

Batch: SY_IT (B2)

Experiment Number: 1

Roll Number: 16010423076

Name: Ritesh Jha

Aim of the Experiment: Study of various networking commands.

Program/ Steps:

1)Ping

2)ipconfig

3) tracert

4) Arp

5) Netstat

6) Nslookup

Nslookup is a network administration command-line tool for querying the Domain Name System to obtain the mapping between domain name and IP address.

7) Systeminfo

Displays detailed configuration information about a computer and its operating system, including operating system configuration, security information, product ID, and hardware properties (such as RAM, disk space, and network cards).

Output/Result:

1)Ping kjsce.somaiya.edu

```
C:\Users\SVVAdmin>ping kjsce.somaiya.edu

Pinging application-load-balancer-1808612506.ap-south-1.elb.amazonaws.com [13.126.208.18] with 32 bytes of data:
Reply from 13.126.208.18: bytes=32 time=5ms TTL=242
Reply from 13.126.208.18: bytes=32 time=5ms TTL=242
Reply from 13.126.208.18: bytes=32 time=5ms TTL=242
Reply from 13.126.208.18: bytes=32 time=5ms TTL=242

Ping statistics for 13.126.208.18:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 5ms, Maximum = 5ms, Average = 5ms
```

2)ipconfig

```

C:\Users\SVVAdmin>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::3830:fdb1:8325:ef9%7
    IPv4 Address. . . . . : 172.17.16.166
    Subnet Mask . . . . . : 255.255.254.0
    Default Gateway . . . . . : 172.17.17.254

```

3) tracert kjsce.somaiya.edu

```

C:\Users\SVVAdmin>tracert kjsce.somaiya.edu

Tracing route to application-load-balancer-1808612506.ap-south-1.elb.amazonaws.com [52.66.96.181]
over a maximum of 30 hops:

  0  1 ms    1 ms    1 ms    172.17.17.254
  1  1 ms    1 ms    1 ms    172.17.52.240
  2  <1 ms   <1 ms   <1 ms    172.30.250.250
  3  24 ms   39 ms   27 ms    14.142.143.97.static-mumbai.vsnl.net.in [14.142.143.97]
  4  *        21 ms   22 ms    172.23.78.237
  5  *        *        *        Request timed out.
  6  22 ms   23 ms   23 ms    121.244.71.190.static-lvsb.vsnl.net.in [121.244.71.190]
  7  *        *        *        Request timed out.
  8  *        *        *        Request timed out.
  9  *        *        *        Request timed out.
 10  *        *        *        Request timed out.

```

4) Arp -a -N 172.17.16.166

```

C:\Users\SVVAdmin>Arp -a -N 172.17.16.166

Interface: 172.17.16.166 --- 0x7

 Internet Address      Physical Address      Type
172.17.16.14           d8-cb-8a-0c-88-11    dynamic
172.17.16.61           64-4e-d7-6d-69-dc    dynamic
172.17.16.110          c4-71-54-33-03-4f    dynamic
172.17.16.133          3c-52-82-70-5e-1e    dynamic
172.17.16.169          64-4e-d7-6d-69-ce    dynamic
172.17.16.207          64-4e-d7-6d-6d-6d    dynamic
172.17.16.225          64-4e-d7-6d-6b-e1    dynamic
172.17.16.245          40-b0-34-3a-79-ae    dynamic
172.17.17.228          f8-bc-12-5f-cc-6f    dynamic
172.17.17.254          b0-aa-77-66-d1-41    dynamic
172.17.17.255          ff-ff-ff-ff-ff-ff    static
224.0.0.22             01-00-5e-00-00-16    static
224.0.0.251            01-00-5e-00-00-fb    static
224.0.0.252            01-00-5e-00-00-fc    static
239.255.255.250        01-00-5e-7f-ff-fa    static

```

5) Netstat -a

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

	Received	Sent
Bytes	1523825737	215591712
Unicast packets	1226757	459844
Non-unicast packets	713419	3073
Discards	0	0
Errors	0	0
Unknown protocols	0	

```
C:\Users\SVVAdmin>Netstat -a
Active Connections
```

Proto	Local Address	Foreign Address	State
TCP	0.0.0.0:80	16DITB212-06:0	LISTENING
TCP	0.0.0.0:135	16DITB212-06:0	LISTENING
TCP	0.0.0.0:443	16DITB212-06:0	LISTENING
TCP	0.0.0.0:445	16DITB212-06:0	LISTENING
TCP	0.0.0.0:3306	16DITB212-06:0	LISTENING
TCP	0.0.0.0:5040	16DITB212-06:0	LISTENING
TCP	0.0.0.0:5357	16DITB212-06:0	LISTENING
TCP	0.0.0.0:5432	16DITB212-06:0	LISTENING
TCP	0.0.0.0:6880	16DITB212-06:0	LISTENING
TCP	0.0.0.0:7680	16DITB212-06:0	LISTENING
TCP	0.0.0.0:33060	16DITB212-06:0	LISTENING
TCP	0.0.0.0:49664	16DITB212-06:0	LISTENING
TCP	0.0.0.0:49665	16DITB212-06:0	LISTENING
TCP	0.0.0.0:49666	16DITB212-06:0	LISTENING
TCP	0.0.0.0:49667	16DITB212-06:0	LISTENING
TCP	0.0.0.0:49669	16DITB212-06:0	LISTENING
TCP	0.0.0.0:49694	16DITB212-06:0	LISTENING
TCP	127.0.0.1:30523	16DITB212-06:0	LISTENING
TCP	127.0.0.1:49695	16DITB212-06:49696	ESTABLISHED
TCP	127.0.0.1:49696	16DITB212-06:49695	ESTABLISHED
TCP	127.0.0.1:49697	16DITB212-06:49698	ESTABLISHED
TCP	127.0.0.1:49698	16DITB212-06:49697	ESTABLISHED
TCP	127.0.0.1:49718	16DITB212-06:0	LISTENING
TCP	127.0.0.1:49886	16DITB212-06:0	LISTENING
TCP	127.0.0.1:57925	16DITB212-06:0	LISTENING
TCP	127.0.0.1:62540	16DITB212-06:0	LISTENING

6) Nslookup

```
C:\Users\SVVAdmin>NSLOOKUP
Default Server:  svvpdc.svv.local
Address:  172.31.0.25
```

7)Systeminfo

```

C:\Users\SVVAdmin>SystemInfo

Host Name:                16DITB212-06
OS Name:                  Microsoft Windows 10 Pro for Workstations
OS Version:               10.0.19045 N/A Build 19045
OS Manufacturer:         Microsoft Corporation
OS Configuration:        Standalone Workstation
OS Build Type:             Multiprocessor Free
Registered Owner:         admin
Registered Organization:
Product ID:                00391-90090-60463-AA621
Original Install Date:    10/4/2022, 12:25:31 AM
System Boot Time:         7/29/2024, 4:06:14 PM
System Manufacturer:      LENOVO
System Model:              10HJA02AHF
System Type:               x64-based PC
Processor(s):              1 Processor(s) Installed.
                           [01]: Intel64 Family 6 Model 60 Stepping 3 GenuineIntel ~1000 Mhz
BIOS Version:              LENOVO FCKT69AUS, 4/10/2015
Windows Directory:        C:\Windows
System Directory:          C:\Windows\system32
Boot Device:               \Device\HarddiskVolume1
System Locale:              en-us;English (United States)
Input Locale:              en-us;English (United States)
Time Zone:                 (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi
Total Physical Memory:     8,105 MB
Available Physical Memory: 3,084 MB
Virtual Memory: Max Size: 11,686 MB
Virtual Memory: Available: 4,360 MB
Virtual Memory: In Use:    7,326 MB
Page File Location(s):    C:\pagefile.sys
Domain:                    AAA
Logon Server:              \\16DITB212-06
Hotfix(s):                 26 Hotfix(s) Installed.
                           [01]: KB5041168
                           [02]: KB5028853
                           [03]: KB4562830
                           [04]: KB4570334

```

Post Lab Question-Answers:

1. ICMP is used in both Ping & Traceroute.
2. Route command is used to manipulate TCP/IP routing table.
3. Select the false statement from the following.
 - c) Pathping combines the functionality of ping with that of route

Outcomes:

CO1 : Understand the data communication systems, network topologies and network devices.

Conclusion (based on the Results and outcomes achieved):

By performing this experiment, I learnt about the basic networking commands and their usage on the command line. Every system is connected to numerous different networks and systems through internal or external network channels. These network settings often run into issues and affect the system's working. Such network problems can be resolved using 'networking commands.'

References:

Books/ Journals/ Websites:

- Behrouz A Forouzan, Data Communication and Networking, Tata Mc Graw hill, India, 4th Edition
- A. S. Tanenbaum, "Computer Networks", 4th edition, Prentice Hall
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