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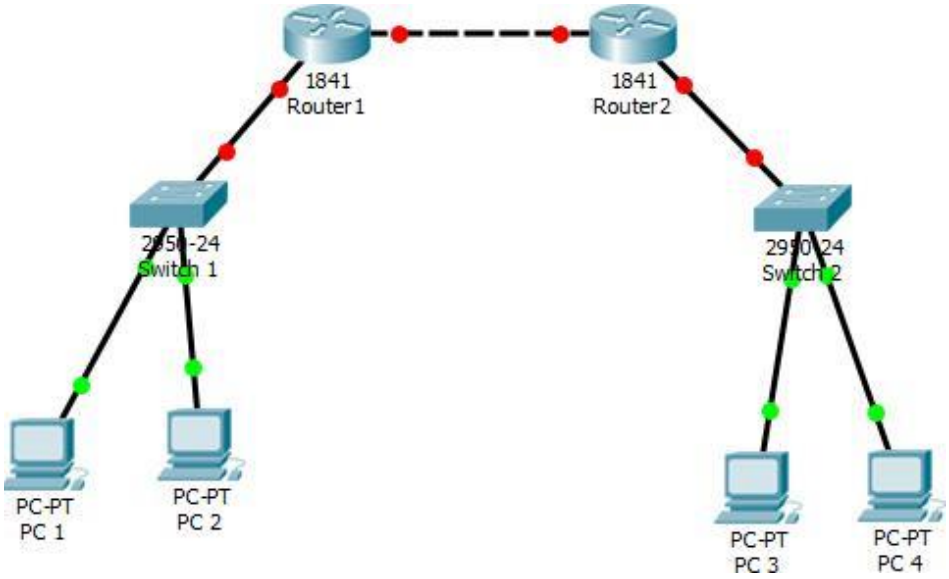
Kelas C
Modul 8

PACKET FILTERING DENGAN ACCESS LIST

Kegiatan 1. Konfigurasi Access List

1. Membuat topologi jaringan dengan menggunakan dua router seri 1841, dua switch seri 2950-24, dan 4 buah PC yang terbagi dalam dua switch tersebut seperti pada gambar di bawah ini.



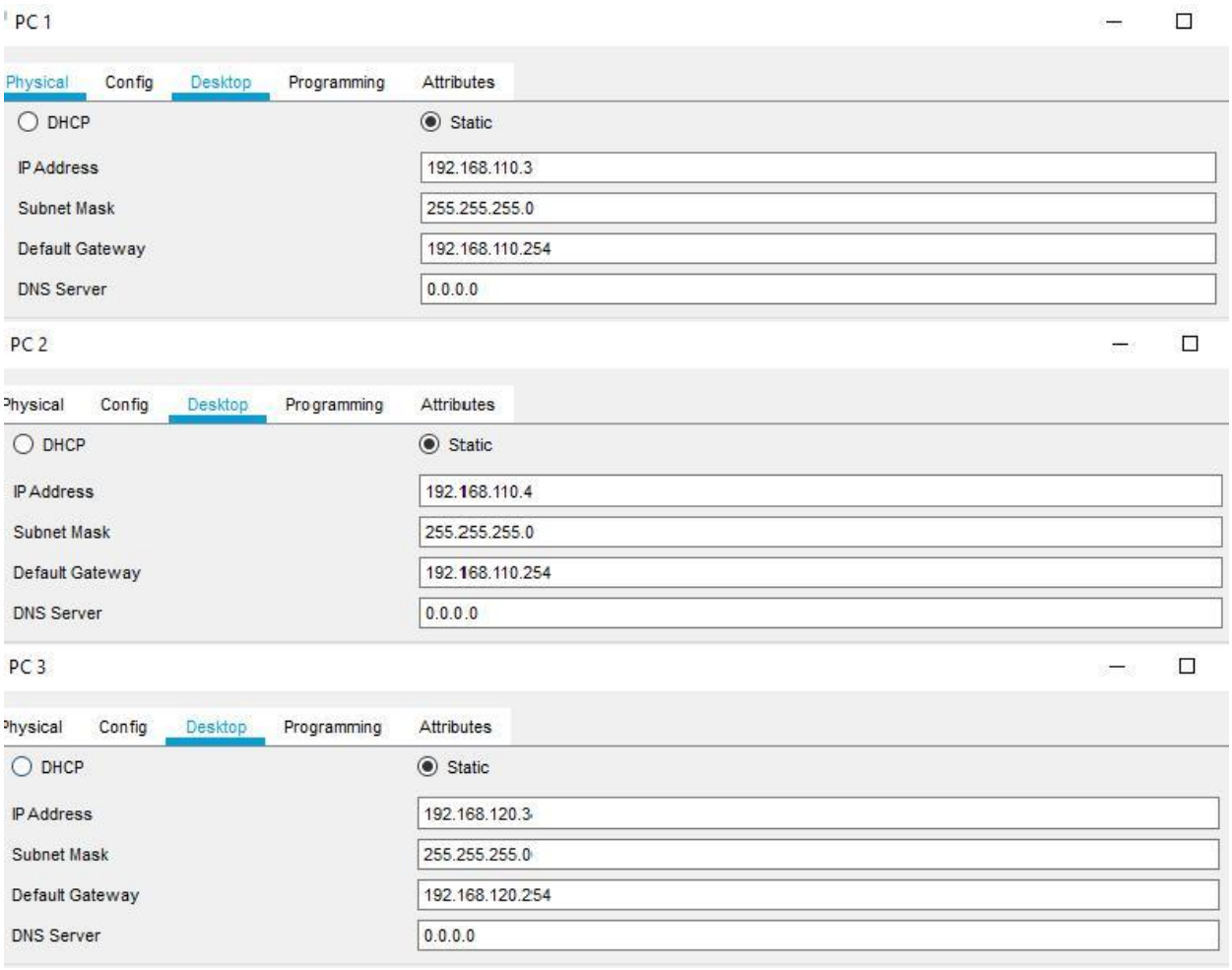
2. Berikan alamat IP pada kedua switch.
   - Switch 1

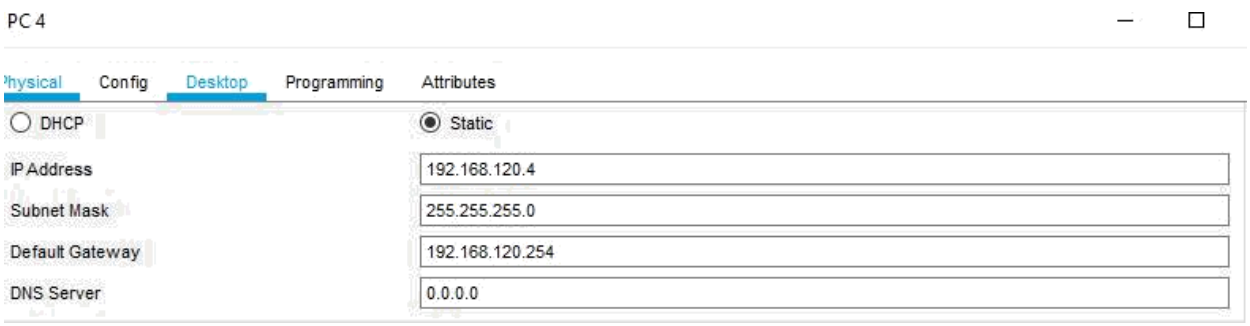
```
Switch1>en
Switch1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch1(config)#int vlan 1
Switch1(config-if)#ip address 192.168.110.250 255.255.255.0
Switch1(config-if)#no shut

Switch1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state
to up

Switch1(config-if)#ex
```

- Switch 2

```
Switch2>en
Switch2#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Switch2(config)#int vlan 1
Switch2(config-if)#ip address 192.168.120.250 255.255.255.0
Switch2(config-if)#no shut

Switch2(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state
to up

Switch2(config-if)#ex
Switch2(config)#
```

3. Berikan alamat IP, subnet mask, dan default gateway pada masing-masing PC.





4. Lakukan routing untuk kedua jaringan tersebut.
   - Router 1

```
Router1>enable
Router1#
Router1#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router1(config)#interface FastEthernet0/1
Router1(config-if)#no shutdown
Router1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up
ip address 192.168.10.1 255.255.255.0
Router1(config-if)#ip address 192.168.10.1 255.255.255.0
Router1(config-if)#
Router1(config-if)#exit
Router1(config)#interface FastEthernet0/0
Router1(config-if)#no shutdown
Router1(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0,
changed state to up
ip address 192.168.110.254 255.255.255.0
Router1(config-if)#ip address 192.168.110.254 255.255.255.0
Router1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up

Router1>en
Router1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router1(config)#router rip
Router1(config-router)#network 192.168.110.0
Router1(config-router)#network 192.168.10.0
Router1(config-router)#^Z
Router1#
%SYS-5-CONFIG_I: Configured from console by console
```

- Router 2

```
Router2>enable
Router2#
Router2#configure terminal
Enter configuration commands, one per line.  End with CNTL/Z.
Router2(config)#interface FastEthernet0/0
Router2(config-if)#
Router2(config-if)#exit
Router2(config)#interface FastEthernet0/1
Router2(config-if)#no shutdown
Router2(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1,
changed state to up
ip address 192.168.10.2 255.255.255.0
Router2(config-if)#ip address 192.168.10.2 255.255.255.0
Router2(config-if)#
Router2(config-if)#exit
Router2(config)#interface FastEthernet0/0
Router2(config-if)#no shutdown
Router2(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

Router2>en
Router2#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router2(config)#router rip
Router2(config-router)#network 192.168.120.0
Router2(config-router)#network 192.168.10.0
Router2(config-router)#^Z
Router2#
%SYS-5-CONFIG_I: Configured from console by console
```

5. Lakukan pengecekan tabel routing pada kedua router. - Router

1.

```
Router1#sh ip route
Codes: C - connected, S - static, I - IGRP, 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

C    192.168.10.0/24 is directly connected, FastEthernet0/1
C    192.168.110.0/24 is directly connected, FastEthernet0/0
R    192.168.120.0/24 [120/1] via 192.168.10.2, 00:00:17,
FastEthernet0/1

Router1#
```

- Router 2

```
Router2#sh ip route
Codes: C - connected, S - static, I - IGRP, 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

C    192.168.10.0/24 is directly connected, FastEthernet0/1
R    192.168.110.0/24 [120/1] via 192.168.10.1, 00:00:14,
FastEthernet0/1
C    192.168.120.0/24 is directly connected, FastEthernet0/0

Router2#
```

6. Tes koneksi dari PC 1 ke PC 4

```
C:\>ping 192.168.120.4

Pinging 192.168.120.4 with 32 bytes of data:

Reply from 192.168.120.4: bytes=32 time<1ms TTL=126
Reply from 192.168.120.4: bytes=32 time=3ms TTL=126
Reply from 192.168.120.4: bytes=32 time=13ms TTL=126
Reply from 192.168.120.4: bytes=32 time=2ms TTL=126

Ping statistics for 192.168.120.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 13ms, Average = 4ms
```

7. Menerapkan access list pada router.

```
Router1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router1(config)#access-list 10 permit 192.168.120.0 0.0.255.255
Router1(config)#end
Router1#
%SYS-5-CONFIG_I: Configured from console by console
```

8. Menerapkan access list ke interface router yang mengarah ke dalam jaringan 192.168.110.0 (int fa0/0)

```
Router1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router1(config)#int fa 0/0
Router1(config-if)#ip access-group 10 out
Router1(config-if)#^Z
Router1#
%SYS-5-CONFIG_I: Configured from console by console

Router1#
```

9. Kemudian lihat access list dan show running-config pada router.

```
Router1#sh access-lists
Standard IP access list 10
    10 permit 192.168.0.0 0.0.255.255

Router1#
```

```
Router1#sh running-config
Building configuration...

Current configuration : 713 bytes
!
version 12.4
no service timestamps log datetime msec
no service timestamps debug datetime msec
no service password-encryption
!
hostname Router1
!
!
!
!
!
!
!
!
ip cef
no ipv6 cef
!
!
!
!
!
!
!
!
!
!
!
!
spanning-tree mode pvst
!
!
!
!
!
!
interface FastEthernet0/0
 ip address 192.168.110.254 255.255.255.0
 ip access-group 10 out
 duplex auto
 speed auto
!
interface FastEthernet0/1
 ip address 192.168.10.1 255.255.255.0
 duplex auto
 speed auto
!
interface Vlan1
 no ip address
 shutdown
!
router rip
 network 192.168.10.0
 network 192.168.110.0
!
ip classless
!
ip flow-export version 9
!
!
access-list 10 permit 192.168.0.0 0.0.255.255
!
!
!
!
!
!
line con 0
!
line aux 0
!
line vty 0 4
 login
!
!
!
end
```

11. Lakukan tes koneksi antara PC 3 dengan PC 1.

```
C:\>ping 192.168.110.3

Pinging 192.168.110.3 with 32 bytes of data:

Reply from 192.168.110.3: bytes=32 time=1ms TTL=126
Reply from 192.168.110.3: bytes=32 time=10ms TTL=126
Reply from 192.168.110.3: bytes=32 time=12ms TTL=126
Reply from 192.168.110.3: bytes=32 time=10ms TTL=126

Ping statistics for 192.168.110.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 12ms, Average = 8ms

C:\>
```

12. Berikan akses hanya pada satu host (PC 4).

```
Router1>en
Router1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router1(config)#access-list 20 permit 192.168.120.4 0.0.0.0
Router1(config)#^Z
Router1#
%SYS-5-CONFIG_I: Configured from console by console

Router1#
```

13. Kemudian terapkan access list 20 tersebut pada interface Ethernet pada Router.

```
Router1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router1(config)#int fa 0/0
Router1(config-if)#ip access-group 20 out
Router1(config-if)#^Z
Router1#
%SYS-5-CONFIG_I: Configured from console by console

Router1#
```

Show access-lists

```
Router1#sh access-lists
Standard IP access list 10
    10 permit 192.168.0.0 0.0.255.255 (4 match(es))
Standard IP access list 20
    10 permit host 192.168.120.4

Router1#
```

14. Lakukan tes koneksi dari PC 3 ke PC 1 dan PC 2.

```
C:\>ping 192.168.110.3

Pinging 192.168.110.3 with 32 bytes of data:

Reply from 192.168.10.1: Destination host unreachable.
Reply from 192.168.10.1: Destination host unreachable.
Reply from 192.168.10.1: Destination host unreachable.
Reply from 192.168.10.1: Destination host unreachable.

Ping statistics for 192.168.110.3:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>ping 192.168.110.4

Pinging 192.168.110.4 with 32 bytes of data:

Reply from 192.168.10.1: Destination host unreachable.
Reply from 192.168.10.1: Destination host unreachable.
Reply from 192.168.10.1: Destination host unreachable.
Reply from 192.168.10.1: Destination host unreachable.

Ping statistics for 192.168.110.4:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\>
```

```
C:\>ping 192.168.110.3

Pinging 192.168.110.3 with 32 bytes of data:

Reply from 192.168.110.3: bytes=32 time=1ms TTL=126
Reply from 192.168.110.3: bytes=32 time=10ms TTL=126
Reply from 192.168.110.3: bytes=32 time=13ms TTL=126
Reply from 192.168.110.3: bytes=32 time=13ms TTL=126

Ping statistics for 192.168.110.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 13ms, Average = 9ms

C:\>ping 192.168.110.4

Pinging 192.168.110.4 with 32 bytes of data:

Reply from 192.168.110.4: bytes=32 time=1ms TTL=126
Reply from 192.168.110.4: bytes=32 time=11ms TTL=126
Reply from 192.168.110.4: bytes=32 time=13ms TTL=126
Reply from 192.168.110.4: bytes=32 time=10ms TTL=126

Ping statistics for 192.168.110.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 13ms, Average = 8ms

C:\>
```

Kegiatan 2. Konfigurasi Extended Access List

1. Konfigurasi extended access-list

```
Router1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router1(config)#access-list 100 permit tcp 192.168.120.0 0.0.0.255
192.168.110.3 0.0.0.0 eq telnet
Router1(config)#^Z
Router1#
%SYS-5-CONFIG_I: Configured from console by console

Router1#
```

2. Menerapkan access list tersebut ke interface router

```
Router1#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router1(config)#int fa 0/1
Router1(config-if)#ip access-group 100 in
Router1(config-if)#^Z
Router1#
%SYS-5-CONFIG_I: Configured from console by console

Router1#
```