

Komunikasi Data dan Jaringan Komputer
(LAPORAN PRAKTIKUM 5 Konfigurasi VLAN dan Bridging)

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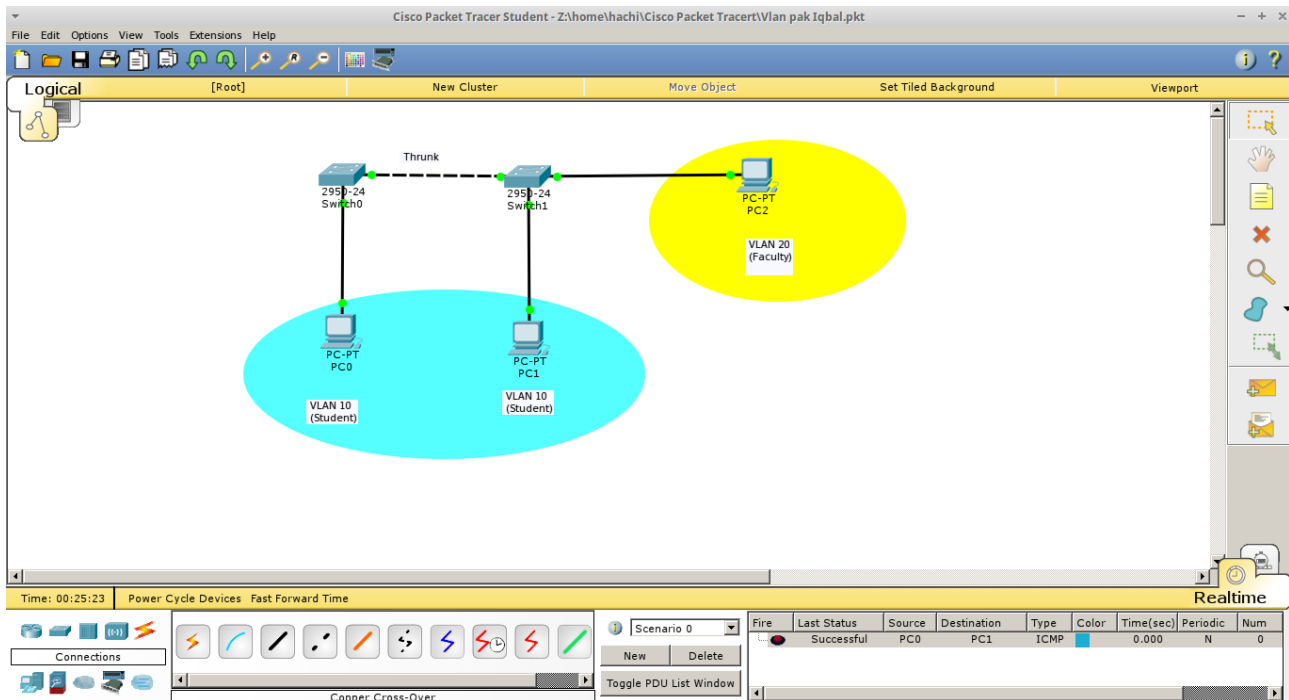
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PROGRAM STUDI D3 MANAJEMEN INFORMATIKA
JURUSAN ILMU KOMPUTER
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN
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KONFIGURASI VLAN PADA CISCO PACKET TRACERT

1. Buka Cisco Packet Tracer,lalu buat topologi seperti gambar berikut



2. Konfigurasi setiap ip nya,

PC 0 : ip 192.168.10.10 subnetmask 255.255.255.0

PC 1 : ip 192.168.10.11 subnetmask 255.255.255.0

PC 2 : ip 192.168.10.15 subnetmask 255.255.255.0

Lalu kita buat konfigurasi vlan dimana pc tersebut didalam satu jaringan padahal tidak hanya fisiknya yang seperti dalam satu jaringan

Konfigurasi Switch 0

Switch>enable

Switch#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#vlan 10

Switch(config-vlan)#name student

Switch(config-vlan)#end

Switch#

%SYS-5-CONFIG_I: Configured from console by console

```

Switch#
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface FastEthernet0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport mode trunk
Switch(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
Switch#show vlan
VLAN Name Status Ports

```

```

-----
1 default active Fa0/2, Fa0/3, Fa0/4, Fa0/5
Fa0/7, Fa0/8, Fa0/9, Fa0/10
Fa0/11, Fa0/12, Fa0/13, Fa0/14
Fa0/15, Fa0/16, Fa0/17, Fa0/18
Fa0/19, Fa0/20, Fa0/21, Fa0/22
Fa0/23, Fa0/24
10 student active Fa0/6
1002 fddi-default act/unsup
1003 token-ring-default act/unsup
1004 fddinet-default act/unsup
1005 trnet-default act/unsup

```

```

VLAN Type SAID MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2

```

```

-----
1 enet 100001 1500 - - - - 0 0
10 enet 100010 1500 - - - - 0 0
1002 fddi 101002 1500 - - - - 0 0
1003 tr 101003 1500 - - - - 0 0
1004 fdnet 101004 1500 - - - ieee - 0 0

```

```

Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface fastEthernet 0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
Switch#show vlan brief

```

VLAN Name Status Ports

1 default active Fa0/2, Fa0/3, Fa0/4, Fa0/5
Fa0/7, Fa0/8, Fa0/9, Fa0/10
Fa0/11, Fa0/12, Fa0/13, Fa0/14
Fa0/15, Fa0/16, Fa0/17, Fa0/18
Fa0/19, Fa0/20, Fa0/21, Fa0/22
Fa0/23, Fa0/24
10 student active Fa0/6
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
Switch#

Konfigurasi Switch 1

Switch>enable

Switch#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#vlan 10

Switch(config-vlan)#name student

Switch(config-vlan)#end

Switch#

%SYS-5-CONFIG_I: Configured from console by console

Switch#sh vlan brief

VLAN Name Status Ports

1 default active Fa0/2, Fa0/3, Fa0/4, Fa0/5
Fa0/7, Fa0/8, Fa0/9, Fa0/10
Fa0/11, Fa0/12, Fa0/13, Fa0/14
Fa0/15, Fa0/16, Fa0/17, Fa0/18
Fa0/19, Fa0/20, Fa0/21, Fa0/22
Fa0/23, Fa0/24
10 student active Fa0/6
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
Switch#

Switch#configure terminal

Enter configuration commands, one per line. End with CNTL/Z.

Switch(config)#interface FastEthernet0/1

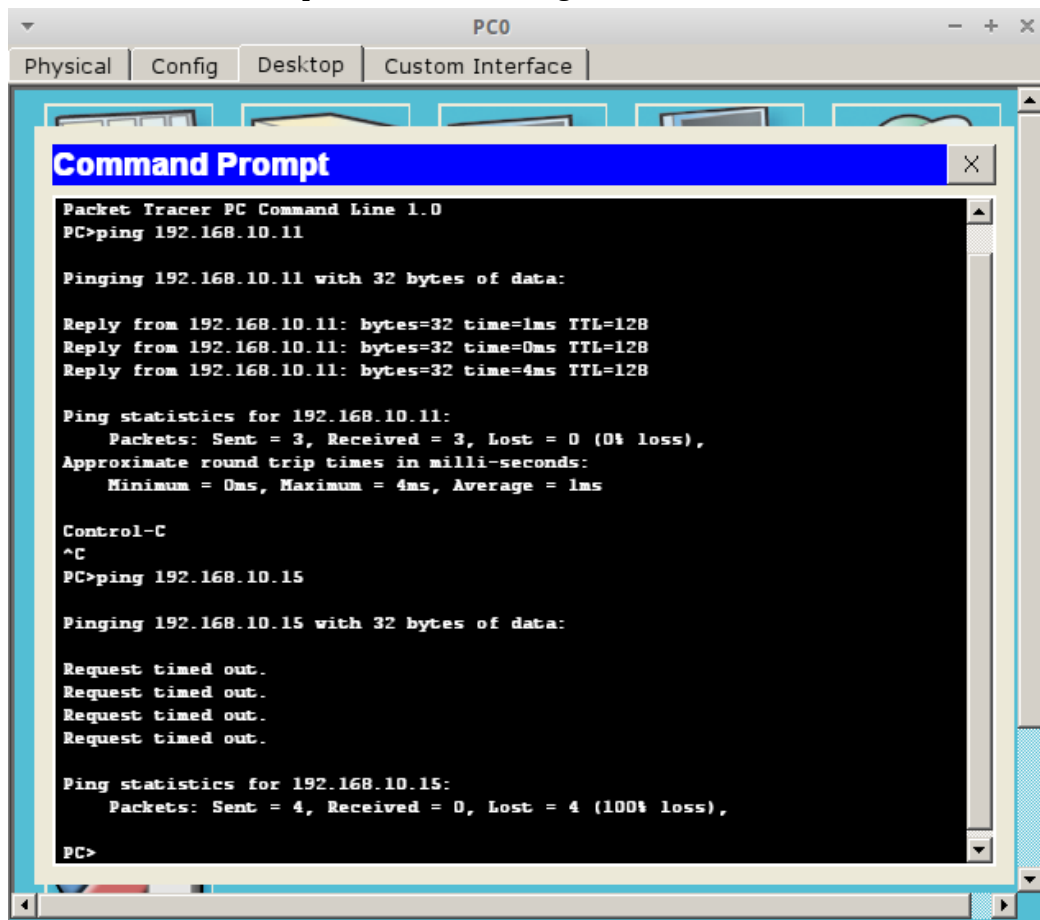
```

Switch(config-if)#switchport mode access
Switch(config-if)#switchport mode trunk
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
Switch#show vlan
VLAN Name Status Ports
-----
1 default active Fa0/2, Fa0/3, Fa0/4, Fa0/5
Fa0/7, Fa0/8, Fa0/9, Fa0/10
Fa0/11, Fa0/12, Fa0/13, Fa0/14
Fa0/15, Fa0/16, Fa0/17, Fa0/18
Fa0/19, Fa0/20, Fa0/21, Fa0/22
Fa0/23, Fa0/24
10 student active Fa0/6
1002 fddi-default act/unsup
1003 token-ring-default act/unsup
1004 fddinet-default act/unsup
1005 trnet-default act/unsup
VLAN Type SAID MTU Parent RingNo BridgeNo Stp BrdgMode Trans1 Trans2
-----
1 enet 100001 1500 - - - - 0 0
10 enet 100010 1500 - - - - 0 0
1002 fddi 101002 1500 - - - - 0 0
1003 tr 101003 1500 - - - - 0 0
1004 fdnet 101004 1500 - - - ieee - 0 0
Switch#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#interface fastEthernet 0/6
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#end
Switch#
%SYS-5-CONFIG_I: Configured from console by console
Switch#show vlan brief
VLAN Name Status Ports
-----
1 default active Fa0/2, Fa0/3, Fa0/4, Fa0/5
Fa0/7, Fa0/8, Fa0/9, Fa0/10
Fa0/11, Fa0/12, Fa0/13, Fa0/14
Fa0/15, Fa0/16, Fa0/17, Fa0/18
Fa0/19, Fa0/20, Fa0/21, Fa0/22

```

Fa0/23, Fa0/24
10 student active Fa0/6
1002 fddi-default active
1003 token-ring-default active
1004 fddinet-default active
1005 trnet-default active
Switch#

Kita coba lakukan cek koneksi apakah kita terhubung atau tidak



Pada percobaan diatas menandakan bahwa

- Pada saat percobaan melakukan koneksi dari pc 0 ke pc 1 akan terjadi reply saat koneksi berlangsung
- Lalu pada saat pc 0 melakukan ping ke pc 2 maka akan terjadi request timed out, kenapa? Dikarenakan pc 2(faculty) sudah tidak berada pada satu jaringan (network) walaupun secara fisik dan konfigurasi berada di satu jaringan, pc 2 berada di luar network yang berbeda vlan

Konfigurasi Bridging pada GNS3

Soal Evaluasi VLAN dan Bridging

1. Apa fungsi Bridge dalam sebuah jaringan komputer

Jawab:

- Menghubungkan beberapa jaringan LAN yang sejenis
- Menghubungkan 2 jaringan komputer yang terpisah tempat nya
- Memperkecil segmen jaringan yang luas menjadi kecil dan lebih mudah dikontrol
- Mampu memindahkan data melalui network dengan tipe protokol sama sekali berbeda

2. Apa perbedaan Bridging dengan Routing?

Jawab:

Routing

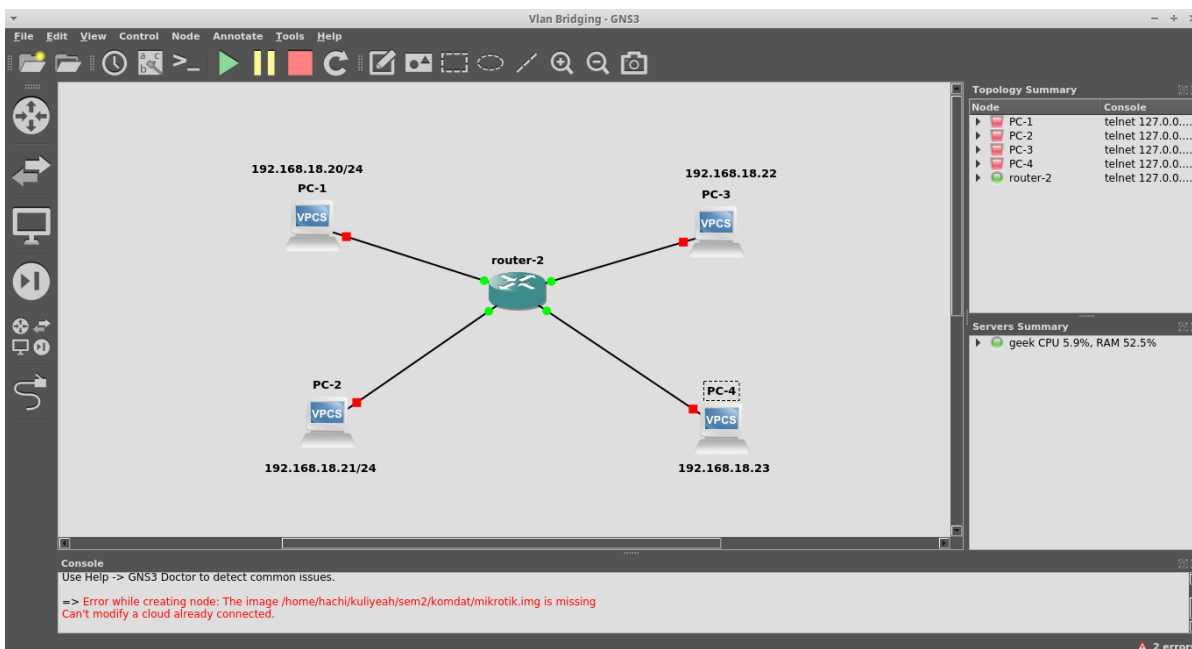
- Bekerja pada layer ke 3 atau Network
- Routing berkaitan erat dengan ip address
- Routing bertugas mengelolah paket data

Bridging

- Bekerja pada layer ke 2 atau Data Link
- Bridging bertugas mengelolah frame data
- Bridging berkaitan dengan MAC Address

3. Buatlah Bridge pada Router dengan 4 interface, sehingga pada masing-masing PC di masing-masing interface dapat terhubung satu sama lain. Kemudian lakukan pengujian konektifitas dengan Ping.

- Buat topologi seperti dibawah ini



- Seting ip pada semua pc dengan ketentuan *(sebenarnya tidak ada ketentuan,disini saya menggunakan no terakhir npm saja)*

dengan mengetikkan perintah **ip 192.168.18.20/24** kalau sudah ketik kembali **save**

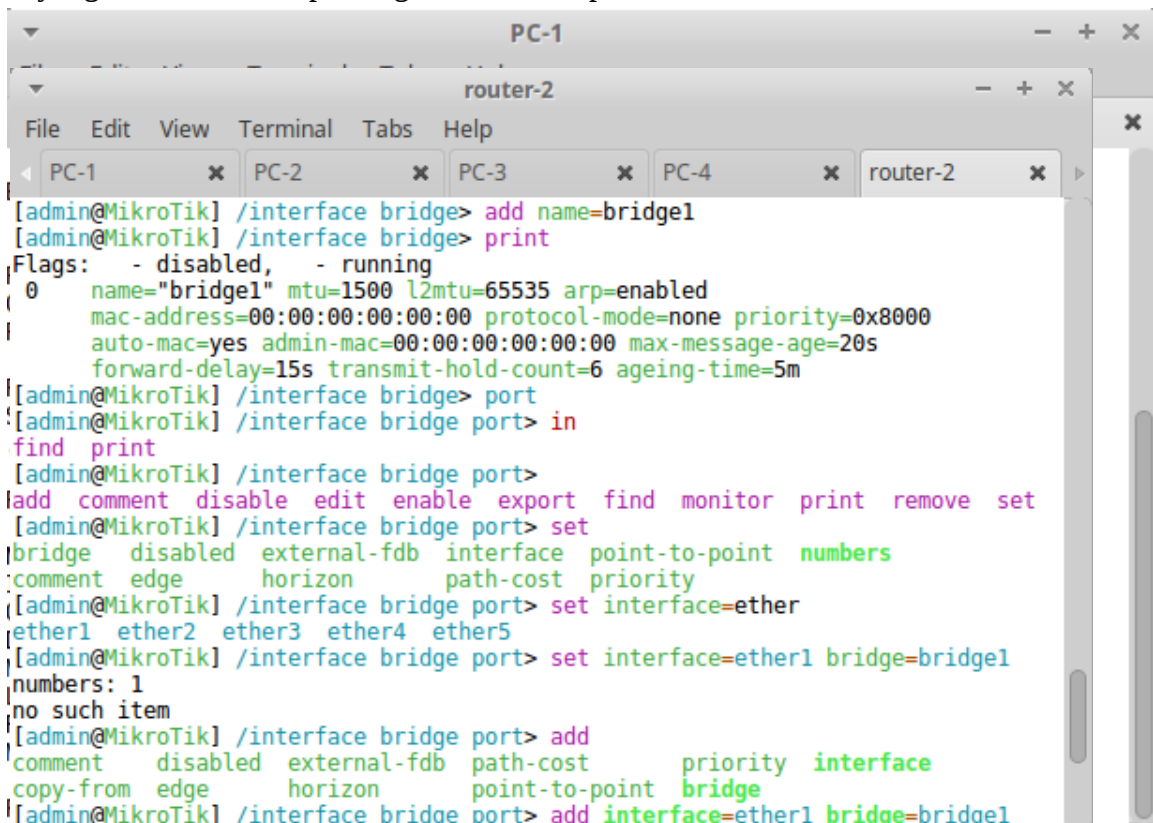
PC 1 192.168.18.20/24

PC 2 192.168.18.21/24

PC 3 192.168.18.22/24

PC 4 192.168.18.23/24

Dengan mengetikkan **ip 192.168.18.20/24** kalau sudah ketik kembali **save**. Lakukan hal yang sama ke semua pc dengan ketentuan ip diatas

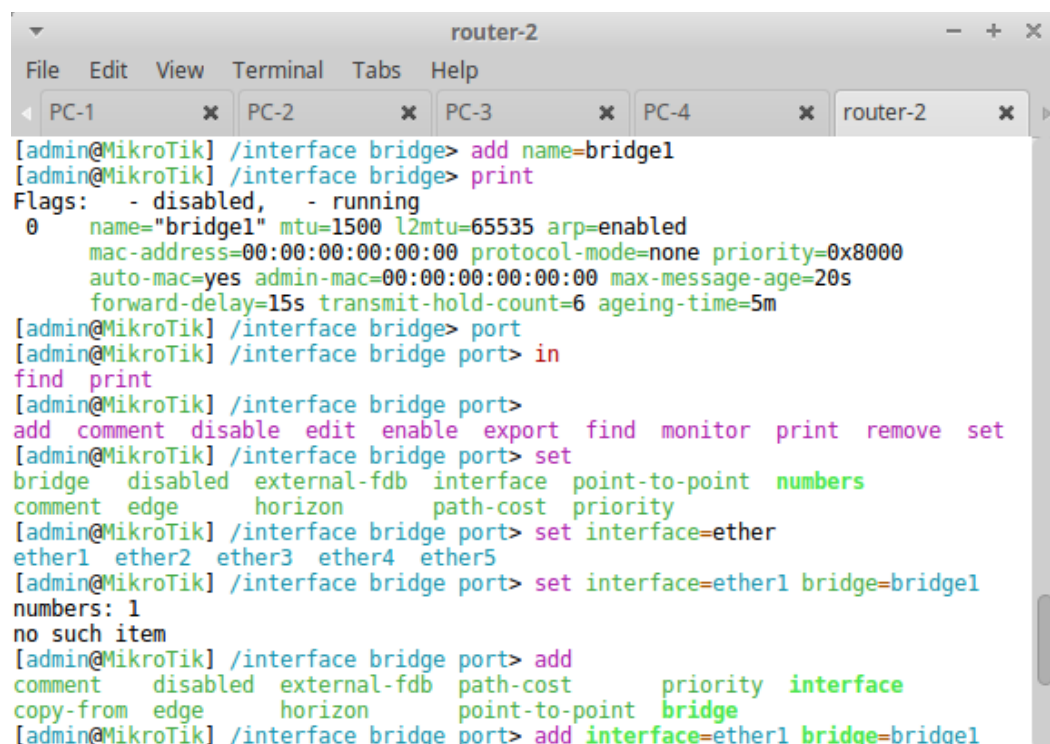


```

PC-1
router-2
File Edit View Terminal Tabs Help
PC-1 x PC-2 x PC-3 x PC-4 x router-2 x
[admin@MikroTik] /interface bridge> add name=bridge1
[admin@MikroTik] /interface bridge> print
Flags: - disabled, - running
0 name="bridge1" mtu=1500 l2mtu=65535 arp=enabled
  mac-address=00:00:00:00:00:00 protocol-mode=none priority=0x8000
  auto-mac=yes admin-mac=00:00:00:00:00:00 max-message-age=20s
  forward-delay=15s transmit-hold-count=6 ageing-time=5m
[admin@MikroTik] /interface bridge> port
[admin@MikroTik] /interface bridge port> in
find print
[admin@MikroTik] /interface bridge port>
add comment disable edit enable export find monitor print remove set
[admin@MikroTik] /interface bridge port> set
bridge disabled external-fdb interface point-to-point numbers
comment edge horizon path-cost priority
[admin@MikroTik] /interface bridge port> set interface=ether
ether1 ether2 ether3 ether4 ether5
[admin@MikroTik] /interface bridge port> set interface=ether1 bridge=bridge1
numbers: 1
no such item
[admin@MikroTik] /interface bridge port> add
comment disabled external-fdb path-cost priority interface
copy-from edge horizon point-to-point bridge
[admin@MikroTik] /interface bridge port> add interface=ether1 bridge=bridge1

```

- Masuk ke router nya lalu kita mulai melakukan konfigurasi



```

router-2
File Edit View Terminal Tabs Help
PC-1 x PC-2 x PC-3 x PC-4 x router-2 x
[admin@MikroTik] /interface bridge> add name=bridge1
[admin@MikroTik] /interface bridge> print
Flags: - disabled, - running
0 name="bridge1" mtu=1500 l2mtu=65535 arp=enabled
  mac-address=00:00:00:00:00:00 protocol-mode=none priority=0x8000
  auto-mac=yes admin-mac=00:00:00:00:00:00 max-message-age=20s
  forward-delay=15s transmit-hold-count=6 ageing-time=5m
[admin@MikroTik] /interface bridge> port
[admin@MikroTik] /interface bridge port> in
find print
[admin@MikroTik] /interface bridge port>
add comment disable edit enable export find monitor print remove set
[admin@MikroTik] /interface bridge port> set
bridge disabled external-fdb interface point-to-point numbers
comment edge horizon path-cost priority
[admin@MikroTik] /interface bridge port> set interface=ether
ether1 ether2 ether3 ether4 ether5
[admin@MikroTik] /interface bridge port> set interface=ether1 bridge=bridge1
numbers: 1
no such item
[admin@MikroTik] /interface bridge port> add
comment disabled external-fdb path-cost priority interface
copy-from edge horizon point-to-point bridge
[admin@MikroTik] /interface bridge port> add interface=ether1 bridge=bridge1

```


Dengan masuk ke menu **interface bridge** lalu kita ketikkan perintah **add name=bridge1** lalu enter. Jangan keluar dari menu **interface bridge** lalu kita masuk kembali ke submenu **port** lalu kita ketikkan perintah **add interface=ether1 bridge=bridge1**. Kita lakukan hal yang sama ke semua ether seperti contoh dibawah ini

add interface=ether2 bridge=bridge1

add interface=ether3 bridge=bridge1

add interface=ether4 bridge=bridge1

Jika sudah kita coba lihat apakah port nya sudah di konfigurasi semua atau belum dengan mengetik perintah **print**

```
router-2
File Edit View Terminal Tabs Help
PC-1 x PC-2 x PC-3 x PC-4 x router-2 x
[admin@MikroTik] /interface bridge port> set interface=ether
ether1 ether2 ether3 ether4 ether5
[admin@MikroTik] /interface bridge port> set interface=ether1 bridge=bridge1
numbers: 1
no such item
[admin@MikroTik] /interface bridge port> add
comment disabled external-fdb path-cost priority interface
copy-from edge horizon point-to-point bridge
[admin@MikroTik] /interface bridge port> add interface=ether1 bridge=bridge1
[admin@MikroTik] /interface bridge port> print
Flags: - disabled, - inactive, - dynamic

0 ether1 bridge1 0x80 10 none
[admin@MikroTik] /interface bridge port> add interface=ether
ether1 ether2 ether3 ether4 ether5
[admin@MikroTik] /interface bridge port> add interface=ether2 bridge=bridge1
[admin@MikroTik] /interface bridge port> add interface=ether3 bridge=bridge1
[admin@MikroTik] /interface bridge port> print
Flags: - disabled, - inactive, - dynamic

0 ether1 bridge1 0x80 10 none
1 ether2 bridge1 0x80 10 none
2 ether3 bridge1 0x80 10 none
[admin@MikroTik] /interface bridge port> █
```

- Kita coba test koneksi antar pc

Disini saya coba test koneksi dari PC 1 ke beberapa pc

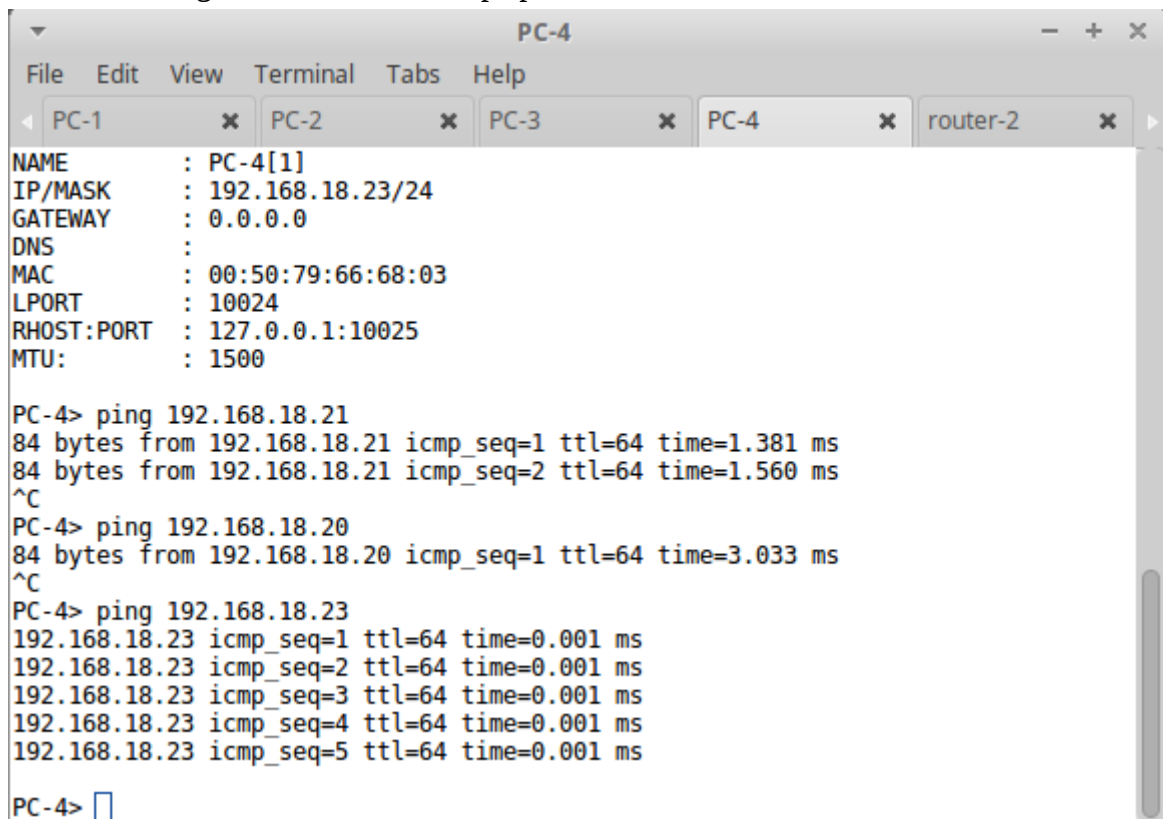
```
PC-1
File Edit View Terminal Tabs Help
PC-1 x PC-2 x PC-3 x PC-4 x router-2 x
PC-1> show ip

NAME       : PC-1[1]
IP/MASK    : 192.168.18.20/24
GATEWAY    : 0.0.0.0
DNS        :
MAC        : 00:50:79:66:68:00
LPORT     : 10018
RHOST:PORT : 127.0.0.1:10019
MTU        : 1500

PC-1> ping 192.168.18.21
84 bytes from 192.168.18.21 icmp_seq=1 ttl=64 time=1.529 ms
84 bytes from 192.168.18.21 icmp_seq=2 ttl=64 time=1.647 ms
^C
PC-1> ping 192.168.18.23
host (192.168.18.23) not reachable

PC-1> ping 192.168.18.23
84 bytes from 192.168.18.23 icmp_seq=1 ttl=64 time=1.484 ms
84 bytes from 192.168.18.23 icmp_seq=2 ttl=64 time=1.628 ms
^C
PC-1> █
```

Lalu test koneksi lagi dari PC 4 ke beberapa pc



The screenshot shows a terminal window titled "PC-4" with a menu bar (File, Edit, View, Terminal, Tabs, Help) and a tab bar containing "PC-1", "PC-2", "PC-3", "PC-4", and "router-2". The terminal displays the following configuration and commands:

```
NAME      : PC-4[1]
IP/MASK    : 192.168.18.23/24
GATEWAY    : 0.0.0.0
DNS        :
MAC        : 00:50:79:66:68:03
LPORT     : 10024
RHOST:PORT : 127.0.0.1:10025
MTU        : 1500

PC-4> ping 192.168.18.21
84 bytes from 192.168.18.21 icmp_seq=1 ttl=64 time=1.381 ms
84 bytes from 192.168.18.21 icmp_seq=2 ttl=64 time=1.560 ms
^C
PC-4> ping 192.168.18.20
84 bytes from 192.168.18.20 icmp_seq=1 ttl=64 time=3.033 ms
^C
PC-4> ping 192.168.18.23
192.168.18.23 icmp_seq=1 ttl=64 time=0.001 ms
192.168.18.23 icmp_seq=2 ttl=64 time=0.001 ms
192.168.18.23 icmp_seq=3 ttl=64 time=0.001 ms
192.168.18.23 icmp_seq=4 ttl=64 time=0.001 ms
192.168.18.23 icmp_seq=5 ttl=64 time=0.001 ms
PC-4> 
```

Dan its work semua pc sudah saling terhubung dan melakukan koneksitivitas