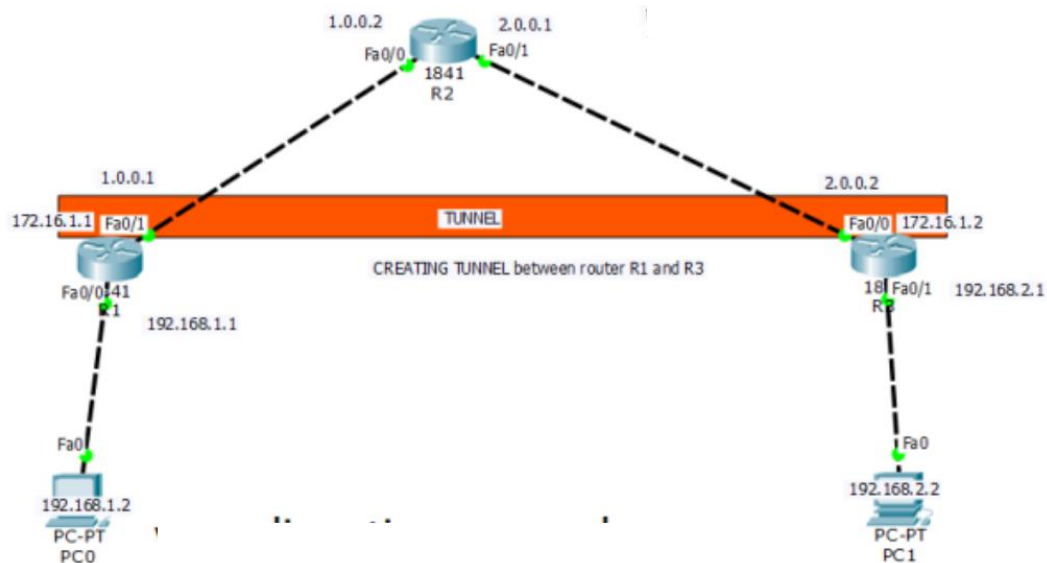


VPN configuration:



CONFIGURATION ON ROUTER R1:

```
Router>enable
Router#config t
Router(config)#host r1
r1(config)#int fa0/0
r1(config-if)#ip add 192.168.1.1 255.255.255.0
r1(config-if)#no shut
r1(config-if)#exit
r1(config)#int fa0/1
r1(config-if)#ip address 1.0.0.1 255.0.0.0
r1(config-if)#no shut
```

CONFIGURATION ON ROUTER R2:

```
Router>enable
Router#config t
Router(config)#host r2
r2(config)#int fa0/0
r2(config-if)#ip add 1.0.0.2 255.0.0.0
r2(config-if)#no shut
```

```
r2(config-if)#exit
r2(config)#int fa0/1
r2(config-if)#ip add 2.0.0.1 255.0.0.0
r2(config-if)#no shut
```

CONFIGURATION ON ROUTER R3:

```
Router>enable
Router#config t
Router(config)#host r3
r3(config)#int fa0/0
r3(config-if)#ip add 2.0.0.2 255.0.0.0
r3(config-if)#no shut
r3(config-if)#exit
r3(config)#int fa0/1
r3(config-if)#ip add 192.168.2.1 255.255.255.0
r3(config-if)#no shut
```

DEFAULT ROUTING CONFIGURATION ON

ROUTER R1:

```
r1>enable
r1#config t
Enter configuration commands, one per line. End with CNTL/Z.
r1(config)#ip route 0.0.0.0 0.0.0.0 1.0.0.2
r1(config)#
```

DEFAULT ROUTING CONFIGURATION ON

ROUTER r3:

```
r3>enable
r3#config t
Enter configuration commands, one per line. End with CNTL/Z.
```

```
r3(config)#ip route 0.0.0.0 0.0.0.0 2.0.0.1
r3(config)#
```

Now check the connection by pinging each other.

First we go to router r1 and ping with router r3:

```
r1#ping 2.0.0.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 2.0.0.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 26/28/33 ms
```

Now we go to router r3 and test network by pinging router r1 interface.

```
r3#ping 1.0.0.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 1.0.0.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 25/28/32 ms
```

NOW CREATE VPN TUNNEL between R1 and R3:

FIRST CREATE A VPN TUNNEL ON ROUTER R3:

```
r1#config t
r1(config)#interface tunnel 10
r1(config-if)#ip address 172.16.1.1 255.255.0.0
r1(config-if)#tunnel source fa0/1
r1(config-if)#tunnel destination 2.0.0.2
r1(config-if)#no shut
```

NOW CREATE A VPN TUNNEL ON ROUTER R3:

```
r3#config t
r3(config)#interface tunnel 100
r3(config-if)#ip address 172.16.1.2 255.255.0.0
r3(config-if)#tunnel source fa0/0
r3(config-if)#tunnel destination 1.0.0.1
r3(config-if)#no shut
```

Now test communication between these two routers

again by pinging each other:

```
r1#ping 172.16.1.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.1.2, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 30/32/36 ms
r1#
```

```
r3#ping 172.16.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.1.1, timeout is 2 seconds:
!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 33/45/83 ms
```

Now Do routing for created VPN Tunnel on Both

Router R and R3:

```
r1(config)#ip route 192.168.2.0 255.255.255.0 172.16.1.2
```

```
r3(config)#ip route 192.168.1.0 255.255.255.0 172.16.1.1
```

TEST VPN TUNNEL CONFIGURATION:

Now i am going to router R1 and test whether tunnel is created or not.

```
r1#show interfaces Tunnel 10
Tunnel10 is up, line protocol is up (connected)
Hardware is Tunnel
Internet address is 172.16.1.1/16
MTU 17916 bytes, BW 100 Kbit/sec, DLY 50000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation TUNNEL, loopback not set
Keepalive not set
Tunnel source 1.0.0.1 (FastEthernet0/1), destination 2.0.0.2
Tunnel protocol/transport GRE/IP
Key disabled, sequencing disabled
Checksumming of packets disabled
Tunnel TTL 255
Fast tunneling enabled
Tunnel transport MTU 1476 bytes
Tunnel transmit bandwidth 8000 (kbps)
Tunnel receive bandwidth 8000 (kbps)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 1
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 32 bits/sec, 0 packets/sec
5 minute output rate 32 bits/sec, 0 packets/sec
52 packets input, 3508 bytes, 0 no buffer
Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
```

0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
52 packets output, 3424 bytes, 0 underruns
0 output errors, 0 collisions, 0 interface resets
0 unknown protocol drops
0 output buffer failures, 0 output buffers swapped out

Now going to Router R3 and test VPN Tunnel Creation:

```
r3#show interface Tunnel 100
Tunnel100 is up, line protocol is up (connected)
Hardware is Tunnel
Internet address is 172.16.1.2/16
MTU 17916 bytes, BW 100 Kbit/sec, DLY 50000 usec,
reliability 255/255, txload 1/255, rxload 1/255
Encapsulation TUNNEL, loopback not set
Keepalive not set
Tunnel source 2.0.0.2 (FastEthernet0/0), destination 1.0.0.1
Tunnel protocol/transport GRE/IP
Key disabled, sequencing disabled
Checksumming of packets disabled
Tunnel TTL 255
Fast tunneling enabled
Tunnel transport MTU 1476 bytes
Tunnel transmit bandwidth 8000 (kbps)
Tunnel receive bandwidth 8000 (kbps)
Last input never, output never, output hang never
Last clearing of "show interface" counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 1
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 32 bits/sec, 0 packets/sec
5 minute output rate 32 bits/sec, 0 packets/sec
52 packets input, 3424 bytes, 0 no buffer
Received 0 broadcasts, 0 runs, 0 giants, 0 throttles
0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
0 input packets with dribble condition detected
53 packets output, 3536 bytes, 0 underruns
```

0 output errors, 0 collisions, 0 interface resets

0 unknown protocol drops