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Mata Kuliah : Praktikum Jaringan Komputer
Tugas : Pertemuan ke-4

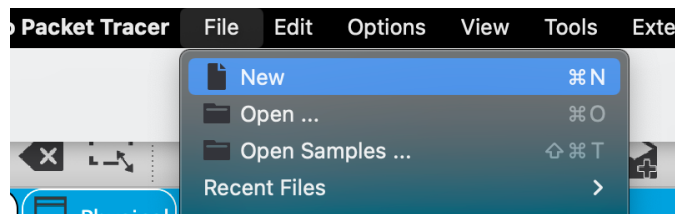
Kesimpulan:

IP Address adalah identitas satu komputer dalam jaringan komputer / internet, seperti halnya rumah kita mempunyai nomor rumah yang tertempel pada dinding. Penulisan IP Address terbagi 4 kelompok 8 bit yang dituliskan dalam bilangan biner. Dimana setiap kelompok dalam IP Address dipisahkan oleh titik (red;Dot). Nilai terbesar dari bilangan biner 8 bit adalah 255. IP Address memiliki 2 fungsi, yakni:

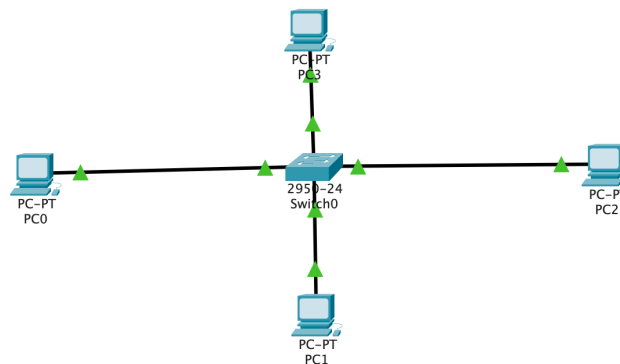
- 1) Sebagai alat identifikasi host atau antarmuka pada jaringan.
- 2) Sebagai alamat lokasi jaringan.

A. Buatlah simulasi jaringan komputer.

- 1) Buka lembar kerja baru.

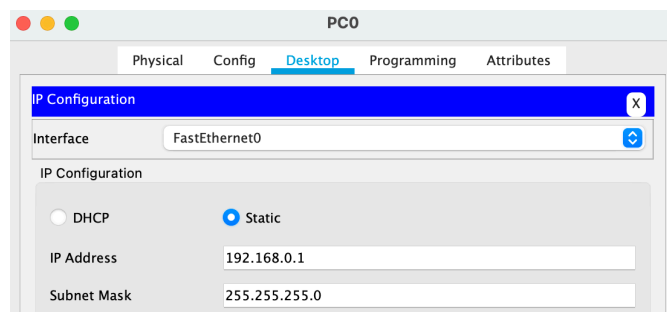


- 2) Tampilan simulasi jaringan komputer.

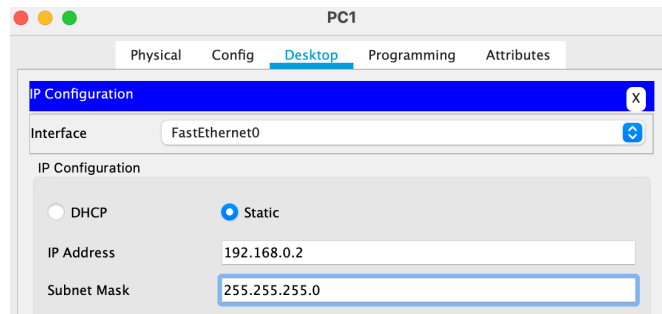


- 3) Konfigurasi IP Address.

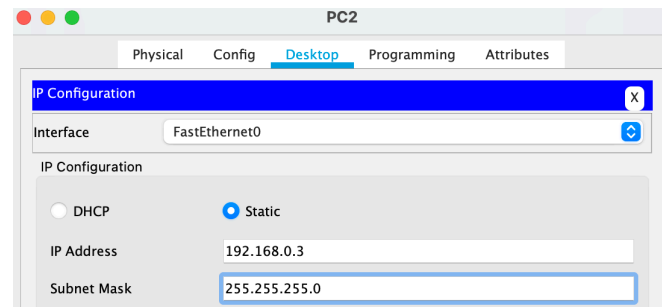
a. PC0



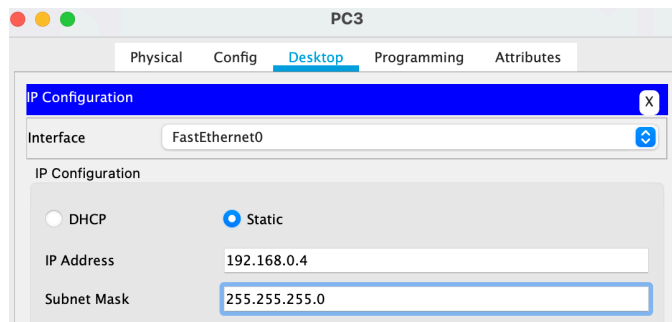
b. PC1



c. PC2



d. PC3



B. Test koneksi dengan COMMAND PROMT

1a) Perintah IPCONFIG untuk cek IP ADDRESS

a) PC0

```
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Link-local IPv6 Address . . . . . : FE80::205:5EFF:FE53:47E
    IP Address. . . . . : 192.168.0.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address . . . . . : ::
    IP Address. . . . . : 0.0.0.0
    Subnet Mask . . . . . : 0.0.0.0
    Default Gateway . . . . . : 0.0.0.0
```

b) PC1

```

Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.....: FE80::2D0:FFFF:FE40:BDDC
    IP Address.....: 192.168.0.2
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address.....: ::
    IP Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: 0.0.0.0

```

c) PC2

```

Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.....: FE80::2D0:58FF:FE29:E674
    IP Address.....: 192.168.0.3
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address.....: ::
    IP Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: 0.0.0.0

```

d) PC3

```

Packet Tracer PC Command Line 1.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.....: FE80::2E0:F7FF:FE44:61D1
    IP Address.....: 192.168.0.4
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address.....: ::
    IP Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: 0.0.0.0

```

1b) Perintah PING

a) PC0

```

Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time=1ms TTL=128
Reply from 127.0.0.1: bytes=32 time=3ms TTL=128
Reply from 127.0.0.1: bytes=32 time=1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time=3ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128
Reply from 192.168.0.1: bytes=32 time=1ms TTL=128
Reply from 192.168.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 3ms, Average = 1ms

C:\>

```

b) PC1

```

Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time=2ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128
Reply from 127.0.0.1: bytes=32 time<1ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 2ms, Average = 0ms

C:\>ping 192.168.0.2

Pinging 192.168.0.2 with 32 bytes of data:

Reply from 192.168.0.2: bytes=32 time=14ms TTL=128
Reply from 192.168.0.2: bytes=32 time=4ms TTL=128
Reply from 192.168.0.2: bytes=32 time=3ms TTL=128
Reply from 192.168.0.2: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 14ms, Average = 5ms

```

c) PC2

```

Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time=2ms TTL=128
Reply from 127.0.0.1: bytes=32 time=3ms TTL=128
Reply from 127.0.0.1: bytes=32 time=1ms TTL=128
Reply from 127.0.0.1: bytes=32 time=1ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 3ms, Average = 1ms

C:\>ping 192.168.0.3

Pinging 192.168.0.3 with 32 bytes of data:

Reply from 192.168.0.3: bytes=32 time=14ms TTL=128
Reply from 192.168.0.3: bytes=32 time<1ms TTL=128
Reply from 192.168.0.3: bytes=32 time=1ms TTL=128
Reply from 192.168.0.3: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 14ms, Average = 4ms

C:\>

```

d) PC3

```

C:\>ping 192.168.0.4

Pinging 192.168.0.4 with 32 bytes of data:

Reply from 192.168.0.4: bytes=32 time=1ms TTL=128
Reply from 192.168.0.4: bytes=32 time=1ms TTL=128
Reply from 192.168.0.4: bytes=32 time=1ms TTL=128
Reply from 192.168.0.4: bytes=32 time=5ms TTL=128

Ping statistics for 192.168.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 5ms, Average = 2ms

C:\>ping 127.0.0.1

Pinging 127.0.0.1 with 32 bytes of data:

Reply from 127.0.0.1: bytes=32 time=1ms TTL=128
Reply from 127.0.0.1: bytes=32 time=5ms TTL=128
Reply from 127.0.0.1: bytes=32 time=5ms TTL=128
Reply from 127.0.0.1: bytes=32 time=3ms TTL=128

Ping statistics for 127.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 5ms, Average = 3ms

C:\>

```

2a) Perintah IPCONFIG untuk merubah IP ADDRESS

a. PC0

```

C:\>ipconfig 172.16.0.1 255.255.0.0
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Link-local IPv6 Address . . . . . : FE80::2E0:F7FF:FE5B:820
    IP Address . . . . . : 172.16.0.1
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address . . . . . : ::
    IP Address . . . . . : 0.0.0.0
    Subnet Mask . . . . . : 0.0.0.0
    Default Gateway . . . . . : 0.0.0.0

```

b. PC1

```

C:\>ipconfig 172.16.0.2 255.255.0.0
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Link-local IPv6 Address . . . . . : FE80::2D0:FFFF:FE40:BDDC
    IP Address . . . . . : 172.16.0.2
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address . . . . . : ::
    IP Address . . . . . : 0.0.0.0
    Subnet Mask . . . . . : 0.0.0.0
    Default Gateway . . . . . : 0.0.0.0

```

c. PC2

```

C:\>ipconfig 172.16.0.3 255.255.0.0
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Link-local IPv6 Address . . . . . : FE80::2D0:58FF:FE29:E674
    IP Address . . . . . : 172.16.0.3
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address . . . . . : ::
    IP Address . . . . . : 0.0.0.0
    Subnet Mask . . . . . : 0.0.0.0
    Default Gateway . . . . . : 0.0.0.0

```

d. PC3

```

C:\>ipconfig 172.16.0.4 255.255.0.0
C:\>ipconfig

FastEthernet0 Connection: (default port)

    Link-local IPv6 Address . . . . . : FE80::2E0:F7FF:FE44:61D1
    IP Address. . . . . : 172.16.0.4
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . : 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address . . . . . : ::
    IP Address. . . . . : 0.0.0.0
    Subnet Mask . . . . . : 0.0.0.0
    Default Gateway . . . . . : 0.0.0.0

```

2b) Perintah PING

a. PC0

```

C:\>ping 172.16.0.1

Pinging 172.16.0.1 with 32 bytes of data:

Reply from 172.16.0.1: bytes=32 time=22ms TTL=128
Reply from 172.16.0.1: bytes=32 time=9ms TTL=128
Reply from 172.16.0.1: bytes=32 time=5ms TTL=128
Reply from 172.16.0.1: bytes=32 time=6ms TTL=128

Ping statistics for 172.16.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 5ms, Maximum = 22ms, Average = 10ms

```

b. PC1

```

C:\>ping 172.16.0.2

Pinging 172.16.0.2 with 32 bytes of data:

Reply from 172.16.0.2: bytes=32 time=16ms TTL=128
Reply from 172.16.0.2: bytes=32 time=6ms TTL=128
Reply from 172.16.0.2: bytes=32 time<1ms TTL=128
Reply from 172.16.0.2: bytes=32 time=9ms TTL=128

Ping statistics for 172.16.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 16ms, Average = 7ms

```

c. PC2

```

C:\>ping 172.16.0.3

Pinging 172.16.0.3 with 32 bytes of data:

Reply from 172.16.0.3: bytes=32 time=12ms TTL=128
Reply from 172.16.0.3: bytes=32 time<1ms TTL=128
Reply from 172.16.0.3: bytes=32 time=6ms TTL=128
Reply from 172.16.0.3: bytes=32 time=7ms TTL=128

Ping statistics for 172.16.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 6ms

```

d. PC3

```
C:\>ping 172.16.0.4

Pinging 172.16.0.4 with 32 bytes of data:

Reply from 172.16.0.4: bytes=32 time=5ms TTL=128
Reply from 172.16.0.4: bytes=32 time<1ms TTL=128
Reply from 172.16.0.4: bytes=32 time=3ms TTL=128
Reply from 172.16.0.4: bytes=32 time=1ms TTL=128

Ping statistics for 172.16.0.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 5ms, Average = 2ms
```

C. Test koneksi dengan SIMPLE PDU

1) Klik add simple PDU.



2) Drag PC 1 & PC2

[Root] [Simulation Panel] [02:23:30]

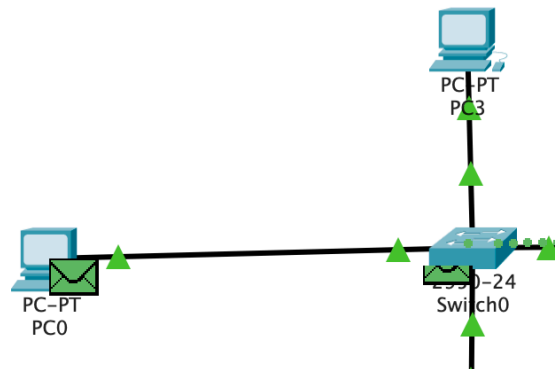
Simulation Panel

Vis.	Time(sec)	Last Device	At Device	Type
	0.000	--	PC1	ICMP
	0.000	--	PC1	ICMP
	0.001	--	PC1	ICMP
	0.001	--	PC1	ICMP
	0.001	PC1	Switch0	ICMP
	0.001	--	PC1	ICMP
	0.003	PC1	Switch0	ICMP
	0.003	Switch0	PC2	ICMP
	0.003	--	PC1	ICMP
	0.005	Switch0	PC2	ICMP
	0.005	PC2	Switch0	ICMP
	0.006	PC1	Switch0	ICMP
	0.007	Switch0	PC1	ICMP
	0.008	PC2	Switch0	ICMP
	0.008	Switch0	PC2	ICMP
	0.010	Switch0	PC1	ICMP

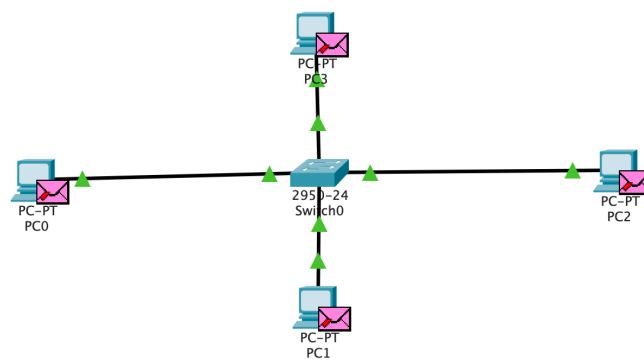
Reset Simulation ☐ Constant Delay Capturing...

Play Controls

3) Test koneksi PC1 ke PC3, PC3 ke PC0.



4) Hasil simulasi



14.991	Switch0	PC2	STP
14.991	Switch0	PC0	STP
14.991	Switch0	PC1	STP
16.986	--	Switch0	STP
16.988	Switch0	PC3	STP
16.988	Switch0	PC2	STP
16.988	Switch0	PC0	STP
16.989	Switch0	PC1	STP
18.983	--	Switch0	STP
18.985	Switch0	PC3	STP
18.985	Switch0	PC2	STP
18.985	Switch0	PC0	STP
18.985	Switch0	PC1	STP

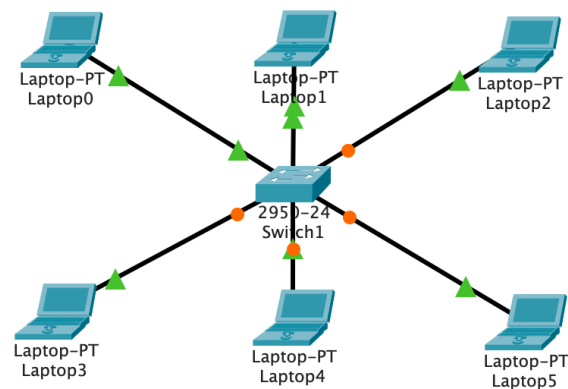
Reset Simulation ☐ Constant Delay Captured to 18.985

Play Controls

⏮ ⏪ ⏩ ⏭

D. Simulasi jaringan komputer dan IP Address dengan IP CONFIG.

1) Simulasi jaringan computer.



2) Konfigurasi IP Address menggunakan IP CONFIG.

a. Laptop0

```
C:\>ipconfig 192.198.10.2 255.255.255.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.....: FE80::2E0:F9FF:FE9D:CD21
    IP Address.....: 192.198.10.2
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address.....: ::
    IP Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: 0.0.0.0
```

b. Laptop1

```
C:\>ipconfig 192.168.10.4 255.255.255.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.....: FE80::2E0:F7FF:FE65:7121
    IP Address.....: 192.168.10.4
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address.....: ::
    IP Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: 0.0.0.0
```

c. Laptop2

```
C:\>ipconfig 192.168.10.5 255.255.255.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.....: FE80::201:64FF:FEB0:454E
    IP Address.....: 192.168.10.5
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address.....: ::
    IP Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: 0.0.0.0
```

d. Laptop3

```

C:\>ipconfig 192.168.2.1 255.255.255.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.....: FE80::20D:BDFF:FEAE:84DE
    IP Address.....: 192.168.2.1
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address.....: ::
    IP Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: 0.0.0.0

```

e. Laptop4

```

C:\>ipconfig 192.168.2.3 255.255.255.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.....: FE80::203:E4FF:FEED:7DD5
    IP Address.....: 192.168.2.3
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address.....: ::
    IP Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: 0.0.0.0

```

f. Laptop5

```

C:\>ipconfig 192.168.5.1 255.255.255.0
C:\>ipconfig

FastEthernet0 Connection:(default port)

    Link-local IPv6 Address.....: FE80::202:16FF:FE13:718B
    IP Address.....: 192.168.5.1
    Subnet Mask.....: 255.255.255.0
    Default Gateway.....: 0.0.0.0

Bluetooth Connection:

    Link-local IPv6 Address.....: ::
    IP Address.....: 0.0.0.0
    Subnet Mask.....: 0.0.0.0
    Default Gateway.....: 0.0.0.0

```

3) Ping antar laptop-PT.

a. Laptop0

```

C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time=10ms TTL=128
Reply from 192.168.10.2: bytes=32 time=6ms TTL=128
Reply from 192.168.10.2: bytes=32 time=4ms TTL=128
Reply from 192.168.10.2: bytes=32 time=8ms TTL=128

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 4ms, Maximum = 10ms, Average = 7ms

C:\>|

```

b. Laptop1

```
Pinging 192.168.10.4 with 32 bytes of data:

Reply from 192.168.10.4: bytes=32 time=1ms TTL=128
Reply from 192.168.10.4: bytes=32 time=6ms TTL=128
Reply from 192.168.10.4: bytes=32 time=7ms TTL=128
Reply from 192.168.10.4: bytes=32 time=2ms TTL=128

Ping statistics for 192.168.10.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 7ms, Average = 4ms

C:\>
```

c. Laptop2

```
C:\>ping 192.168.10.5

Pinging 192.168.10.5 with 32 bytes of data:

Reply from 192.168.10.5: bytes=32 time<1ms TTL=128
Reply from 192.168.10.5: bytes=32 time=9ms TTL=128
Reply from 192.168.10.5: bytes=32 time=5ms TTL=128
Reply from 192.168.10.5: bytes=32 time=9ms TTL=128

Ping statistics for 192.168.10.5:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 9ms, Average = 5ms
```

d. Laptop3

```
C:\>ping 192.168.2.1

Pinging 192.168.2.1 with 32 bytes of data:

Reply from 192.168.2.1: bytes=32 time=13ms TTL=128
Reply from 192.168.2.1: bytes=32 time=7ms TTL=128
Reply from 192.168.2.1: bytes=32 time=8ms TTL=128
Reply from 192.168.2.1: bytes=32 time=9ms TTL=128

Ping statistics for 192.168.2.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 7ms, Maximum = 13ms, Average = 9ms
```

e. Laptop4

```
C:\>ping 192.168.2.3

Pinging 192.168.2.3 with 32 bytes of data:

Reply from 192.168.2.3: bytes=32 time=1ms TTL=128
Reply from 192.168.2.3: bytes=32 time=1ms TTL=128
Reply from 192.168.2.3: bytes=32 time=12ms TTL=128
Reply from 192.168.2.3: bytes=32 time=6ms TTL=128

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 12ms, Average = 5ms
```

f. Laptop5

```
C:\>ping 192.168.5.1

Pinging 192.168.5.1 with 32 bytes of data:

Reply from 192.168.5.1: bytes=32 time<1ms TTL=128
Reply from 192.168.5.1: bytes=32 time=7ms TTL=128
Reply from 192.168.5.1: bytes=32 time=1ms TTL=128
Reply from 192.168.5.1: bytes=32 time=7ms TTL=128

Ping statistics for 192.168.5.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 7ms, Average = 3ms
```

4) Kesimpulan Semua komputer terhubung.