

# **ASSIGNMENT**

**NAME — SUNNY**

**ROLL NO. — 24382**

**ASSIGNMENT — CCNA**

**1- GRE TUNNEL.**

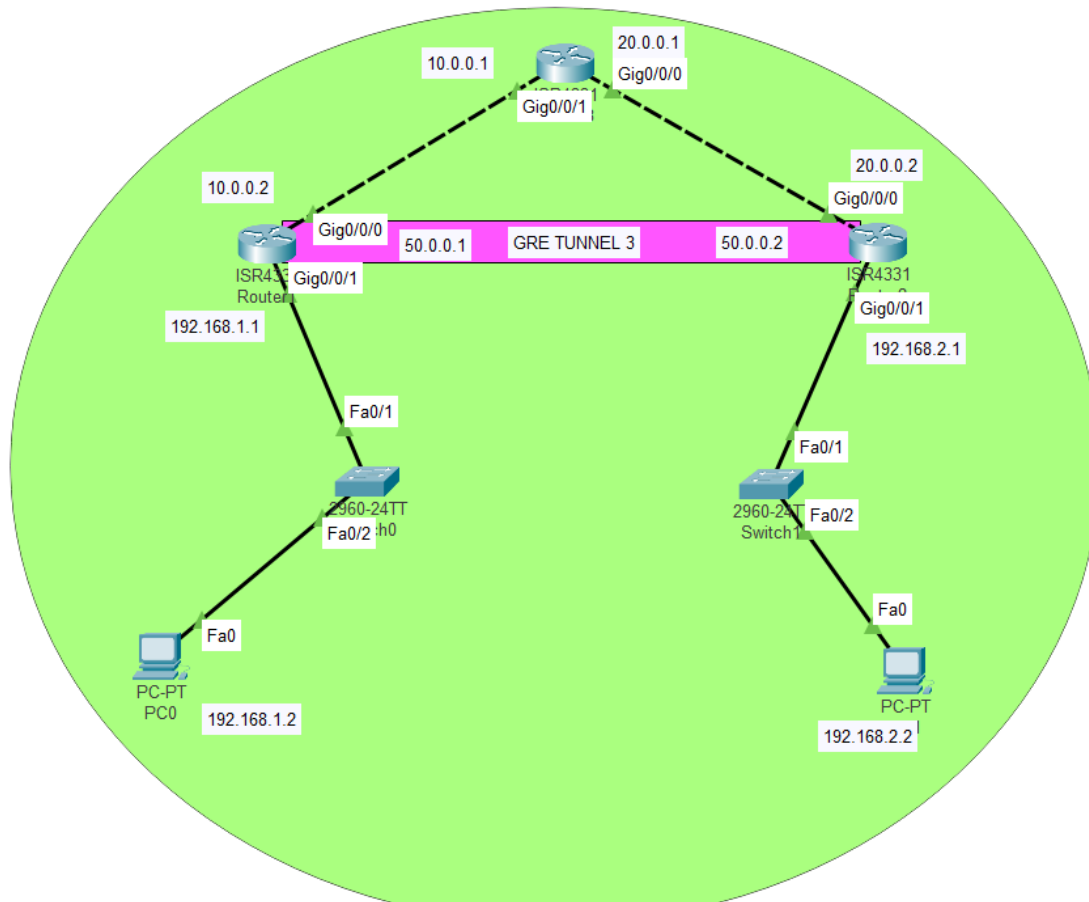
**2- INTER VLAN**

**3- STATIC ROUTER ON 3 ROUTER**

**4- ETHERCHANNEL**

**5- PORT SECURITY**

# GRE TUNNEL



## Step 1:

Create A Network By using Any Routing Protocol (RIP, OSPF, EIGRP)

## Step 2:

```
R0(config)# interface Tunnel 1
```

```
R0(config-if)# ip address 50.0.0.1 255.255.255.0
```

```
R0(config-if)# tunnel source gig0/0/0
```

```
R0(config-if)# tunnel destination 20.0.0.2
```

```
R0(config-if)# end
```

**R0# copy running-config startup-config**

**Step 3:**

**R2(config)# interface Tunnel 1**

**R2(config-if)# ip address 50.50.50.2 255.255.255.0**

**R2(config-if)# tunnel source gig0/0/0**

**R2(config-if)# tunnel destination 10.0.0.2**

**R2(config-if)# end**

**R2# copy running-config startup-config**

**Step 4:**

**R0(config)# ip route 192.168.2.0 255.255.255.0 50.0.0.2**

**R0(config)# end**

**R0# copy running-config startup-config**

**Step 5:**

**R2(config)# ip route 192.168.1.0 255.255.255.0 50.0.0.1**

**R2(config)# end**

**R2# copy running-config startup-config**

## **GRE Tunnel Verification**

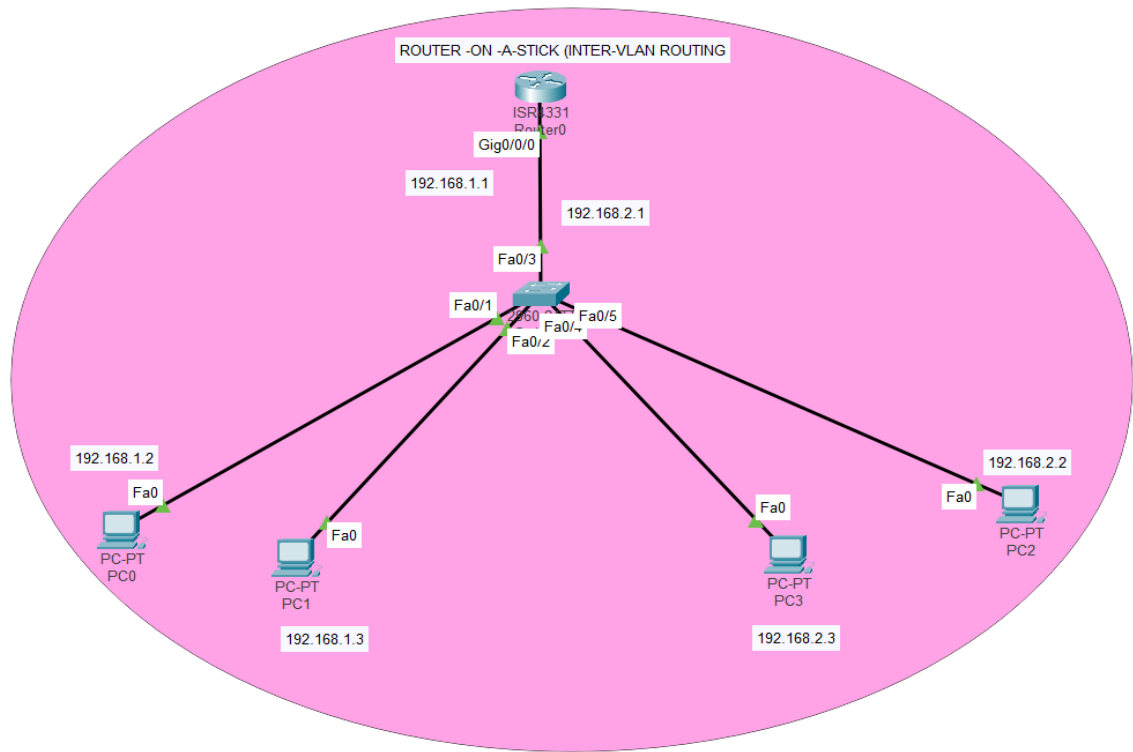
**R0# show interfaces tunnel 1**

**R0# show ip interface brief**

```
Router#show ip int bri
Interface                IP-Address      OK? Method Status          Protocol
GigabitEthernet0/0       20.0.0.1        YES manual up              up
GigabitEthernet0/1       192.168.2.1     YES manual up              up
Tunnel1                  50.50.50.2      YES manual up              up
Vlan1                    unassigned      YES unset  administratively down down
Router#
```

---

# INTER VLAN



## Step-by-Step Configuration

### 1. Configure VLANs on the Switch

```
Switch> enable
```

```
Switch# configure terminal
```

```
Switch(config)# vlan 10
```

```
Switch(config-vlan)# name Sales
```

```
Switch(config-vlan)# exit
```

```
Switch(config)# vlan 20
```

```
Switch(config-vlan)# name HR
```

```
Switch(config-vlan)# exit
```

### 2. Assign Switch Ports to VLANs

```
Switch(config)# interface fa1/1
```

```
Switch(config-if)# switchport mode access
```

**Switch(config-if)# switchport access vlan 10**

**Switch(config-if)# exit**

**Switch(config)# interface fa2/1**

**Switch(config-if)# switchport mode access**

**Switch(config-if)# switchport access vlan 20**

**Switch(config-if)# exit**

### **3. Configure Trunk Port to the Router**

**Switch(config)# interface fa0/1**

**Switch(config-if)# switchport mode trunk**

**Switch(config-if)# exit**

### **4. Configure Router Subinterfaces (Router-on-a-Stick)**

**Router> enable**

**Router# configure terminal**

**Router(config)# interface g0/0.10**

**Router(config-subif)# encapsulation dot1Q 10**

**Router(config-subif)# ip address 192.168.10.1 255.255.255.0**

**Router(config-subif)# exit**

**Router(config)# interface g0/0.20**

**Router(config-subif)# encapsulation dot1Q 20**

**Router(config-subif)# ip address 192.168.20.1 255.255.255.0**

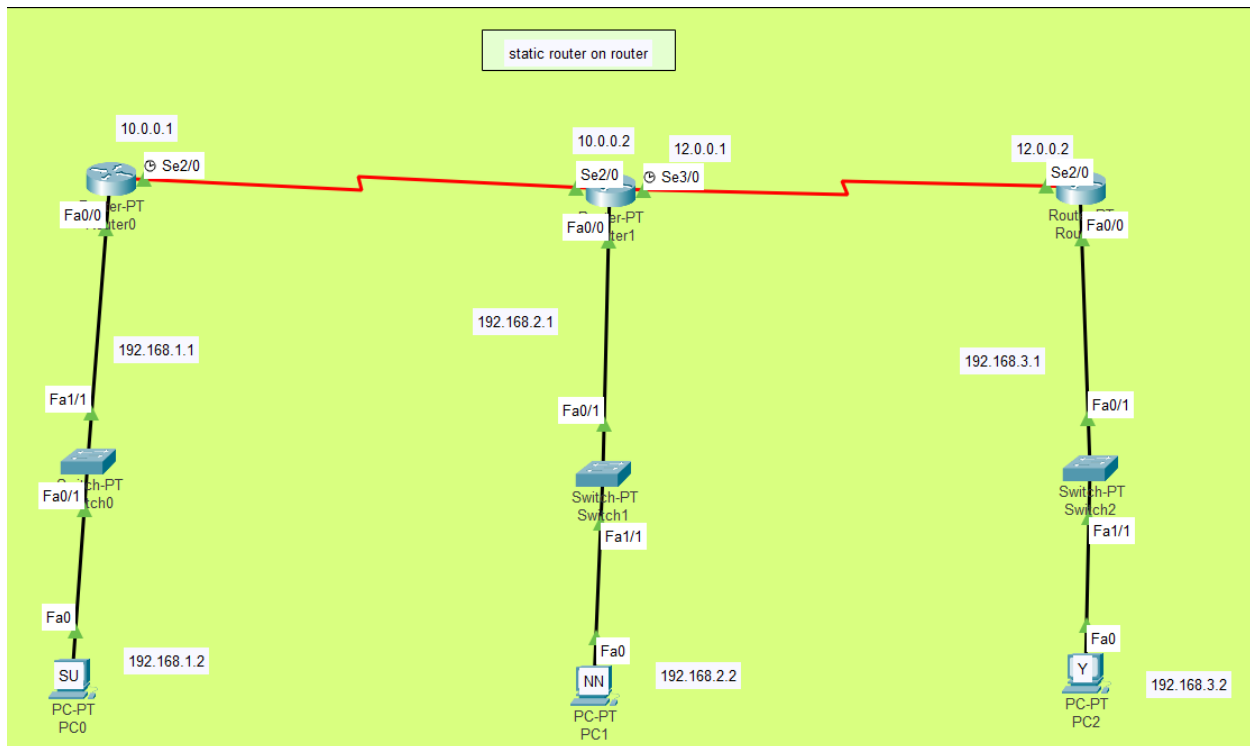
**Router(config-subif)# exit**

**Router(config)# interface g0/0**

**Router(config-if)# no shutdown**

**Router(config-if)# exit**

# STATIC ROUTER ON 3 ROUTER



## Step-by-Step Static Routing Configuration

### Step 1: Assign IP Addresses to Interfaces

#### On Router R1:

**enable**

**configure terminal**

**interface FastEthernet0/0**

**ip address 192.168.1.1 255.255.255.0**

**no shutdown**

**interface Serial2/0**

**ip address 10.0.0.1 255.255.255.252**

**no shutdown**

**exit**

#### On Router R2:

**enable**

**configure terminal**

```
interface FastEthernet0/0
ip address 192.168.2.1 255.255.255.0
no shutdown
```

```
interface Serial2/0
ip address 10.0.0.2 255.255.255.252
no shutdown
```

```
interface Serial3/0
ip address 12.0.0.1 255.255.255.252
no shutdown
exit
```

```
On Router R3:
enable
configure terminal
interface FastEthernet0/0
ip address 192.168.3.1 255.255.255.0
no shutdown
```

```
interface Serial2/0
ip address 12.0.0.2 255.255.255.252
no shutdown
exit
```

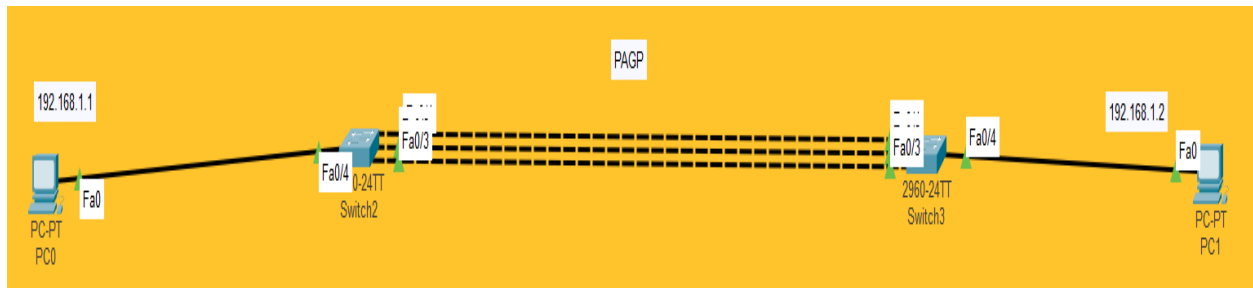
## Step 2: Configure Static Routes

```
On Router R1:
ip route 192.168.2.0 255.255.255.0 10.0.0.2
```

```
On Router R2:
ip route 192.168.1.0 255.255.255.0 10.0.0.1
ip route 192.168.3.0 255.255.255.0 12.0.0.1
```

```
On Router R3:
ip route 192.168.2.0 255.255.255.0 12.0.0.1
```

# ETHERCHANNEL(PAGP)



## Switch A:

### Step-by-Step Configuration

# Enter interface range

SwitchA(config)# interface range fa0/1 - 2

# Set mode to trunk or access (based on requirement)

SwitchA(config-if-range)# switchport mode access

# Add to EtherChannel using PAGP (desirable = actively negotiate)

SwitchA(config-if-range)# channel-group 1 mode desirable

# Exit interface range

SwitchA(config-if-range)# exit

## Switch B:

# Enter interface range

SwitchB(config)# interface range fa0/1 - 2

# Set mode to trunk or access (match with Switch A)

SwitchB(config-if-range)# switchport mode access

# Add to EtherChannel using PAGP (auto = passive negotiation)

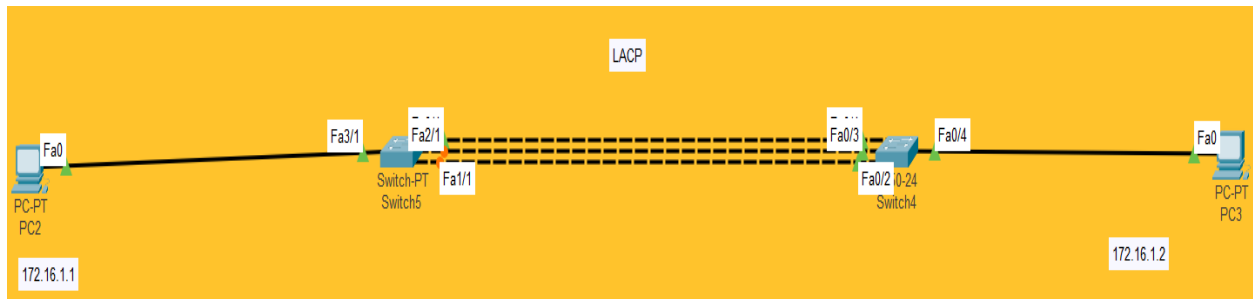
SwitchB(config-if-range)# channel-group 1 mode auto

# Exit interface range

SwitchB(config-if-range)# exit



# ETHERCHANNEL(LACP)



**On Switch0:**

**Switch0> enable**

**Switch0# configure terminal**

**Switch0(config)# interface range fa0/1 - 2**

**Switch0(config-if-range)# switchport mode access**

**Switch0(config-if-range)# channel-group 1 mode active ! LACP active mode**

**Switch0(config-if-range)# exit**

**On Switch1:**

**Switch1> enable**

**Switch1# configure terminal**

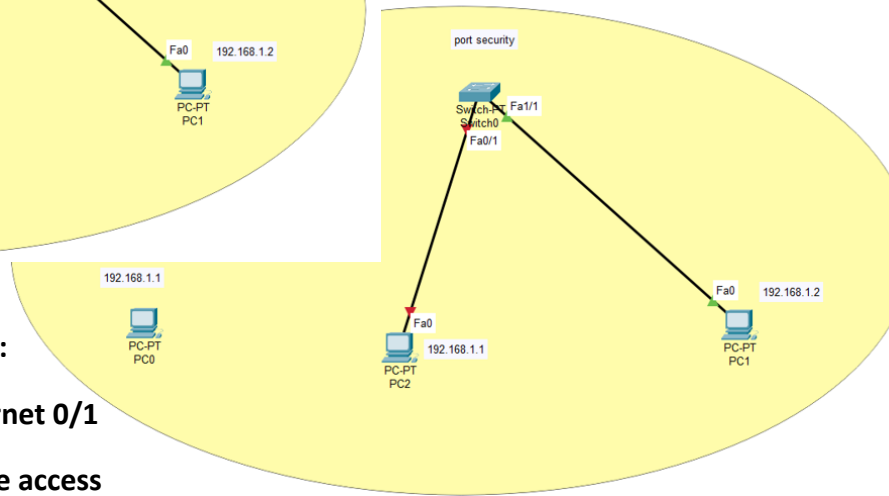
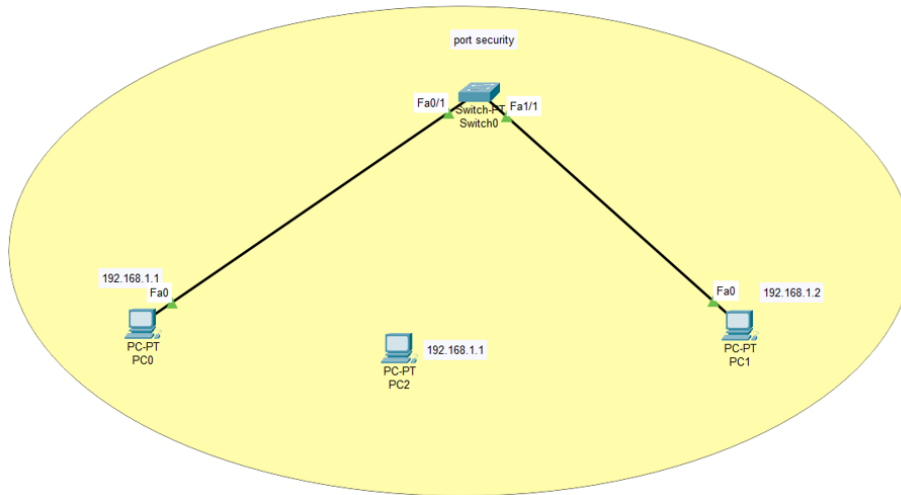
**Switch1(config)# interface range fa0/1 - 2**

**Switch1(config-if-range)# switchport mode access**

**Switch1(config-if-range)# channel-group 1 mode passive ! LACP passive mode**

**Switch1(config-if-range)# exit**

# PORT SECURITY



Configure the interface with Port Security:

- Switch(config)# interface fastethernet 0/1
- Switch(config-if)# switchport mode access
- Switch(config-if)# switchport port-security
- Switch(config-if)# switchport port-security maximum 1
- Switch(config-if)# switchport port-security mac-address sticky
- Switch(config-if)# switchport port-security violation SHUTDOWN

Port Security Status

- Switch# show port-security

Output example:

Secure Port MaxSecureAddr CurrentAddr SecurityViolation Security Action

```
-----
Fa0/1      1      1      0      SHUTDOWN
```