

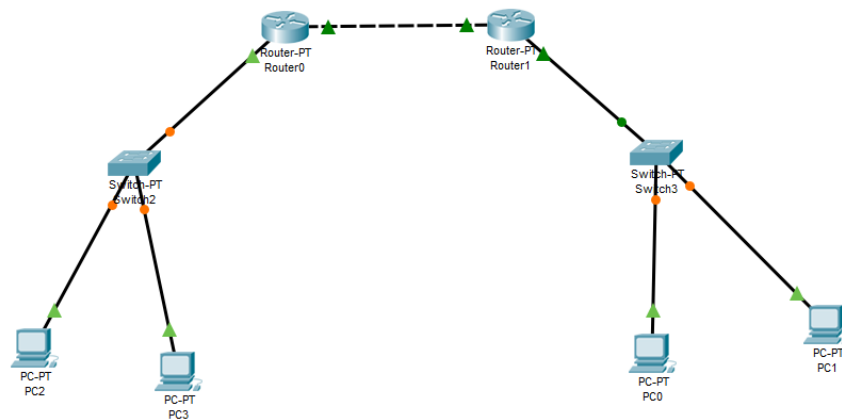
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MODUL VIII

PACKET FILTERING DENGAN ACCESS LIST

C. Kegiatan Praktikum

Kegiatan 1. Konfigurasi Access List



Ikuti langkah - langkah berikut ini mengkonfigurasi Access List pada ilustrasi tersebut :

1. Desain jaringan tersebut menggunakan Cisco Packet Tracer. Semua router menggunakan seri generik sedangkan semua switch menggunakan seri generik. Tambahkan 4 buah PC yang terbagi ke dalam 2 switch tersebut
2. Berikan identitas untuk semua sumber daya (router, switch, dan komputer) yang telah anda desain tersebut

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.96E9.B6E1

IP Configuration

IP Address 192.168.10.1

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

Top

Router0

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet1/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0002.1761.2578

IP Configuration

IP Address 192.168.110.254

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#
```

Top

Router1

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet0/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 00E0.F7AE.1C76

IP Configuration

IP Address 192.168.10.2

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#interface FastEthernet0/0
Router(config-if)#
```

Top

Router1

Physical Config CLI Attributes

GLOBAL

Settings

Algorithm Settings

ROUTING

Static

RIP

INTERFACE

FastEthernet0/0

FastEthernet1/0

Serial2/0

Serial3/0

FastEthernet4/0

FastEthernet5/0

FastEthernet1/0

Port Status ☒ On

Bandwidth ☒ 100 Mbps ☐ 10 Mbps ☒ Auto

Duplex ☐ Half Duplex ☒ Full Duplex ☒ Auto

MAC Address 0001.63BD.81E1

IP Configuration

IP Address 192.168.120.254

Subnet Mask 255.255.255.0

Tx Ring Limit 10

Equivalent IOS Commands

```
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#
Router(config)#interface FastEthernet0/0
Router(config-if)#
Router(config-if)#exit
Router(config)#interface FastEthernet1/0
Router(config-if)#
```

Top

3. Berikutnya berikan alamat IP, subnet mask, dan default gateway pada masing - masing komputer

PC0
Physical
Config
Desktop
Programming
Attributes
☐ DHCP
☒ Static
IP Address192.168.110.3
Subnet Mask255.255.255.0
Default Gateway192.168.110.254
DNS Server0.0.0.0
IPv6 Configuration
☐ DHCP
☐ Auto Config
☒ Static
IPv6 Address
Link Local AddressFE80::230:A3FF:FE79:A74C
IPv6 Gateway
IPv6 DNS Server
802.1X
☐ Use 802.1X Security
AuthenticationMDS
Username
Password
Top

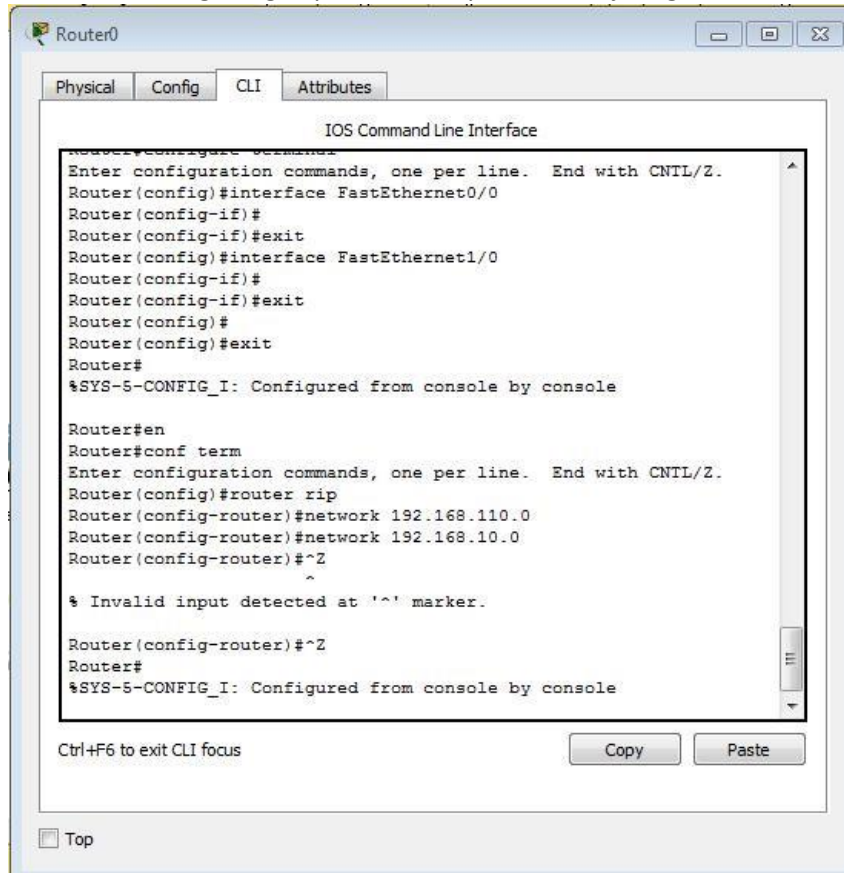
PC1
Physical
Config
Desktop
Programming
Attributes
☐ DHCP
☒ Static
IP Address192.168.110.4
Subnet Mask255.255.255.0
Default Gateway192.168.110.254
DNS Server0.0.0.0
IPv6 Configuration
☐ DHCP
☐ Auto Config
☒ Static
IPv6 Address
Link Local AddressFE80::202:17FF:FE88:71B7
IPv6 Gateway
IPv6 DNS Server
802.1X
☐ Use 802.1X Security
AuthenticationMDS
Username
Password
Top

PC2
Physical
Config
Desktop
Programming
Attributes
☐ DHCP
☒ Static
IP Address192.168.120.3
Subnet Mask255.255.255.0
Default Gateway192.168.120.254
DNS Server0.0.0.0
IPv6 Configuration
☐ DHCP
☐ Auto Config
☒ Static
IPv6 Address
Link Local AddressFE80::200:CFF:FE89:7A9B
IPv6 Gateway
IPv6 DNS Server
802.1X
☐ Use 802.1X Security
AuthenticationMDS
Username
Password
Top

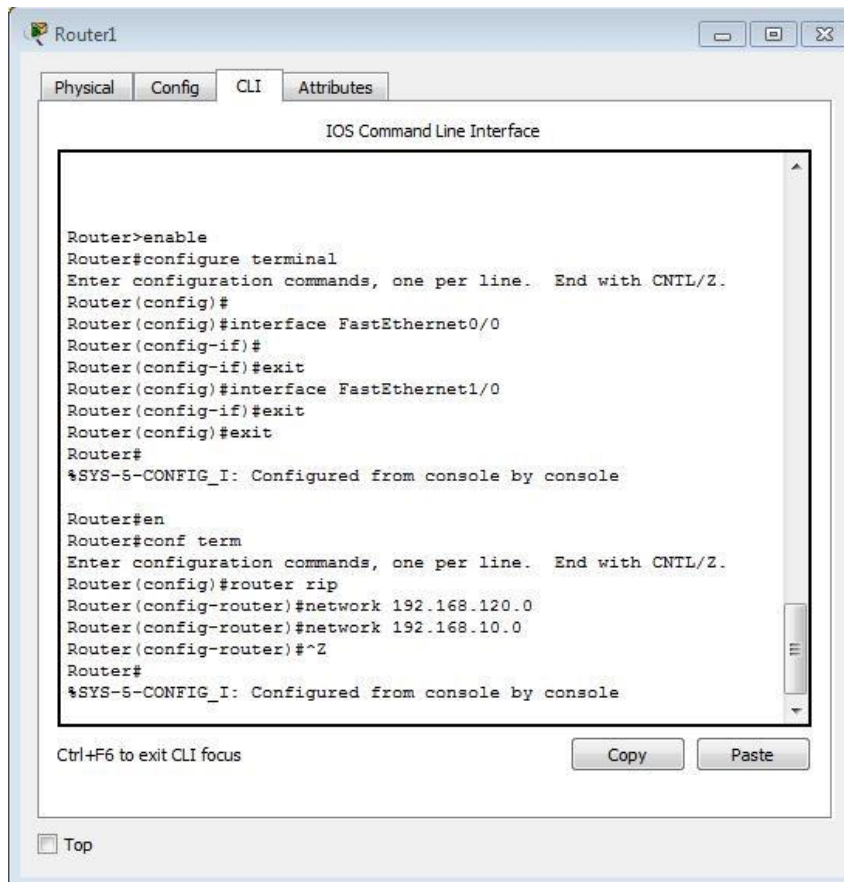
PC3
Physical
Config
Desktop
Programming
Attributes
☐ DHCP
☒ Static
IP Address192.168.120.4
Subnet Mask255.255.255.0
Default Gateway192.168.120.254
DNS Server0.0.0.0
IPv6 Configuration
☐ DHCP
☐ Auto Config
☒ Static
IPv6 Address
Link Local AddressFE80::200:CFF:FE9C:8510
IPv6 Gateway
IPv6 DNS Server
802.1X
☐ Use 802.1X Security
AuthenticationMDS
Username
Password
Top

- Gunakan perintah tersebut untuk memberikan identitas untuk komputer yang lain

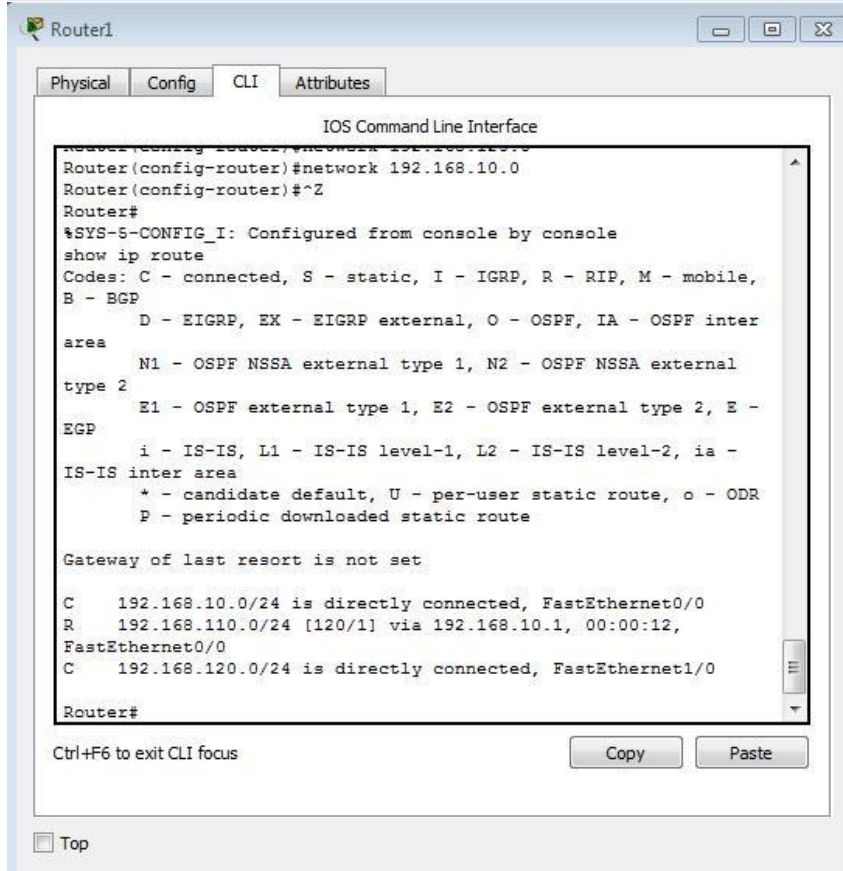
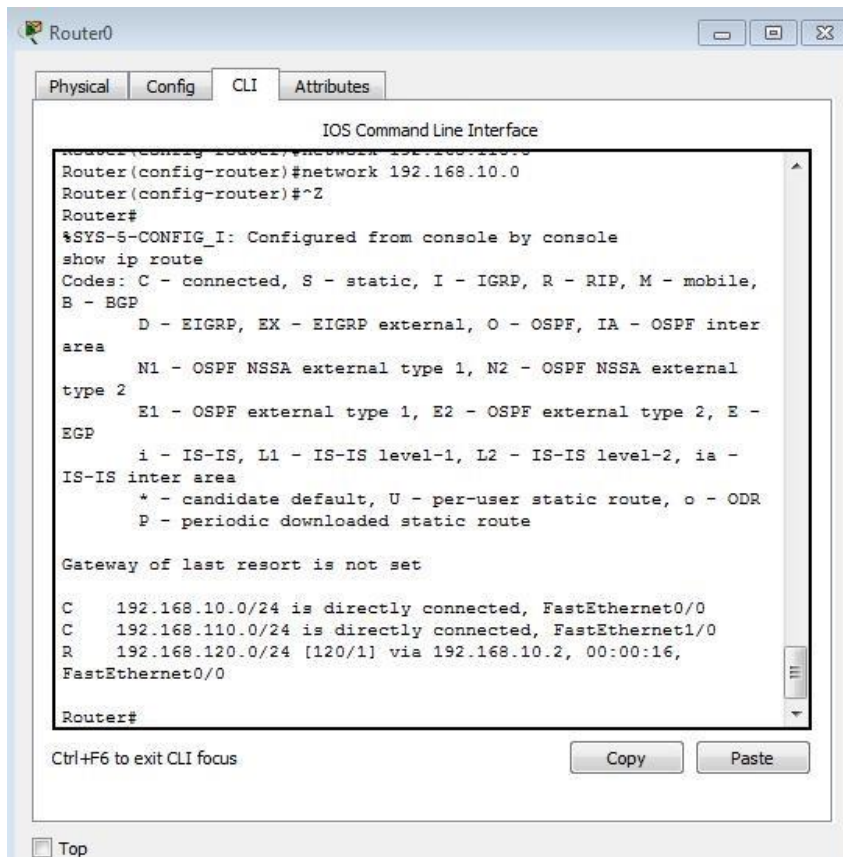
5. Setelah semua sumber daya telah mempunyai identitas, lakukan routing untuk kedua jaringan tersebut
6. Gunakan routing dengan protokol RIP pada kedua jaringan tersebut



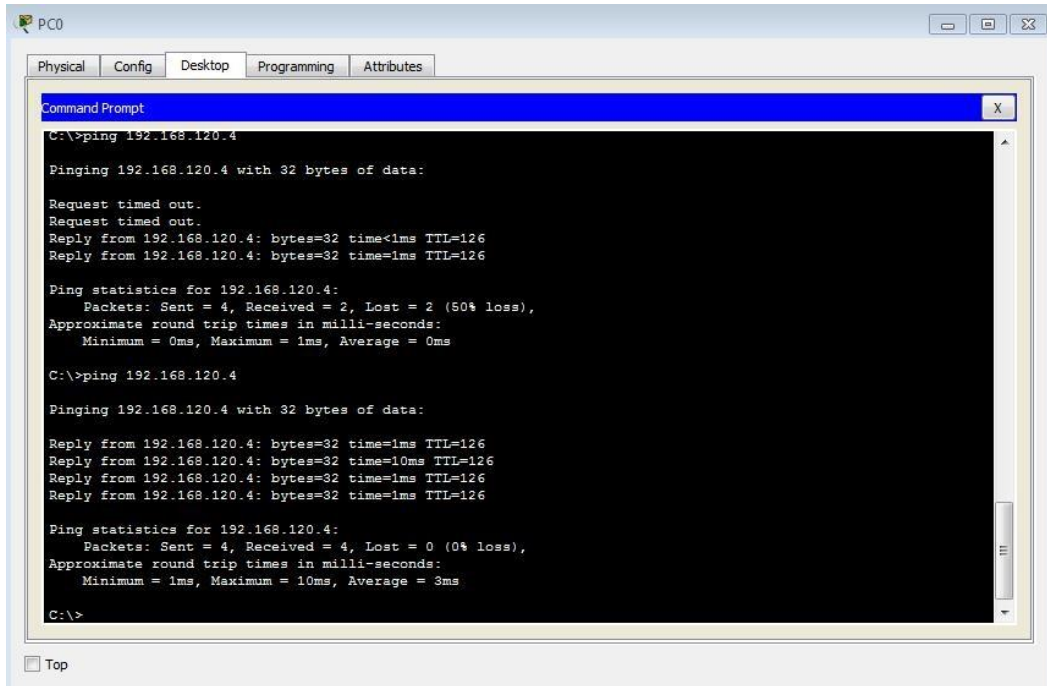
7. Pada [Router0] diberikan nnetwork ID 192.168.110.0 dan 192.168.10.0 untuk digunakan sebagai jalur routing. Sedangkan pada [Router1] diberikan network ID 192.168.120.0 dan 192.168.10.0 untuk digunakan sebagai jalur routing.



8. Lakukan pengecekan tabel routing pada kedua router tersebut dengan perintah [show ip route]



9. Selanjutnya lakukan tes koneksi dari [PC0] ke [PC3] dengan menggunakan perintah [Ping]. kedua PC tersebut berada pada jaringan yang berbeda, jika koneksi berhasil maka routing anada berhasil



```
PC0
Physical Config Desktop Programming Attributes
Command Prompt
C:\>ping 192.168.120.4

Pinging 192.168.120.4 with 32 bytes of data:

Request timed out.
Request timed out.
Reply from 192.168.120.4: bytes=32 time<1ms TTL=126
Reply from 192.168.120.4: bytes=32 time=1ms TTL=126

Ping statistics for 192.168.120.4:
    Packets: Sent = 4, Received = 2, Lost = 2 (50% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.120.4

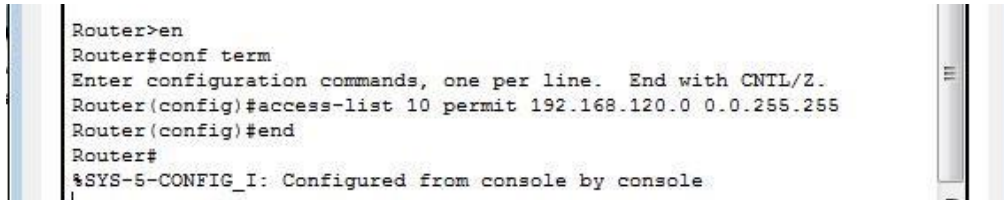
Pinging 192.168.120.4 with 32 bytes of data:

Reply from 192.168.120.4: bytes=32 time=1ms TTL=126
Reply from 192.168.120.4: bytes=32 time=10ms TTL=126
Reply from 192.168.120.4: bytes=32 time=1ms TTL=126
Reply from 192.168.120.4: bytes=32 time=1ms 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 = 1ms, Maximum = 10ms, Average = 3ms

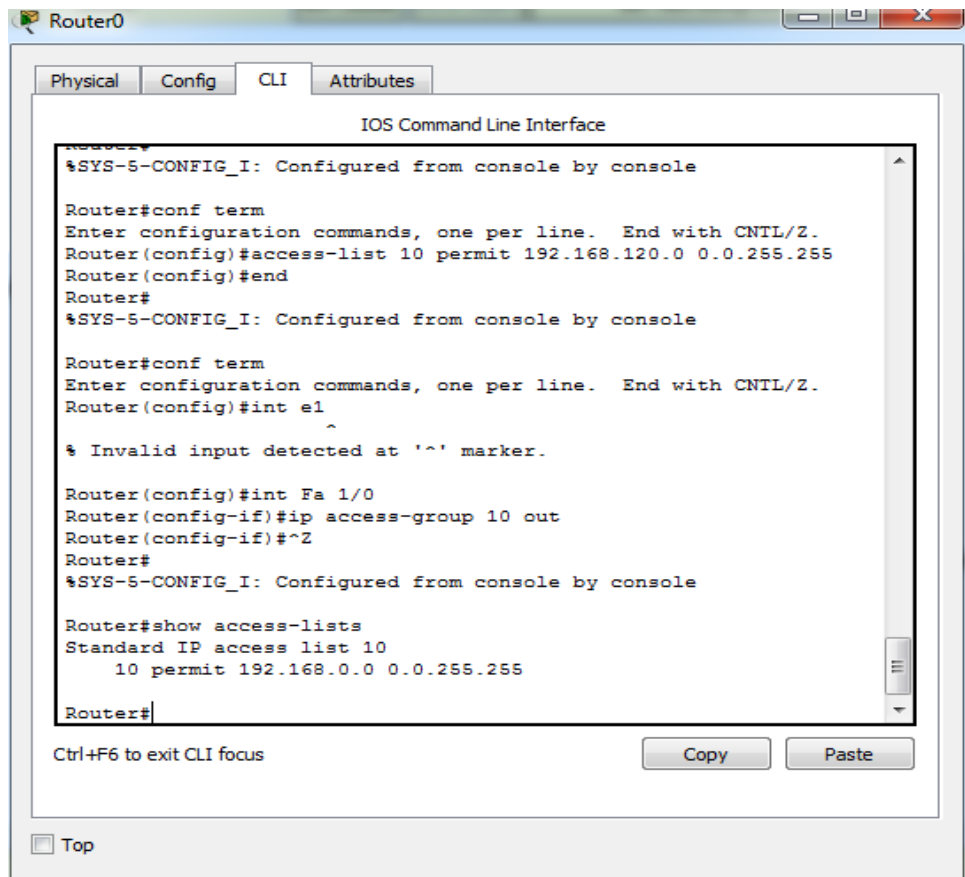
C:\>
```

10. Berikutnya tentukan Access List yang akan diterapkan dalam jaringan tersebut. Sebagai contoh [Router0] kita akan mengijinkan semua host dari jaringan 192.168.120.0 dapat mengakses jaringan 192.168.100.0

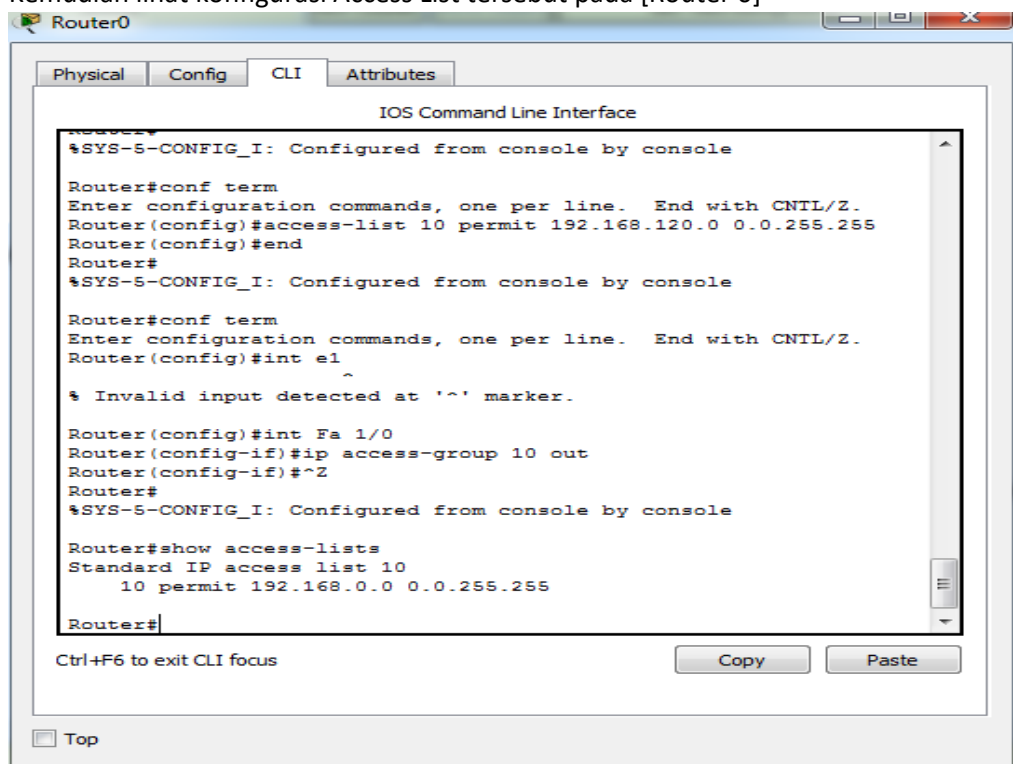


```
Router>en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#access-list 10 permit 192.168.120.0 0.0.255.255
Router(config)#end
Router#
%SYS-5-CONFIG_I: Configured from console by console
```

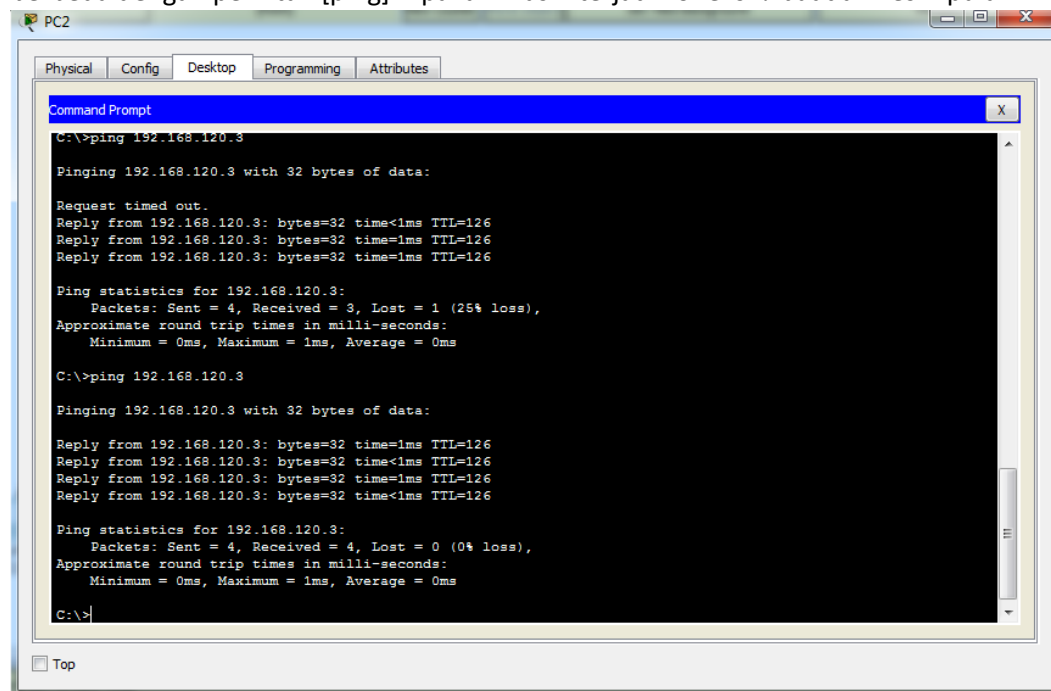
11. Selanjutnya terapkan Access List tersebut ke interface [Router0] dalam hal ini interface [e1] yang mengarah ke dalam jaringan 192.168.110.0



12. Opsi [out] pada bagian akhir perintah tersebut dimaksudkan untuk melewati paket keluar dari [Router 0]
13. Kemudian lihat konfigurasi Access List tersebut pada [Router 0]



14. Lakukan tes koneksi dua arah antara [PC 2] dengan [PC 0] yang berada pada jaringan berbeda dengan perintah [ping]. Apakah masih terjadi koneksi ? buatlah kesimpulan



The screenshot shows a Windows XP desktop environment with a window titled 'PC2'. Inside the window, there are tabs for 'Physical', 'Config', 'Desktop', 'Programming', and 'Attributes'. The 'Desktop' tab is active, displaying a 'Command Prompt' window. The Command Prompt shows the execution of a ping command to 192.168.120.3. The first attempt shows a 'Request timed out.' followed by three successful replies. The second attempt shows four successful replies. The statistics for both attempts indicate a 25% loss in the first and 0% loss in the second.

```
C:\>ping 192.168.120.3

Pinging 192.168.120.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.120.3: bytes=32 time<1ms TTL=126
Reply from 192.168.120.3: bytes=32 time<1ms TTL=126
Reply from 192.168.120.3: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.120.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.120.3

Pinging 192.168.120.3 with 32 bytes of data:

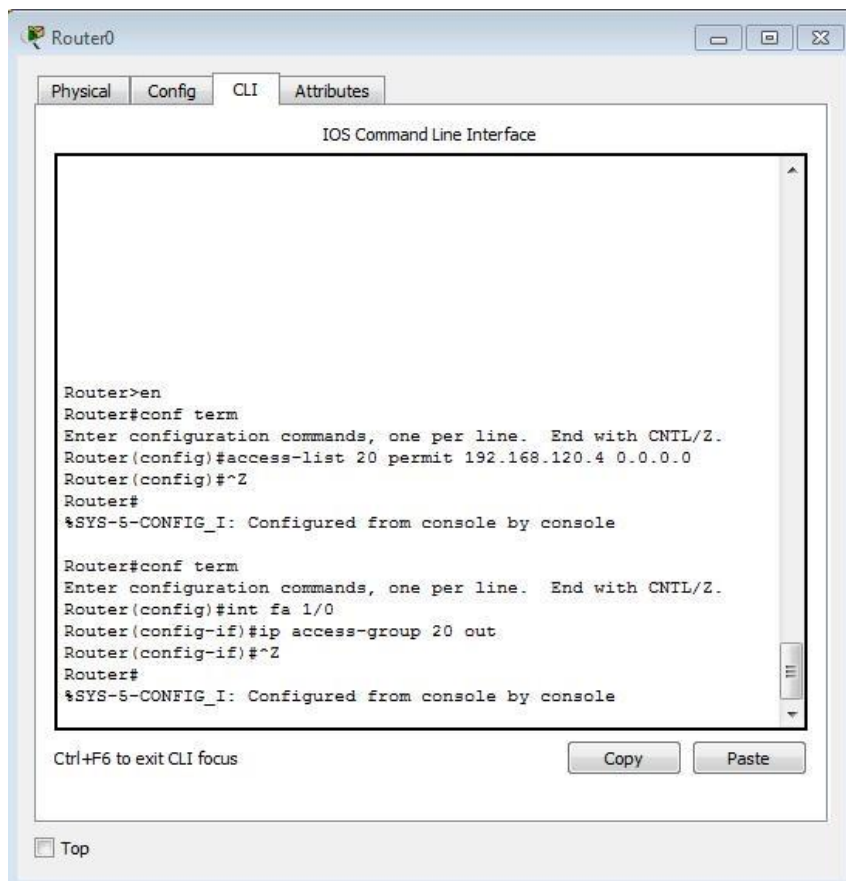
Reply from 192.168.120.3: bytes=32 time<1ms TTL=126
Reply from 192.168.120.3: bytes=32 time<1ms TTL=126
Reply from 192.168.120.3: bytes=32 time<1ms TTL=126
Reply from 192.168.120.3: bytes=32 time<1ms TTL=126

Ping statistics for 192.168.120.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

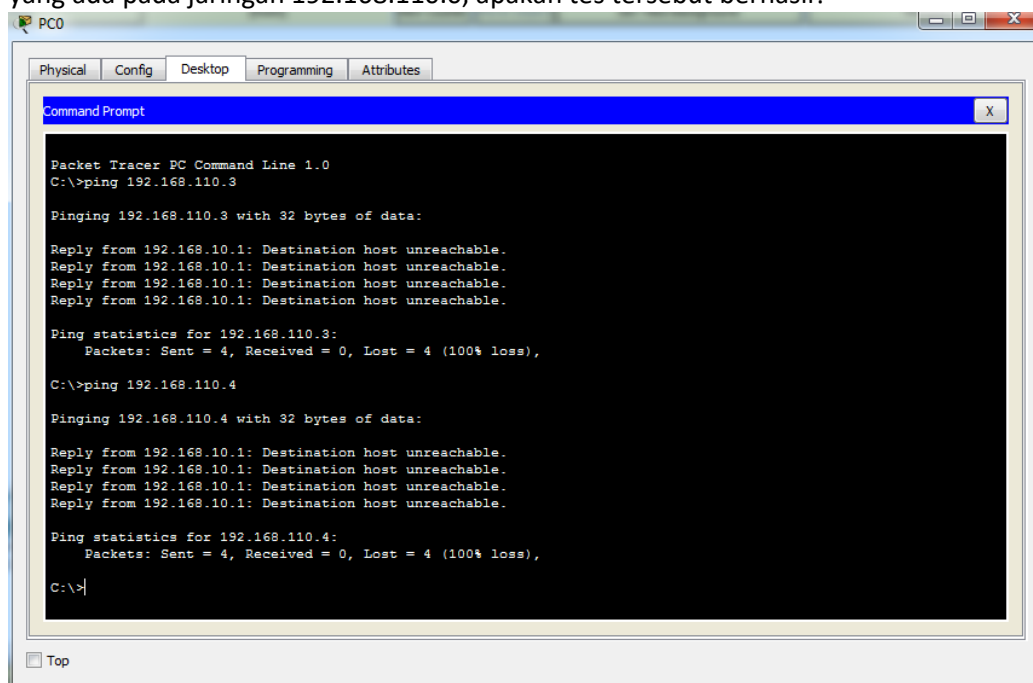
C:\>
```

Masih terjadi koneksi di karenakan dari [Router 0] mengijinkan semua host dari jaringan 192.168.120.0 dapat mengakses jaringan 192.1668.100.0

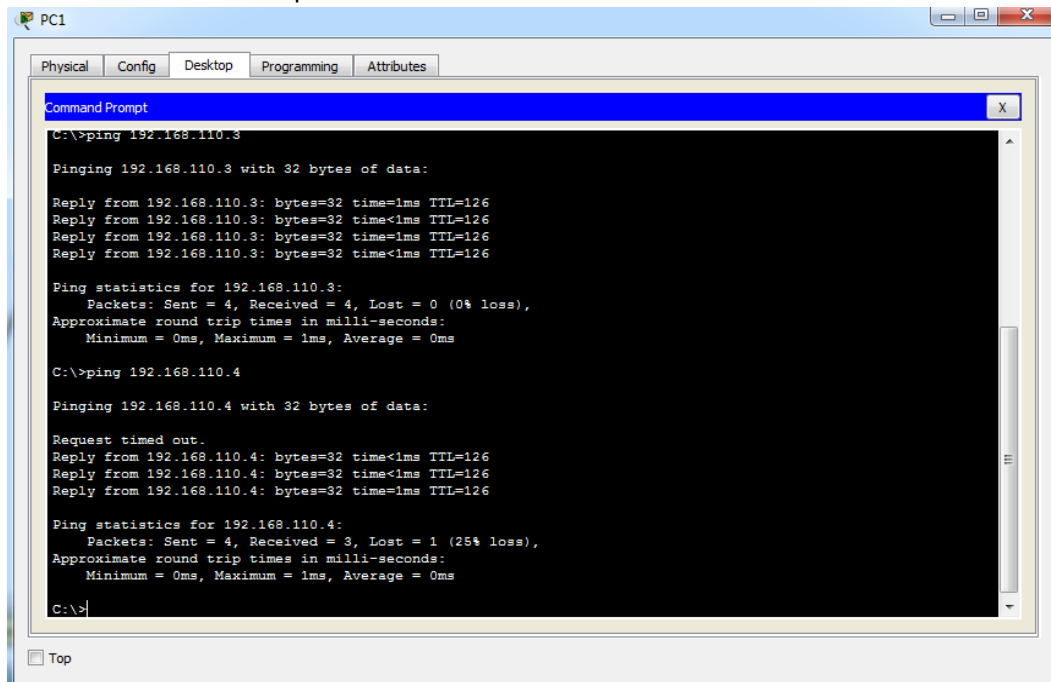
15. Memberikan akses hanya pada 1 host (PC 3) dengan alamat IP 192.168.120.4 agar dapat mengakses ke jaringan 192.168.110.0



16. Tes koneksi dari [PC 0] yang berada pada jaringan 192.168.120.0 ke [PC 2] dan [PC 3] yang ada pada jaringan 192.168.110.0, apakah tes tersebut berhasil?



17. Lakukan juga tes koneksi dari [PC 1] yang berada pada jaringan 192.168.120.0 ke [PC 2] dan [PC 3] yang berada pada jaringan 192.168.110.0, apakah tes koneksi tersebut berhasil? Buatlah kesimpulan



The screenshot shows a Windows desktop environment for PC1. A Command Prompt window is open, displaying the results of two ping tests. The first test is for 192.168.110.3, which shows four successful replies with 0% loss. The second test is for 192.168.110.4, which shows three successful replies and one request timed out, resulting in a 25% loss. The desktop background is black, and the taskbar is visible at the bottom.

```
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<1ms TTL=126
Reply from 192.168.110.3: bytes=32 time<1ms TTL=126
Reply from 192.168.110.3: bytes=32 time<1ms 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 = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping 192.168.110.4

Pinging 192.168.110.4 with 32 bytes of data:

Request timed out.
Reply from 192.168.110.4: bytes=32 time<1ms TTL=126
Reply from 192.168.110.4: bytes=32 time<1ms TTL=126
Reply from 192.168.110.4: bytes=32 time<1ms TTL=126

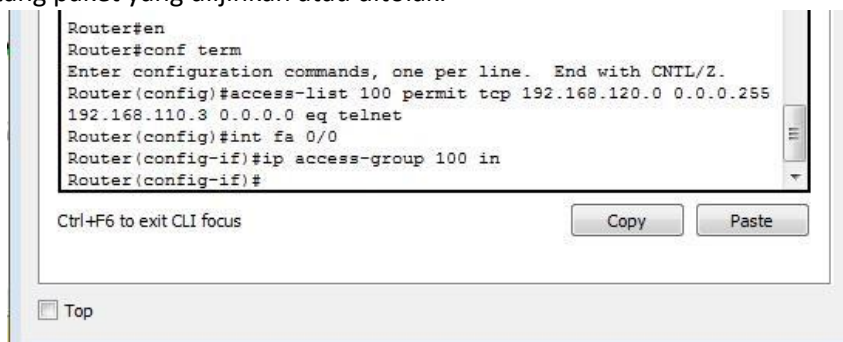
Ping statistics for 192.168.110.4:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>
```

Kesimpulannya adalah pada [Router 0] kita memberikan hak akses pada PC 1 dengan alamat IP 192.168.120.4 agar dapat mengakses ke jaringan 192.168.110.0 sehingga pada saat dilakukan ping antara PC 3 ke PC 2 dan PC 3 berhasil

Kegiatan 2. Konfigurasi Extended Access List

Untuk mengkonfigurasi Extended Access List sebenarnya tidak terlalu beda jauh dengan cara mengkonfigurasi Standart Access List. Perintah yang digunakan ada penambahan informasi tentang paket yang diijinkan atau ditolak.

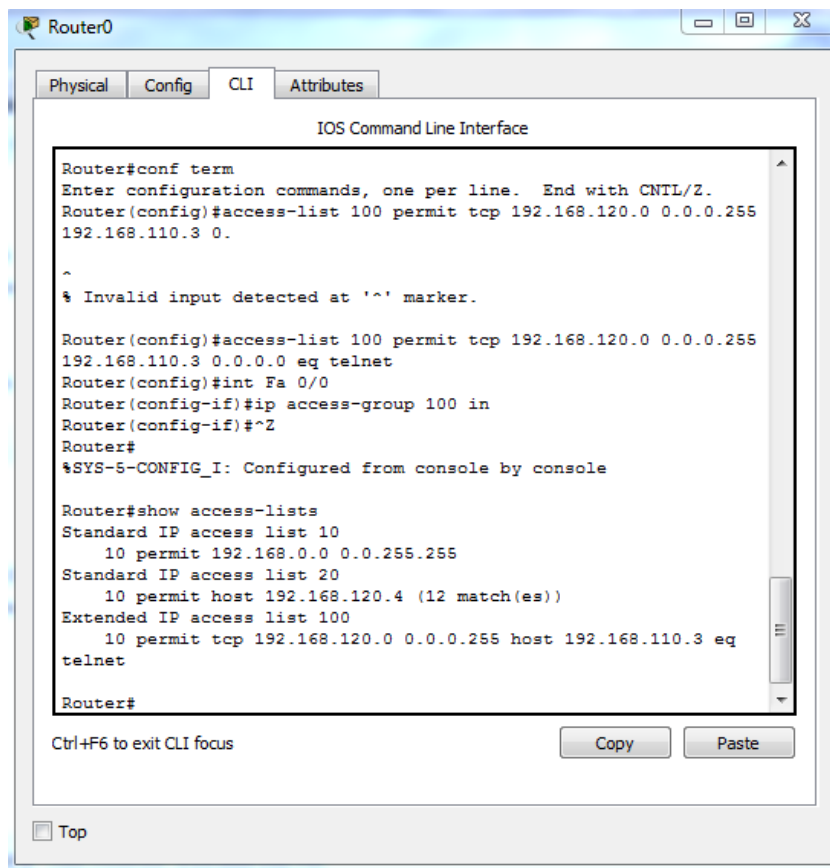


The screenshot shows the Cisco Router CLI interface. The user has entered the configuration mode and is configuring an extended access list. The commands shown are: Router#en, Router#conf term, Router(config)#access-list 100 permit tcp 192.168.120.0 0.0.0.255 192.168.110.3 0.0.0.0 eq telnet, Router(config)#int fa 0/0, Router(config-if)#ip access-group 100 in, and Router(config-if)#. The CLI also displays a prompt to press Ctrl+F6 to exit CLI focus.

```
Router#en
Router#conf term
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#access-list 100 permit tcp 192.168.120.0 0.0.0.255
192.168.110.3 0.0.0.0 eq telnet
Router(config)#int fa 0/0
Router(config-if)#ip access-group 100 in
Router(config-if)#
```

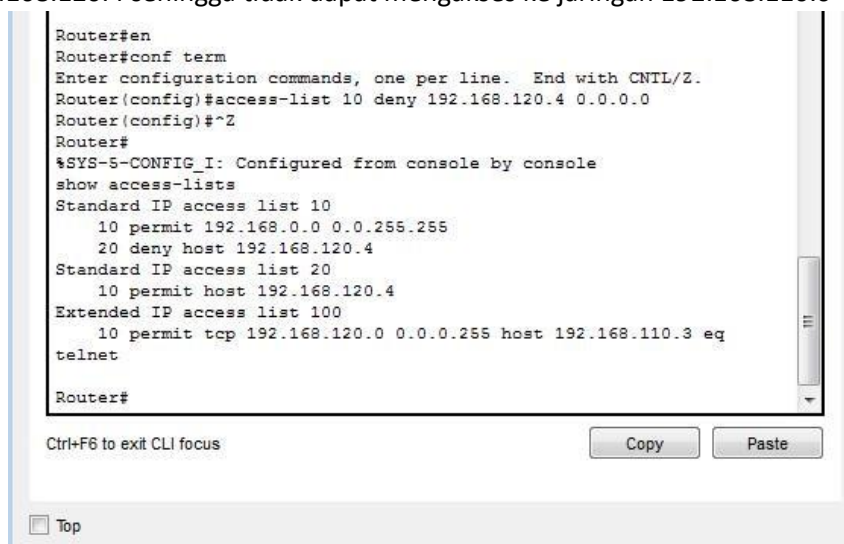
Pada contoh perintah diatas, kita mengijinkan (permit) paket telnet dari semua host yang ada di jaringan 192.168.120.0 ke host 192.168.110.3.

Angka [100] setelah perintah [access-list] merupakan pengenal bagi Extended Access List. Cara menerapkan Access List tersebut ke interface router juga tidak berbeda dengan penerapan Standart Access List.



Percobaan Tambahan

Tidak memberikan hak akses (deny) pada 1 PC yaitu host (PC 3) dengan alamat IP 192.168.120.4 sehingga tidak dapat mengakses ke jaringan 192.168.110.0



Sehingga pada saat di lakukan ping antara PC 3 dengan PC 0 maka akan terjadi time out

