        11 123.42.188
        11 123.42.188
        11 123.42.188
Aliases: www.yahoo.com

> |
```

3. HOSTNAME

The HOSTNAME command displays the hostname of the system. The hostname command is much easier to use than going into the system settings to search for it.

Syntax:hostname



```
C:\Users\pasja>hostname
BC2HTOP-872658J

C:\Users\pasja>
```

4. PING

The Ping command is one of the most widely used commands in the prompt tool, as it allows the user to check the connectivity of our system to another host.

This command sends four experimental packets to the destination host to check whether it receives them successfully, if so, then, we can communicate with the destination host. But in case the packets have not been received, that means, no communication can be established with the destination host.

Syntax:

ping www.destination_host_name.com

Example: ping www.yahoo.com

5. TRACERT

The TRACERT command is used to trace the route during the transmission of the data packet over to the destination host and also provides us with the “hop” count during transmission.

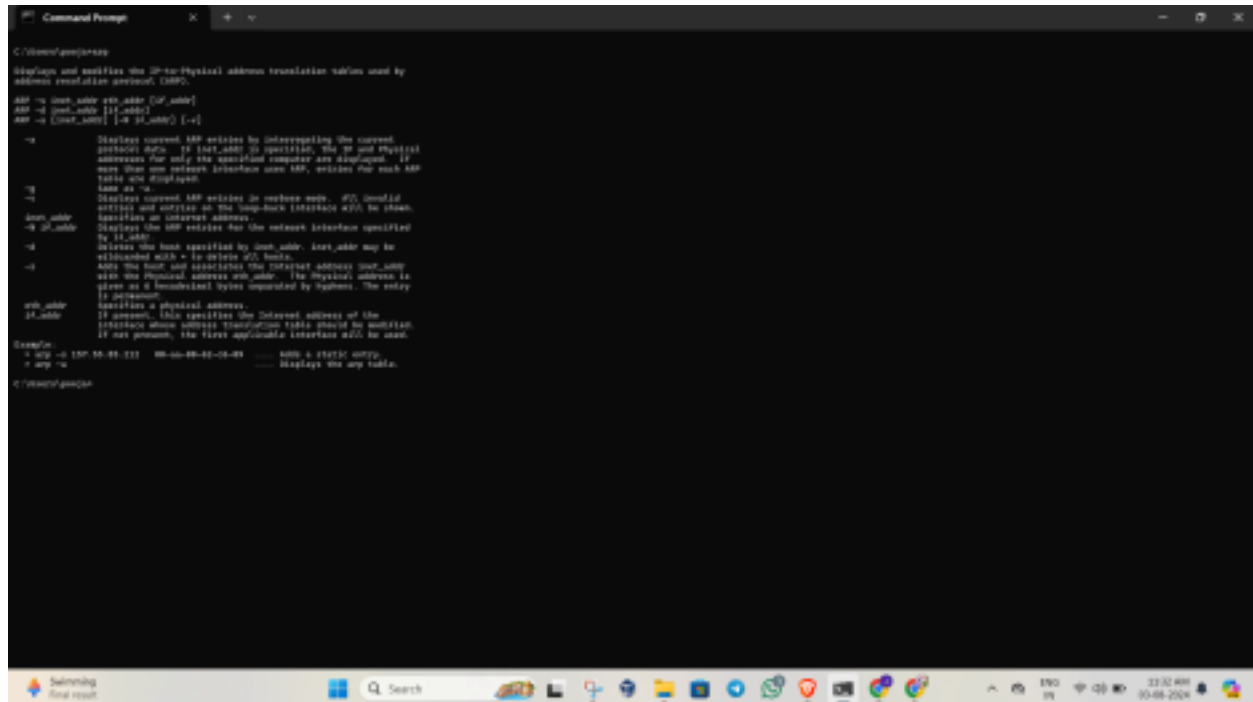
Using the number of hops and the hop IP address, we can troubleshoot network issues and identify the point of the problem during the transmission of the data packet.

Syntax: tracert IP-address OR tracert www.destination_host_name.com

Example: tracert www.youtube.com

The ARP command is used to access the mapping structure of IP addresses to the MAC address. This provides us with a better understanding of the transmission of packets in the network channel.

Syntax: arp



```
C:\Users\pawel>arp /?
arp /? Displays and modifies the IP-to-physical address translation table used by
address resolution protocol (ARP).

arp [-a] [-d] [-s] [-m] [-i] [-h] [-c] [-n] [-v] [-f] [-s] [-m] [-i] [-h] [-c] [-n] [-v] [-f]
  -a      Displays current ARP entries by interpreting the current
  network data. If -i, -d, or -s is specified, the IP and physical
  addresses for only the specified computer are displayed. If
  none other than one network interface uses ARP, entries for each ARP
  table are displayed.
  -d      Deletes current ARP entries in runtime mode. If -i, -d, or -s
  is specified, entries are deleted on the loop-back interface (127.0.0.1) by
  default.
  -s      Specifies an Internet address.
  -i      Specifies the network interface for the network interface specified
  by -i.
  -h      Deletes the host specified by host_addr. host_addr may be
  wildcarded with * to delete all hosts.
  -c      Adds the host and associates the Internet address (ip_addr)
  with the physical address (mac_addr). The physical address is
  given as 6 hexadecimal bytes separated by hyphens. The entry
  is permanent.
  -n      Specifies a physical address.
  -v      If present, this specifies the Internet address of the
  interface whose address translation table should be modified.
  If not present, the first applicable interface will be used.
  -f      Example:
  -a -i 127.0.0.1 -c 00-00-00-00-00-00 -s 192.168.1.100 -v 192.168.1.100
  -f arp -a      Displays the arp table.

C:\Users\pawel>
```

8. SYSTEMINFO

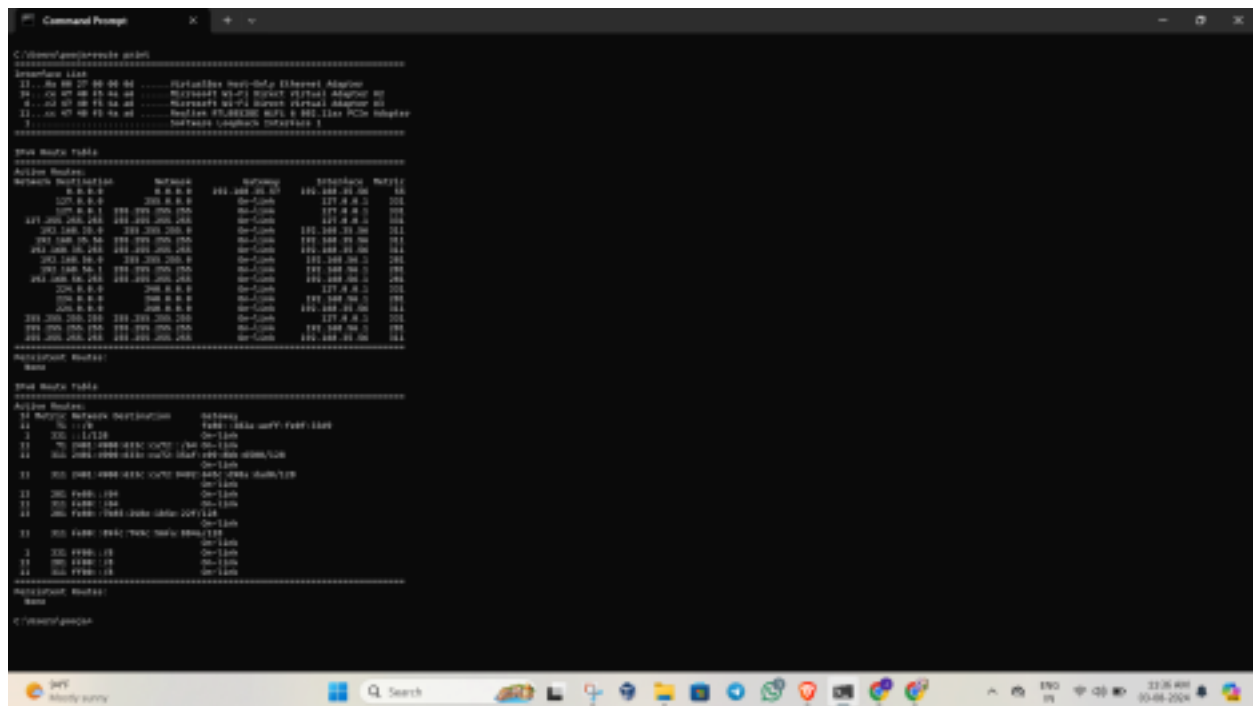
Using the SYSTEMINFO command, we can access the system's hardware and software details, such as processor data, booting data, Windows version, etc.

Syntax: systeminfo

9. ROUTE

Provides the data of routing data packets in the system over the communication channel.

Syntax: route print



CONCLUSION

Understood the need of using network commands and the way to implement them in the Windows command prompt and also learned about the different network commands to troubleshoot and configure the system's network settings.

Class:CSE(Cyber Security).