

# Computer Networks

Lab No.: 2

## Study of Basic Network Commands

### Objectives:

- ❖ To be familiar with basic network commands and their uses

### Requirements:

- ❖ Computer(s) with Internet Connectivity

### Activities:

Connect your computer with the Internet. Observe the output of following commands in command prompt.

1. Using **ipconfig**:

a. ipconfig

Note down the IP address of your computer with a subnet mask and default gateway.

IP Address:

Subnet mask:

Default gateway:

b. ipconfig/all

What additional information have you obtained from this command? Note down DNS(s) used by your computer.

2. Using **getmac**:

a. getmac

3. Using **hostname**:

a. hostname

4. Using **ping**:

- a. Obtain the IP address of your default gateway (refer activity 1) and ping to your default gateway.
- b. ping “your ISP”      e.g. ping ntc.net.np, if your ISP is Nepal Telecom
- c. ping google.com
- d. ping 103.5.150.3

Note down the time taken while using ping to different computers.

5. Using **tracert**:

- a. Obtain the IP address of your default gateway (refer activity 1) and use tracert to your default gateway.
- b. tracert “**your ISP**”      e.g. tracert ntc.net.np, if your ISP is Nepal Telecom
- c. tracert google.com
- d. tracert 103.5.150.3

Note down the number of hops required to reach the destination in each of above cases.

6. Using **arp**:

- a. arp -a
- b. Use ping to any another device within your network such as another computer or laptop or mobile phone or tablet etc. and again use arp -a (if there are multiple devices in your network you can ping one by one by observing the output of arp -a after each ping)
- c. After around 10 minutes again observe the output of arp -a

Note down the changes in the table and comment on it.

7. Using **netstat**:

- a. netstat
- b. netstat -e
- c. netstat -r
- d. netstat -s

Note down the typical information that can be observed by this command.

8. Using **route**:
  - a. route print
  - b. route print -4
  - c. route print -6

Note down the typical information that can be observed by this command.

9. Using **nslookup**:
  - a. nslookup google.com
  - b. nslookup -type=ns google.com
  - c. nslookup google.com ns1.google.com
  - d. Also observe & note down the output of nslookup command for other domains such as ioe.edu.np, pcampus.edu.np and domain of your ISP such as ntc.net.np

Note: Above mentioned commands are based on Windows Operating System. Some of the commands are common in Linux Operating systems also, but some of the commands are slightly different. Like ipconfig – ifconfig, tracert – traceroute etc. The Linux users can use corresponding equivalent commands. You have to mention it in your Lab Report.

## **Exercises:**

1. Observe the outputs of each step with necessary commands specified in the activities mentioned above. Also note down the typical information that is given by each command and comment on it.
2. Connect your computer to the Internet and note down the IP address of your computer using ipconfig command. Also note down your computer's IP address using "what's my ip" in google. Are they the same? Comment on the result.
3. Explain the following commands briefly with their functions and most common syntaxes that you have used above.
  - a. ipconfig
  - b. ping
  - c. tracert
  - d. arp

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