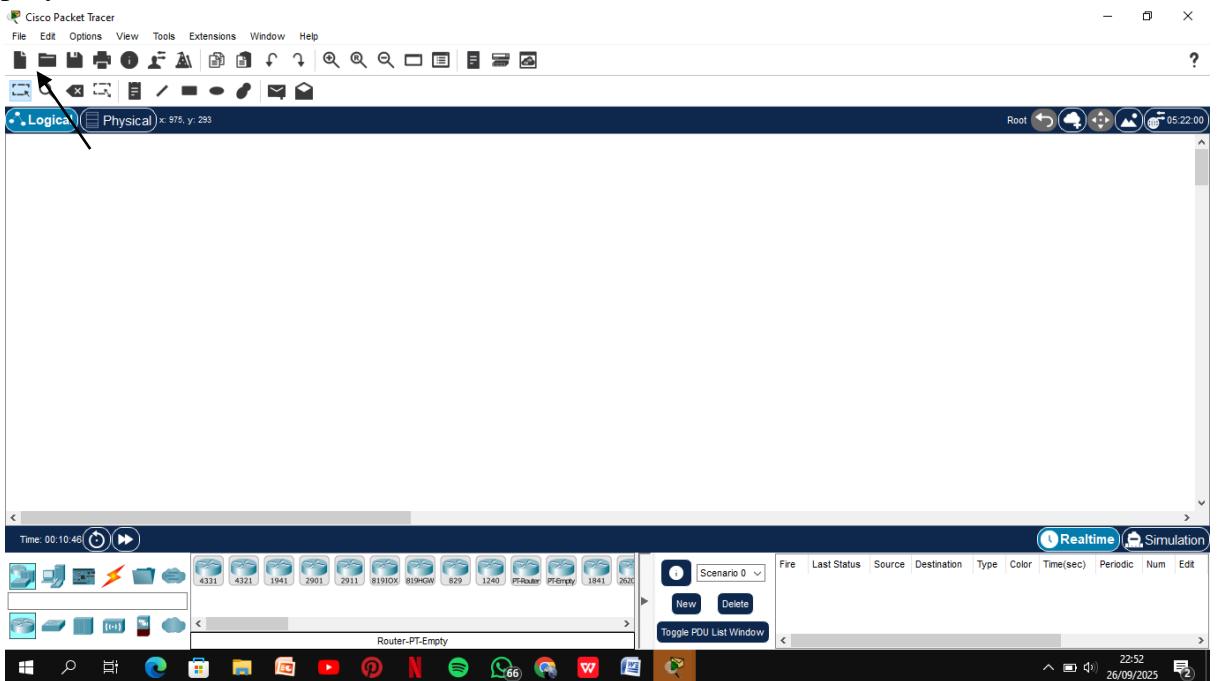


**LAPORAN PRATIKUM CODELAB KOMUNIKASI DATA 3E  
MODUL 1**

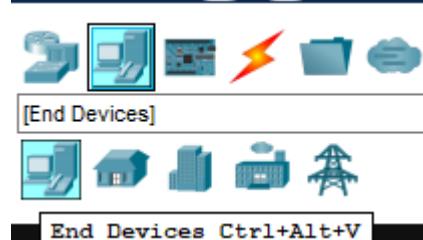


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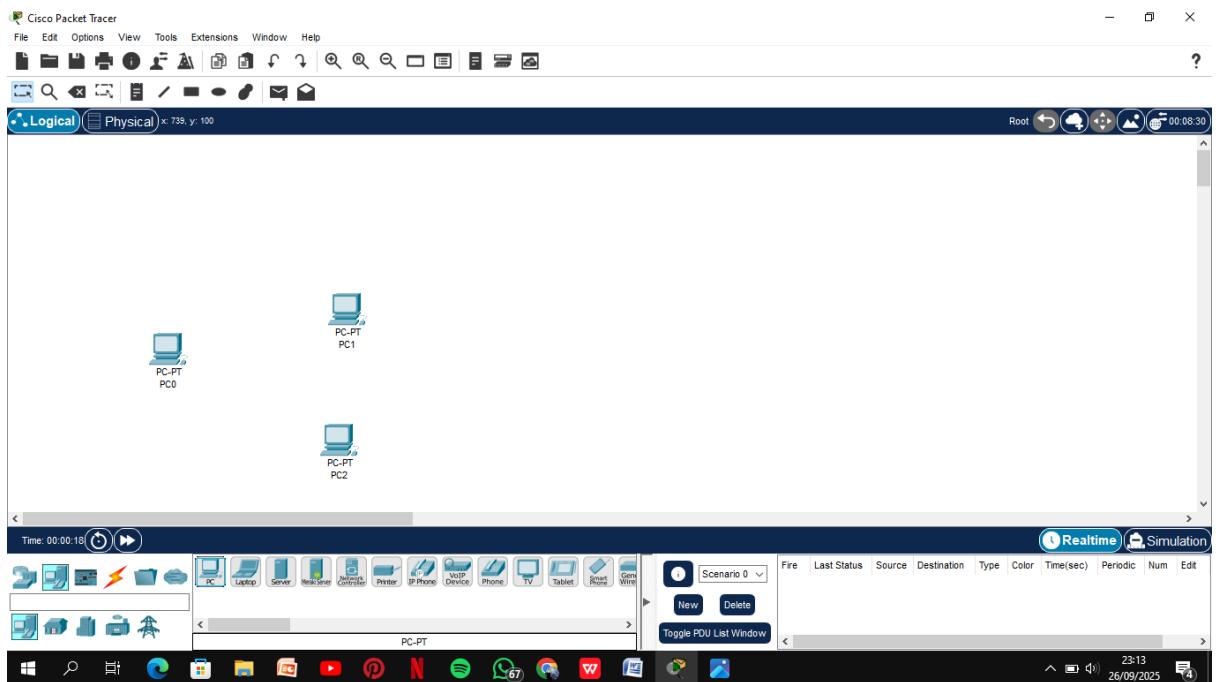
1. Buka aplikasi Cisco Packet Tracer lalu pilih menu File -> New untuk membuat proyek baru.



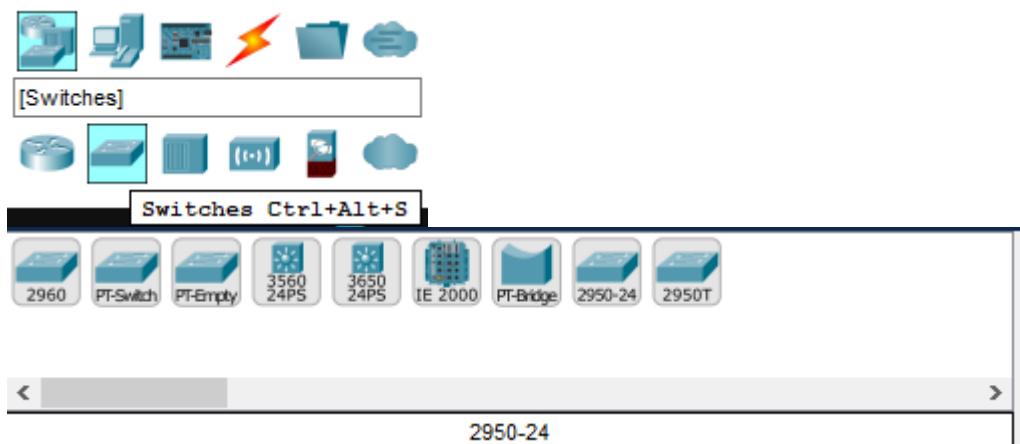
2. Membuat Topologi Jaringan. Gunakan toolbar pada bagian kiri bawah, lalu pilih End Devices



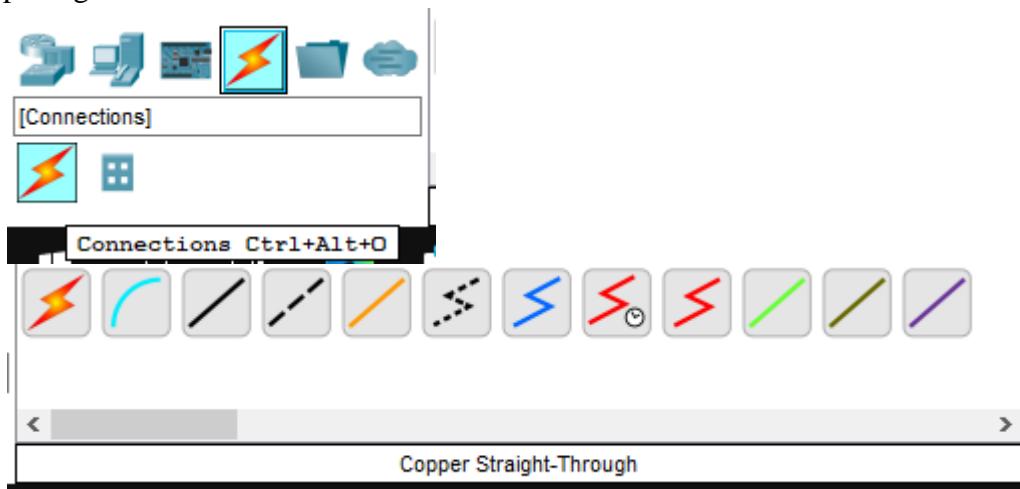
3. Setelah itu tambahkan 3 buah PC



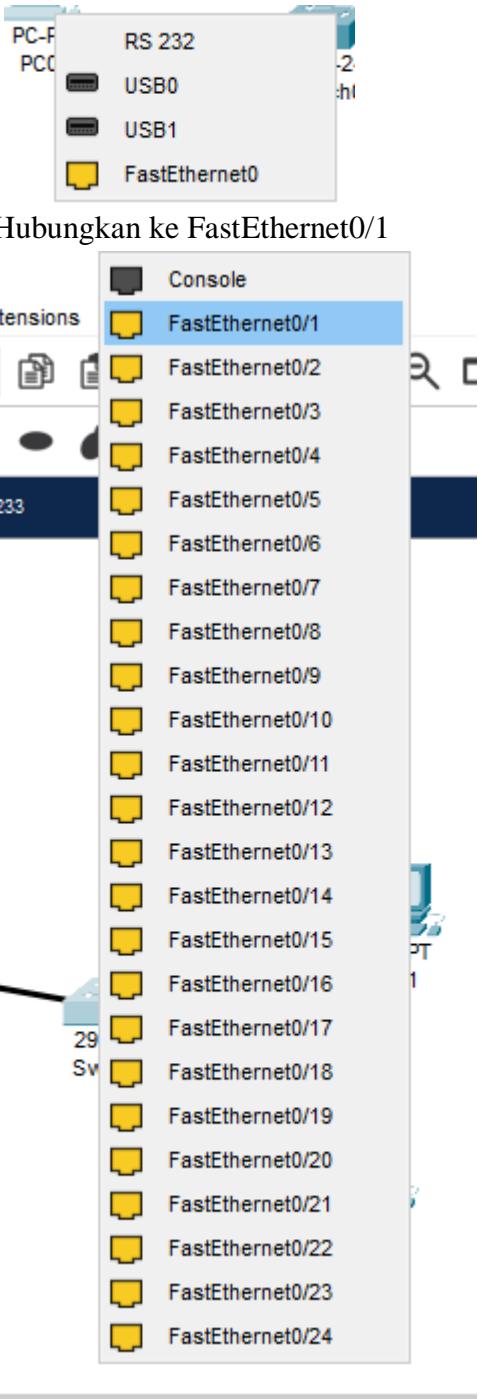
4. Tambahkan switch 2950-24 dari toolbar Switches.



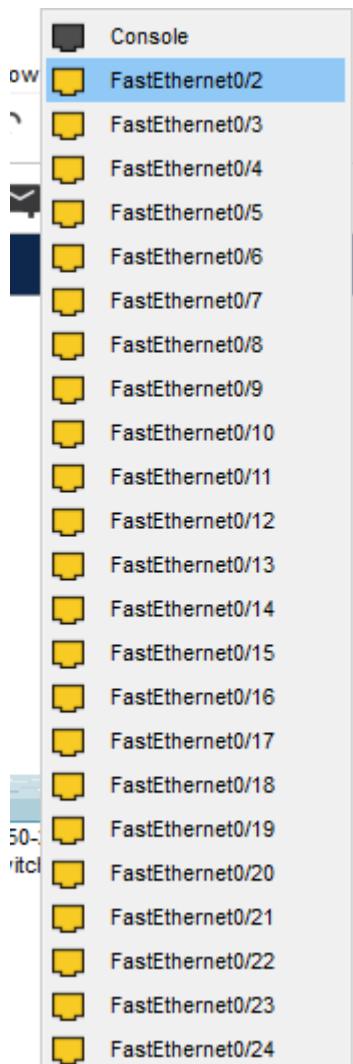
5. Pilih Copper Straight-Through pada toolbar Connections untuk menghubungkan perangkat.



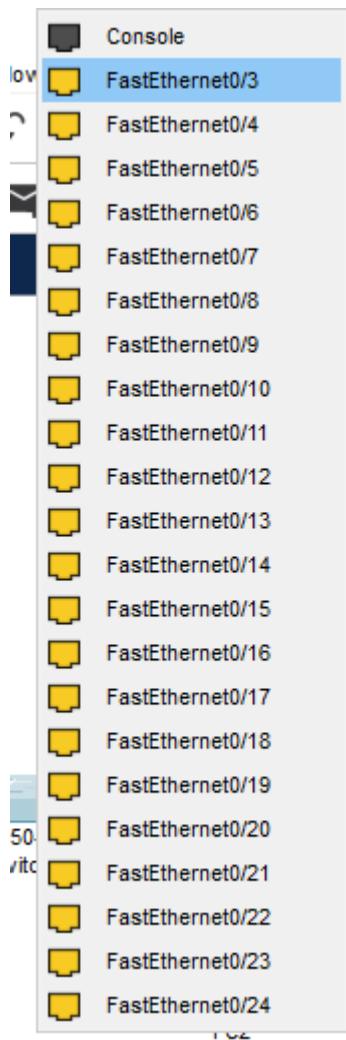
6. Hubungkan PC-0 melalui port FastEthernet/0 ke port FastEthernet0/1 pada switch.



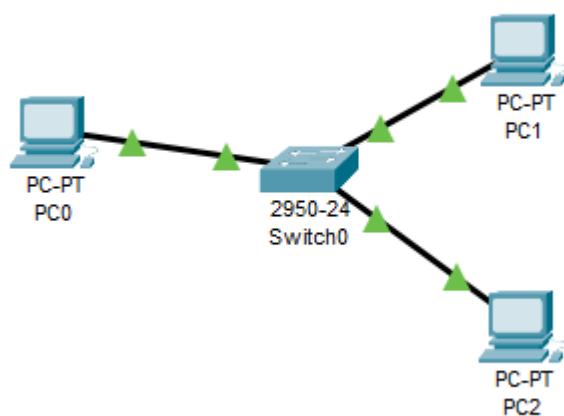
7. Hubungkan PC-1 melalui port FastEthernet/0 ke port FastEthernet0/2 pada switch.



8. Hubungkan PC-2 melalui port FastEthernet0/0 ke port FastEthernet0/3 pada switch.



9. Hasilnya: Muncul garis koneksi, dan lampu indicator port di Packet Tracer biasanya berwarna hijau menandakan koneksi berhasil.



10. Lalu konfigurasi alamat IP pada PC  
Klik PC 0 lalu buka tab Desktop kemudian pilih menu IP Configuration.

- IP Address: 192.168.1.10
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1

IPv4 Address	192.168.1.10
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1

Klik PC1 lalu buka tab Desktop kemudian pilih menu IP Configuration.

- IP Address: 192.168.1.11
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1

IPv4 Address	192.168.1.11
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1

Klik PC2 lalu buka tab Desktop kemudian pilih menu IP Configuration.

- IP Address: 192.168.1.12
- Subnet Mask: 255.255.255.0
- Default Gateway: 192.168.1.1

IPv4 Address	192.168.1.12
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1

11. Klik Switch0 lalu pilih menu CLI

Ketik semua perintah lalu tekan enter

```

enable
configure terminal
hostname SW1
enable secret cisco123
line console 0
password cisco
login
exit
interface vlan 1
ip address 192.168.1.2 255.255.255.0
no shutdown
exit
ip default-gateway 192.168.1.1
exit
write memory

```

Penjelasan:

- hostname SW1: Memberi nama switch.
- enable secret cisco123: Mengatur kata sandi untuk mode Privileged EXEC.
- line console 0: Mengatur kata sandi untuk akses konsol.
- interface vlan 1: Menetapkan alamat IP untuk manajemen switch.
- ip default-gateway: Menentukan gateway untuk komunikasi eksternal.
- write memory: Menyimpan konfigurasi.
- line vty 0 4: Mengatur kata sandi untuk akses jarak jauh (Telnet). Perintah ini menambahkan lapisan keamanan dasar.

Hasilnya akan seperti ini:

```

Switch0
Physical Config CLI Attributes
IOS Command Line Interface
Press RETURN to get started!

%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
%LINKPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINKPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINKPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up

Switch>enable
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname SW1
SW1(config)#enable secret cisco123
SW1(config)#line console 0
SW1(config-line)#password cisco
SW1(config-line)#login
SW1(config-line)#exit
SW1(config)#interface vlan 1
SW1(config-if)#ip address 192.168.1.2 255.255.255.0
SW1(config-if)#no shutdown

SW1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up
%LINKPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up
exit
SW1(config)#ip default-gateway 192.168.1.1
SW1(config)#exit
SW1#
%SYS-5-CONFIG_I: Configured from console by console
write memory
Building configuration...
(OK)
SW1#

```

## 12. Uji konektivitas

Pada PC0, buka Desktop lalu pilih menu Command Prompt lalu ketik:

```
ping 192.168.1.11  
ping 192.168.1.12  
ping 192.168.1.2
```

PC0:

```
Cisco Packet Tracer PC Command Line 1.0  
C:\>ping 192.168.1.11  
  
Pinging 192.168.1.11 with 32 bytes of data:  
  
Reply from 192.168.1.11: bytes=32 time=3ms TTL=128  
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128  
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128  
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128  
  
Ping statistics for 192.168.1.11:  
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 0ms, Maximum = 3ms, Average = 0ms  
  
C:\>ping 192.168.1.12  
Ping request could not find host 192.168.1.12. Please check the name and try again.  
C:\>ping 192.168.1.12  
  
Pinging 192.168.1.12 with 32 bytes of data:  
  
Reply from 192.168.1.12: bytes=32 time<1ms TTL=128  
  
Ping statistics for 192.168.1.12:  
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
Approximate round trip times in milli-seconds:  
    Minimum = 0ms, Maximum = 0ms, Average = 0ms  
  
C:\>ping 192.168.1.2  
  
Pinging 192.168.1.2 with 32 bytes of data:  
  
Request timed out.  
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255  
Reply from 192.168.1.2: bytes=32 time=1ms TTL=255  
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255
```

Top

Ulangi pengujian dari PC1 dan PC2 untuk memastikan semua perangkat dapat berkomunikasi.

PC1

Physical Config Desktop Programming Attributes

Command Prompt X

```
C:\>ping 192.168.1.11
Pinging 192.168.1.11 with 32 bytes of data:
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time=19ms TTL=128
Reply from 192.168.1.11: bytes=32 time=11ms TTL=128
Reply from 192.168.1.11: bytes=32 time=18ms TTL=128

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 19ms, Average = 12ms

C:\>ping 192.168.1.12
Pinging 192.168.1.12 with 32 bytes of data:
Reply from 192.168.1.12: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.2
Pinging 192.168.1.2 with 32 bytes of data:
Request timed out.
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
```

Top

```
C:\>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:

Reply from 192.168.1.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.1.12

Pinging 192.168.1.12 with 32 bytes of data:

Reply from 192.168.1.12: bytes=32 time=7ms TTL=128
Reply from 192.168.1.12: bytes=32 time=29ms TTL=128
Reply from 192.168.1.12: bytes=32 time=27ms TTL=128
Reply from 192.168.1.12: bytes=32 time=37ms TTL=128

Ping statistics for 192.168.1.12:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 7ms, Maximum = 37ms, Average = 25ms

C:\>ping 192.168.1.2

Pinging 192.168.1.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255
Reply from 192.168.1.2: bytes=32 time<1ms TTL=255

Ping statistics for 192.168.1.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
```

## Soal

1. Pada topologi dengan 3 PC yang terhubung ke 1 switch, jika salah satu PC diberi subnet berbeda, apa hasil ping?  
Apabila satu PC berada pada subnet yang berbeda dari dua PC lainnya, maka ping tidak akan berhasil.  
Hal tersebut disebabkan karena perangkat yang berada di subnet berbeda tidak bisa berkomunikasi langsung lewat switch, kecuali terdapat router yang menghubungkan antar subnet.
2. Apa yang terjadi jika PC0 ping ke alamat IP yang tidak ada dalam jaringan?  
Ketika PC0 melakukan ping ke alamat IP yang tidak termasuk dalam jaringannya, ping tidak akan berhasil.  
Hal tersebut disebabkan karena tidak adanya perangkat dengan IP tersebut, sehingga PC0 tidak menerima respon (Reply).
3. Apa yang terjadi jika dua PC memiliki IP Address yang sama dalam tersebut?

Apabila dua PC menggunakan alamat IP yang sama dalam satu jaringan, akan muncul konflik IP.

Akibatnya, koneksi jaringan menjadi tidak stabil, dan kedua PC tersebut tidak bisa berkomunikasi atau terhubung ke jaringan secara normal.

4. Gunakan Simulation Mode. Ketika PC0 ping ke PC1, paket pertama akan berupa apa? Ketika PC0 mengirim ping ke PC1 pada Simulation Mode, paket awal yang dikirim adalah ARP Request.  
Tujuannya untuk mengetahui alamat MAC PC1 berdasarkan alamat IP-nya, sebelum PC0 mengirim pesan ICMP Echo Request (ping).
5. Dalam Simulation Mode, setelah ARP berhasil, paket data yang dikirim adalah jenis apa?  
Setelah proses ARP berhasil dalam Simulation Mode, paket data yang dikirim selanjutnya adalah ICMP Echo Request (ping).  
Paket ini merupakan bagian dari proses ping, yang digunakan untuk mengirim pesan uji konektivitas dari PC0 ke PC1.