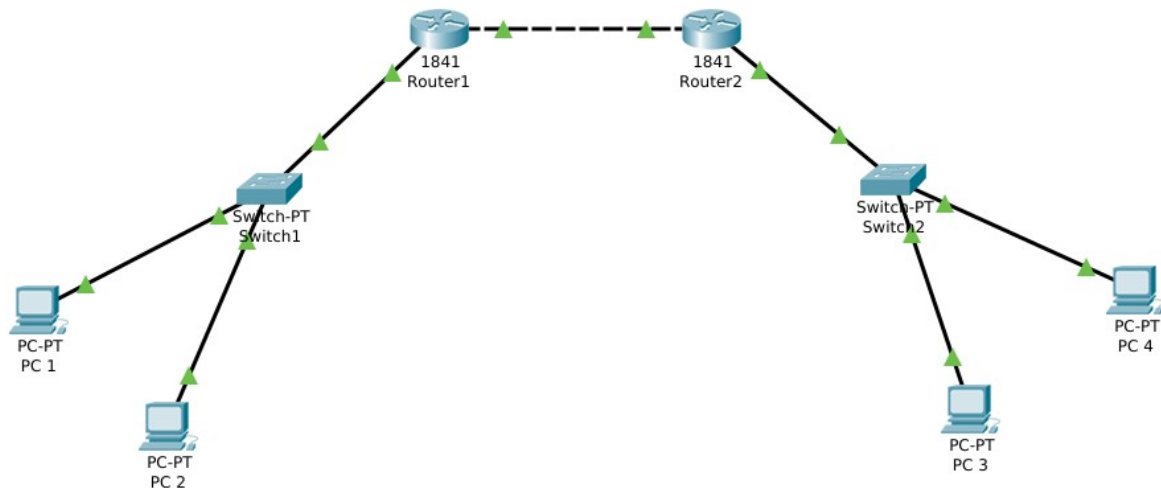Nama   : Gentur Waskita
NIM   : L200170085
Kelas   : D
Modul   : 8

Kegiatan 1. Konfigurasi Access List

1. konfigurasi pada kedua *Switch* IP Address digunakan sebagai default gateway bagi semua komputer yang terhubung dengan *Switch.*

    a) *Switch 1* dengan alamat *IP 192.168.110.250*

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

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

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

    Switch(config-if)#
    ```

    b) *Switch 2* dengan alamat *IP 192.168.120.250*

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

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

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

    Switch(config-if)#
    ```

2. Setelah memberikan *IP Address* pada *Switch* , berikutnya berikan *IP Address, Subnet Mask, Default Gateway* pada PC yang terhubung pada *Switch.* Tahap yang perlu dilakukan terlebih dahulu ialah meng-konfigurasi *IP Address* pada *Router*.
    a) Konfigurasi Router.
        •   Router 1

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip address 192.168.10.1 255.255.255.0
Router(config-if)#no shutdown

Router(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

Router(config-if)#
```

Interface antar Router

```
Router(config-if)#exit
Router(config)#int fa0/1
Router(config-if)#ip address 192.168.110.254 255.255.255.0
Router(config-if)#no shutdown

Router(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

Router(config-if)#
```

Interface antara Router dan Switch

        •   Router 2

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa0/0
Router(config-if)#ip address 192.168.10.2 255.255.255.0
Router(config-if)#no shutdown

Router(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

Router(config-if)#
```

Interface antar Router

```
Router(config-if)#exit
Router(config)#int fa0/1
Router(config-if)#ip address 192.168.120.254 255.255.255.0
Router(config-if)#no shutdown

Router(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

Router(config-if)#
```

Interface antara Router denganSwitch

b) Selanjutnya konfigurasi pada PC yang terhubung ke *Switch*.
- *PC 1* dan *PC 2* pada *Switch1*

- *PC 1* dan *PC 2* pada *Switch2*

3. Setelah semua komponen sudah terkonfigurasi, selanjutnya routing pada kedua jaringan menggunakan protokol RIP*(Routing Information Protocol)*.
a) Konfigurasi protokol RIP pada *Router1*.

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

Router#
```

b) Konfigurasi protokol RIP pada *Router2*.

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

Router#
```

4. Pengecekan tabel routing pada kedua *Router*.
   a) *Router1*

```
Router#show 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, FastEthernet0/0
C    192.168.110.0/24 is directly connected, FastEthernet0/1
R    192.168.120.0/24 [120/1] via 192.168.10.2, 00:00:02,
FastEthernet0/0
```
yang bertanda R merupakan Routing Dynamic tidak perlu membuat route secara manual

   b) *Router2*

```
Router#show 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, FastEthernet0/0
R    192.168.110.0/24 [120/1] via 192.168.10.1, 00:00:23,
FastEthernet0/0
C    192.168.120.0/24 is directly connected, FastEthernet0/1
```
yang bertanda R merupakan Routing Dynamic tidak perlu membuat route secara manual

5. Uji koneksi dari PC1 ke PC4 dengan perintah *Ping*.

```
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=13ms TTL=126
Reply from 192.168.120.4: bytes=32 time=5ms TTL=126
Reply from 192.168.120.4: bytes=32 time=14ms TTL=126
Reply from 192.168.120.4: bytes=32 time=13ms 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 = 5ms, Maximum = 14ms, Average = 11ms

C:\>
```

Hasil dari Routing dengan protokol RIP PC1 dan PC4 berhasil terkoneksi.

6. Menentukan *Access List* pada jaringan tersebut, sebegai contoh *Router1* akan mengizinkan semua host dari jaringan 192.168.120.0 dapat mengakses jaringan 192.168.110.0.
   a) Konfigurasi pada *Router1* .

```
Router>en
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#access-list 10 permit 192.168.120.0 0.0.0.255
Router(config)#en
% Ambiguous command: "en"
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```

   b) Lalu terapkan *Access List* tersebut ke interface *Router1* dalam hal ini interface Fa0/1 yang mengarah ke dalam jaringan 192.168.110.0.

```
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa0/1
Router(config-if)#ip access-group 10 out
Router(config-if)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```
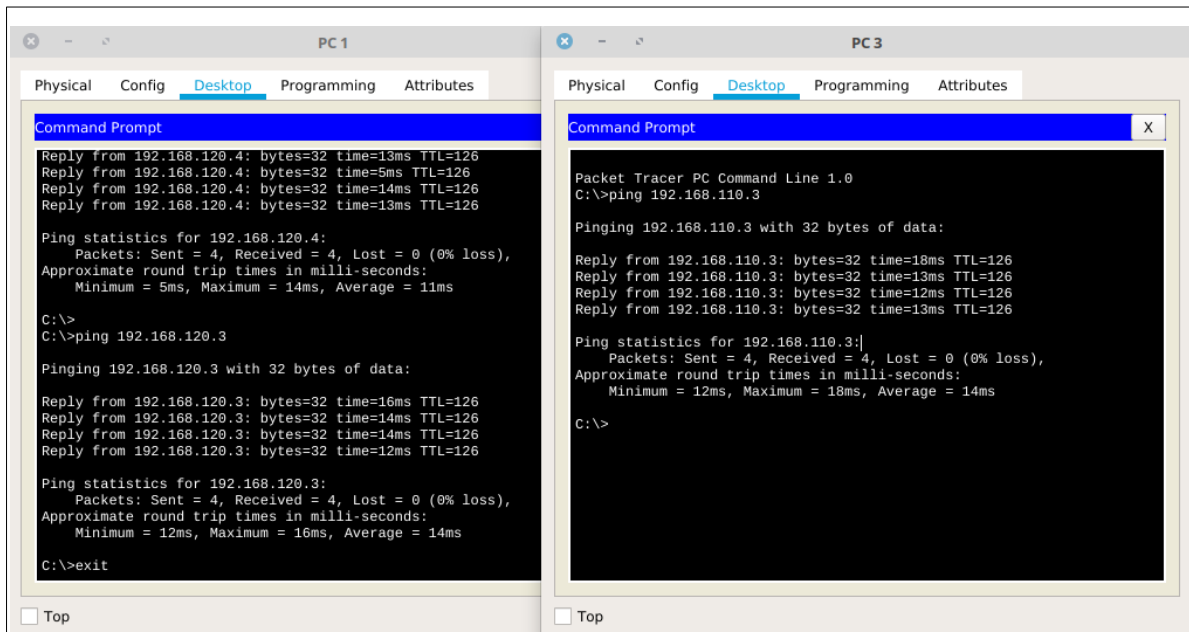
Opsi out digunakan untuk melewatkan paket keluar dari Router1

   c) Lihat konfigurasi *Access List* pada *Router1*.

```
Router#show access-list
Standard IP access list 10
    10 permit 192.168.120.0 0.0.0.255

Router#
```

d) Tes Koneksi dua arah antara PC3 dengan PC1 yang berada pada jaringan yang berbeda menggunakan perintah *Ping.*

Hasil ping yang dilakukan secara dua arah antara PC3 dan PC1 berhasil atau terkoneksi, karena pada tahap konfigurasi access list diatas kita mengijinkan host pada semua jaringan yang berbeda dapat saling berkomunikasi.

7. Selanjutnya memberikan akses hanya kepada 1 host (PC4) dengan alamat IP 192.168.120.4 agar dapat mengakses ke jaringan 192.168.110.0.
   a) Konfigurasi *Access List* pada *Router1*

```
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#access-list 30 permit 192.168.120.4 0.0.0.0
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```
pada konfigurasi access list diatas menggunakan nomor 30 pada standard list

   b) penerapan Access-List 30 pada FastEthernet0/1

```
Router#conf term
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int fa0/1
Router(config-if)#ip access-group 30 out
Router(config-if)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console

Router#
```

8. Setelah berhasil meng-konfigurasi Access-List memberikan hak akses hanya kepada PC4, tes koneksi dari PC3 ke PC1 dan PC2.

```
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:\>
```

Dari hasil Ping diatas dapat disimpulkan PC 3 tidak bisa berkomunikasi atau bertukar data karena tidak memiliki akses ke jaringan 192.168.110.0

9. Tes koneksi dari PC4 ke PC1 dan PC2.

```
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=23ms TTL=126
Reply from 192.168.110.4: bytes=32 time=15ms TTL=126
Reply from 192.168.110.4: bytes=32 time=11ms TTL=126
Reply from 192.168.110.4: bytes=32 time=14ms 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 = 11ms, Maximum = 23ms, Average = 15ms

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=23ms 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
Reply from 192.168.110.3: bytes=32 time=12ms 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 = 12ms, Maximum = 23ms, Average = 15ms

C:\>
```

Dari hasil Ping diatas dapat disimpulkan bahwa PC4 dapat berkomunikasi dengan semua Host yang memiliki jaringan 192.168.110.0.