# LAPORAN HASIL PRAKTIKUM

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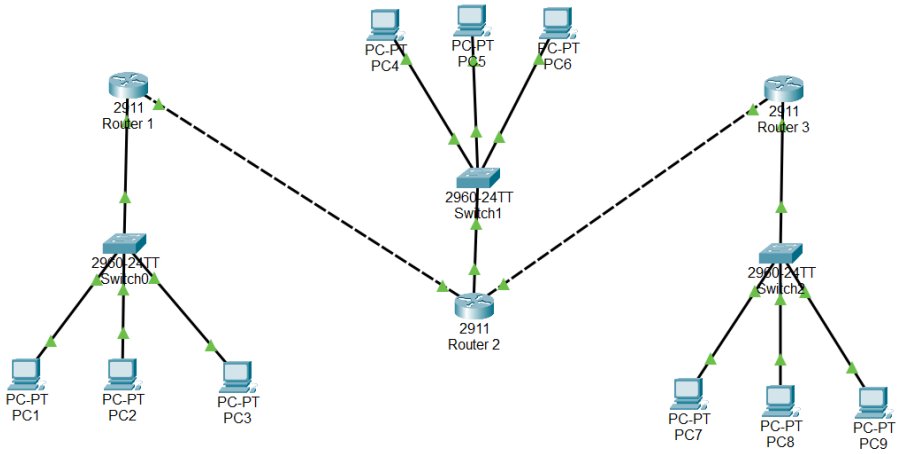
Program Studi: Manajemen Informatika 3A

## Judul Percobaan: Routing Static




- Router 1

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#Hostname R1
R1(config)#banner motd #Selamat Datang di R1#
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console

R1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#interface gigabitEthernet 0/0
R1(config-if)#ip address 192.168.2.1 255.255.255.0
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

R1(config-if)#exit
R1(config)#interface
R1(config)#interface gigabitEthernet 0/1
R1(config-if)#ip address 10.10.10.1 255.255.255.252
R1(config-if)#no shutdown

R1(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

R1(config-if)#exit
R1(config)#
R1(config)#
R1(config)#
R1(config)#
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console
exit
```

```
R1>enable
R1#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R1#exit
```

```
R1>enable
R1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ip route 192.168.20.0 255.255.255.0 10.10.10.2
R1(config)#ip route 10.20.10.0 255.255.255.252 10.10.10.2
R1(config)#ip route 192.168.40.0 255.255.255.252 10.20.10.2
R1(config)#exit
R1#
%SYS-5-CONFIG_I: Configured from console by console
```

Tabel Routing R1

```
R1>enable
R1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 3 subnets, 2 masks
C       10.10.10.0/30 is directly connected, GigabitEthernet0/1
L       10.10.10.1/32 is directly connected, GigabitEthernet0/1
S       10.20.10.0/30 [1/0] via 10.10.10.2
     192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.2.0/24 is directly connected, GigabitEthernet0/0
L       192.168.2.1/32 is directly connected, GigabitEthernet0/0
S    192.168.20.0/24 [1/0] via 10.10.10.2
     192.168.40.0/30 is subnetted, 1 subnets
S       192.168.40.0/30 [1/0] via 10.20.10.2

R1#
```

- Router 2

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#Hostname R2
R2(config)#banner motd #Selamat Datang di R2 #
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#interface gigabitEthernet 0/0
R2(config-if)#ip address 192.168.20.1 255.255.255.0
R2(config-if)#no shutdown

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

R2(config-if)#exit
R2(config)#interface gigabitEthernet 0/1
R2(config-if)#ip address 10.10.10.2 255.255.255.252
R2(config-if)#no shutdown

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/1, changed state to up
```

```
R2(config-if)#exit
R2(config)#interface gigabitEthernet 0/2
R2(config-if)#ip address 10.20.10.1 255.255.255.252
R2(config-if)#no shutdown

R2(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

R2(config-if)#exit
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R2#
```

```
R2>enable
R2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#ip route 192.168.2.0 255.255.255.0 10.10.10.1
R2(config)#ip route 192.168.40.0 255.255.255.0 10.20.10.2
R2(config)#exit
R2#
%SYS-5-CONFIG_I: Configured from console by console

R2#
```

Tabel Routing R2

```
R2>enable
R2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C       10.10.10.0/30 is directly connected, GigabitEthernet0/1
L       10.10.10.2/32 is directly connected, GigabitEthernet0/1
C       10.20.10.0/30 is directly connected, GigabitEthernet0/2
L       10.20.10.1/32 is directly connected, GigabitEthernet0/2
S    192.168.2.0/24 [1/0] via 10.10.10.1
     192.168.20.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.20.0/24 is directly connected, GigabitEthernet0/0
L       192.168.20.1/32 is directly connected, GigabitEthernet0/0
S    192.168.40.0/24 [1/0] via 10.20.10.2

R2#
```

- Router 3

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#Hostname R3
R3(config)#banner motd #Selamat Datang di R3 #
R3(config)#exit
R3#
%SYS-5-CONFIG_I: Configured from console by console

R3#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#interface gigabitEthernet 0/0
R3(config-if)#ip address 192.168.40.1 255.255.255.0
R3(config-if)#no shutdown

R3(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/0, changed state to up

R3(config-if)#exit
```

```
R3(config-if)#interface gigabitEthernet 0/2
R3(config-if)#ip address 10.20.10.2 255.255.255.252
R3(config-if)#no shutdown

R3(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/2, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet0/2, changed state to up

R3(config-if)#exit
R3(config)#exit
R3#
%SYS-5-CONFIG_I: Configured from console by console

R3#copy running-config startup-config
Destination filename [startup-config]?
Building configuration...
[OK]
R3#exit
```

Tabel Routing R3

```
R3>enable
R3#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#ip route 192.168.2.0 255.255.255.0 10.10.10.1
R3(config)#ip route 192.168.20.0 255.255.255.0 10.10.10.2
R3(config)#ip route 10.20.10.0 255.255.255.252 10.10.10.2
R3(config)#exit
R3#
%SYS-5-CONFIG_I: Configured from console by console

R3#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route

Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C       10.20.10.0/30 is directly connected, GigabitEthernet0/2
L       10.20.10.2/32 is directly connected, GigabitEthernet0/2
     192.168.40.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.40.0/24 is directly connected, GigabitEthernet0/0
L       192.168.40.1/32 is directly connected, GigabitEthernet0/0

R3#
```

## Hasil Percobaan:

- PC1

```
C:\>ping 192.168.20.3

Pinging 192.168.20.3 with 32 bytes of data:

Reply from 192.168.20.3: bytes=32 time<1ms TTL=126
Reply from 192.168.20.3: bytes=32 time<1ms TTL=126
Reply from 192.168.20.3: bytes=32 time<1ms TTL=126
Reply from 192.168.20.3: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.20.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.40.2

Pinging 192.168.40.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.40.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

- PC4

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.2.3

Pinging 192.168.2.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.3: bytes=32 time<1ms TTL=126
Reply from 192.168.2.3: bytes=32 time<1ms TTL=126
Reply from 192.168.2.3: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>ping 192.168.40.3

Pinging 192.168.40.3 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.40.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

- PC7

```
C:\>ping 192.168.2.4

Pinging 192.168.2.4 with 32 bytes of data:

Reply from 192.168.40.1: Destination host unreachable.
Request timed out.
Reply from 192.168.40.1: Destination host unreachable.
Request timed out.

Ping statistics for 192.168.2.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.2.4

Pinging 192.168.2.4 with 32 bytes of data:

Reply from 192.168.40.1: Destination host unreachable.
Reply from 192.168.40.1: Destination host unreachable.
Reply from 192.168.40.1: Destination host unreachable.
Reply from 192.168.40.1: Destination host unreachable.

Ping statistics for 192.168.2.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.40.4

Pinging 192.168.40.4 with 32 bytes of data:

Reply from 192.168.40.4: bytes=32 time<1ms TTL=128
Reply from 192.168.40.4: bytes=32 time<1ms TTL=128
Reply from 192.168.40.4: bytes=32 time<1ms TTL=128
Reply from 192.168.40.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.40.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Tes Koneksi ICMP

| No | Sumber | Tujuan | Hasil | |
|---|---|---|---|---|
| | | | Ya | Tidak |
| 1 | PC1 | PC2 | Ya | |
| | | PC3 | Ya | |
| | | PC4 | Ya | |
| | | PC5 | Ya | |
| | | PC6 | Ya | |
| | | PC7 | | Tidak |
| | | PC8 | | Tidak |
| | | PC9 | | Tidak |
| 2 | PC4 | PC1 | Ya | |
| | | PC2 | Ya | |
| | | PC3 | Ya | |
| | | PC5 | Ya | |
| | | PC6 | Ya | |
| | | PC7 | | Tidak |
| | | PC8 | | Tidak |
| | | PC9 | | Tidak |
| 3 | PC7 | PC1 | | Tidak |
| | | PC2 | | Tidak |
| | | PC3 | | Tidak |
| | | PC4 | Ya | |
| | | PC5 | Ya | |
| | | PC6 | Ya | |
| | | PC8 | Ya | |
| | | PC9 | Ya | |

**Analisis Percobaan:**

Berdasarkan tabel, bahwa:

Koneksi ICMP yang Berhasil:

- PC1 dapat berkomunikasi dengan PC2, PC3, PC4, PC5, dan PC6.
- PC4 dapat berkomunikasi dengan PC1, PC2, PC3, PC5, dan PC6.
- PC7 dapat berkomunikasi dengan PC4, PC5, PC6, PC8, dan PC9.

Koneksi ICMP yang Gagal:

- PC1 tidak dapat berkomunikasi dengan PC7, PC8, dan PC9.
- PC4 tidak dapat berkomunikasi dengan PC7, PC8, dan PC9.
- PC7 tidak dapat berkomunikasi dengan PC1, PC2, dan PC3.

**Kesimpulan Percobaan:**

Dapat disimpulkan bahwa kegagalan komunikasi antara beberapa perangkat terjadi kesalahan pada konfigurasi rute yang dimana rute yang dikonfigurasi tidak sesuai dengan topologi jaringan yang sudah ditentukan. Itulah mengapa saat melakukan tes koneksi gagal.