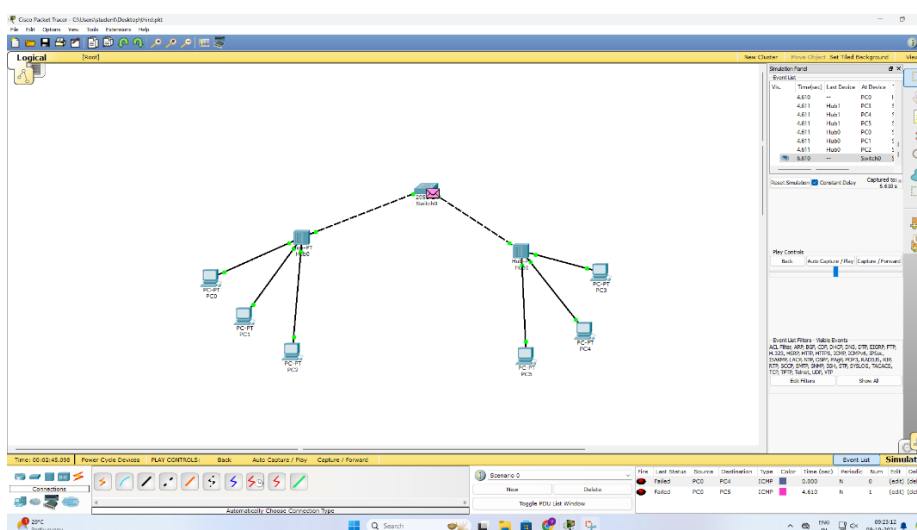
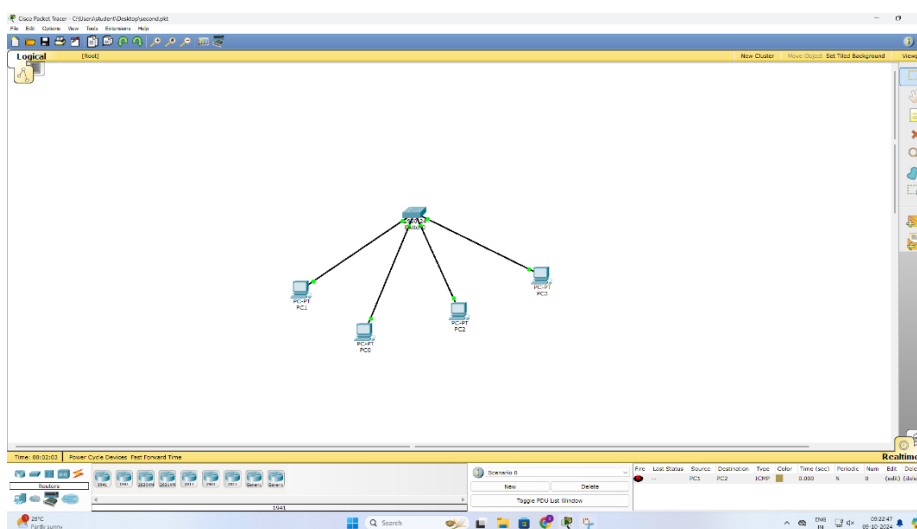
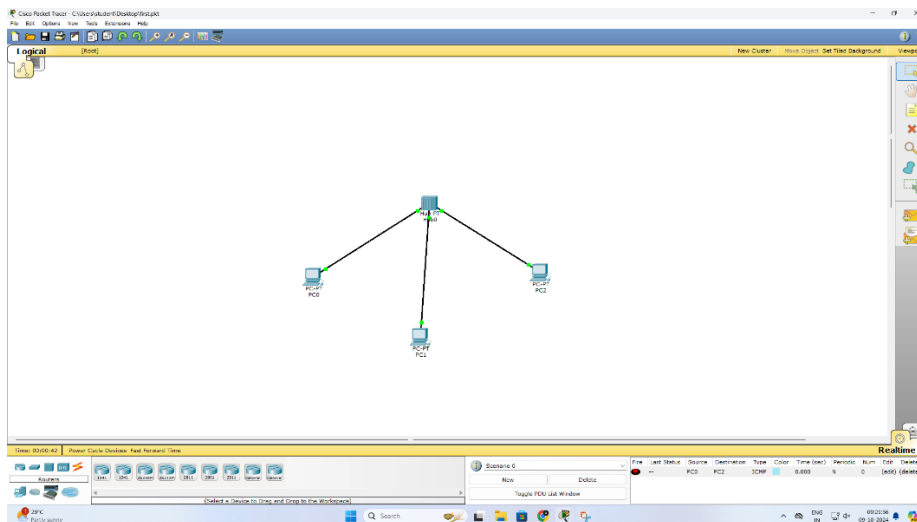
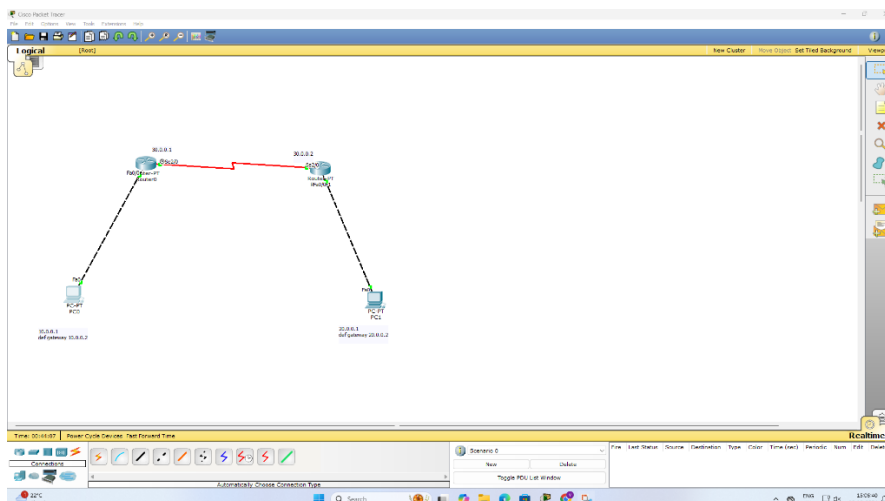
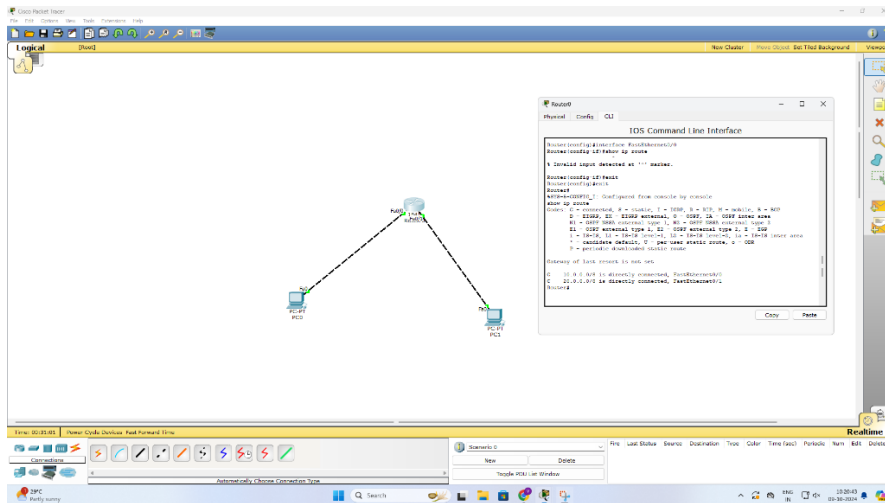


Create a topology and simulate sending a simple PDU from source to destination using hub and switch as connecting devices and demonstrate ping message.



Configure IP address to routers in packet tracer. Explore the following messages: ping responses, destination unreachable, request timed out, reply



```

PC>ping 30.0.0.1

Pinging 30.0.0.1 with 32 bytes of data:

Reply from 30.0.0.1: bytes=32 time=1ms TTL=255
Reply from 30.0.0.1: bytes=32 time=0ms TTL=255
Reply from 30.0.0.1: bytes=32 time=0ms TTL=255
Reply from 30.0.0.1: bytes=32 time=0ms TTL=255

Ping statistics for 30.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

PC>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=0ms TTL=255
Reply from 10.0.0.2: bytes=32 time=0ms TTL=255
Reply from 10.0.0.2: bytes=32 time=0ms TTL=255
Reply from 10.0.0.2: bytes=32 time=0ms TTL=255

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>ping 30.0.0.2

Pinging 30.0.0.2 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 30.0.0.2:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>ping 20.0.0.1

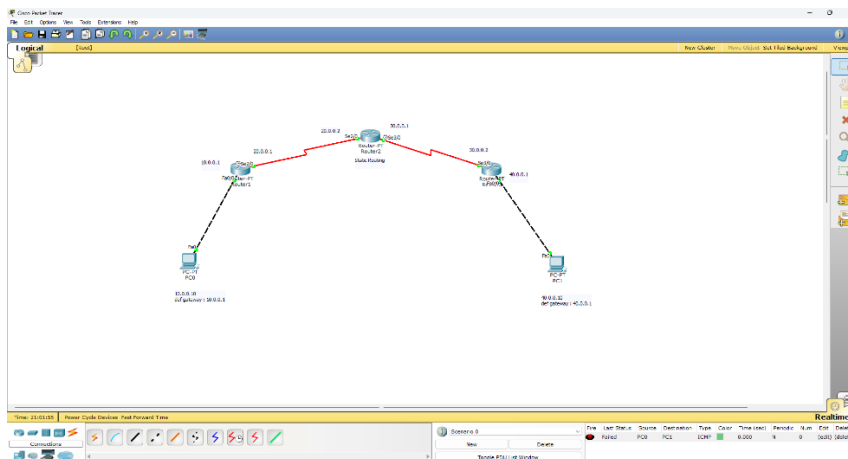
Pinging 20.0.0.1 with 32 bytes of data:

Reply from 10.0.0.2: Destination host unreachable.
Reply from 10.0.0.2: Destination host unreachable.
Reply from 10.0.0.2: Destination host unreachable.
Reply from 10.0.0.2: Destination host unreachable.

Ping statistics for 20.0.0.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

PC>
  
```

Configure default route, static route to the Router.



PC0

Physical Config Desktop Custom Interface

Command Prompt

```
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.10
Ping request could not find host 40.0.0.10. Please check the name and try again.
PC>ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data:

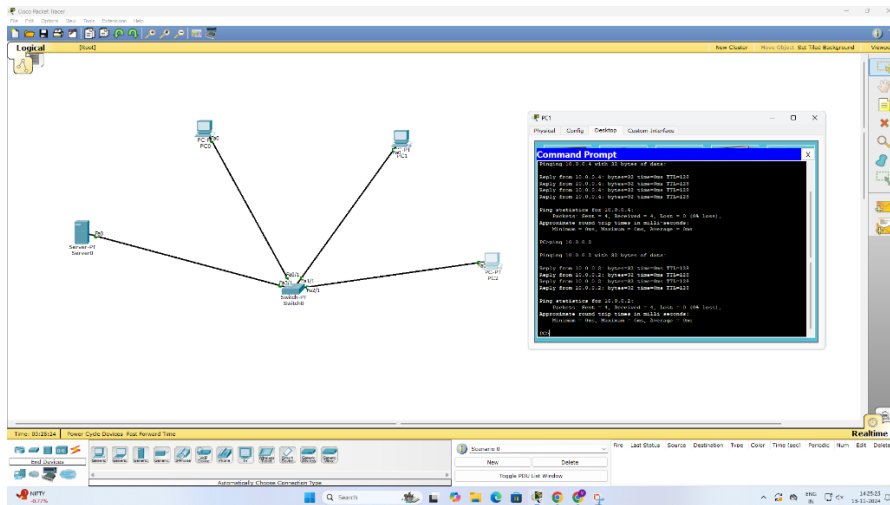
Reply from 40.0.0.10: bytes=32 time=7ms TTL=125
Reply from 40.0.0.10: bytes=32 time=2ms TTL=125
Reply from 40.0.0.10: bytes=32 time=6ms TTL=125
Reply from 40.0.0.10: bytes=32 time=8ms TTL=125

Ping statistics for 40.0.0.10:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 8ms, Average = 5ms

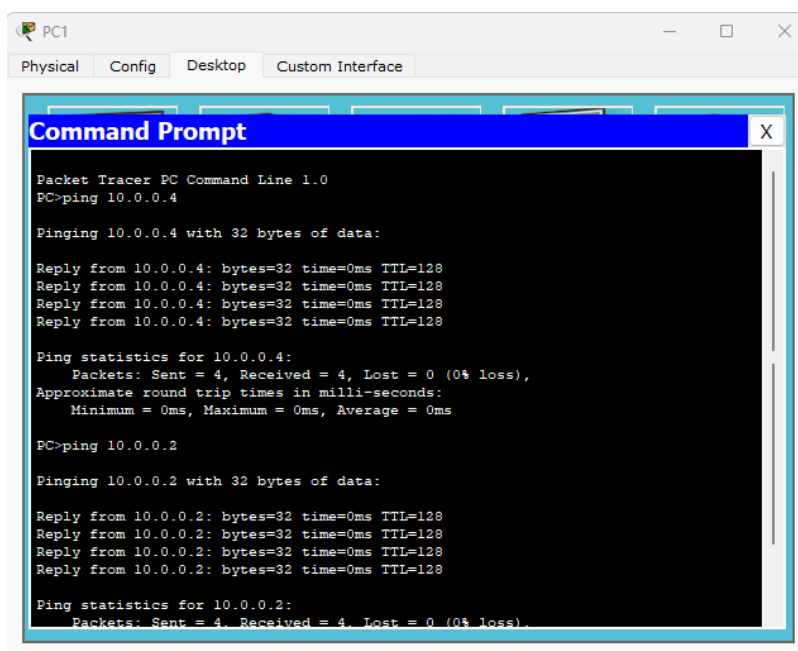
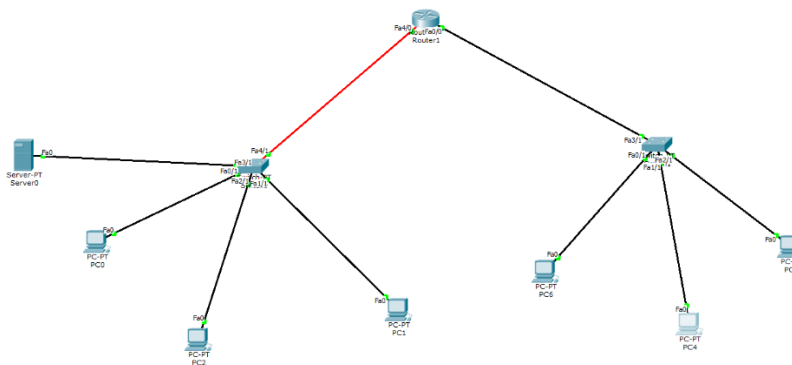
PC>
```

Configure DHCP within a LAN and outside LAN.

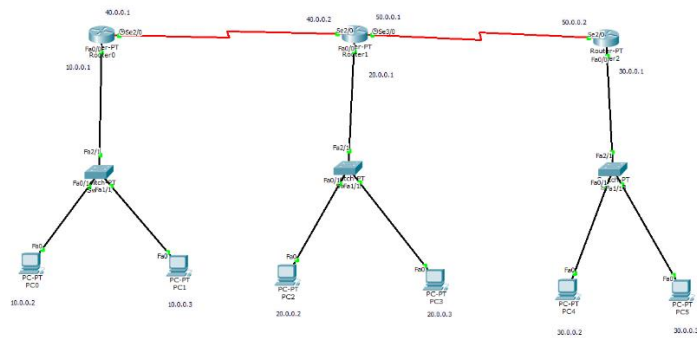
Within LAN:



Outside LAN:



Configure RIP routing Protocol in Routers.



```
PC1
Physical Config Desktop Custom Interface
Command Prompt
Pinging 20.0.0.3 with 32 bytes of data:
Request timed out.
Reply from 20.0.0.3: bytes=32 time=5ms TTL=126
Reply from 20.0.0.3: bytes=32 time=4ms TTL=126
Reply from 20.0.0.3: bytes=32 time=5ms TTL=126

Ping statistics for 20.0.0.3:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 4ms, Maximum = 5ms, Average = 4ms

PC>ping 20.0.0.3

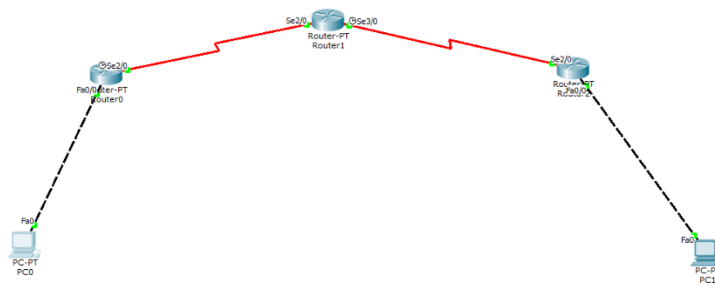
Pinging 20.0.0.3 with 32 bytes of data:

Reply from 20.0.0.3: bytes=32 time=6ms TTL=126
Reply from 20.0.0.3: bytes=32 time=2ms TTL=126
Reply from 20.0.0.3: bytes=32 time=5ms TTL=126
Reply from 20.0.0.3: bytes=32 time=6ms TTL=126

Ping statistics for 20.0.0.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 6ms, Average = 4ms

PC>
```

Configure OSPF routing protocol.



PC0

Physical Config Desktop Custom Interface

Command Prompt

```
Packet Tracer PC Command Line 1.0
PC>ping 40.0.0.10

Pinging 40.0.0.10 with 32 bytes of data:

Request timed out.
Reply from 40.0.0.10: bytes=32 time=8ms TTL=125
Reply from 40.0.0.10: bytes=32 time=6ms TTL=125
Reply from 40.0.0.10: bytes=32 time=2ms TTL=125

Ping statistics for 40.0.0.10:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 2ms, Maximum = 8ms, Average = 5ms

PC>
```

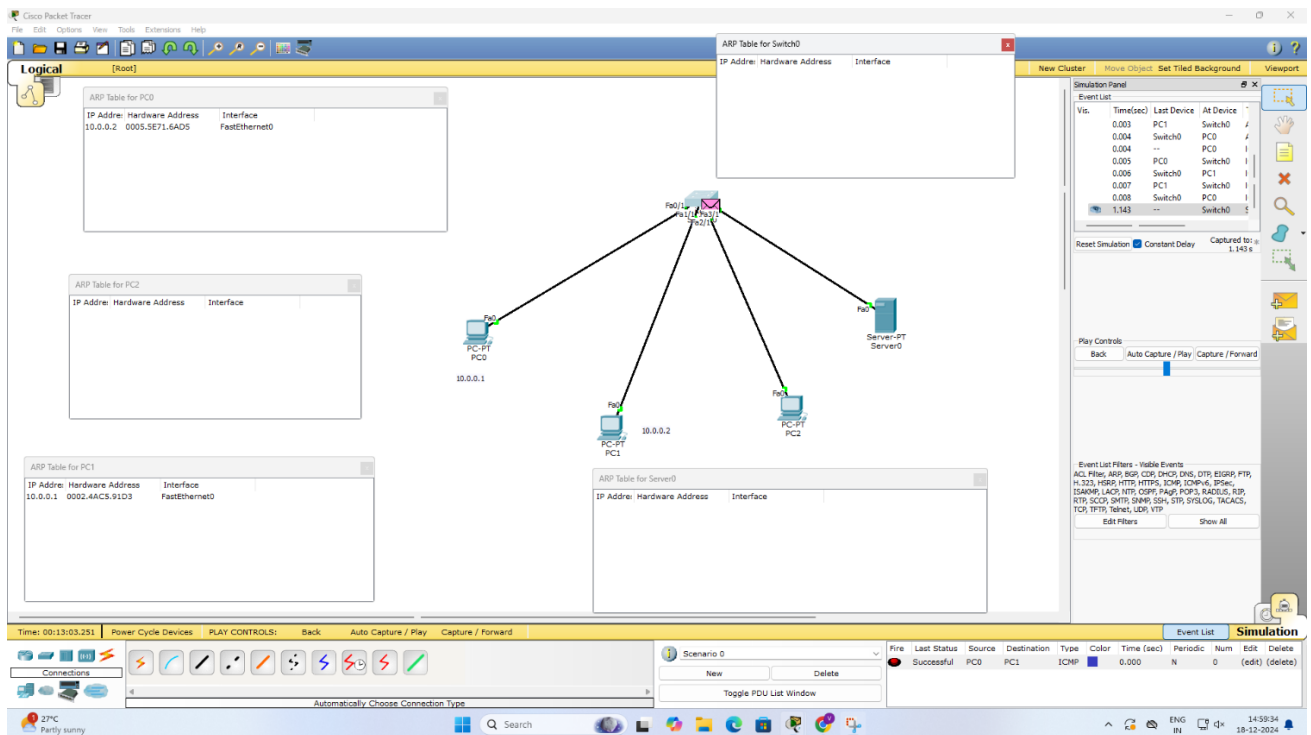
Configure Web Server, DNS within a LAN.

The image shows a Cisco Packet Tracer network diagram and configuration windows. The network consists of a central switch (Switch0) connected to two PCs (PC0 and PC1) and a server (Server0). The switch is configured with Fa0/24 connected to PC0 (10.0.0.1) and Fa0/25 connected to PC1 (10.0.0.2). The server (Server0) is connected to the switch via Fa0/26 and has an IP address of 10.0.0.3. The Server0 configuration window is open, showing the HTTP service settings. The HTTP service is enabled, and the file name is set to index.html. The index.html file content is as follows:

```
<html>
<center><font size="+2" color="blue">Cisco Packet
Tracer</font></center>
<hr>Hello World
<p>Quick Links:
<br><a href="helloworld.html">A small page</a>
<br><a href="copyrights.html">Copyrights</a>
<br><a href="image.html">Image page</a>
<br><a href="cscoplogo177x111.jpg">Image</a>
</html>
```

The PC0 configuration window is also open, showing the Web Browser settings. The URL is set to http://vlabrnet, and the browser is set to Cisco Packet Tracer. The browser displays the content of the index.html file, including the "Hello World" message and the "Quick Links" section.

To construct simple LAN and understand the concept and operation of Address Resolution Protocol (ARP)



Switch0

Physical Config CLI

IOS Command Line Interface

```
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet1/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet2/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet2/1, changed state to up
%LINK-5-CHANGED: Interface FastEthernet3/1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet3/1, changed state to up

Switch>show mac address-table
Mac Address Table
-----
Vlan    Mac Address      Type      Ports
----    -
1       0002.4ac5.91d3   DYNAMIC   Fa0/1
1       0003.e4b0.9bea   DYNAMIC   Fa3/1
1       0005.5e71.6ad5   DYNAMIC   Fa1/1
1       00d0.582c.c385   DYNAMIC   Fa2/1

Switch>
```

Copy Paste

To understand the operation of TELNET by accessing the router in server room from a PC in IT office.



```
Press RETURN to get started!

Router>enable
Router#config terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname vaish
vaish(config)#enable secret password
vaish(config)#interface fastEthernet 0/0
vaish(config-if)#ip address 10.0.0.2 255.0.0.0
vaish(config-if)#no shut

vaish(config-if)#
%LINK-6-CHANGED: Interface FastEthernet0/0, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up
vaish(config-if)#line vty 0 3
vaish(config-line)#login
% Login disabled on line 132, until 'password' is set
% Login disabled on line 133, until 'password' is set
% Login disabled on line 134, until 'password' is set
% Login disabled on line 135, until 'password' is set
vaish(config-line)#password p1
vaish(config-line)#exit
vaish(config)#exit
vaish#
%SYS-5-CONFIG_I: Configured from console by console

vaish#vr
Building configuration...
[OK]
vaish#
```

The screenshot shows the PC0 Command Prompt window. It displays the results of a ping command to 10.0.0.2, which was successful. It also shows an attempt to telnet to 10.0.0.2, which failed due to a password timeout.

```
Packet Tracer PC Command Line 1.0
PC>ping 10.0.0.2

Pinging 10.0.0.2 with 32 bytes of data:

Reply from 10.0.0.2: bytes=32 time=0ms TTL=255
Reply from 10.0.0.2: bytes=32 time=0ms TTL=255
Reply from 10.0.0.2: bytes=32 time=2ms TTL=255
Reply from 10.0.0.2: bytes=32 time=0ms TTL=255

Ping statistics for 10.0.0.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 2ms, Average = 0ms

PC>telnet 10.0.0.2
Trying 10.0.0.2 ...Open

User Access Verification

Password:
% Password: timeout expired!

[Connection to 10.0.0.2 closed by foreign host]
PC>
```

The screenshot shows the PC0 Command Prompt window. It displays the results of a telnet command to 10.0.0.2, which failed due to a password timeout. It also shows the output of the 'show ip route' command on the router, which displays the routing table.

```
Password:
% Password: timeout expired!

[Connection to 10.0.0.2 closed by foreign host]
PC>
PC>telnet 10.0.0.2
Trying 10.0.0.2 ...Open

User Access Verification

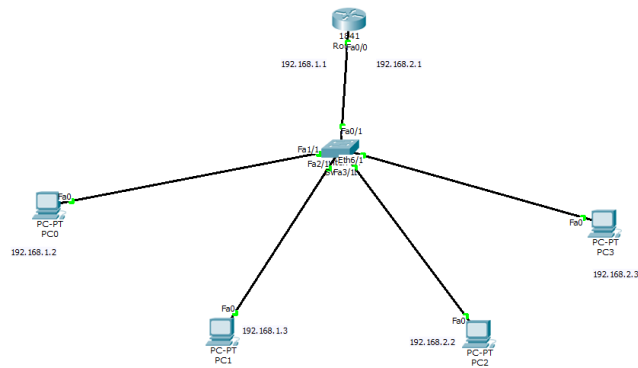
Password:
vaish#enable
Password:
vaish#show ip route

Codes: C - connected, S - static, I - IGMP, R - RIP, M - mobile, B - BGP
        D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
        N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
        E1 - OSPF external type 1, E2 - OSPF external type 2, I - EGP
        i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
        * - candidate default, U - per-user static route, o - ODR
        P - periodic downloaded static route

Gateway of last resort is not set

C 10.0.0.0/8 is directly connected, FastEthernet0/0
vaish#
```

To construct a VLAN and make the PC's communicate among a VLAN.



```
Router0
Physical Config CLI
IOS Command Line Interface
Warning: It is recommended to configure VLAN from config mode,
as VLAN database mode is being deprecated. Please consult user
documentation for configuring VTP/VLAN in config mode.

Router(vlan)#
%SYS-5-CONFIG_I: Configured from console by console
vlan 2 name cseise
VLAN 2 modified:
  Name: cseise
Router(vlan)#exit
APPLY completed.
Exiting....
Router#config t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#interface fastethernet 0/0.1
Router(config-subif)#
%LINK-5-CHANGED: Interface FastEthernet0/0.1, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0.1, changed state
to up

Router(config-subif)#encapsulation dot1q 2
Router(config-subif)#ip address 192.168.2.1 255.255.255.0
Router(config-subif)#no shut
Router(config-subif)#exit
Router(config)#
```

```
PC0
Physical Config Desktop Custom Interface
Command Prompt
Packet Tracer PC Command Line 1.0
PC>ping 192.168.2.2

Pinging 192.168.2.2 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127
Reply from 192.168.2.2: bytes=32 time=0ms TTL=127

Ping statistics for 192.168.2.2:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

PC>
```

To construct a WLAN and make the nodes communicate wirelessly.

