

## COVER PAGE

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**Role Targeted:** Entry-Level Network Support / IT System Support

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### 1. ABOUT ME

I am a career switcher with 5+ years of experience as a teacher and recently completed my training in Master of Cloud Computing. I have gained practical knowledge in hardware, operating systems, networking (CCNA level), and Windows Server. I am passionate about supporting IT systems in real-time environments and seeking a Network Support .

## 2. SKILLS OVERVIEW

### Technical Skills:

- PC Hardware Installation & Troubleshooting
- OS Installation (Windows), Disk Management, User Account Setup
- Network Fundamentals: OSI Model, IP Addressing, Subnetting
- Cisco Technologies: VLAN, DHCP, DNS, NAT, ACL, STP, Packet Tracer
- Windows Server: Domain Controller, DHCP/DNS Roles, FSMO, WDS, ITS
- VMware Workstation for Virtual Labs

### Soft Skills:

- Problem-Solving and Analytical Thinking
- Communication and Team Collaboration
- Time Management and Reliability
- Willingness to Learn and Adapt

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## 3. TOOLS & TECHNOLOGIES

Tool/Technology	Purpose
Cisco Packet Tracer	Network Simulation
VMware Workstation	Virtual OS & Server Labs
Windows Server	Server Roles, DHCP, DNS, FSMO

Tool/Technology	Purpose
CMD, PowerShell	Network Commands, Server Config
Services.msc	System Troubleshooting

## 4. LAB WORK

Objective: To configure a Cisco router to automatically assign IP addresses to client devices using DHCP.

## Network Topology

Equipment Used:

Cisco Router, PCs, Ethernet cables

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### Commands & Configuration Steps

Router> enable

Router# configure terminal

Router(config)# interface FastEthernet0/0

Router(config-if) # ip address 100.100.100.1 255.0.0.0

Router(config-if) # no shutdown

Router(config-if) # exit

Router(config)# ip dhcp pool Sales

Router(dhcp-config) # network 100.0.0.0 255.0.0.0

Router(dhcp-config) # default-router 100.100.100.1

Router(dhcp-config) # dns-server 8.8.8.8

Router(dhcp-config) # exit

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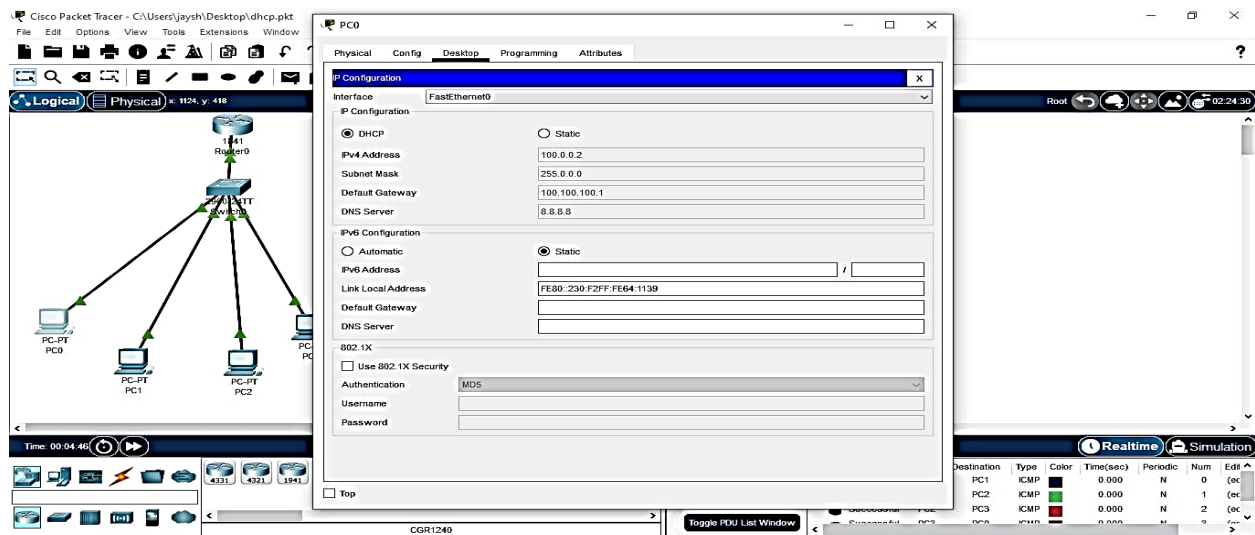
### Verification

1. Check if the router interface is up: show ip interface brief
2. On client PCs, set IP to “Obtain automatically” and verify IP address with ipconfig.

```
Router#show ip interface brief
```

Interface	IP-Address	OK?	Method	Status	Protocol
FastEthernet0/0	100.100.100.1	YES	manual	up	up
FastEthernet0/1	unassigned	YES	unset	administratively down	down
Serial0/0/0	unassigned	YES	unset	administratively down	down
Serial0/0/1	unassigned	YES	unset	administratively down	down
Vlan1	unassigned	YES	unset	administratively down	down

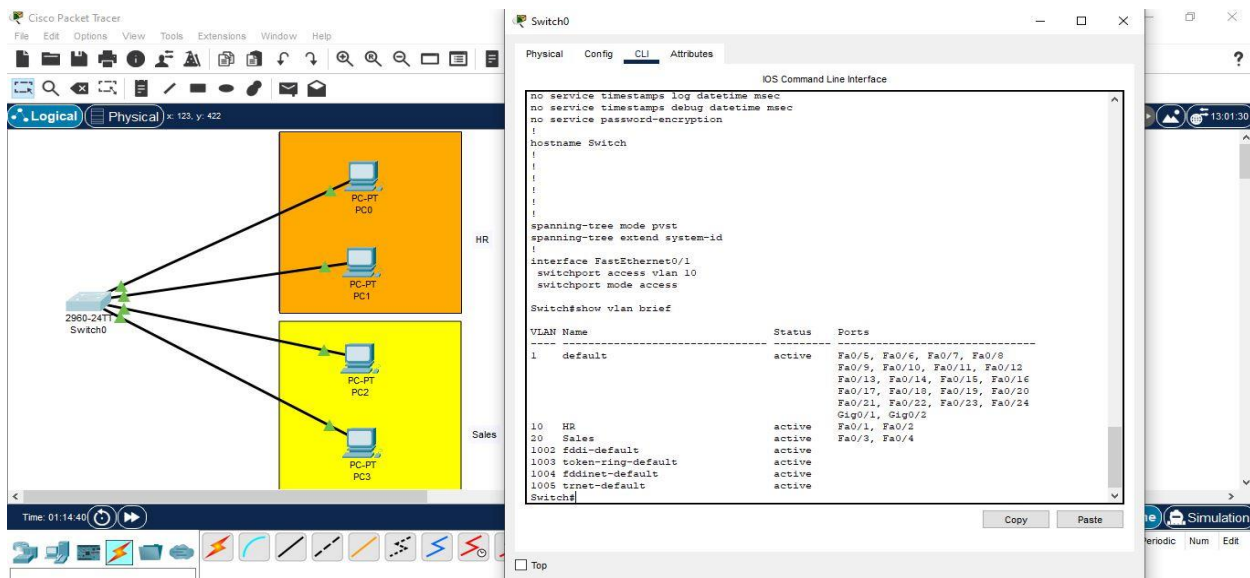
## Result



## Lab Topic: VLAN Configuration

Objective: To configure VLANs on a network switch for logical segmentation of devices.

## Network Diagram



## Commands Used:

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

Switch(config)# interface fastEthernet 0/1

Switch(config-if)# switchport mode access

Switch(config-if)# switchport access vlan 10

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

```
Switch(config)# interface fastEthernet 0/2
```

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

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

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

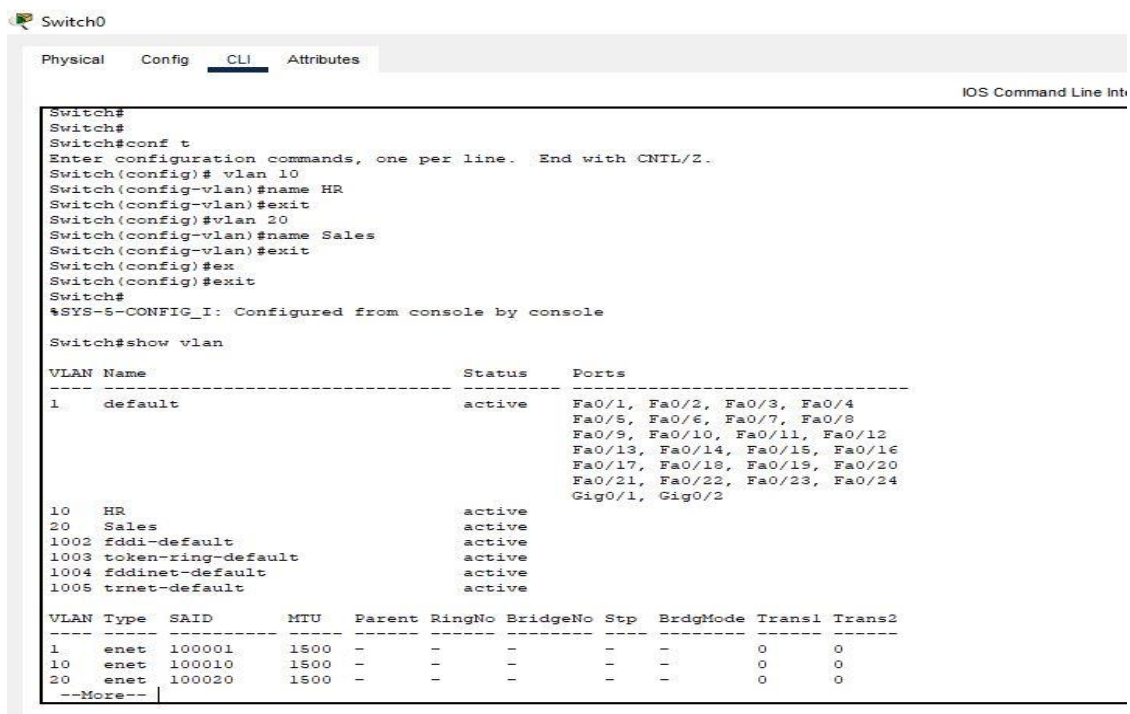
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### Explanation:

VLAN (Virtual Local Area Network) allows logical grouping of devices on separate broadcast domains within the same physical switch. This improves security, reduces unnecessary traffic, and allows better management.

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### Verification:



```
Switch0
Physical Config CLI Attributes
IOS Command Line Interface

Switch#
Switch#
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)# vlan 10
Switch(config-vlan)#name HR
Switch(config-vlan)#exit
Switch(config)#vlan 20
Switch(config-vlan)#name Sales
Switch(config-vlan)#exit
Switch(config)#ex
Switch(config)#exit
Switch#
%SYS-5-CONFIG_I: Configured from console by console

Switch#show vlan

VLAN Name                Status    Ports
-----
1    default                active    Fa0/1, Fa0/2, Fa0/3, Fa0/4
                                           Fa0/5, Fa0/6, Fa0/7, Fa0/8
                                           Fa0/9, Fa0/10, Fa0/11, Fa0/12
                                           Fa0/13, Fa0/14, Fa0/15, Fa0/16
                                           Fa0/17, Fa0/18, Fa0/19, Fa0/20
                                           Fa0/21, Fa0/22, Fa0/23, Fa0/24
                                           Gig0/1, Gig0/2

10   HR                    active
20   Sales                active
1002 fddi-default          active
1003 token-ring-default   active
1004 fddinet-default      active
1005 trnet-default        active

VLAN Type  SAID      MTU    Parent RingNo BridgeNo Stp    BrdgMode Trans1 Trans2
-----
1    enet     100001    1500   -       -       -       -       -       0       0
10   enet     100010    1500   -       -       -       -       -       0       0
20   enet     100020    1500   -       -       -       -       -       0       0
--More--
```

Use the following commands to verify VLAN configuration:

```
Switch# show vlan brief
```

```
Switch# show running-config
```

### Lab Topic – **Static Routing**

Tools Used: Cisco Packet Tracer

Objective: Connect two separate LAN networks using static routing in Cisco Packet Tracer.

#### Steps Taken:

1. Configured Router 0 interfaces: Fast Ethernet 0/0 → 192.168.1.1, Serial 0/0/0 → 10.1.1.1
2. Configured Router 1 interfaces: Fast Ethernet 0/0 → 192.168.2.1, Serial 0/0/0 → 10.1.1.2
3. Added static route on Router 0 →

```
ip route 192.168.2.0 255.255.255.0 10.1.1.2
```

4. Added static route on Router 1 →

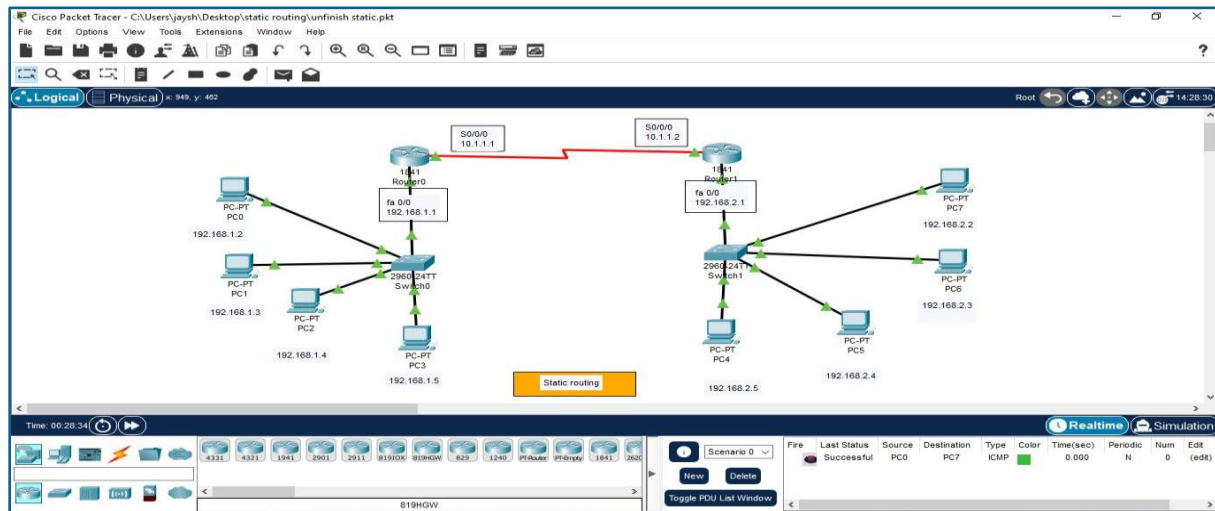
```
ip route 192.168.1.0 255.255.255.0 10.1.1.1
```

5. Verified connectivity with ping between networks.



Result:

Screenshot:



```
Lab#ping 192.168.2.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.2.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 6/6/8 ms

Lab# ping 192.168.1.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 192.168.1.1, timeout is 2 seconds:
!!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 2/7/16 ms

Lab#
```

## Lab Topic: NAT Configuration

Objective: Configure NAT (Network Address Translation) to allow internal private IP addresses to communicate with external/public networks.

## Network Topology:

- **Inside Network:** 192.168.1.0/24
  - **Outside Network:** 203.1.0.0/24
  - **Router:** Interfaces – Fa0/0 (Inside), Fa0/1 (Outside)
- 

## Configuration Steps

### On Router:

```
Router> enable
```

```
Router# configure terminal
```

```
Router(config)# interface fa0/0
```

```
Router(config-if)# ip address 192.168.1.1 255.255.255.0
```

```
Router(config-if)# ip nat inside
```

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

```
Router(config)# interface fa0/1
```

```
Router(config-if)# ip address 203.1.0.1 255.255.255.0
```

```
Router(config-if)# ip nat outside
```

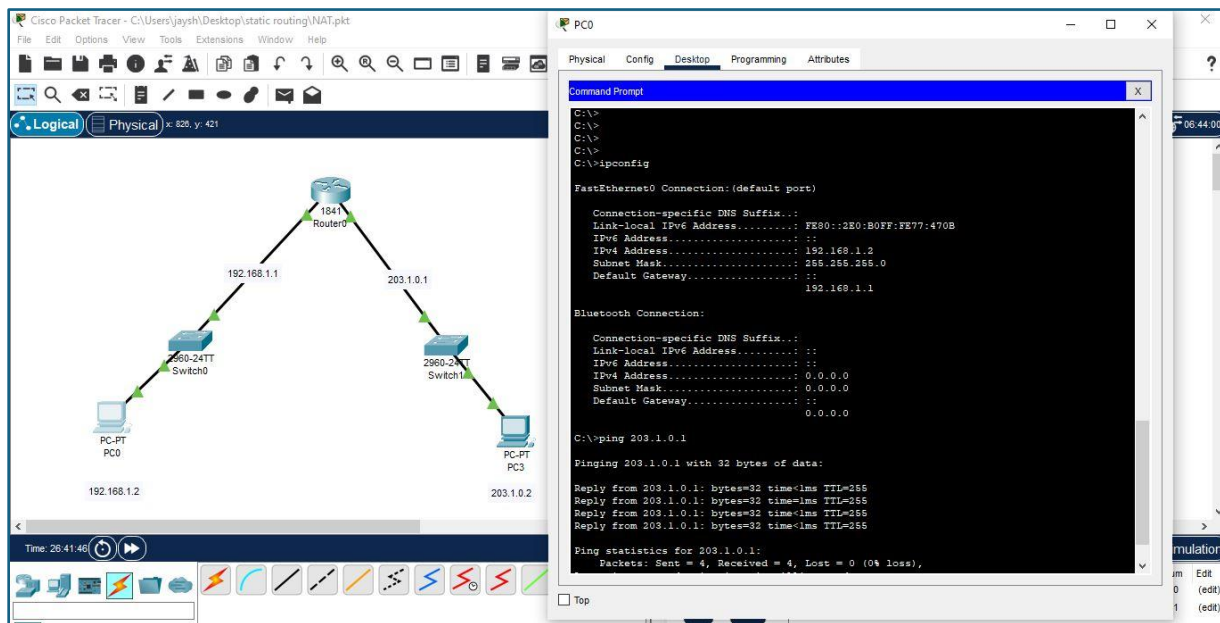
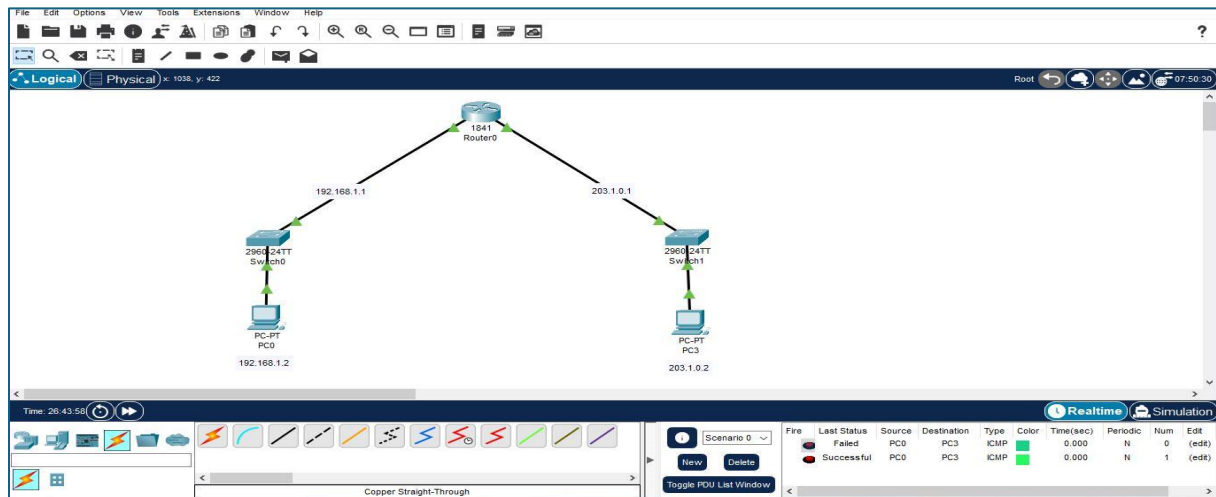
```
Router(config-if)# no shutdown
```

```
Router(config)# access-list 1 permit 192.168.1.0 0.0.0.255
```

```
Router(config)# ip nat inside source list 1 interface fa0/1 overload
```

Verification:

Ping from PC0 (192.168.1.2) to PC3 (203.1.0.2). NAT translates the private IP to the router's public IP.



## 6. MOTIVATION STATEMENT

As a career switcher passionate about IT infrastructure, I aim to contribute to a company that values hands-on knowledge and continuous learning.