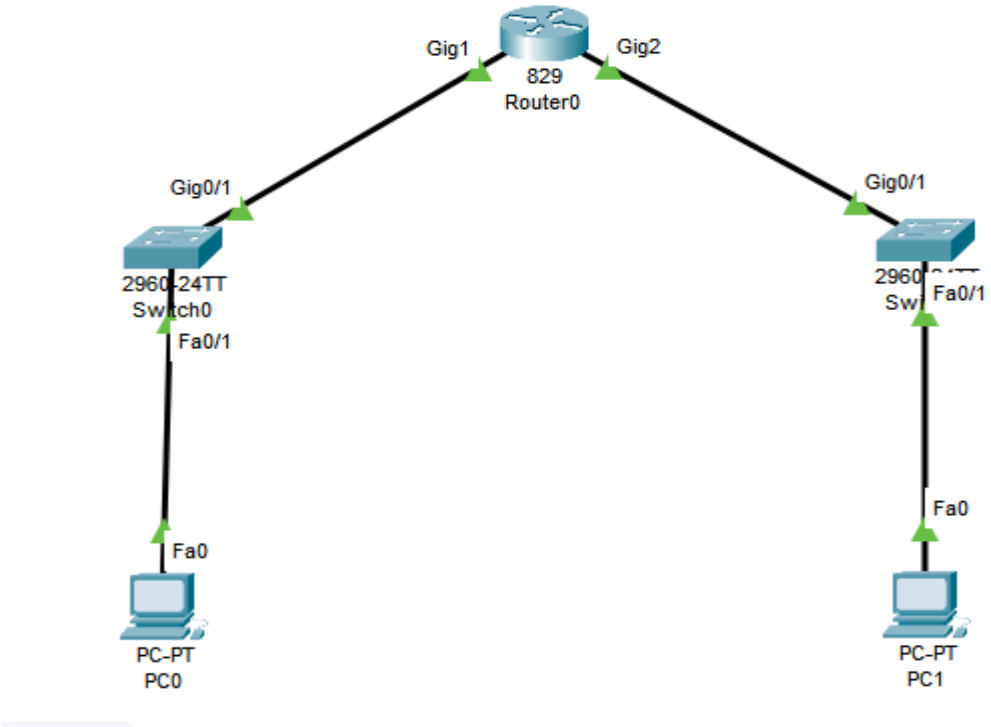
📄 Network Topology and Configuration Documentation

This documentation outlines the network topology and configuration used to establish Layer 2 connectivity between two devices (PC0 and PC1) via two switches and a centrally positioned router (R0) configured to operate as a Layer 2 switch. All devices are configured within **VLAN 10**, enabling them to communicate within a single broadcast domain.

Network Topology :



IP Address Setup(PC0 and PC1)

PC0 Configuration:

IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

PC1 Configuration:

IP Address: 192.168.1.2

Subnet Mask: 255.255.255.0

I assigned static IPs within the same subnet `192.168.1.0/24` to both PCs, allowing them to communicate on the same Layer 2 domain through VLAN 10

SW0 Configuration

```
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#vlan 10
Switch(config-vlan)#exit
Switch(config)#
Switch(config)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#int gig0/1
Switch(config-if)#switchport  mode aaccess
                              ^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport  mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#exit
Switch(config)#
Switch(config)#do wr
Building configuration...
```

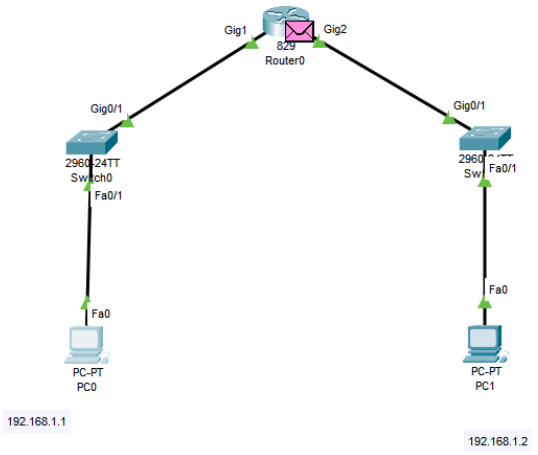
SW1 Configuration

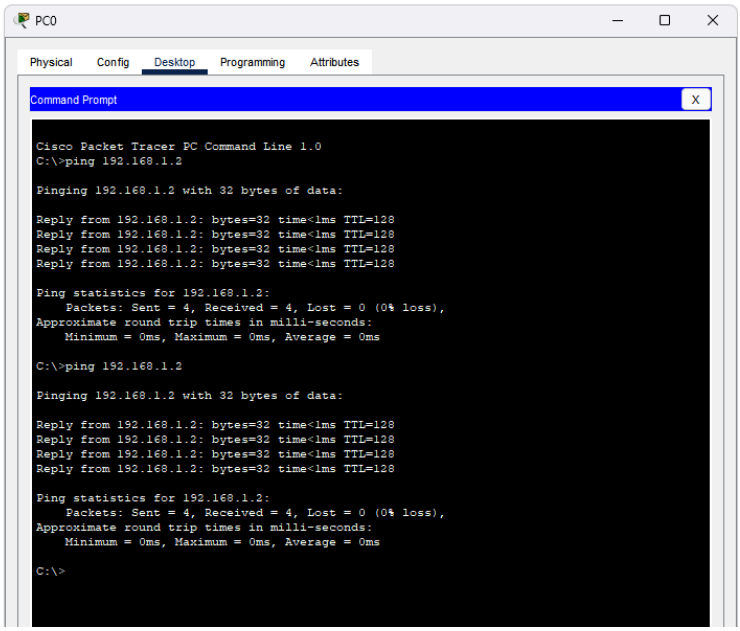
```
Switch>
Switch>en
Switch#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
Switch(config)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#exit
Switch(config)#
Switch(config)#vlan 10
Switch(config-vlan)#exit
Switch(config)#int fa0/1
Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#int gig0/1
Switch(config-if)#switchport mode acceess
                                  ^
% Invalid input detected at '^' marker.

Switch(config-if)#switchport mode access
Switch(config-if)#switchport access vlan 10
Switch(config-if)#
Switch(config-if)#exit
Switch(config)#do wr
Building configuration...
[OK]
Switch(config)#
```

R0 Configuration

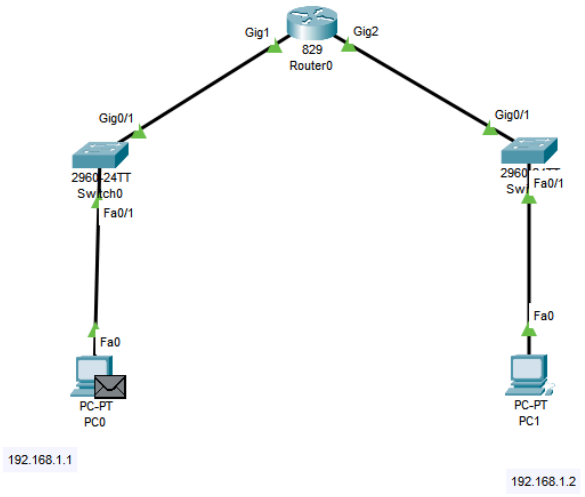
```
IR800>en
IR800#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
IR800(config)#vlan 10
IR800(config-vlan)#
IR800(config-vlan)#
*Mar 01, 00:04:42.044: %CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
GigabitEthernet1 (1), with Switch GigabitEthernet0/1 (10).exit
IR800(config)#
IR800(config)#int gig1
IR800(config-if)#s
*Mar 01, 00:04:50.044: %CDP-4-NATIVE_VLAN_MISMATCH: Native VLAN mismatch discovered on
GigabitEthernet2 (1), with Switch GigabitEthernet0/1 (10).w
Command Rejected. Not a convertable port
IR800(config-if)#switchport mode access
IR800(config-if)#switchport access vlan 10
IR800(config-if)#exit
IR800(config)#int gig2
IR800(config-if)#switchport mode access
IR800(config-if)#switchport access vlan 10
IR800(config-if)#exit
IR800(config)#
IR800(config)#do wr
Building configuration...
[OK]
```

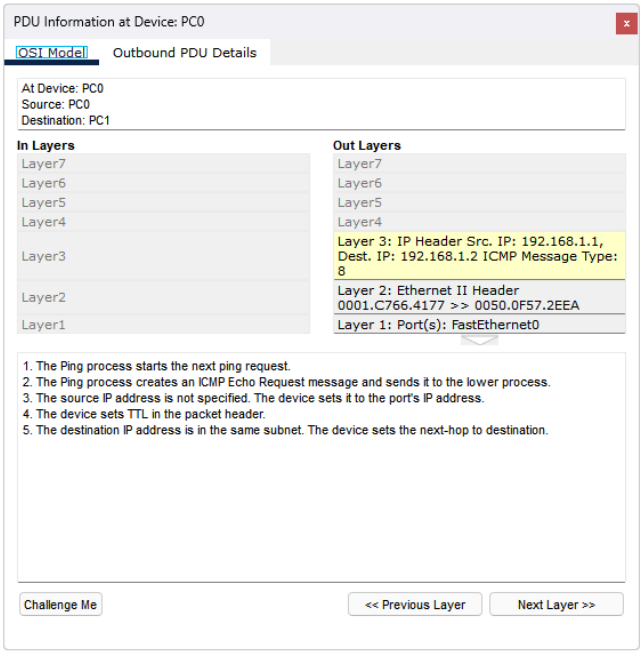
Connectivity Test

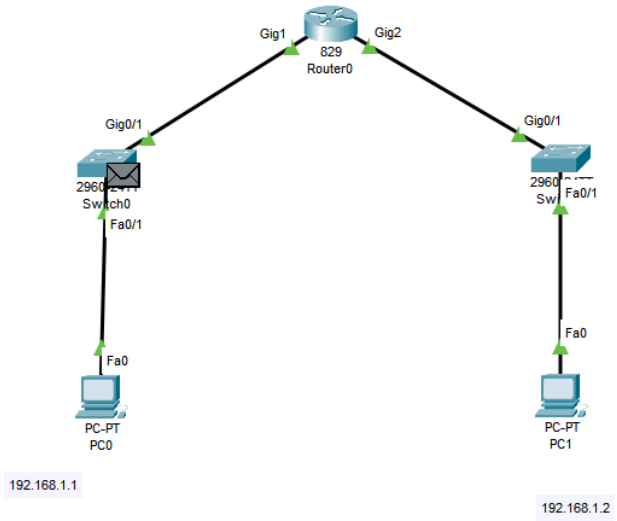


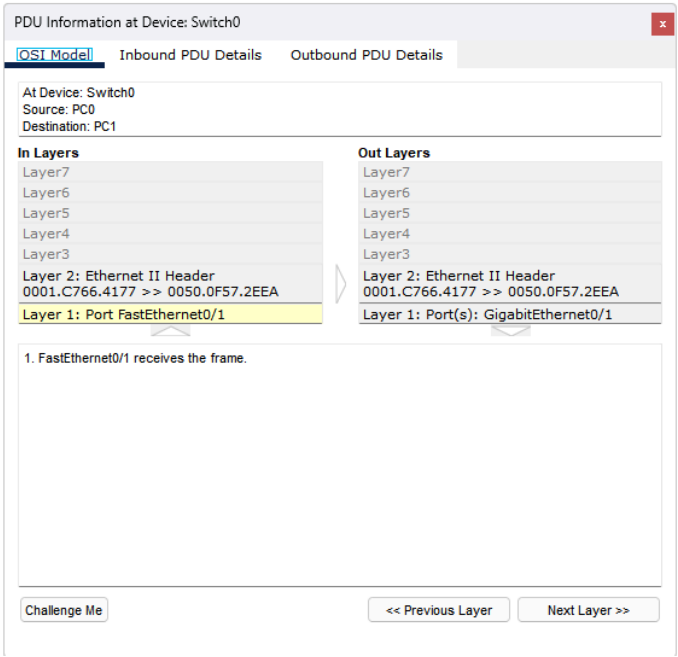


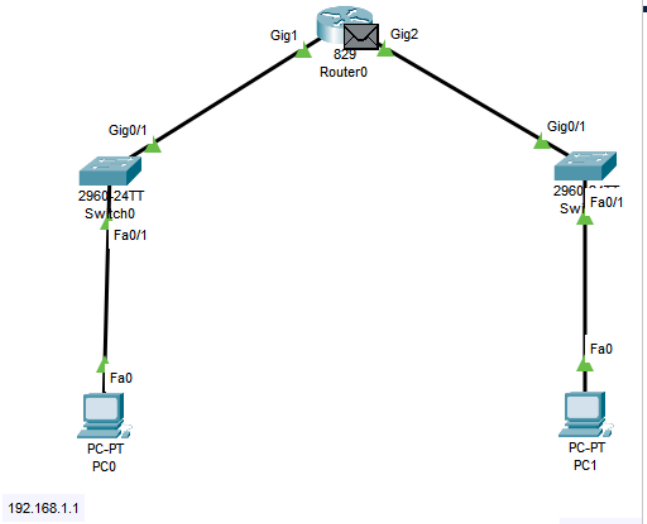
Packet Check in Simulation Mode(PC0 to PC1)

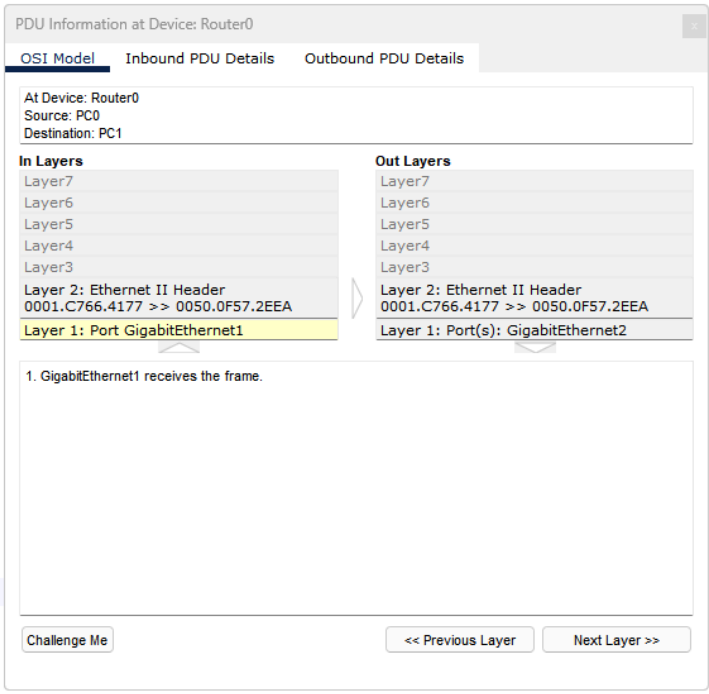


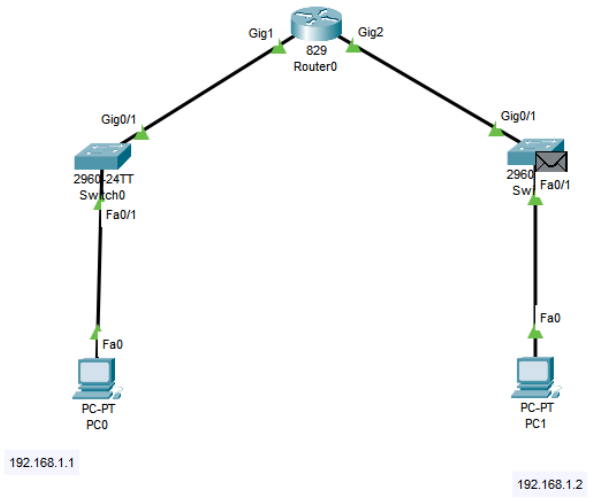


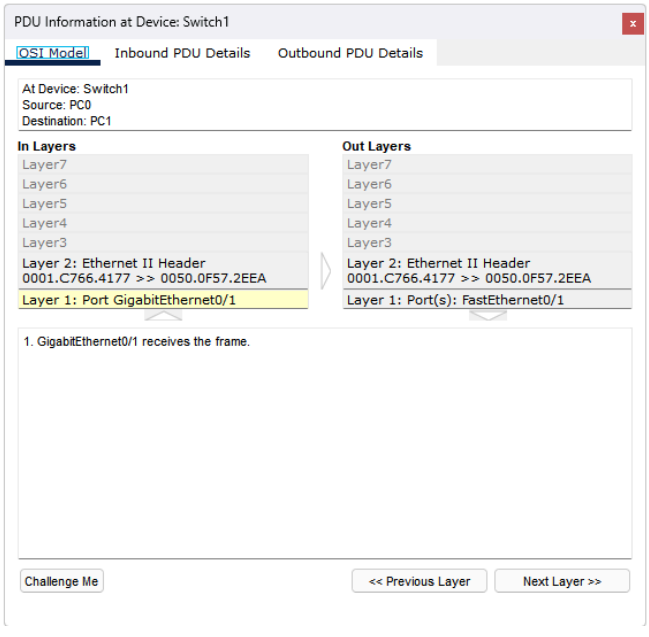


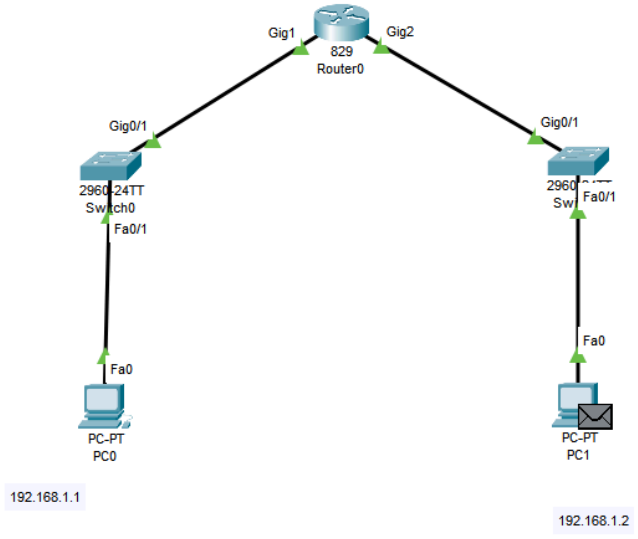


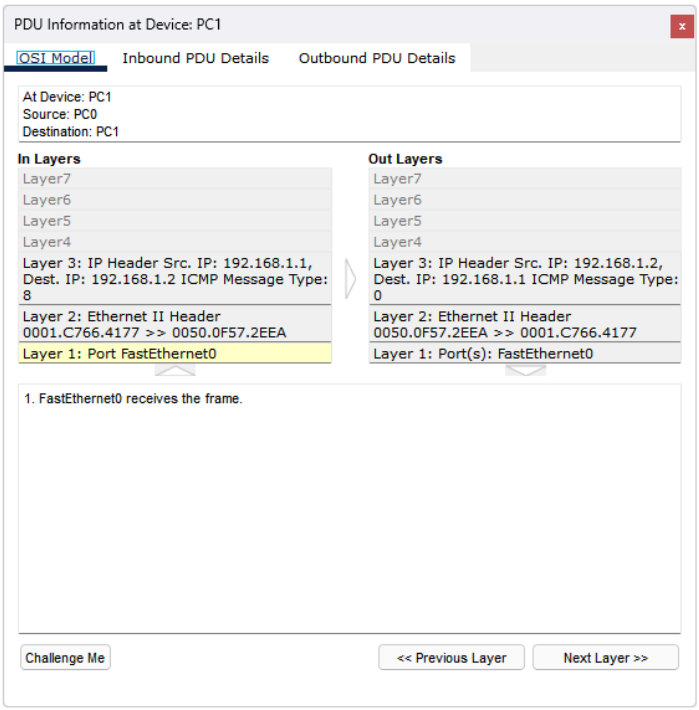

Gig1
Gig2
829
Router0
Gig0/1
Gig0/1
2960-24TT
Switch0
Fa0/1
Fa0/1
Fa0
Fa0
PC-PT
PC0
PC-PT
PC1
192.168.1.1
192.168.1.2


PDU Information at Device: Router0
OSI Model
Inbound PDU Details
Outbound PDU Details
At Device: Router0
Source: PC0
Destination: PC1
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: Ethernet II Header
0001.C766.4177 >> 0050.0F57.2EEA
Layer 1: Port GigabitEthernet1
Layer 1: Port(s): GigabitEthernet2
1. GigabitEthernet1 receives the frame.
Challenge Me
<< Previous Layer
Next Layer >>


Gig1
Gig2
829
Router0
Gig0/1
Gig0/1
2960-24TT
Switch0
Fa0/1
Fa0/1
Fa0
Fa0
PC-PT
PC0
PC-PT
PC1
192.168.1.1
192.168.1.2


PDU Information at Device: Switch1
OSI Model
Inbound PDU Details
Outbound PDU Details
At Device: Switch1
Source: PC0
Destination: PC1
In Layers
Out Layers
Layer7
Layer6
Layer5
Layer4
Layer3
Layer 2: Ethernet II Header
0001.C766.4177 >> 0050.0F57.2EEA
Layer 1: Port GigabitEthernet0/1
Layer 1: Port(s): FastEthernet0/1
1. GigabitEthernet0/1 receives the frame.
Challenge Me
<< Previous Layer
Next Layer >>





NOTE :Thank you for the assignment. I initially tried using the `bridge-group` command for bridging on the router, but it didn't work. I later found that Cisco ISR routers in Packet Tracer don't support Layer 2 bridging. So, I used `switchport mode access` and assigned VLAN 10 to enable communication.

I learned a lot from this task.