Nama : Bilqis Nabila Ummami

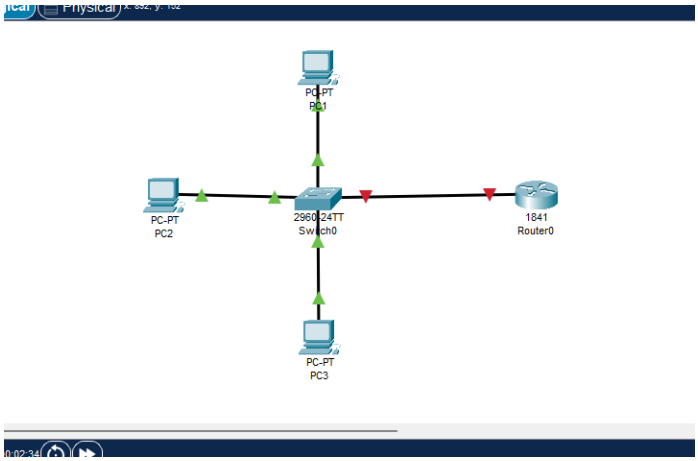
NIM : 09010182327014

Kelas ; MI3A

MK : Praktikum jaringan computer

VLAN & INTER-VLAN

- Topologi



- Konfigurasi switch

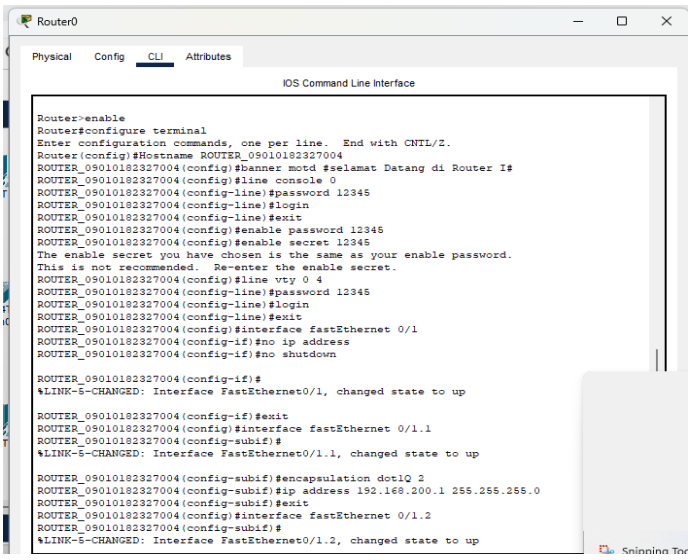
```
Switch>enable
Switch#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#Hostname SWITCH_09010182327004
SWITCH_09010182327004(config)#banner motd #selamat Datang di SWITCH_09010182327004#
SWITCH_09010182327004(config)#line console 0
SWITCH_09010182327004(config-line)#password 12345
SWITCH_09010182327004(config-line)#login
SWITCH_09010182327004(config-line)#exit
SWITCH_09010182327004(config)#line vty 0 4
SWITCH_09010182327004(config-line)#password 12345
SWITCH_09010182327004(config-line)#login
SWITCH_09010182327004(config-line)#exit
SWITCH_09010182327004(config)#enable password 12345
SWITCH_09010182327004(config)#enable secret 12345
The enable secret you have chosen is the same as your enable password.
This is not recommended.  Re-enter the enable secret.
SWITCH_09010182327004(config)#vlan 2
SWITCH_09010182327004(config-vlan)#Name Humas
SWITCH_09010182327004(config-vlan)#exit
SWITCH_09010182327004(config)#vlan 3
SWITCH_09010182327004(config-vlan)#Name Keuangan
SWITCH_09010182327004(config-vlan)#exit
SWITCH_09010182327004(config)#vlan 4
SWITCH_09010182327004(config-vlan)#Name IT
SWITCH_09010182327004(config-vlan)#exit
SWITCH_09010182327004(config)#vlan 5
SWITCH_09010182327004(config-vlan)#Name Pimpinan
SWITCH_09010182327004(config-vlan)#exit
SWITCH_09010182327004(config)#exit
SWITCH_09010182327004#
%SYS-5-CONFIG_I: Configured from console by console
```

```
SWITCH_09010182327004#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
SWITCH_09010182327004(config)#interface fastEthernet 0/1
SWITCH_09010182327004(config-if)#switchport mode access
SWITCH_09010182327004(config-if)#switchport access vlan 2
SWITCH_09010182327004(config-if)#exit
SWITCH_09010182327004(config)#interface fastEthernet 0/2
SWITCH_09010182327004(config-if)#switchport mode access
SWITCH_09010182327004(config-if)#switchport access vlan 3
SWITCH_09010182327004(config-if)#exit
SWITCH_09010182327004(config)#interface fastEthernet 0/3
SWITCH_09010182327004(config-if)#switchport mode access
SWITCH_09010182327004(config-if)#switchport access vlan 4
SWITCH_09010182327004(config-if)#exit
SWITCH_09010182327004(config)#interface fastEthernet 0/24
SWITCH_09010182327004(config-if)#switchport mode trunk
SWITCH_09010182327004(config-if)#exit
SWITCH_09010182327004(config)#exit
SWITCH_09010182327004#
%SYS-5-CONFIG_I: Configured from console by console

SWITCH_09010182327004#copy run start
Destination filename [startup-config]? show vlan
%Error copying nvram:show vlan (Invalid argument)
SWITCH_09010182327004#show vlan
```

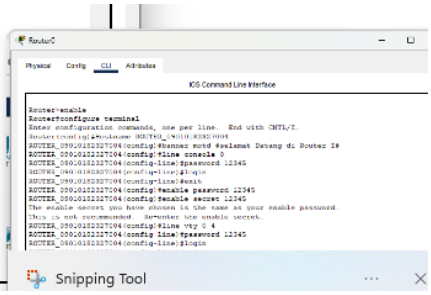
- Hasil Daftar vlan

```
VLAN Name                              Status    Ports
---- --------------------------------- --------- -------------------------------
1    default                           active    Fa0/4, Fa0/5, Fa0/6, 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, Gig0/1, Gig0/2
2    Humas                             active    Fa0/1
3    Keuangan                          active    Fa0/2
4    IT                                active    Fa0/3
5    Pimpinan                          active
1002 fddi-default                      active
1003 token-ring-default                active
1004 fddinet-default                   active
1005 trnet-default                     active

VLAN Type  SAID       MTU   Parent RingNo BridgeNo Stp  BrdgMode Trans1 Trans2
---- ----- ---------- ----- ------ ------ -------- ---- -------- ------ ------
1    enet  100001     1500  -      -      -        -    -        0      0
2    enet  100002     1500  -      -      -        -    -        0      0
 --More--
```

- Konfigurasi Router

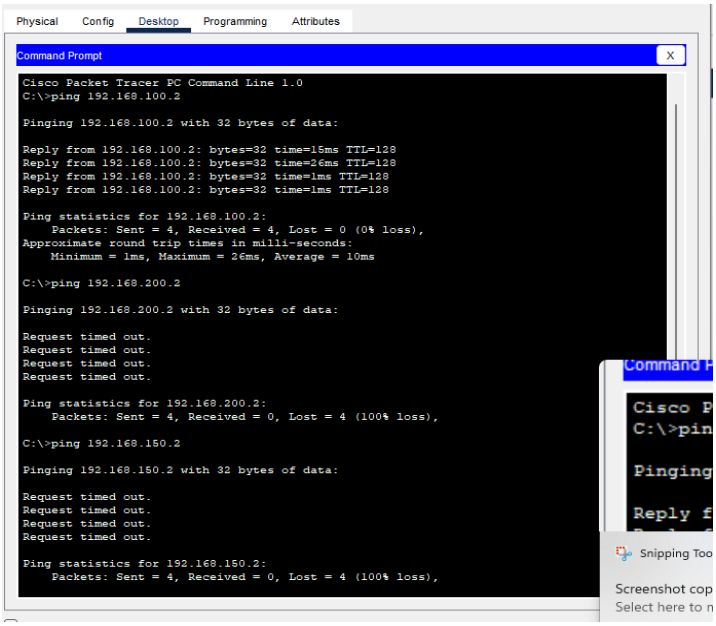


```
ROUTER_09010182327004(config-subif)#ip address 192.168.100.1 255.255.255.0

% Configuring IP routing on a LAN subinterface is only allowed if that
subinterface is already configured as part of an IEEE 802.10, IEEE 802.1Q,
or ISL vLAN.

ROUTER_09010182327004(config-subif)#encapsulation dot1Q 3
ROUTER_09010182327004(config-subif)#exit
ROUTER_09010182327004(config)#interface fastEthernet 0/1.3
ROUTER_09010182327004(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/1.3, changed state to up

ROUTER_09010182327004(config-subif)#encapsulation dot1Q 4
ROUTER_09010182327004(config-subif)#ip address 192.168.150.1 255.255.255.0
ROUTER_09010182327004(config-subif)#
```

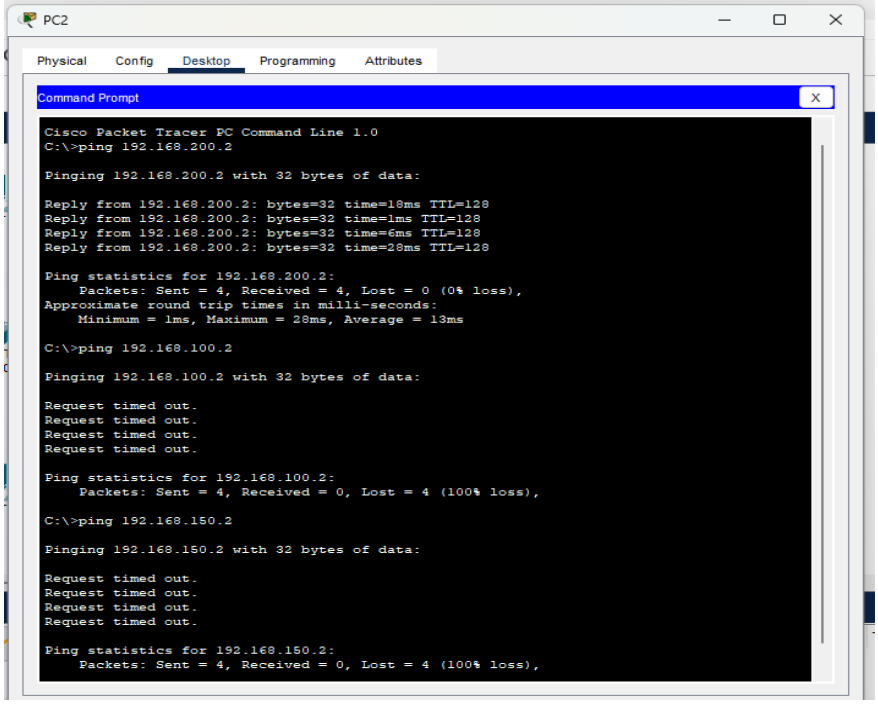


Tes koneksi menggunakan ICMP

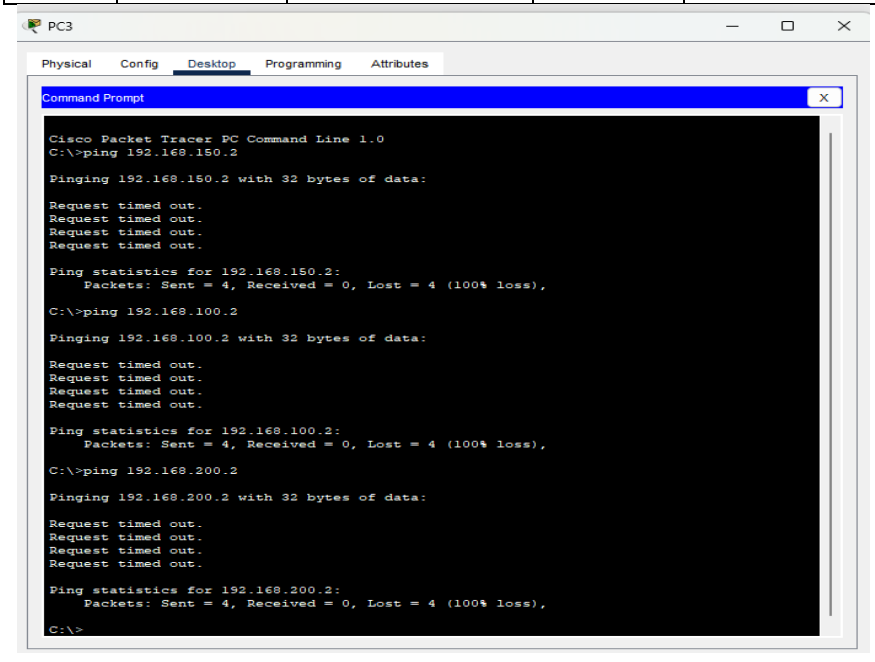
NO	Sumber	Tujuan	Hasil	
			Ya	Tidak
1	PC1	PC2		TIDAK
		PC3		TIDAK



	PC2	PC1		TIDAK
		PC3		TIDAK



3	PC3	PC1		TIDAK
		PC2		TIDAK



Judul Percobaan: *Konfigurasi VLAN dan Inter-VLAN Routing dengan Router-on-a-stick*

Hasil Percobaan:

1. Setelah konfigurasi switch dan router selesai, masing-masing PC berhasil mendapatkan alamat IP yang sesuai dengan VLAN-nya.

2. Pengujian koneksi antar PC dalam VLAN yang berbeda menunjukkan bahwa komunikasi dapat dilakukan dengan baik menggunakan ICMP (ping).

3. Hasil pengecekan konfigurasi VLAN dengan perintah show vlan menunjukkan daftar VLAN yang aktif dan port yang terasosiasi dengan VLAN tersebut.

Analisi Percobaan:

Pada percobaan ini, kita menggunakan metode router-on-a-stick untuk memungkinkan komunikasi antar VLAN. Switch yang digunakan berfungsi sebagai VTP server untuk mendistribusikan informasi VLAN ke PC dalam jaringan. Setiap port pada switch dikonfigurasi dalam mode akses untuk VLAN yang spesifik, dan port trunk digunakan untuk menghubungkan switch ke router. Router menggunakan sub-interface untuk setiap VLAN dan menerapkan fungsi routing agar VLAN dapat saling berkomunikasi. Berdasarkan pengujian ICMP (ping), terbukti bahwa Inter-VLAN routing berhasil dilakukan, memungkinkan PC dari VLAN yang berbeda saling terhubung.

Kesimpulan Percobaan:

Dari percobaan ini, dapat disimpulkan bahwa konfigurasi router-on-a-stick adalah metode yang efektif untuk mengimplementasikan Inter-VLAN routing dengan jumlah port yang terbatas pada router. Switch yang dikonfigurasi dengan VLAN memberikan segmentasi jaringan yang baik, dan router berperan penting dalam memungkinkan komunikasi antar VLAN.