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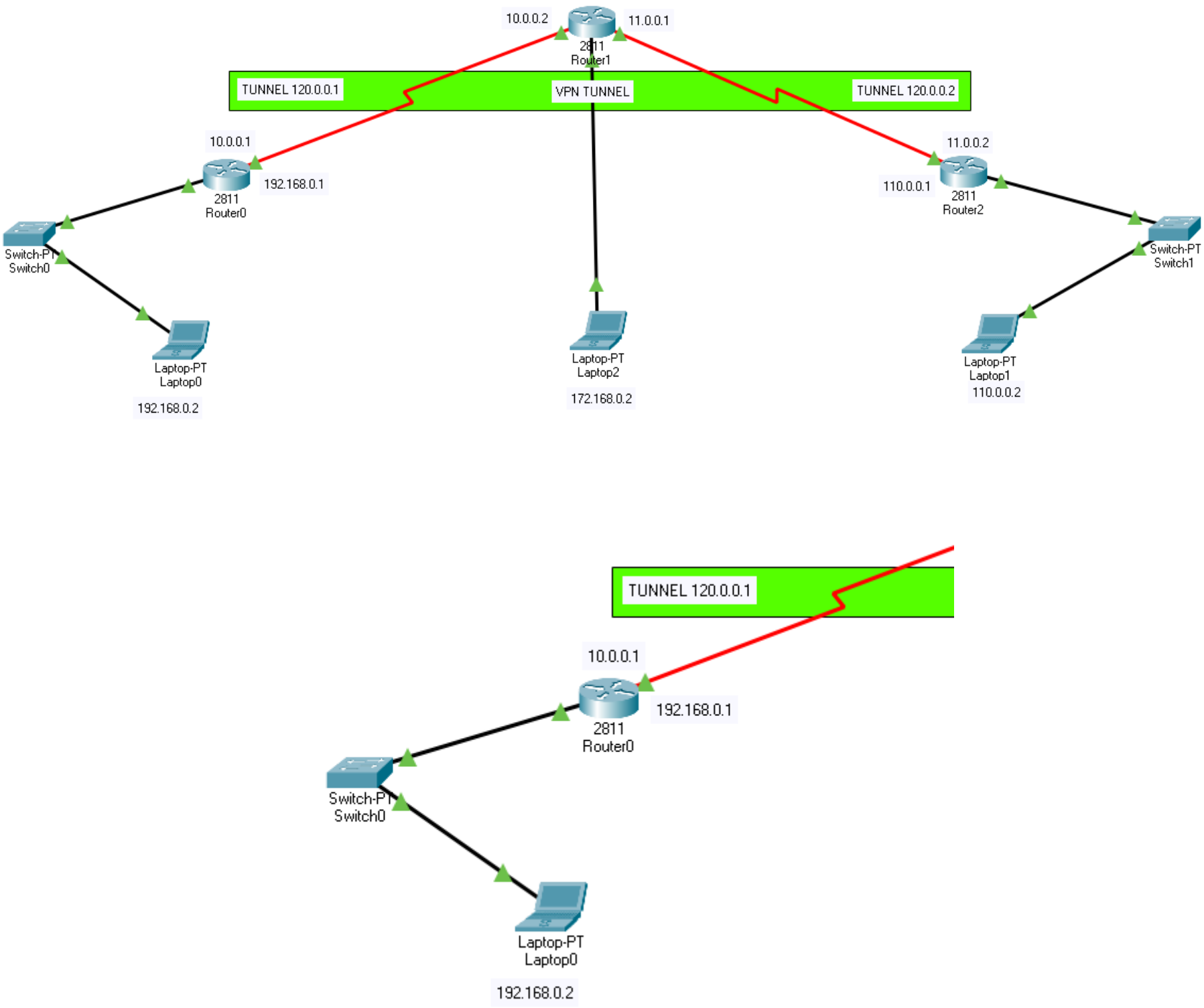
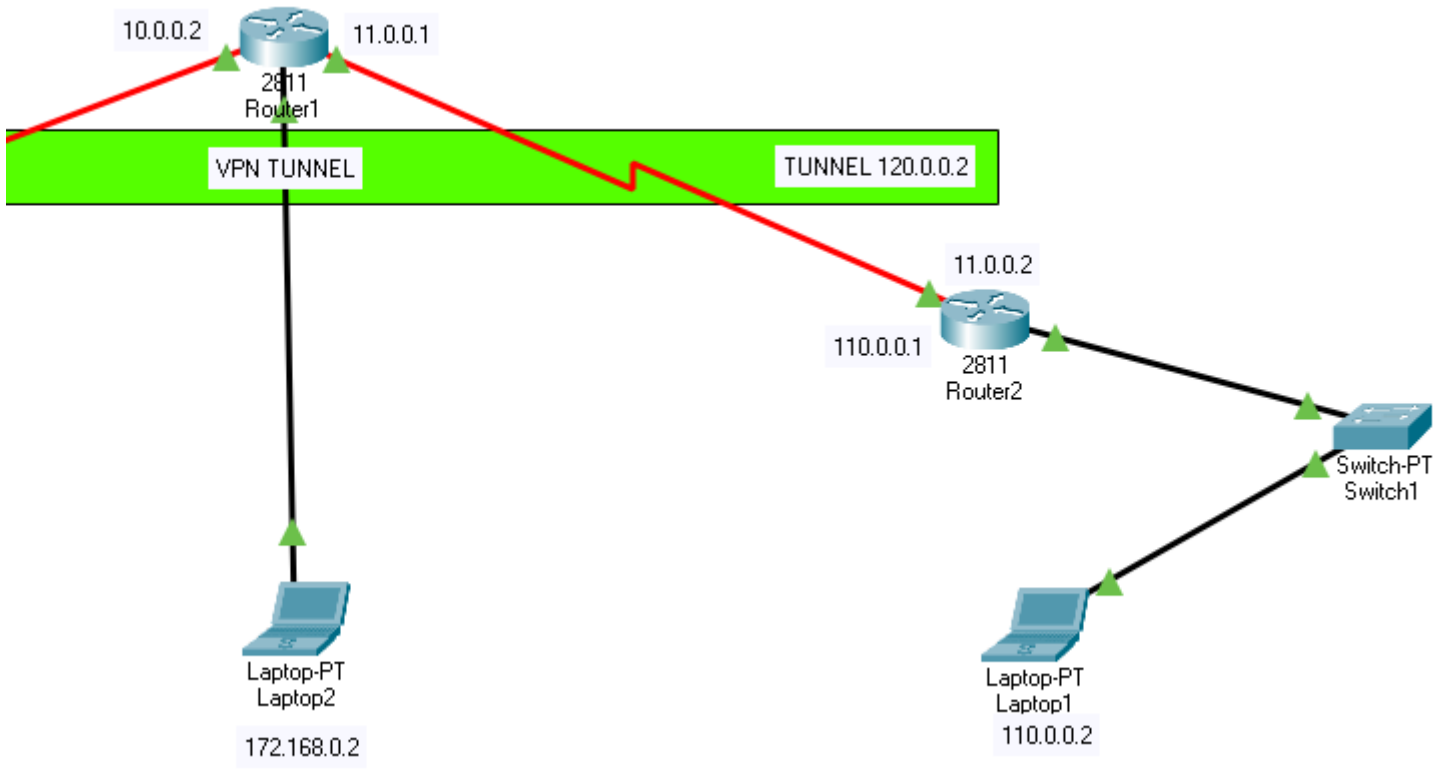
# Computer Networks
## RA1911030010014
## Experiment - 13
## Implementation of VPN using Cisco Packet Tracer

**Aim:** Implementation of VPN using Cisco Packet Tracer.

**Software**: Cisco Packet Tracer

**Implementation Code:**






**WE NEED TO IMPLEMENT A ROUTING PROTOCOL FOR THE ROUTER TO BE INTERCONNECTED: SO WE USE RIP PROTOCOL**

**FOR THE FIRST ROUTER:**

```
Router(config-if)#router rip
Router(config-router)#network 10.0.0.0
Router(config-router)#netwrok 192.168.0.0
                           ^
% Invalid input detected at '^' marker.

Router(config-router)#network 192.168.0.0
Router(config-router)#exit
```

**FOR THE SECOND ROUTER:**

```
Router(config-if)#router rip
Router(config-router)#
Router(config-router)#net 10.0.0.0
Router(config-router)#net 11.0.0.0
```

**SIMILARLY FOR THE THIRD ROUTER:**

```
Router(config-if)#router rip
Router(config-router)#network 11.0.0.0
Router(config-router)#net 110.0.0.0
Router(config-router)#exit
```

**NOW THE ROUTERS HAVE BEEN INTERCONNECTED AND CAN BE VERIFIED BY THE TRACERT CMD**

```
C:\>tracert 110.0.0.1

Tracing route to 110.0.0.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.0.1
  2    0 ms      1 ms      8 ms      10.0.0.2
  3    0 ms      13 ms     20 ms     110.0.0.1
```

**NOW WE NEED TO IMPLEMENT A VPN TUNNEL THAT CONNECTS R1 TO R3:**

## COMMANDS IN R1:

```
Router(config-if)#interface tunnel 1
Router(config-if)#ip add 20.0.0.1 255.0.0.0
Router(config-if)#tunnel source s0/1/0
Router(config-if)#tunnel destination 11.0.0.2
Router(config-if)#
```

## FOR THE R3:

```
Router(config-if)#interface tunnel 1
Router(config-if)#ip add 20.0.0.2 255.0.0.0
Router(config-if)#tunnel source s0/1/0
Router(config-if)#tunnel destination 10.0.0.1
Router(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface Tunnel1, changed state to up
```

## THE TUNNEL IS NOW SET.

## NOW WE NEED TO ROUTE THE TRAFFIC FROM R1 TO R3 THROUGH THE TUNNEL THAT WE JUST CREATED:

## ROUTER 1 COMMANDS:

```
Router(config)#
Router(config)#
Router(config)#ip route 110.0.0.0 255.0.0.0 20.0.0.2
Router(config)#
```

## SIMILARLY FOR THE 3RD ROUTER:

```
Router(config)#ip route 192.168.0.0 255.255.255.0 20.0.0.1
Router(config)#ip route 192.168.0.0 255.255.255.0 20.0.0.1
Router(config)#
```

## THE SETUP IS DONE.
## WE CAN VERIFY THE TUNNEL TRAFFIC BY THE COMMAND:

```
C:\>tracert 110.0.0.1

Tracing route to 110.0.0.1 over a maximum of 30 hops:

  1    0 ms      0 ms      0 ms      192.168.0.1
  2    2 ms      0 ms      23 ms     110.0.0.1

Trace complete.
```

## HENCE VPN TUNNEL IS CREATED.

## Result:

The required code for the Implementation of VPN using Cisco Packet Tracer was written in the Cisco Packet Tracer environment and successfully executed.