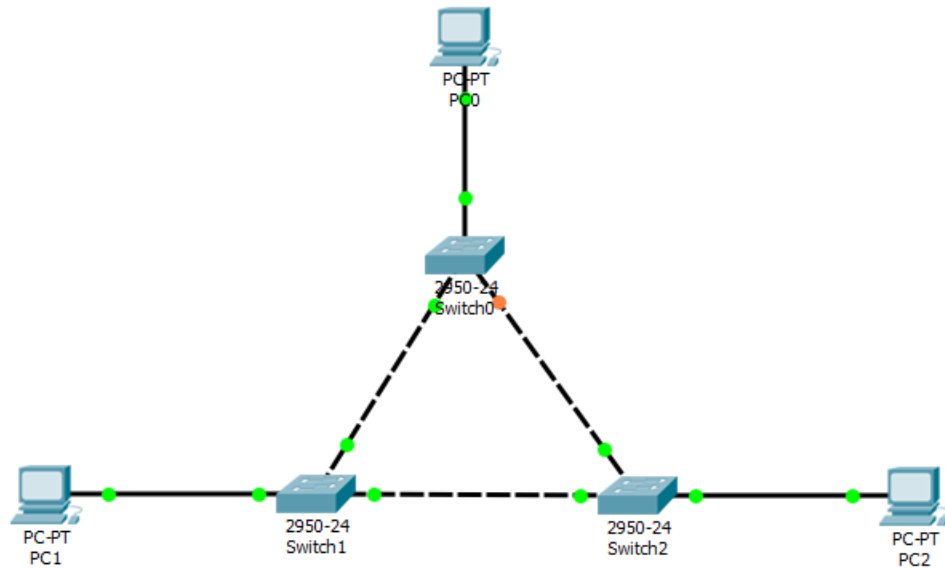


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MODUL VI Spanning Tree Protocol

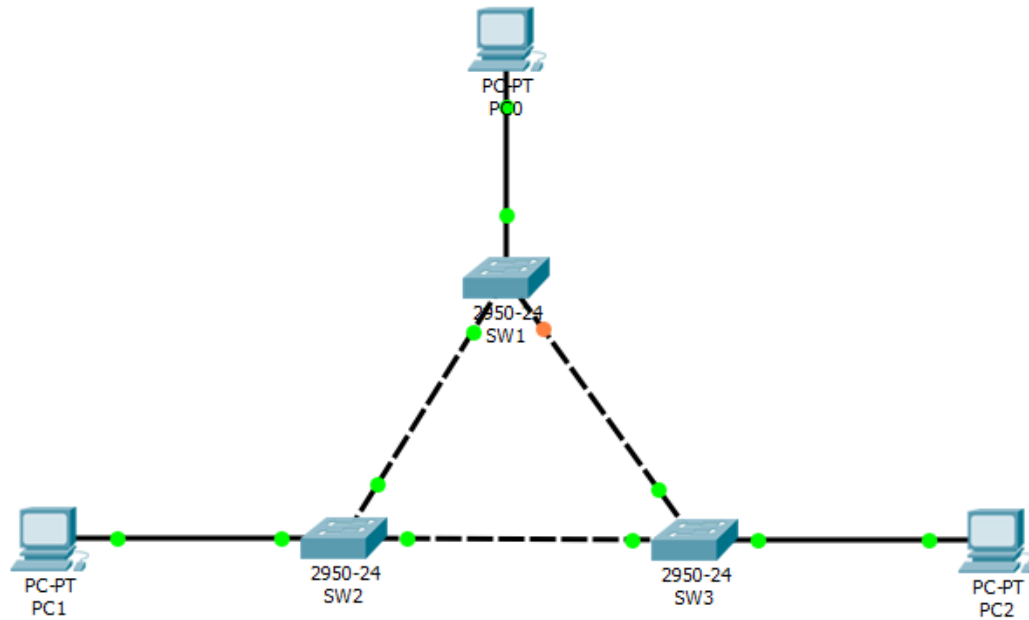
Kegiatan 1. Topologi 1

1. Membuat topologi dengan Packet Tracer



- TUGAS 1A : Langkah membuat topologi.
 - Klik Network Device.
 - Lalu pilih Switch.
 - Kemudian pilih switch yang akan di gunakan.
 - Ulangi langkah tersebut untuk menambah switch yang akan digunakan.
 - Kemudian Klik End Device di samping Network Device.
 - Lalu pilih PC.
 - Ulangi langkah tersebut untuk menambah PC yang akan digunakan.
 - Sambungkan PC dengan Switch maupun Switch dengan Switch dengan memilih button Connection.
 - Selesai.

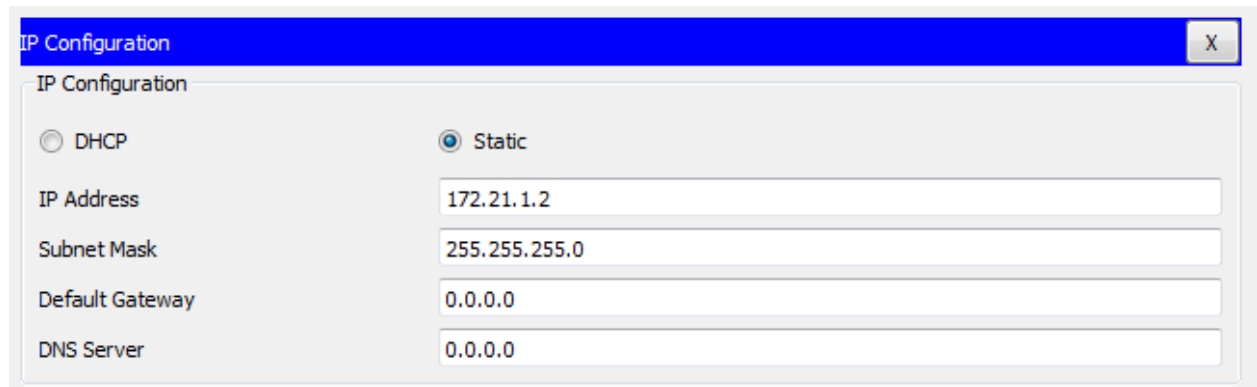
2. Memberi nama masing-masing switch.



- TUGAS 2A : Langkah memberi nama switch.
 - Klik Switch yang akan diberi nama.
 - Kemudian pilih Config.
 - Lalu beri nama Switch yang diinginkan pada kolom Display Name.
 - Selesai.
3. Mengkonfigurasi IP Address masing-masing PC
- a. Leo : 172.21.1.1/24

IP Configuration	
<input type="radio"/> DHCP <input checked="" type="radio"/> Static	
IP Address	172.21.1.1
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

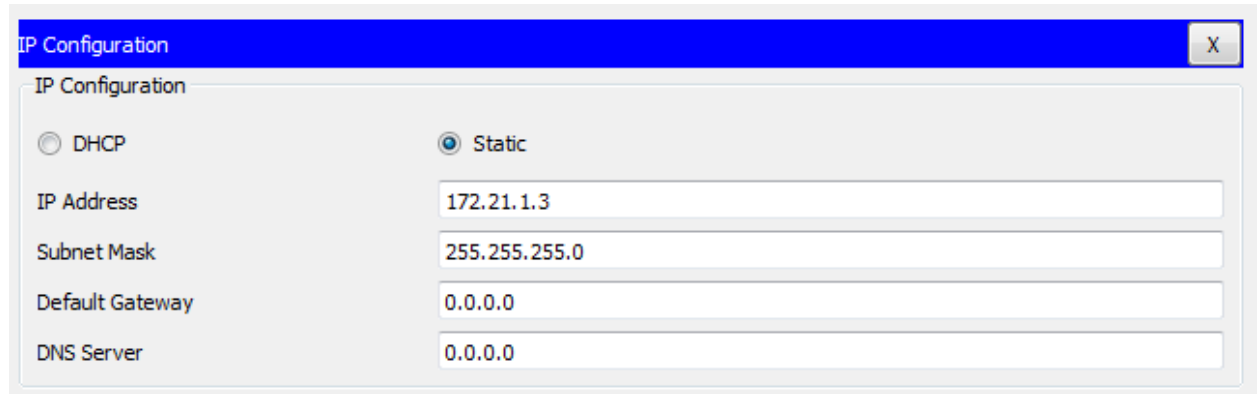
- b. Aries : 172.21.1.2/24



The image shows a screenshot of a network configuration window titled "IP Configuration". The window has a blue header bar with the title and a close button (X). Below the header, the "IP Configuration" section is visible. It contains two radio buttons: "DHCP" (unselected) and "Static" (selected). Below the radio buttons, there are four text input fields: "IP Address" (172.21.1.2), "Subnet Mask" (255.255.255.0), "Default Gateway" (0.0.0.0), and "DNS Server" (0.0.0.0).

Field	Value
IP Address	172.21.1.2
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

- c. Virgo : 172.21.1.3/24



The image shows a screenshot of a network configuration window titled "IP Configuration". The window has a blue header bar with the title and a close button (X). Below the header, the "IP Configuration" section is visible. It contains two radio buttons: "DHCP" (unselected) and "Static" (selected). Below the radio buttons, there are four text input fields: "IP Address" (172.21.1.3), "Subnet Mask" (255.255.255.0), "Default Gateway" (0.0.0.0), and "DNS Server" (0.0.0.0).

Field	Value
IP Address	172.21.1.3
Subnet Mask	255.255.255.0
Default Gateway	0.0.0.0
DNS Server	0.0.0.0

4. Melihat status STP masing-masing switch

- TUGAS 4A : Tampilan status STP masing-masing Switch.

a. SW 1

```
Switch>enable
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
            Address     000A.41BE.5456
            Cost        19
            Port        2 (FastEthernet0/2)
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
            Address     0090.2195.DC82
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time  20
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/2	Root	FWD	19	128.2	P2p
Fa0/1	Desg	FWD	19	128.1	P2p
Fa0/3	Altn	BLK	19	128.3	P2p

```
Switch#
```

b. SW 2

```
Switch>enable
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
            Address     000A.41BE.5456
            This bridge is the root
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
            Address     000A.41BE.5456
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time  20
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/1	Desg	FWD	19	128.1	P2p
Fa0/2	Desg	FWD	19	128.2	P2p
Fa0/3	Desg	FWD	19	128.3	P2p

```
Switch#
```

c. SW 3

```
Switch>enable
Switch#show spanning-tree
^
% Invalid input detected at '^' marker.

Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
    Root ID    Priority    32769
              Address     000A.41BE.5456
              Cost        19
              Port        2 (FastEthernet0/2)
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

    Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
              Address     0060.5CA5.8396
              Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
              Aging Time  20

Interface                Role Sts Cost      Prio.Nbr Type
-----
Fa0/1                    Desg FWD 19        128.1    P2p
Fa0/2                    Root FWD 19        128.2    P2p
Fa0/3                    Desg FWD 19        128.3    P2p

Switch#
```

• TUGAS 4B : Mengisi tabel untu masing-masing Switch.

a. SW 1

No	Variabel	Nilai
1	Root ID	32769 : 000A.41BE.5456
2	Priority	32769
3	MAC Address	000A.41BE.5456
4	Bridge ID	32769 : 0090.2195.DC85
5	Cost(0/1;0/2;0/3)	19
6	Hello Time	2 Sec
7	Max Age	20 Sec
8	Forward Delay	15 Sec

b. SW 2

No	Variabel	Nilai
1	Root ID	32769 : 000A.41BE.5456
2	Priority	32769
3	MAC Address	000A.41BE.5456
4	Bridge ID	32769 : 000A.41BE.5456
5	Cost(0/1;0/2;0/3)	
6	Hello Time	2 Sec
7	Max Age	20 Sec
8	Forward Delay	15 Sec

c. SW 3

No	Variabel	Nilai
1	Root ID	32769 : 000A.41BE.5456
2	Priority	32769
3	MAC Address	000A.41BE.5456
4	Bridge ID	32769 : 0060.5CA5.8396
5	Cost(0/1;0/2;0/3)	19
6	Hello Time	2 Sec
7	Max Age	20 Sec
8	Forward Delay	15 Sec

- TUGAS 4C : Pada kondisi default, switch dan port yang :
 - Menjadi *root bridge* : SW 2
 - Menjadi *designated bridge* : SW 3
 - Menjadi *root port* : SW 1 0/2 , SW 3 0/2
 - Menjadi *designated port* : SW 3 0/3
- TUGAS 4D : Pada kondisi default, port yang :
 - Berada pada keadaan *forwarding* : SW 1 0/2, SW 2 0/2, SW 2 0/3, SW 3 0/2, SW 3 0/3
 - Berada pada keadaan *blocking* : SW 1 0/3

5. Melakukan Ping dari PC Leo ke PC Virgo.

```
C:\>ping 172.21.1.3

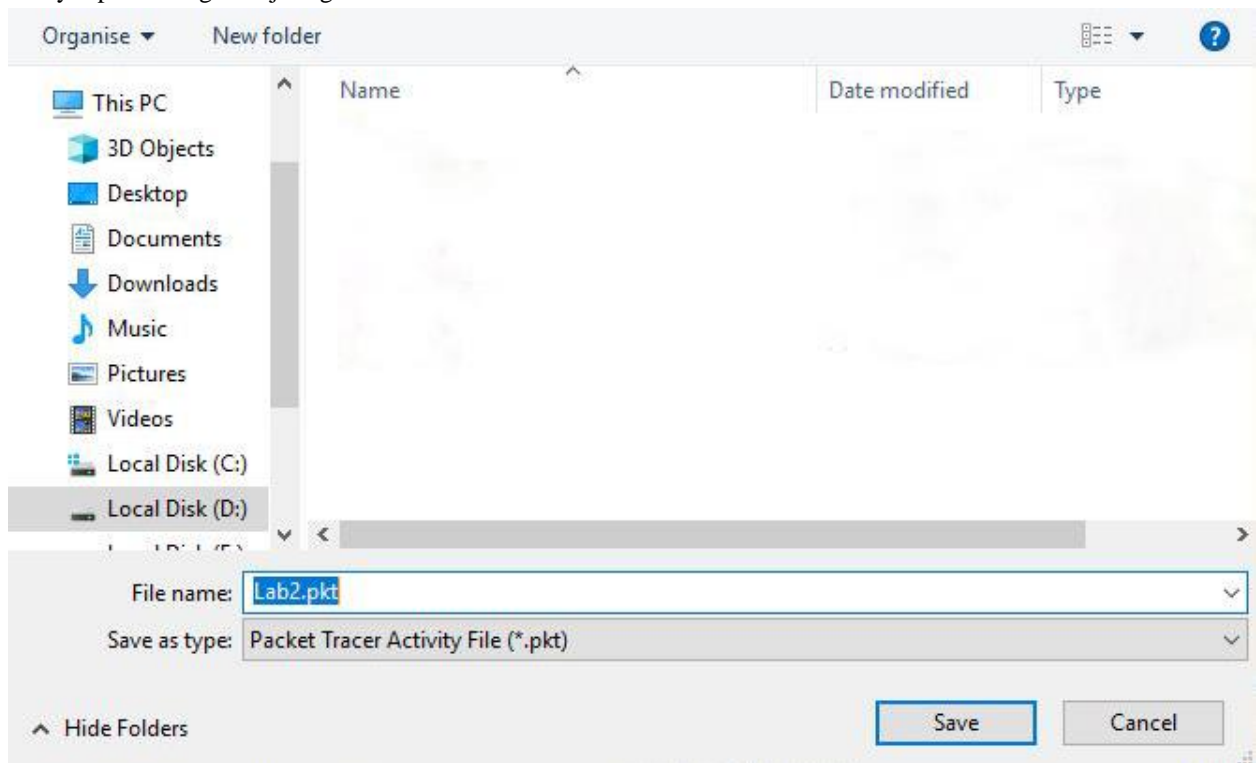
Pinging 172.21.1.3 with 32 bytes of data:

Reply from 172.21.1.3: bytes=32 time=16ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128

Ping statistics for 172.21.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 16ms, Average = 4ms
```

- TUGAS 5A : Langkah melakukan ping.
 - Pilih salah satu PC yang akan melakukan ping.
 - Pilih Dekstop.
 - Pilih Command Prompt.
 - Lalu ketik “ping (IP Address PC tujuang yang akan di ping)”
 - Tekan enter.
 - Tedapat balasan berupa berhasil atau request time out.

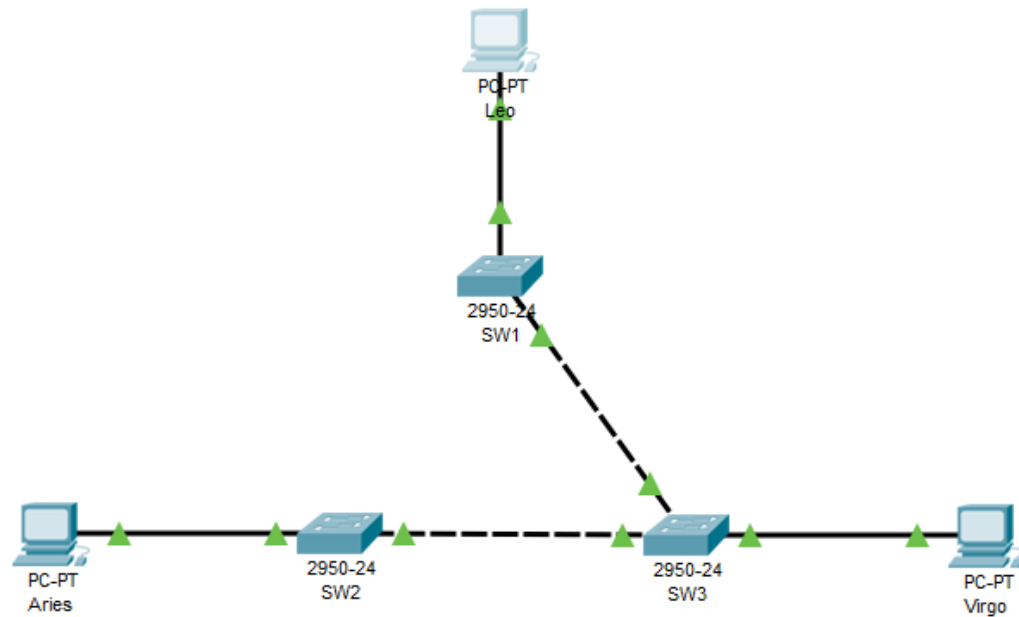
6. Menyimpan konfigurasi jaringan



- TUGAS 6A : Langkah menyimpan konfigurasi jaringan.
 - Klik File.
 - Pilih Save As.
 - Kemudian pilih lokasi untuk menyimpan file.
 - Beri nama file.
 - Klik Save.

Kegiatan 2. Topologi 2

1. Mengubah topologi.



2. Melihat status STP masing-masing switch.

• TUGAS 9A : Langkah 4.

a. SW 1

```
Switch>enable
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
             Address     000A.41BE.5456
             Cost        38
             Port        3(FastEthernet0/3)
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
             Address     0090.2195.DC82
             Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
             Aging Time  20
```

Interface	Role	Sts	Cost	Prio.Nbr	Type
Fa0/1	Desg	FWD	19	128.1	P2p
Fa0/3	Root	FWD	19	128.3	P2p

```
Switch#
```


b. SW 2

```
Switch>enable
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
            Address    000A.41BE.5456
            This bridge is the root
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
            Address    000A.41BE.5456
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time  20

Interface                Role Sts Cost          Prio.Nbr Type
-----
Fa0/1                    Desg FWD 19          128.1    P2p
Fa0/3                    Desg FWD 19          128.3    P2p

Switch#
```

c. SW 3

```
Switch>enable
Switch#show spanning-tree
VLAN0001
  Spanning tree enabled protocol ieee
  Root ID    Priority    32769
            Address    000A.41BE.5456
            Cost        19
            Port        2(FastEthernet0/2)
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec

  Bridge ID  Priority    32769  (priority 32768 sys-id-ext 1)
            Address    0060.5CA5.8396
            Hello Time  2 sec  Max Age 20 sec  Forward Delay 15 sec
            Aging Time  20

Interface                Role Sts Cost          Prio.Nbr Type
-----
Fa0/1                    Desg FWD 19          128.1    P2p
Fa0/2                    Root FWD 19          128.2    P2p
Fa0/3                    Desg FWD 19          128.3    P2p

Switch#
```

d. SW 1

No	Variabel	Nilai
1	Root ID	32769 : 000A.41BE.5456
2	Priority	32769
3	MAC Address	000A.41BE.5456
4	Bridge ID	32769 : 0090.2195.DC82
5	Cost(0/1;0/2;0/3)	38
6	Hello Time	2 Sec
7	Max Age	20 Sec
8	Forward Delay	15 Sec

e. SW 2

No	Variabel	Nilai
1	Root ID	32769 : 000A.41BE.5456
2	Priority	32769
3	MAC Address	000A.41BE.5456
4	Bridge ID	32769 : 000A.41BE.5456
5	Cost(0/1;0/2;0/3)	
6	Hello Time	2 Sec
7	Max Age	20 Sec
8	Forward Delay	15 Sec

f. SW 3

No	Variabel	Nilai
1	Root ID	32769 : 000A.41BE.5456
2	Priority	32769
3	MAC Address	000A.41BE.5456
4	Bridge ID	32769 : 0060.5CA5.8396
5	Cost(0/1;0/2;0/3)	19
6	Hello Time	2 Sec
7	Max Age	20 Sec
8	Forward Delay	15 Sec

- TUGAS 4C : Pada kondisi default, switch dan port yang :
 - Menjadi *root bridge* : SW 2
 - Menjadi *designated bridge* : SW 3
 - Menjadi *root port* : SW 3 0/2
 - Menjadi *designated port* : SW 3 0/3
- TUGAS 4D : Pada kondisi default, port yang :
 - Berada pada keadaan *forwarding* : SW 1 0/2, SW 1 0/3, SW 2 0/1, SW 2 0/3, SW 3 0/1, SW 3 0/2, SW 3 0/3
 - Berada pada keadaan *blocking* : tidak ada.

3. Melakukan Ping dari PC Leo ke PC Virgo.

```

Packet Tracer PC Command Line 1.0
C:\>ping 172.21.1.3

Pinging 172.21.1.3 with 32 bytes of data:

Reply from 172.21.1.3: bytes=32 time=12ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time<1ms TTL=128
Reply from 172.21.1.3: bytes=32 time=1ms TTL=128

Ping statistics for 172.21.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 3ms
  
```