



Inter VLAN

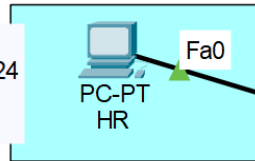
Inter VLAN Using Multilayer Switch and Router



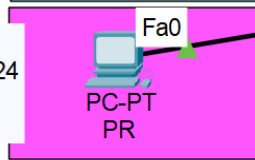
By: Ahmed Abou_ELMaged Shallan

Network Topology

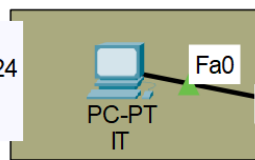
VLAN 10 name HR
Network 192.168.10.0/24
Gateway 192.168.10.1



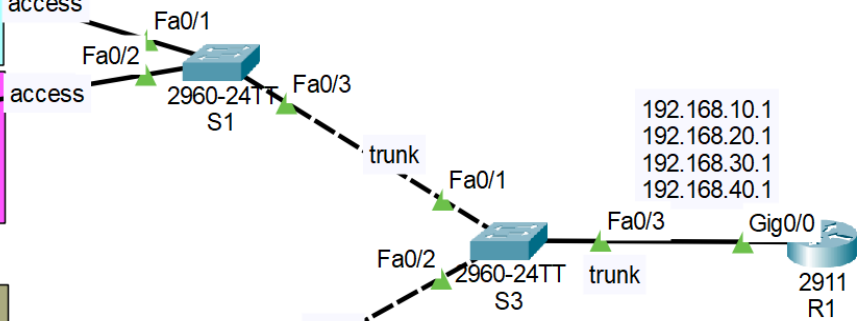
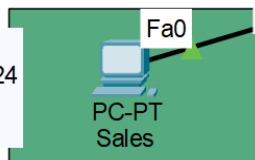
VLAN 20 name PR
Network 192.168.20.0/24
Gateway 192.168.20.1



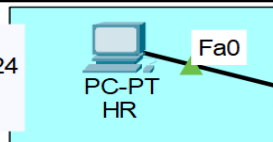
VLAN 30 name IT
Network 192.168.30.0/24
Gateway 192.168.30.1



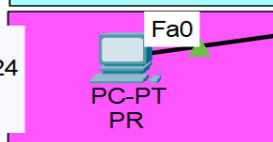
VLAN 40 name Sales
Network 192.168.40.0/24
Gateway 192.168.40.1



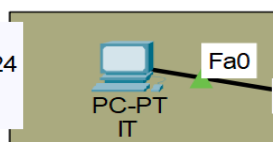
VLAN 10 name HR
Network 192.168.10.0/24
Gateway 192.168.10.1



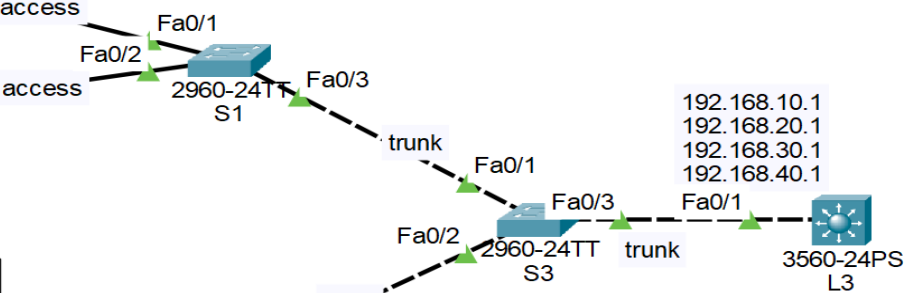
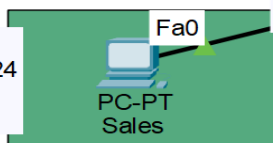
VLAN 20 name PR
Network 192.168.20.0/24
Gateway 192.168.20.1



VLAN 30 name IT
Network 192.168.30.0/24
Gateway 192.168.30.1



VLAN 40 name Sales
Network 192.168.40.0/24
Gateway 192.168.40.1



Configurations Network

S1

```
S1(config)#
S1(config)#vlan 10
S1(config-vlan)#name HR
S1(config-vlan)#vlan 20
S1(config-vlan)#name PR
S1(config-vlan)#vlan 30
S1(config-vlan)#name IT
S1(config-vlan)#vlan 40
S1(config-vlan)#name Sales
S1(config-vlan)#exit

S1(config)#int f0/1
S1(config-if)#switchport mode access
S1(config-if)#switchport access vlan 10
S1(config-if)#int f0/2
S1(config-if)#switchport mode access
S1(config-if)#switchport access vlan 20
S1(config-if)#exit

S1(config)#int f0/3
S1(config-if)#switchport mode trunk
S1(config-if)#exit
S1(config)#exit
S1#
```

S2

```
S2(config)#
S2(config)#vlan 10
S2(config-vlan)#name HR
S2(config-vlan)#vlan 20
S2(config-vlan)#name PR
S2(config-vlan)#vlan 30
S2(config-vlan)#name IT
S2(config-vlan)#vlan 40
S2(config-vlan)#name Sales
S2(config-vlan)#exit

S2(config)#int f0/2
S2(config-if)#switchport mode access
S2(config-if)#switchport access vlan 30
S2(config-if)#int f0/1
```

```
S2(config-if)#switchport mode access
S2(config-if)#switchport access vlan 40
S2(config-if)#exit
```

```
S2(config)#int f0/3
S2(config-if)#switchport mode trunk
S2(config-if)#exit
S2(config)#exit
S2#
```

S3

```
S3(config)#
S3(config)#vlan 10
S3(config-vlan)#name HR
S3(config-vlan)#vlan 20
S3(config-vlan)#name PR
S3(config-vlan)#vlan 30
S3(config-vlan)#name IT
S3(config-vlan)#vlan 40
S3(config-vlan)#name Sales
S3(config-vlan)#exit
```

```
S3(config)#int range f0/1-3
S3(config-if-range)#switchport mode trunk
S3(config-if-range)#exit
S3(config)#exit
S3#
```

R1

```
R1(config)#int gig0/0
R1(config-if)#no sh
R1(config-if)#exit
R1(config)#int gig0/0.10
R1(config-subif)#encapsulation dot1Q 10
R1(config-subif)#ip add 192.168.10.1 255.255.255.0
R1(config-subif)#no sh
R1(config-subif)#int gig0/0.20
R1(config-subif)#encapsulation dot1Q 20
R1(config-subif)#ip add 192.168.20.1 255.255.255.0
R1(config-subif)#no sh
R1(config-subif)#int gig0/0.30
R1(config-subif)#encapsulation dot1Q 30
R1(config-subif)#ip add 192.168.30.1 255.255.255.0
R1(config-subif)#no sh
```

```
R1(config-subif)#int gig0/0.40
R1(config-subif)#encapsulation dot1Q 40
R1(config-subif)#ip add 192.168.40.1 255.255.255.0
R1(config-subif)#no sh
R1(config-subif)#exit
R1(config)#exit
R1#
```

```
R1(config)#
R1(config)#ip dhcp pool vlan10
R1(dhcp-config)#network 192.168.10.0 255.255.255.0
R1(dhcp-config)#default-router 192.168.10.1
R1(dhcp-config)#exit
```

```
R1(config)#ip dhcp pool vlan20
R1(dhcp-config)#network 192.168.20.0 255.255.255.0
R1(dhcp-config)#default-router 192.168.20.1
R1(dhcp-config)#exit
```

```
R1(config)#ip dhcp pool vlan30
R1(dhcp-config)#network 192.168.30.0 255.255.255.0
R1(dhcp-config)#default-router 192.168.30.1
R1(dhcp-config)#exit
```

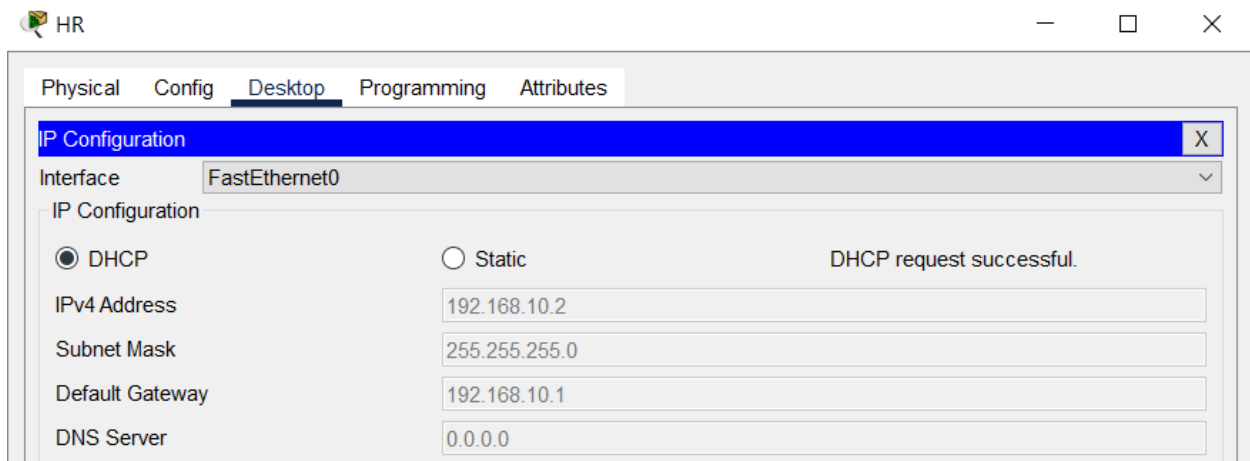
```
R1(config)#ip dhcp pool vlan40
R1(dhcp-config)#network 192.168.40.0 255.255.255.0
R1(dhcp-config)#default-router 192.168.40.1
R1(dhcp-config)#exit
R1(config)#exit
R1#
```

L3

```
L3(config)#
L3(config)#ip routing
L3(config)#vlan 10
L3(config-vlan)#vlan 20
L3(config-vlan)#vlan 30
L3(config-vlan)#vlan 40
L3(config-vlan)#exit
L3(config)#
L3(config)#int vlan 10
L3(config-if)#ip add 192.168.10.1 255.255.255.0
L3(config-if)#int vlan 20
L3(config-if)#ip add 192.168.20.1 255.255.255.0
```

```
L3(config-if)#int vlan 30
L3(config-if)#ip add 192.168.30.1 255.255.255.0
L3(config-if)#int vlan 40
L3(config-if)#ip add 192.168.40.1 255.255.255.0
L3(config-if)#exit

L3(config)#ip dhcp pool vlan10
L3(dhcp-config)#network 192.168.10.0 255.255.255.0
L3(dhcp-config)#default-router 192.168.10.1
L3(dhcp-config)#exit
L3(config)#ip dhcp pool vlan20
L3(dhcp-config)#network 192.168.20.0 255.255.255.0
L3(dhcp-config)#default-router 192.168.20.1
L3(dhcp-config)#exit
L3(config)#ip dhcp pool vlan30
L3(dhcp-config)#network 192.168.30.0 255.255.255.0
L3(dhcp-config)#default-router 192.168.30.1
L3(dhcp-config)#exit
L3(config)#ip dhcp pool vlan40
L3(dhcp-config)#network 192.168.40.0 255.255.255.0
L3(dhcp-config)#default-router 192.168.40.1
L3(dhcp-config)#exit
L3(config)#
```



PR

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.20.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.20.1

DNS Server 0.0.0.0

IT

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.30.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.30.1

DNS Server 0.0.0.0

Sales

Physical Config Desktop Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

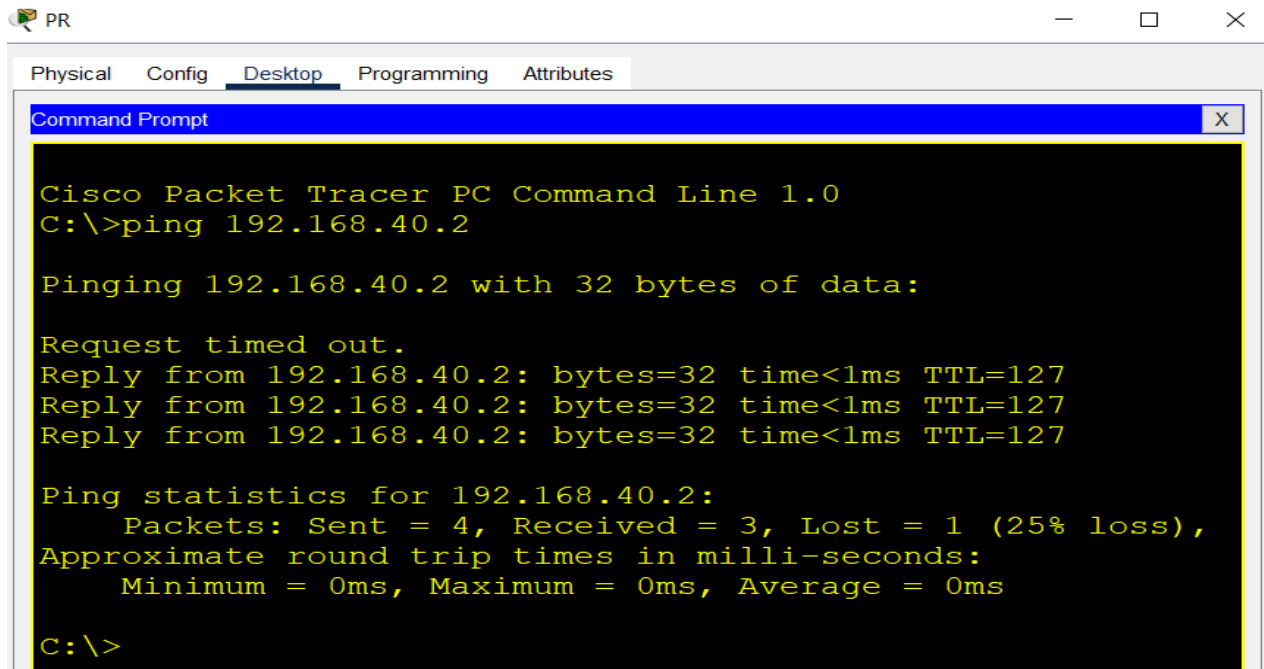
☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.40.2

Subnet Mask 255.255.255.0

Default Gateway 192.168.40.1

DNS Server 0.0.0.0



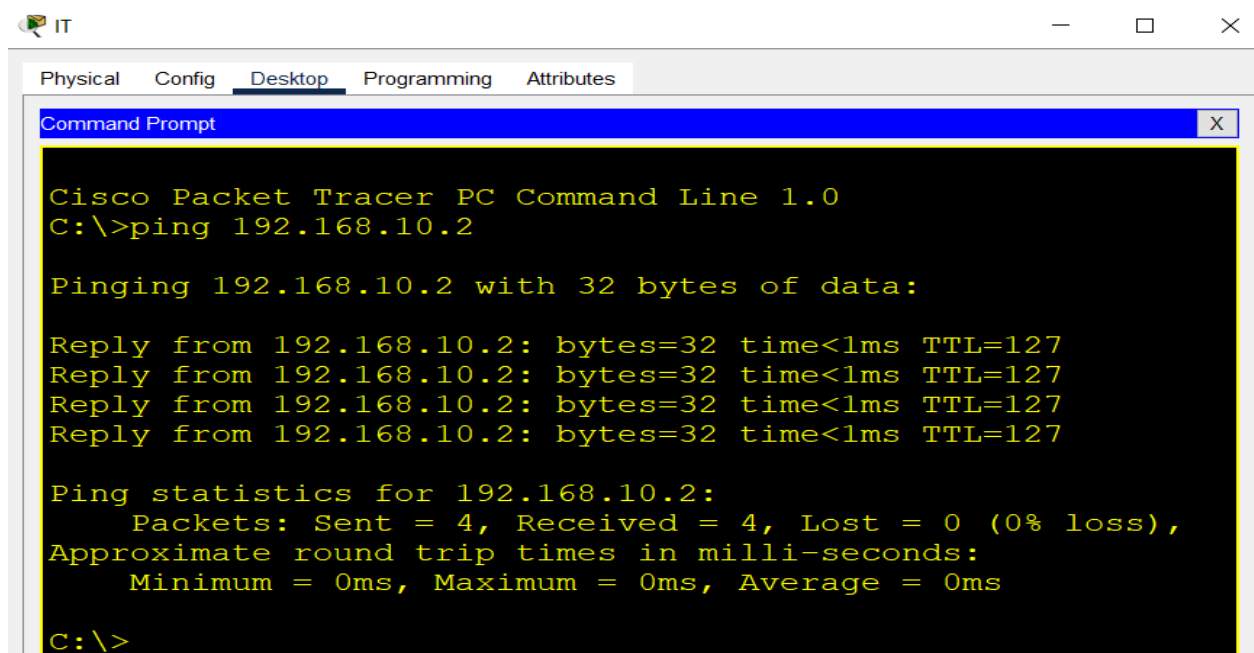
```
PR
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.40.2

Pinging 192.168.40.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.40.2: bytes=32 time<1ms TTL=127
Reply from 192.168.40.2: bytes=32 time<1ms TTL=127
Reply from 192.168.40.2: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.40.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```



```
IT
Physical Config Desktop Programming Attributes
Command Prompt
Cisco Packet Tracer PC Command Line 1.0
C:\>ping 192.168.10.2

Pinging 192.168.10.2 with 32 bytes of data:

Reply from 192.168.10.2: bytes=32 time<1ms TTL=127
Reply from 192.168.10.2: bytes=32 time<1ms TTL=127
Reply from 192.168.10.2: bytes=32 time<1ms TTL=127
Reply from 192.168.10.2: bytes=32 time<1ms TTL=127

Ping statistics for 192.168.10.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\>
```

Thanks