

## Lesson 2. IP address and MAC address

### GOAL

This lesson familiarizes us with how to get the IP address and MAC address of the device (Windows and Ubuntu machine). We also get to send a ping message from one machine to another. We also ping a remote server such as Google.

### TASKS.

1. On the Windows Machine (Alice), run the command

```
ipconfig /all
```

Fill in the IP address and MAC address of the machine from the above command in the table below.



IP ADDRESS	
MAC ADDRESS	

2. On the Ubuntu Machine (Mallory), run the command

```
ifconfig
```

Fill in the IP address and MAC address of the machine from the above command in the table below.



IP ADDRESS	
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MAC ADDRESS	
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3. On the Windows machine, remove the TP Link Adapter and connect to the hotspot directly. Now run the command to display the IP configuration,

```
ipconfig /all
```

- Do you see any difference in the output for Question 1 and the current output?
- Does the MAC address of the machine change?
- Does the IP address of the machine change?

Write down your observations.

4. On the Windows machine, disconnect from the hotspot and run the same IP configuration command again.

```
ipconfig /all
```

- Is an IP address assigned to the machine?
- Is the MAC address of the machine displayed? If yes, has the address changed from the previous output?

Write your observations below.

5. Now that we know the IP addresses of both the Windows and Ubuntu Machine, we can try to ping one machine from the other.

On the Windows machine, run the below command,

```
ping <IP_ADDR-UBUNTU-MACHINE>
```

*For example, ping 192.168.1.1 (this is an example IP address)*

Write your observations from the output in 1-2 lines.

6. On the Ubuntu machine, run the below command,

```
ping <IP_ADDR-WINDOWS-MACHINE>
```

Write your observations from the output in 1-2 lines.

7. Ping Google from either the Windows or Ubuntu machine. Run the below command,

```
ping google.com
```

Write your observations in 1-2 lines.

8. Finally, run the below command on both the Windows and Ubuntu terminal and answer the below questions.

```
arp -a
```

- a. Do you see the same or different output on both the screens?
- b. Do you find the local machine's IP address in the output?
- c. Are the IP and MAC addresses listed in this output the same as what you saw before?