UTS Jaringan Komputer

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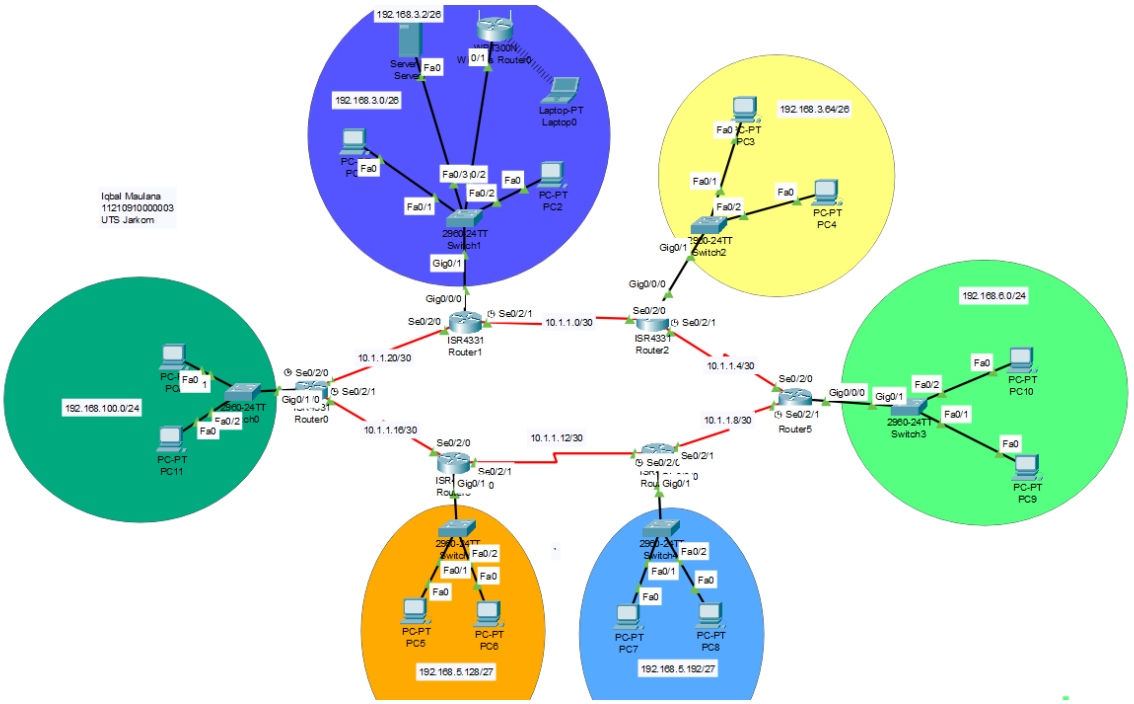
Topologi



Configurations IP

Konfigurasi ip di masing masing interface pada masing masing router

Router 0

Se 0/2/1

```
Router>
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int se 0/2/1
Router(config-if)#ip add 10.1.1.18 255.255.255.252
Router(config-if)#clock rate 56000
Router(config-if)#no shut

Router(config-if)#
%LINK-5-CHANGED: Interface Serial0/2/1, changed state to up

Router(config-if)#S
%LINEPROTO-5-UPDOWN: Line protocol on Interface Serial0/2/1,
changed state to up
Router(config-if)#ex
Router(config)#hostname R0
R0(config)#
```

Se 0/2/0

```
R0(config)#int se 0/2/0
R0(config-if)#ip add 10.1.1.21 255.255.255.252
R0(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/2/0, changed state to down
R0(config-if)#cloc
R0(config-if)#clock r
R0(config-if)#clock rate 56000
R0(config-if)#no shut
R0(config-if)#
```

Gi 0/0/0

```
R0>en
R0#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R0(config)#int gi
R0(config)#int gigabitEthernet 0/0/0
R0(config-if)#ip add 192.168.100.1 255.255.255.0
R0(config-if)#no sh
```

Router 1 (R1)

Gi 0/0/0

```
Router>
Router>ena
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R1
R1(config)#int gi0/0/0
R1(config-if)#ip add 192.168.3.1 255.255.255.192
R1(config-if)#no shut

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

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

R1(config-if)#
```

Se 0/2/1

```
R1>
R1>en
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int se 0/2/1
R1(config-if)#ip add 10.1.1.1 255.255.255.252
R1(config-if)#clock
R1(config-if)#clock r
R1(config-if)#clock rate 56000
R1(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/2/1, changed state to down
R1(config-if)#
```

Se 0/2/0

```
R1>
R1>en
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#int se0/2/0
R1(config-if)#ip add 10.1.1.22 255.255.255.252
R1(config-if)#no sh

R1(config-if)#
%LINK-5-CHANGED: Interface Serial0/2/0, changed state to up

R1(config-if)#
```

Router 2 (R2)

Gi 0/0/0

```
Router>
Router>ena
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R2
R2(config)#int g
R2(config)#int gigabitEthernet 0/0/0
R2(config-if)#ip add 192.168.3.65 255.255.255.192
R2(config-if)#no shut

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

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

R2(config-if)#
```

Se 0/2/0

```
R2>en
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#int se0/2/0
R2(config-if)#ip add 10.1.1.2 255.255.255.252
R2(config-if)#clock
R2(config-if)#clock r
R2(config-if)#clock rate 56000
This command applies only to DCE interfaces
R2(config-if)#no shut

R2(config-if)#
%LINK-5-CHANGED: Interface Serial0/2/0, changed state to up

R2(config-if)#
```

Se 0/2/1

```
R2(config-if)#
R2(config-if)#ex
R2(config)#int se 0/2/1
R2(config-if)#ip add 10.1.1.5 255.255.255.252
R2(config-if)#cl
R2(config-if)#clock ra
R2(config-if)#clock rate 5600
Unknown clock rate
R2(config-if)#clock rate 56000
R2(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/2/1, changed state to down
R2(config-if)#
```

Router 3 (R3)

Gi 0/0/0

```
Router>
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R3
R3(config)#int gig0/0/0
R3(config-if)#ip add 192.168.5.129 255.255.255.224
R3(config-if)#no shut

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

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

R3(config-if)#
```

Se 0/2/1

```
R3>
R3>
R3>en
R3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#int se 0/2/1
R3(config-if)#ip add 10.1.1.14 255.255.255.252
R3(config-if)#no shut

R3(config-if)#
%LINK-5-CHANGED: Interface Serial0/2/1, changed state to up

R3(config-if)#
```

Se 0/2/0

```
R3(config-if)#
R3(config-if)#int se 0/2/0
R3(config-if)#ip add 10.1.1.17 255.255.255.252
R3(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/2/0, changed state to down
R3(config-if)#
```

Router 4 (R4)

Gi 0/0/0

```
Router>
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#int gi0/0/0
Router(config-if)#ip add 192.168.5.193 255.255.255.224
Router(config-if)#no shut

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

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

Router(config-if)#ex
Router(config)#hostname R4
R4(config)#
```

Se 0/2/1

```
R4>
R4>ena
R4#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R4(config)#int se 0/2/1
R4(config-if)#ip add 10.1.1.10 255.255.255.252
R4(config-if)#no shut

R4(config-if)#
%LINK-5-CHANGED: Interface Serial0/2/1, changed state to up

R4(config-if)#
```

Se 0/2/0

```
R4(config-if)#int se 0/2/0
R4(config-if)#ip add 10.1.1.13 255.255.255.252
R4(config-if)#clco
R4(config-if)#cloc
R4(config-if)#clock ra
R4(config-if)#clock rate 56000
R4(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/2/0, changed state to down
R4(config-if)#
```

Router 5 (R5)

Gi 0/0/0

```
Router>en
Router#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Router(config)#hostname R5
R5(config)#int gig00
R5(config)#int gig0
R5(config)#int gig0/
R5(config)#int gi 0/0/0
R5(config-if)#ip add 192.168.6.1 255.255.255.0
R5(config-if)#no shut

R5(config-if)#
%LINK-5-CHANGED: Interface GigabitEthernet0/0/0, changed state
to up

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

R5(config-if)#
R5(config-if)#
```

Se 0/2/0

```
R5>
R5>en
R5#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R5(config)#int
% Incomplete command.
R5(config)#int se 0/2/0
R5(config-if)#ip add 10.1.1.6 255.255.255.252
R5(config-if)#no shut
```

Se 0/2/1

```
R5(config-if)#
R5(config-if)#
R5(config-if)#int se 0/2/1
R5(config-if)#ip add 10.1.1.9 255.255.255.252
R5(config-if)#clc
R5(config-if)#clo
R5(config-if)#clock r
R5(config-if)#clock rate 56000
This command applies only to DCE interfaces
R5(config-if)#clock rate 56000
R5(config-if)#
R5(config-if)#no shut

%LINK-5-CHANGED: Interface Serial0/2/1, changed state to down
R5(config-if)#
```

Show IP Interface Table

Router 0 (R0)

```
R0>
R0>en
R0#sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   unassigned      YES unset  administratively down down
GigabitEthernet0/0/1   unassigned      YES unset  administratively down down
GigabitEthernet0/0/2   unassigned      YES unset  administratively down down
Serial0/2/0            10.1.1.21       YES manual up                    up
Serial0/2/1            10.1.1.18       YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
R0#
```

Router 1 (R1)

```
R1>
R1>en
R1#sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   192.168.3.1     YES manual up                    up
GigabitEthernet0/0/1   unassigned      YES unset  administratively down down
GigabitEthernet0/0/2   unassigned      YES unset  administratively down down
Serial0/2/0            10.1.1.22       YES manual up                    up
Serial0/2/1            10.1.1.1        YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
R1#
```

Router 2 (R2)

```
R2#sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   192.168.3.65    YES manual up                    up
GigabitEthernet0/0/1   unassigned      YES unset  administratively down down
GigabitEthernet0/0/2   unassigned      YES unset  administratively down down
Serial0/2/0            10.1.1.2        YES manual up                    up
Serial0/2/1            10.1.1.5        YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
R2#
```

Router 3 (R3)

```
R3>en
R3#sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   192.168.5.129   YES manual up                    up
GigabitEthernet0/0/1   unassigned      YES unset  administratively down down
GigabitEthernet0/0/2   unassigned      YES unset  administratively down down
Serial0/2/0            10.1.1.17       YES manual up                    up
Serial0/2/1            10.1.1.14       YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
R3#
```

Router 4 (R4)

```
R4>
R4>en
R4#sh ip int br
R4#sh ip int brief
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   192.168.5.193   YES manual up                    up
GigabitEthernet0/0/1   unassigned      YES unset  administratively down down
GigabitEthernet0/0/2   unassigned      YES unset  administratively down down
Serial0/2/0            10.1.1.13       YES manual up                    up
Serial0/2/1            10.1.1.10       YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
R4#
```

Router 5 (R5)

```
R5>en
R5#sh ip int br
Interface              IP-Address      OK? Method Status                Protocol
GigabitEthernet0/0/0   192.168.6.1     YES manual up                    up
GigabitEthernet0/0/1   unassigned      YES unset  administratively down down
GigabitEthernet0/0/2   unassigned      YES unset  administratively down down
Serial0/2/0            10.1.1.6        YES manual up                    up
Serial0/2/1            10.1.1.9        YES manual up                    up
Vlan1                  unassigned      YES unset  administratively down down
R5#
```

Routing Configuration

Routing R0

R0>en
R0#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R0(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.22
R0(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.22
R0(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.22
R0(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.17
R0(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.17
R0(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.17

```
R0>en
R0#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R0(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.22
R0(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.22
R0(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.22
R0(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.17
R0(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.17
R0(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.17
```

Routing R1

R1>en
R1#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R1(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.2
R1(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.21
R1(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.21
R1(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.2
R1(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.2
R1(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.21

```
R1>
R1>en
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.2
R1(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.21
R1(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.21
R1(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.2
R1(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.2
```

```
R1>en
R1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R1(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.21
R1(config)#
```

Routing R2

R2>en
R2#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R2(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.6
R2(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.1
R2(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.6
R2(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.6
R2(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.1

R2(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.1

```
R2>
R2>en
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.6
R2(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.1
R2(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.6
R2(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.6
R2(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.1
R2(config)#
```

```
R2>en
R2#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R2(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.1
R2(config)#
```

Routing R3

R3>en
R3#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R3(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.18
R3(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.18
R3(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.13
R3(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.13
R3(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.13
R3(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.18

```
R3>
R3>en
R3#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R3(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.18
R3(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.18
R3(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.13
R3(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.13
R3(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.13
R3(config)#
```

```
R3(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.18
R3(config)#
```

Routing R4

R4>en
R4#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R4(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.9
R4(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.14
R4(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.14
R4(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.9
R4(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.9
R4(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.14

```
R4>
R4>en
R4#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R4(config)#
R4(config)#
R4(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.9
R4(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.14
R4(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.14
R4(config)#ip route 192.168.6.0 255.255.255.0 10.1.1.9
R4(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.9
R4(config)#
```

```
R4(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.14
```

Routing R5

R5>en
R5#conf t
Enter configuration commands, one per line. End with CNTL/Z.
R5(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.5
R5(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.5
R5(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.10
R5(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.10
R5(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.10
R5(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.5

```
R5>en
R5#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
R5(config)#ip route 192.168.3.0 255.255.255.192 10.1.1.5
R5(config)#ip route 192.168.3.64 255.255.255.192 10.1.1.5
R5(config)#ip route 192.168.5.192 255.255.255.224 10.1.1.10
R5(config)#ip route 192.168.5.128 255.255.255.224 10.1.1.10
R5(config)#
```

```
R5(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.10
R5(config)#ip route 192.168.100.0 255.255.255.0 10.1.1.5
```

Tabel Routing

Melihat tabel routing pada masing masing router :

Tabel R0

```
R0#sh 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 10.1.1.16/30 is directly connected, Serial0/2/1
L 10.1.1.18/32 is directly connected, Serial0/2/1
C 10.1.1.20/30 is directly connected, Serial0/2/0
L 10.1.1.21/32 is directly connected, Serial0/2/0
192.168.3.0/26 is subnetted, 2 subnets
S 192.168.3.0/26 [1/0] via 10.1.1.22
S 192.168.3.64/26 [1/0] via 10.1.1.22
192.168.5.0/27 is subnetted, 2 subnets
S 192.168.5.128/27 [1/0] via 10.1.1.17
S 192.168.5.192/27 [1/0] via 10.1.1.17
S 192.168.6.0/24 [1/0] via 10.1.1.22
[1/0] via 10.1.1.17
192.168.100.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.168.100.0/24 is directly connected, GigabitEthernet0/0/0
L 192.168.100.1/32 is directly connected, GigabitEthernet0/0/0
```

```
R0#sh 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       10.1.1.16/30 is directly connected, Serial0/2/1
L       10.1.1.18/32 is directly connected, Serial0/2/1
C       10.1.1.20/30 is directly connected, Serial0/2/0
L       10.1.1.21/32 is directly connected, Serial0/2/0
     192.168.3.0/26 is subnetted, 2 subnets
S       192.168.3.0/26 [1/0] via 10.1.1.22
S       192.168.3.64/26 [1/0] via 10.1.1.22
     192.168.5.0/27 is subnetted, 2 subnets
S       192.168.5.128/27 [1/0] via 10.1.1.17
S       192.168.5.192/27 [1/0] via 10.1.1.17
S    192.168.6.0/24 [1/0] via 10.1.1.22
                    [1/0] via 10.1.1.17
     192.168.100.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.100.0/24 is directly connected, GigabitEthernet0/0/0
L       192.168.100.1/32 is directly connected, GigabitEthernet0/0/0

R0#
```

Tabel R1

R1#sh 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 10.1.1.0/30 is directly connected, Serial0/2/1
L 10.1.1.1/32 is directly connected, Serial0/2/1
C 10.1.1.20/30 is directly connected, Serial0/2/0
L 10.1.1.22/32 is directly connected, Serial0/2/0
192.168.3.0/24 is variably subnetted, 3 subnets, 2 masks
C 192.168.3.0/26 is directly connected, GigabitEthernet0/0/0
L 192.168.3.1/32 is directly connected, GigabitEthernet0/0/0
S 192.168.3.64/26 [1/0] via 10.1.1.2
192.168.5.0/27 is subnetted, 2 subnets
S 192.168.5.128/27 [1/0] via 10.1.1.21
S 192.168.5.192/27 [1/0] via 10.1.1.2

[1/0] via 10.1.1.21
S 192.168.6.0/24 [1/0] via 10.1.1.2
S 192.168.100.0/24 [1/0] via 10.1.1.21

```
R1>en
R1#sh 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       10.1.1.0/30 is directly connected, Serial0/2/1
L       10.1.1.1/32 is directly connected, Serial0/2/1
C       10.1.1.20/30 is directly connected, Serial0/2/0
L       10.1.1.22/32 is directly connected, Serial0/2/0
     192.168.3.0/24 is variably subnetted, 3 subnets, 2 masks
C       192.168.3.0/26 is directly connected, GigabitEthernet0/0/0
L       192.168.3.1/32 is directly connected, GigabitEthernet0/0/0
S       192.168.3.64/26 [1/0] via 10.1.1.2
     192.168.5.0/27 is subnetted, 2 subnets
S       192.168.5.128/27 [1/0] via 10.1.1.21
S       192.168.5.192/27 [1/0] via 10.1.1.2
                         [1/0] via 10.1.1.21
S    192.168.6.0/24 [1/0] via 10.1.1.2
S    192.168.100.0/24 [1/0] via 10.1.1.21

R1#
```

Tabel R2

R2#sh 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 10.1.1.0/30 is directly connected, Serial0/2/0
L 10.1.1.2/32 is directly connected, Serial0/2/0
C 10.1.1.4/30 is directly connected, Serial0/2/1
L 10.1.1.5/32 is directly connected, Serial0/2/1
192.168.3.0/24 is variably subnetted, 3 subnets, 2 masks
S 192.168.3.0/26 [1/0] via 10.1.1.1
C 192.168.3.64/26 is directly connected, GigabitEthernet0/0/0
L 192.168.3.65/32 is directly connected, GigabitEthernet0/0/0
192.168.5.0/27 is subnetted, 2 subnets

S 192.168.5.128/27 [1/0] via 10.1.1.6
[1/0] via 10.1.1.1
S 192.168.5.192/27 [1/0] via 10.1.1.6
S 192.168.6.0/24 [1/0] via 10.1.1.6
S 192.168.100.0/24 [1/0] via 10.1.1.1

R2#

```
R2>en
R2#sh 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       10.1.1.0/30 is directly connected, Serial0/2/0
L       10.1.1.2/32 is directly connected, Serial0/2/0
C       10.1.1.4/30 is directly connected, Serial0/2/1
L       10.1.1.5/32 is directly connected, Serial0/2/1
     192.168.3.0/24 is variably subnetted, 3 subnets, 2 masks
S       192.168.3.0/26 [1/0] via 10.1.1.1
C       192.168.3.64/26 is directly connected, GigabitEthernet0/0/0
L       192.168.3.65/32 is directly connected, GigabitEthernet0/0/0
     192.168.5.0/27 is subnetted, 2 subnets
S       192.168.5.128/27 [1/0] via 10.1.1.6
                         [1/0] via 10.1.1.1
S       192.168.5.192/27 [1/0] via 10.1.1.6
S    192.168.6.0/24 [1/0] via 10.1.1.6
S    192.168.100.0/24 [1/0] via 10.1.1.1

R2#
```

Tabel R3

R3>en
R3#sh 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 10.1.1.12/30 is directly connected, Serial0/2/1
L 10.1.1.14/32 is directly connected, Serial0/2/1
C 10.1.1.16/30 is directly connected, Serial0/2/0
L 10.1.1.17/32 is directly connected, Serial0/2/0
192.168.3.0/26 is subnetted, 2 subnets
S 192.168.3.0/26 [1/0] via 10.1.1.18
S 192.168.3.64/26 [1/0] via 10.1.1.18
[1/0] via 10.1.1.13
192.168.5.0/24 is variably subnetted, 3 subnets, 2 masks
C 192.168.5.128/27 is directly connected, GigabitEthernet0/0/0
L 192.168.5.129/32 is directly connected, GigabitEthernet0/0/0
S 192.168.5.192/27 [1/0] via 10.1.1.13
S 192.168.6.0/24 [1/0] via 10.1.1.13
S 192.168.100.0/24 [1/0] via 10.1.1.18

R3#

```
R3#sh 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       10.1.1.12/30 is directly connected, Serial0/2/1
L       10.1.1.14/32 is directly connected, Serial0/2/1
C       10.1.1.16/30 is directly connected, Serial0/2/0
L       10.1.1.17/32 is directly connected, Serial0/2/0
     192.168.3.0/26 is subnetted, 2 subnets
S       192.168.3.0/26 [1/0] via 10.1.1.18
S       192.168.3.64/26 [1/0] via 10.1.1.18
                        [1/0] via 10.1.1.13
     192.168.5.0/24 is variably subnetted, 3 subnets, 2 masks
C       192.168.5.128/27 is directly connected, GigabitEthernet0/0/0
L       192.168.5.129/32 is directly connected, GigabitEthernet0/0/0
S       192.168.5.192/27 [1/0] via 10.1.1.13
S    192.168.6.0/24 [1/0] via 10.1.1.13
S    192.168.100.0/24 [1/0] via 10.1.1.18

R3#
```

Tabel R4

R4#sh 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 10.1.1.8/30 is directly connected, Serial0/2/1
L 10.1.1.10/32 is directly connected, Serial0/2/1
C 10.1.1.12/30 is directly connected, Serial0/2/0
L 10.1.1.13/32 is directly connected, Serial0/2/0
192.168.3.0/26 is subnetted, 2 subnets
S 192.168.3.0/26 [1/0] via 10.1.1.14
[1/0] via 10.1.1.9
S 192.168.3.64/26 [1/0] via 10.1.1.9
192.168.5.0/24 is variably subnetted, 3 subnets, 2 masks
S 192.168.5.128/27 [1/0] via 10.1.1.14
C 192.168.5.192/27 is directly connected, GigabitEthernet0/0/0
L 192.168.5.193/32 is directly connected, GigabitEthernet0/0/0
S 192.168.6.0/24 [1/0] via 10.1.1.9
S 192.168.100.0/24 [1/0] via 10.1.1.14

R4#

```
R4#sh 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       10.1.1.8/30 is directly connected, Serial0/2/1
L       10.1.1.10/32 is directly connected, Serial0/2/1
C       10.1.1.12/30 is directly connected, Serial0/2/0
L       10.1.1.13/32 is directly connected, Serial0/2/0
     192.168.3.0/26 is subnetted, 2 subnets
S       192.168.3.0/26 [1/0] via 10.1.1.14
                       [1/0] via 10.1.1.9
S       192.168.3.64/26 [1/0] via 10.1.1.9
     192.168.5.0/24 is variably subnetted, 3 subnets, 2 masks
S       192.168.5.128/27 [1/0] via 10.1.1.14
C       192.168.5.192/27 is directly connected, GigabitEthernet0/0/0
L       192.168.5.193/32 is directly connected, GigabitEthernet0/0/0
S    192.168.6.0/24 [1/0] via 10.1.1.9
S    192.168.100.0/24 [1/0] via 10.1.1.14

R4#
```

Tabel R5
R5(config)#do sh 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 10.1.1.4/30 is directly connected, Serial0/2/0
L 10.1.1.6/32 is directly connected, Serial0/2/0
C 10.1.1.8/30 is directly connected, Serial0/2/1
L 10.1.1.9/32 is directly connected, Serial0/2/1
192.168.3.0/26 is subnetted, 2 subnets
S 192.168.3.0/26 [1/0] via 10.1.1.5
S 192.168.3.64/26 [1/0] via 10.1.1.5
192.168.5.0/27 is subnetted, 2 subnets
S 192.168.5.128/27 [1/0] via 10.1.1.10
S 192.168.5.192/27 [1/0] via 10.1.1.10
192.168.6.0/24 is variably subnetted, 2 subnets, 2 masks
C 192.168.6.0/24 is directly connected, GigabitEthernet0/0/0
L 192.168.6.1/32 is directly connected, GigabitEthernet0/0/0
S 192.168.100.0/24 [1/0] via 10.1.1.10
[1/0] via 10.1.1.5

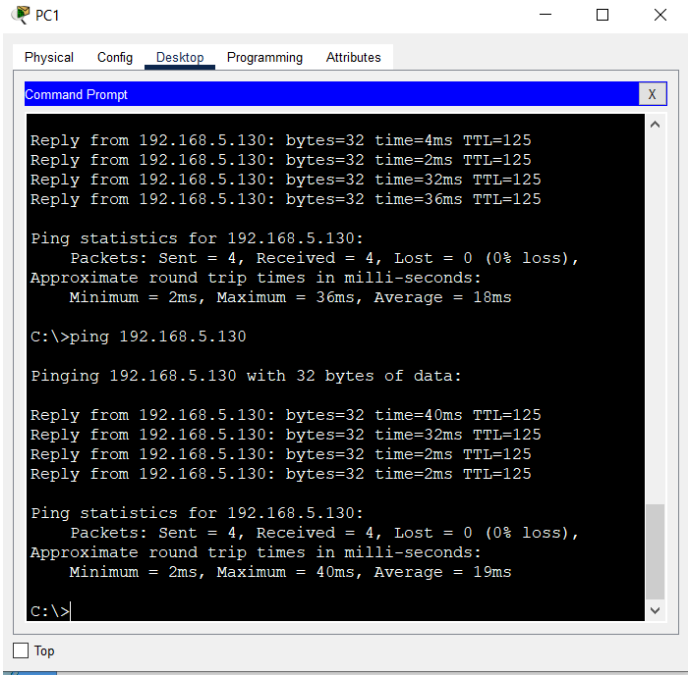
R5(config)#

```
R5(config)#do sh 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       10.1.1.4/30 is directly connected, Serial0/2/0
L       10.1.1.6/32 is directly connected, Serial0/2/0
C       10.1.1.8/30 is directly connected, Serial0/2/1
L       10.1.1.9/32 is directly connected, Serial0/2/1
     192.168.3.0/26 is subnetted, 2 subnets
S       192.168.3.0/26 [1/0] via 10.1.1.5
S       192.168.3.64/26 [1/0] via 10.1.1.5
     192.168.5.0/27 is subnetted, 2 subnets
S       192.168.5.128/27 [1/0] via 10.1.1.10
S       192.168.5.192/27 [1/0] via 10.1.1.10
     192.168.6.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.6.0/24 is directly connected, GigabitEthernet0/0/0
L       192.168.6.1/32 is directly connected, GigabitEthernet0/0/0
S    192.168.100.0/24 [1/0] via 10.1.1.10
                      [1/0] via 10.1.1.5

R5(config)#
```

Test Ping antar PC

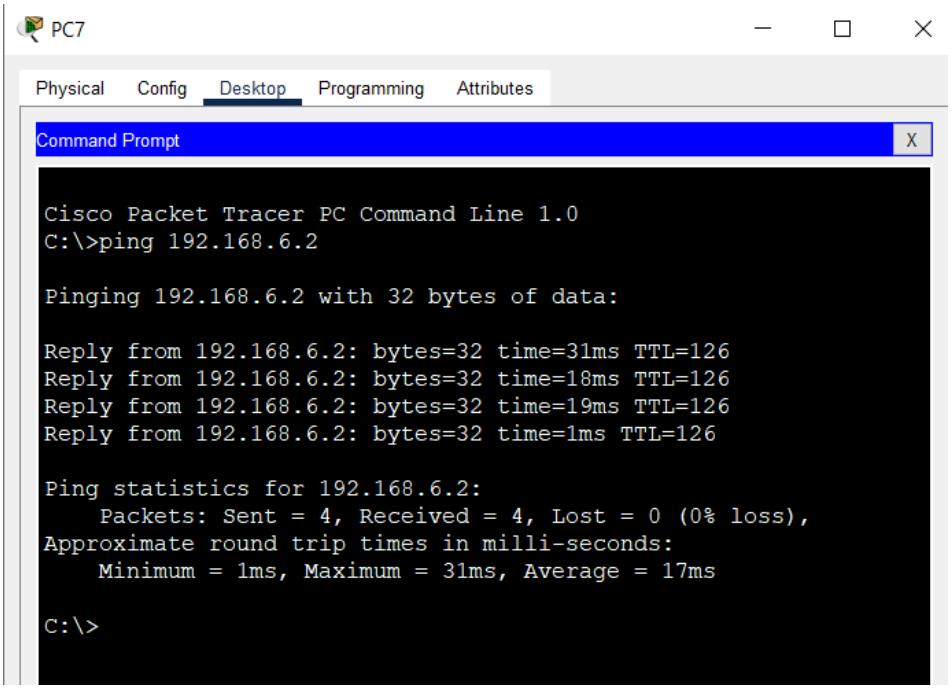
Pc1 : 192.168.3.3
Pc5 : 192.168.5.130

Pc1 ke Pc5



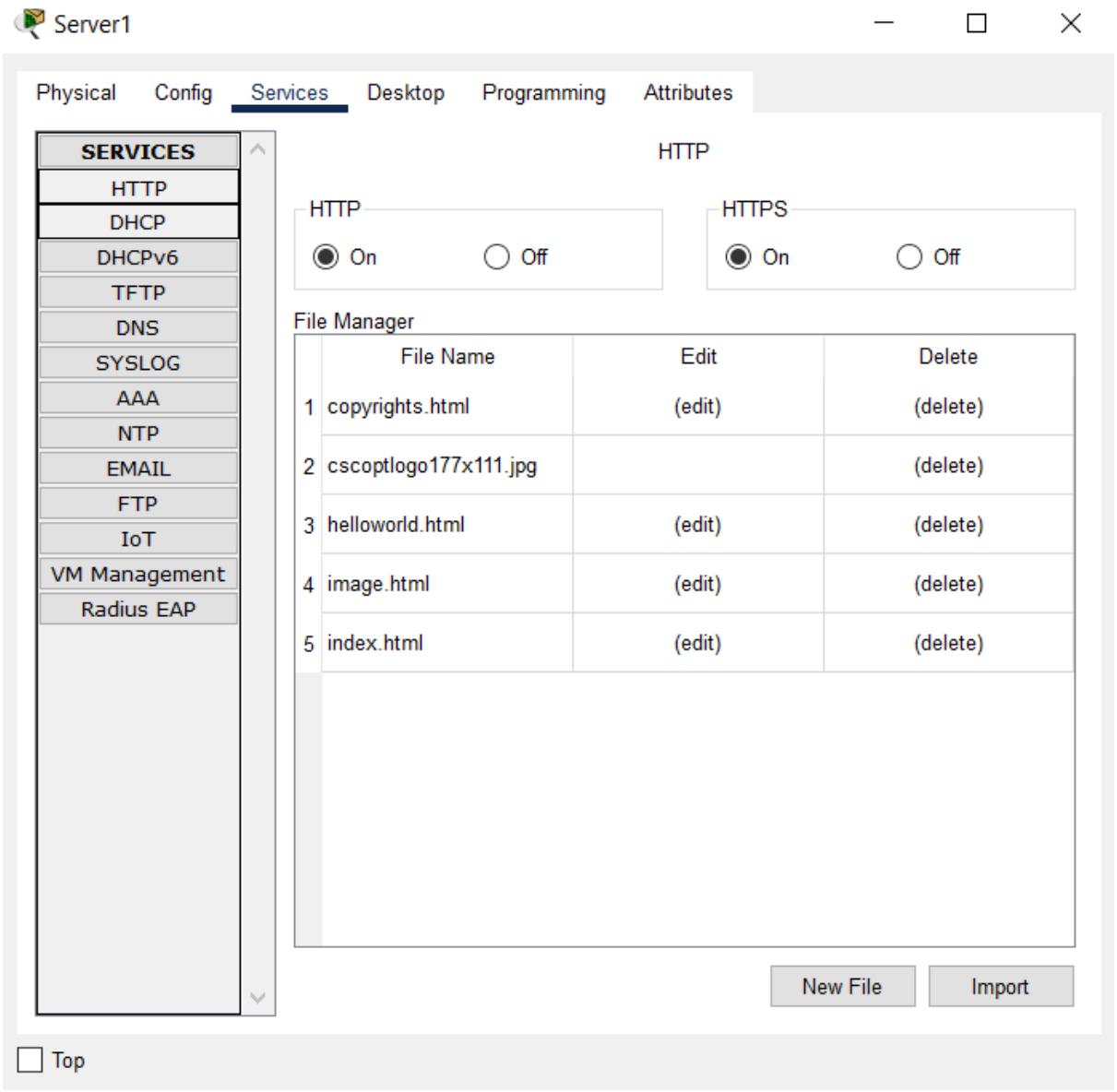
Pc7 : 192.168.5.195
Pc10 : 192.168.6.2

Pc7 ke Pc10

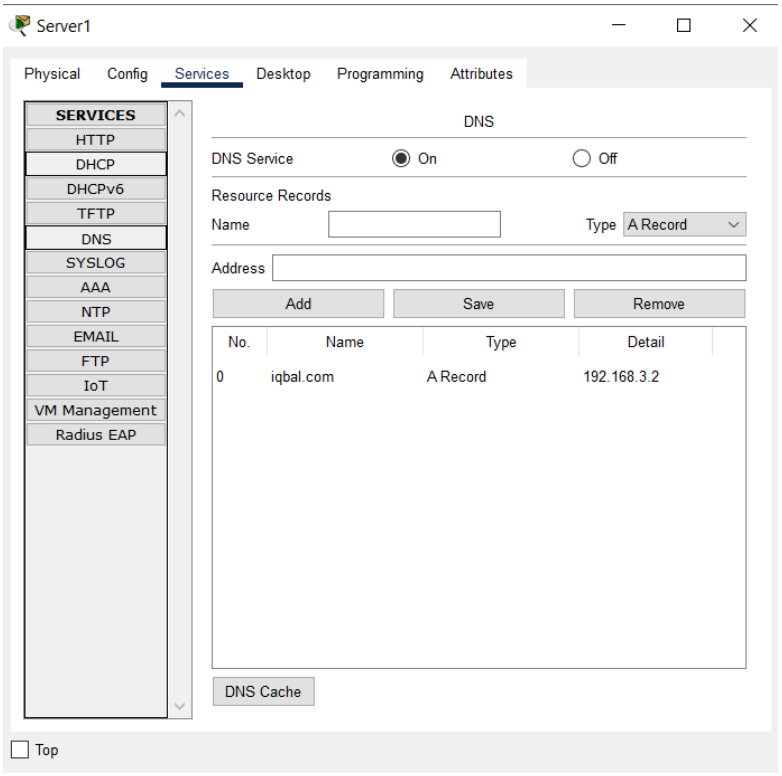


DNS, FTP, Email Configurations

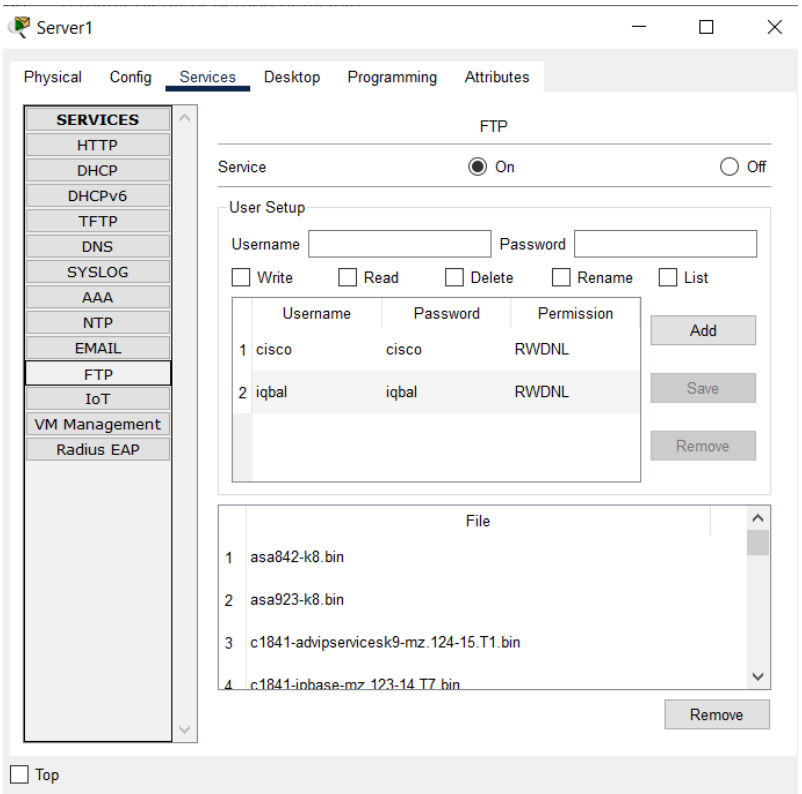
HTTPS



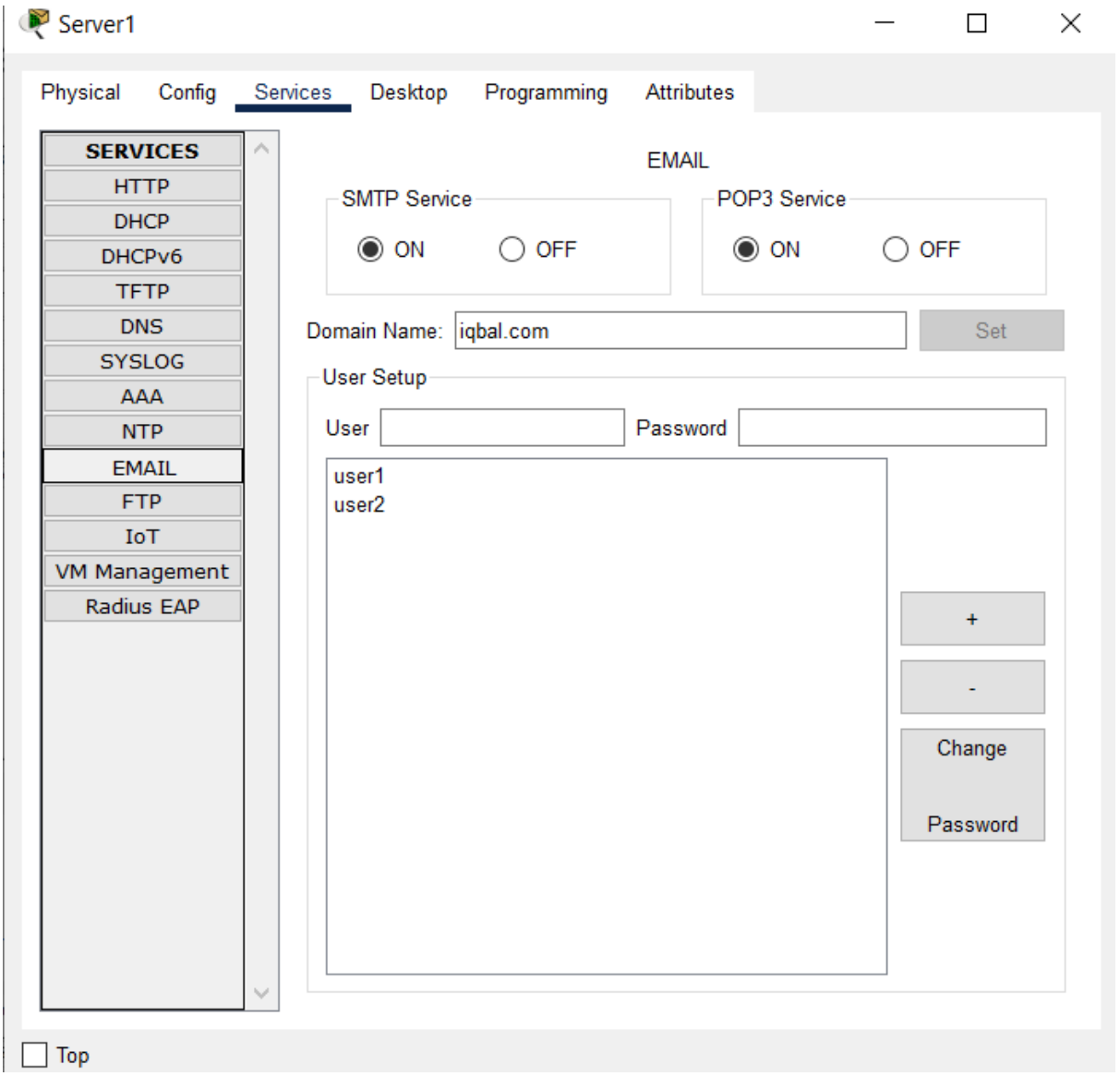
DNS : iqbal.com
ip : 192.168.3.2


Server1
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
DNS
DNS Service
On
Off
Resource Records
Name
Type
A Record
Address
Add
Save
Remove
No.
Name
Type
Detail
0
iqbal.com
A Record
192.168.3.2
DNS Cache
Top

FTP:

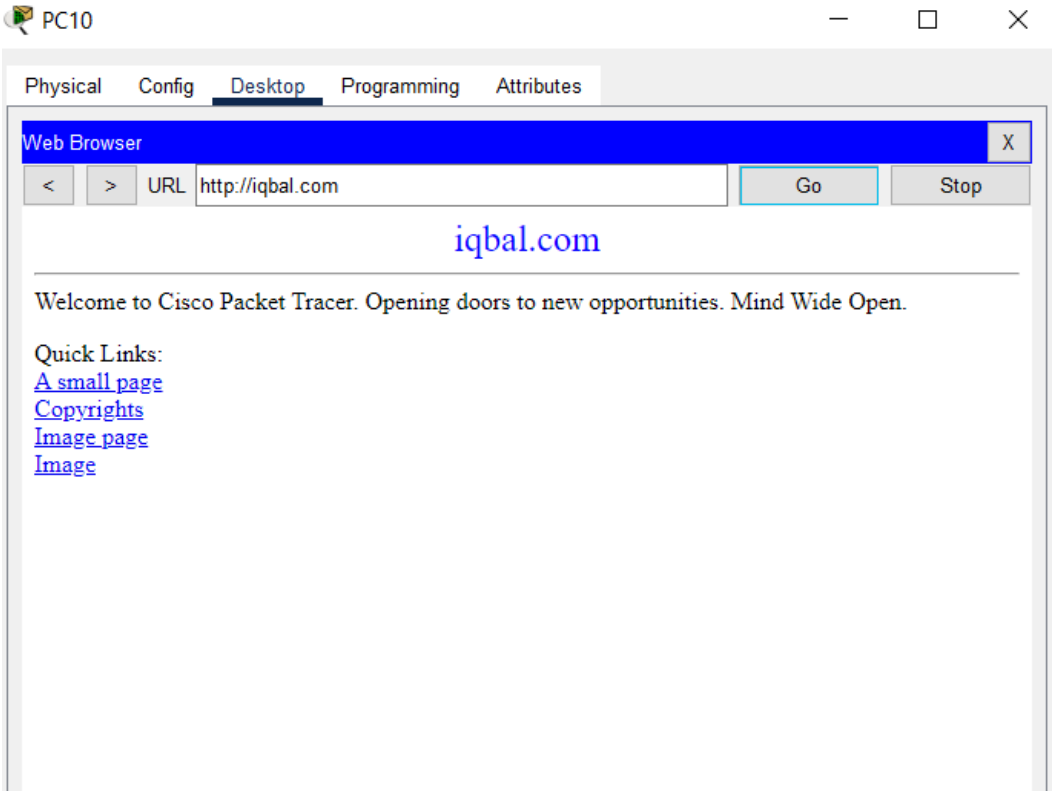

Server1
Physical
Config
Services
Desktop
Programming
Attributes
SERVICES
HTTP
DHCP
DHCPv6
TFTP
DNS
SYSLOG
AAA
NTP
EMAIL
FTP
IoT
VM Management
Radius EAP
FTP
Service
On
Off
User Setup
Username
Password
Write
Read
Delete
Rename
List
Username
Password
Permission
1 cisco cisco RWDNL
2 iqbal iqbal RWDNL
Add
Save
Remove
File
1 asa842-k8.bin
2 asa923-k8.bin
3 c1841-advipservicesk9-mz.124-15.T1.bin
4 c1841-ipbase-mz.123-14.T7.bin
Remove
Top

Email:



Pengujian DNS

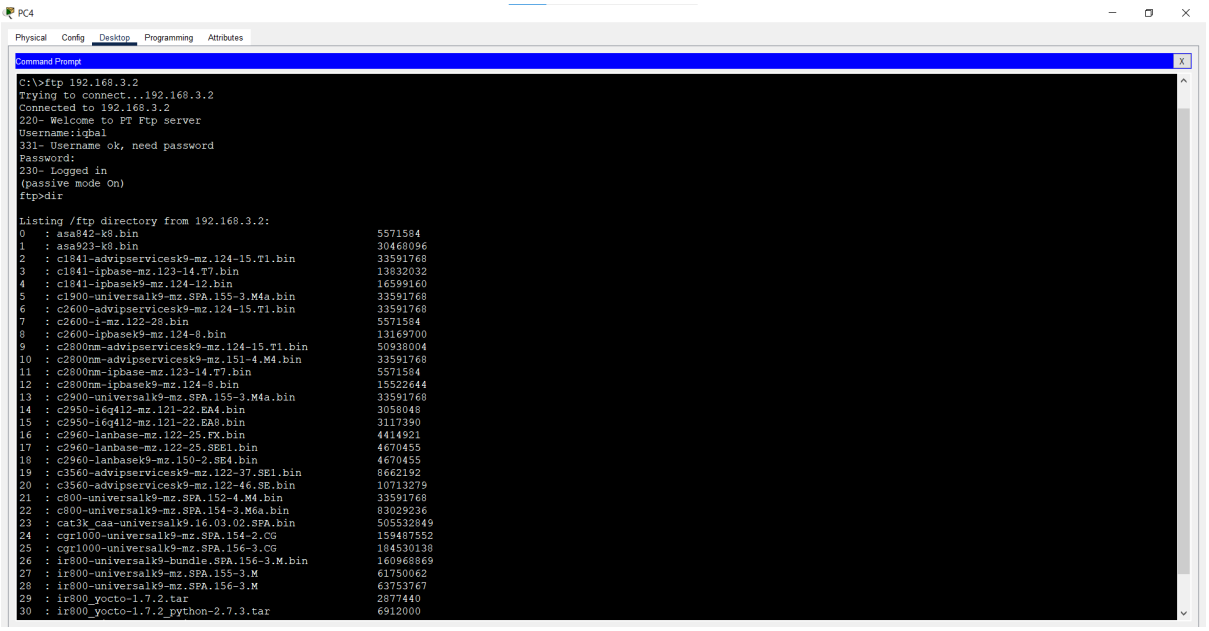
DNS : iqbal.com
ip : 192.168.3.2



Pengujian FTP

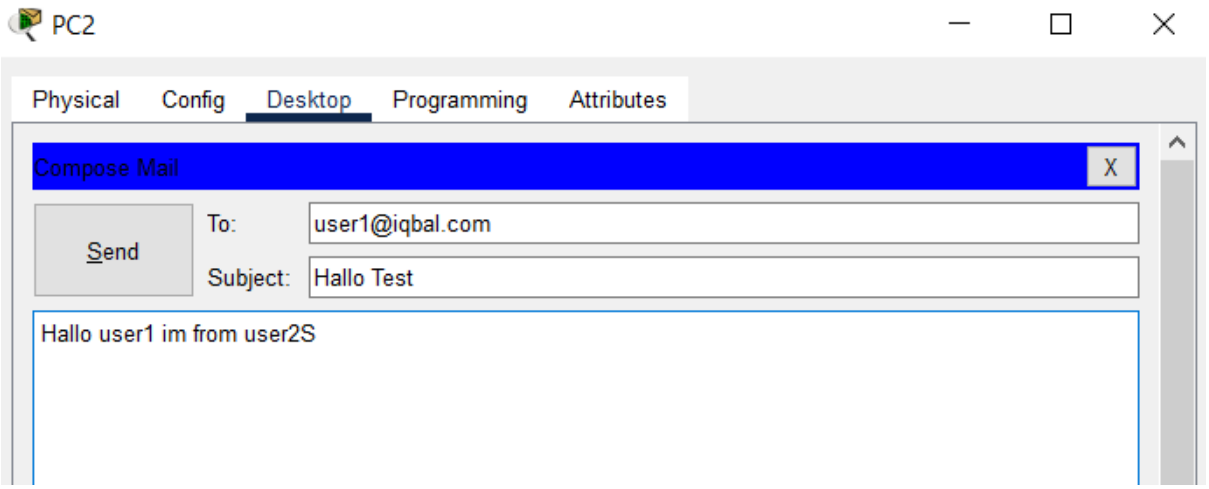
Ip: 192.168.3.2
user: iqbal
password: iqbal

```
Cisco Packet Tracer PC Command Line 1.0
C:\>ftp 192.168.3.2
Trying to connect...192.168.3.2
Connected to 192.168.3.2
220- Welcome to PT Ftp server
Username:iqbal
331- Username ok, need password
Password:
230- Logged in
(passive mode On)
ftp>dir
```

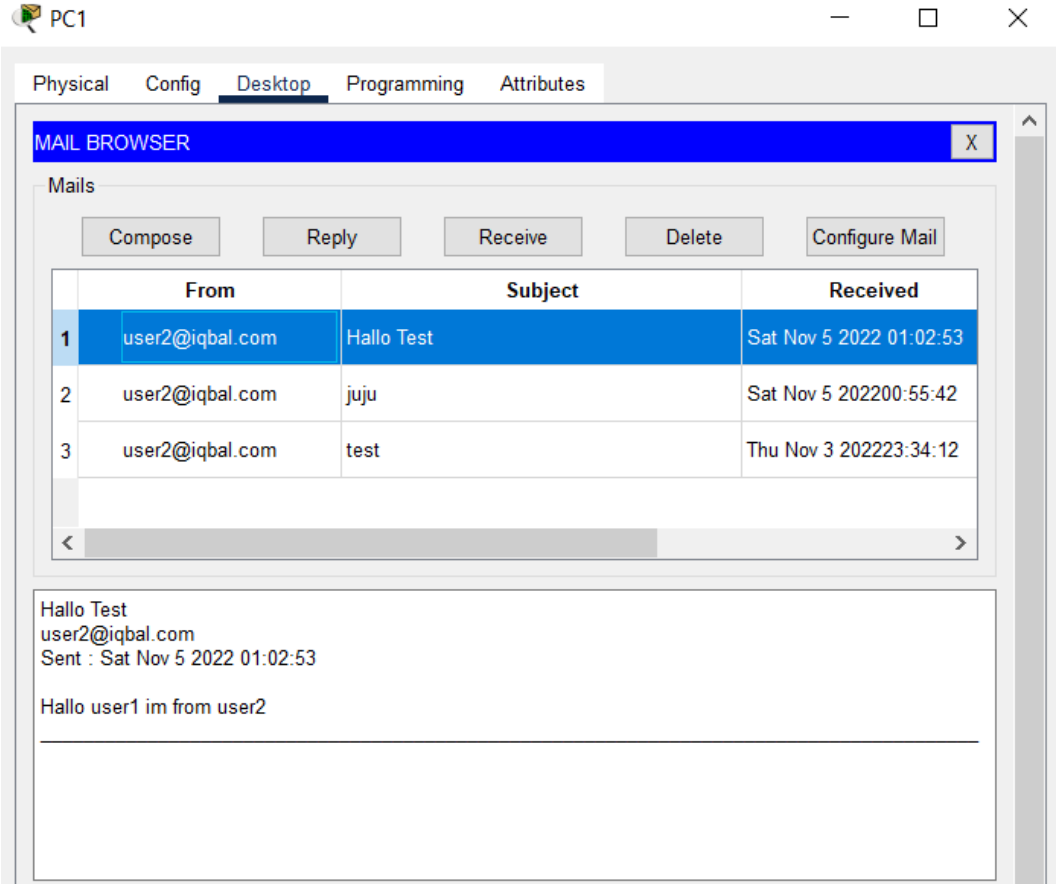


Pengujian Email Service

Pengirim : user2 (PC2)
To: user1 (PC1)



Penerima : user1 (PC1)



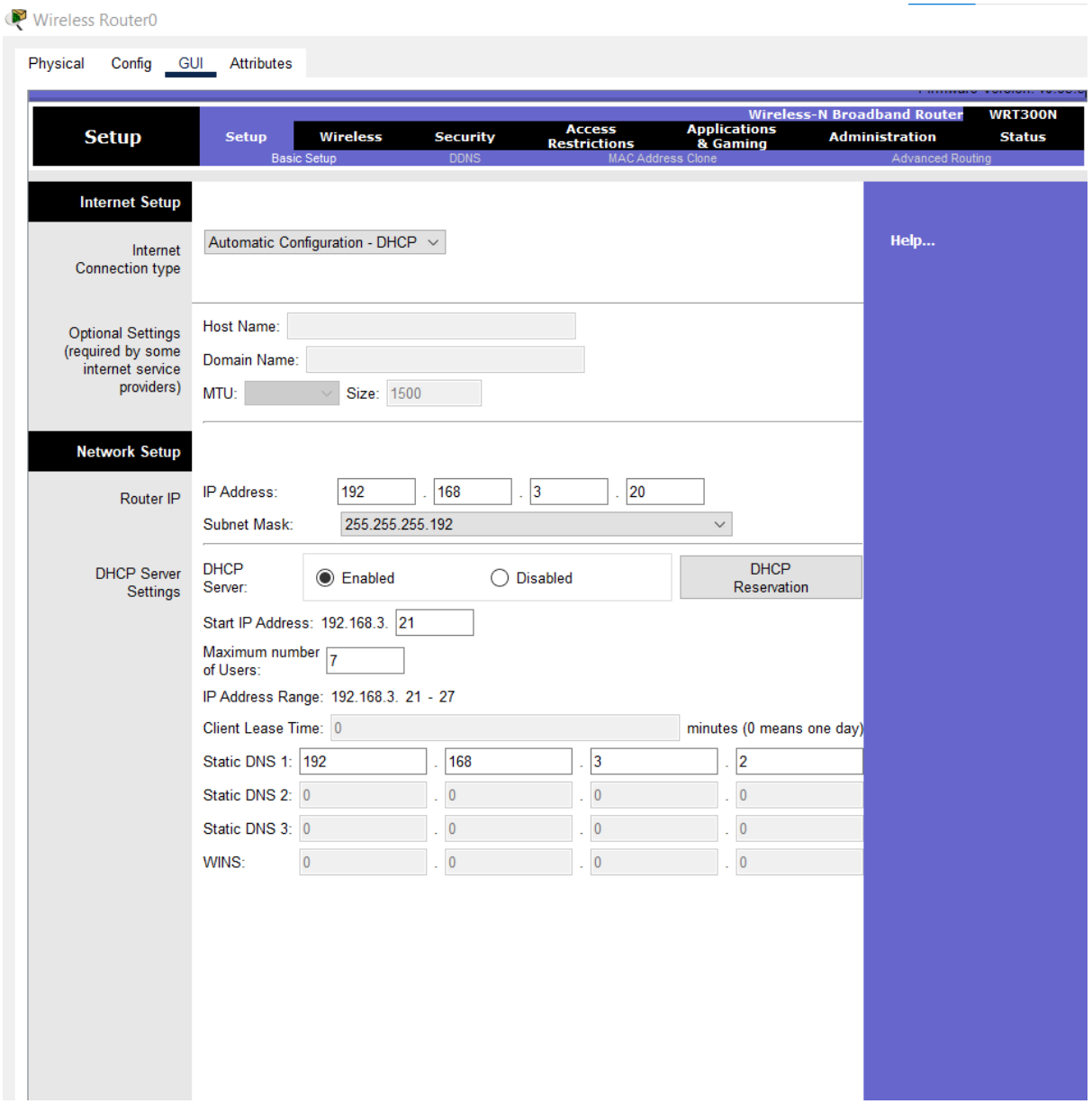
Wireless Router

Tab: setup

ip address : 192.168.3.20/26

start ip address : 192.168.3.21

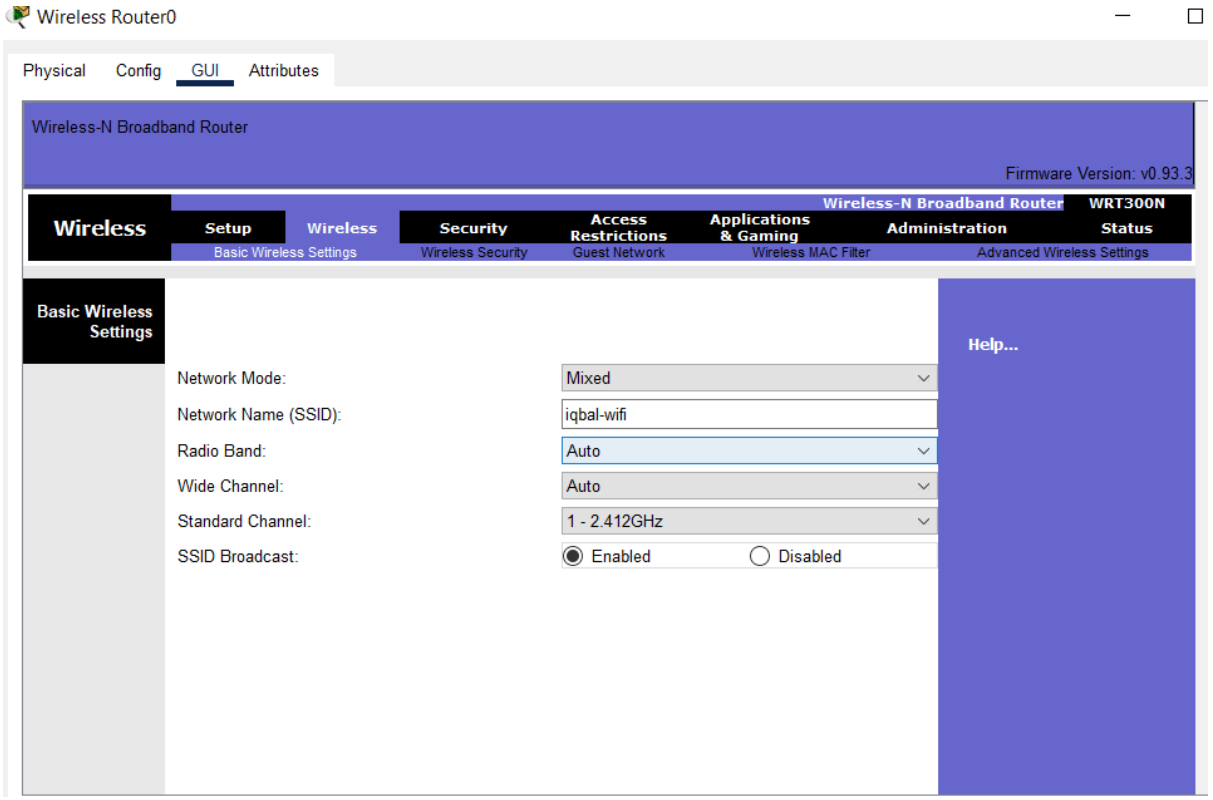
maximum number of users : 7



Kemudian save changes

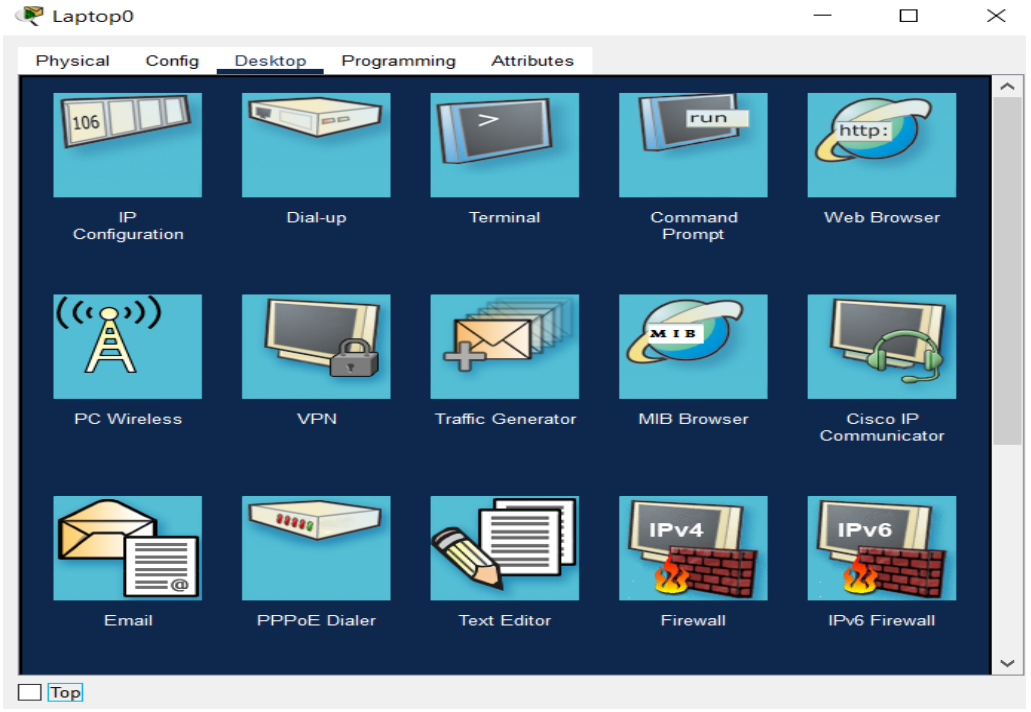
Tab wireless :

ssid : iqbal-wifi



kemudian save changes

Masuk ke Laptop yang sudah terintegrasi dengan network card wireless



Pilih menu PC Wireless

Koneksikan dengan ssid wireless router yang telah dikonfigurasi sebelumnya

Maka laptop akan terkoneksi dengan wireless router :