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Applied Computing

Wales Institute of Science and Art (WISA)

Networks and Cybersecurity Essentials (ACCA4024)

**Complete Introduction to Packet Tracer Course
from www.netacad.com (Cisco Networking
Academy)**

Enroll in “Introduction to Packet Tracer”

**[https://www.netacad.com/courses/packet-
tracer/introduction-packet-tracer](https://www.netacad.com/courses/packet-tracer/introduction-packet-tracer)**

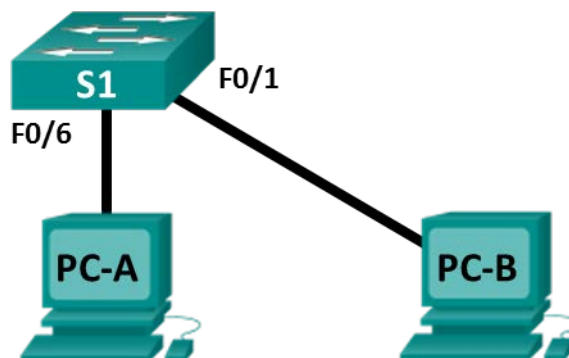
Attach your Completion Certificate/ Digital Badge in your Course Work.
Instructions to attach is provided in the Course work.



Prerequisite: Complete Introduction to Packet Tracer course before starting Lab 1**Lab 1: Design and Connect a Simple Network and determine IP Address**

Task 1: Building a Simple Network

Task 2: Determine and Verify IP Address

Topology for Task 1:**Addressing Table**

Device	Interface	IP Address	Subnet Mask
PC-A	NIC	192.168.1.10	255.255.255.0
PC-B	NIC	192.168.1.11	255.255.255.0

Objectives**Task 1 (Either complete the Task 1 using Cisco Packet Tracer or using PC's and Switches at Cisco Lab)****Part 1: Set Up Packet Tracer**

Download and Install latest version of Packet Tracer (8.0)

Login using your credentials.

Part 2: Design the Topology

Design the Topology.

Enter static IP address information on the LAN interface of the hosts referring to Addressing Table.

Verify that PCs can communicate using the ping utility.

Task 2

Document your PC/ Laptop's Network Addressing details.

Use Traceroute to determine the possible route.

Background / Scenario

As we discussed during our lecture session, networks are constructed of three major components: hosts, switches, and routers. In this lab, you will build a simple network with two hosts and a switch using Packet Tracer. You will apply IP addressing for this lab to the PCs to enable communication between these two devices. Use the ping utility to verify connectivity during Task 1.

In Task 2, you will determine the IP Address configuration of your PC and use Traceroute to trace the route.

Download and install Packet Tracer

<https://www.netacad.com/courses/packet-tracer/introduction-packet-tracer>

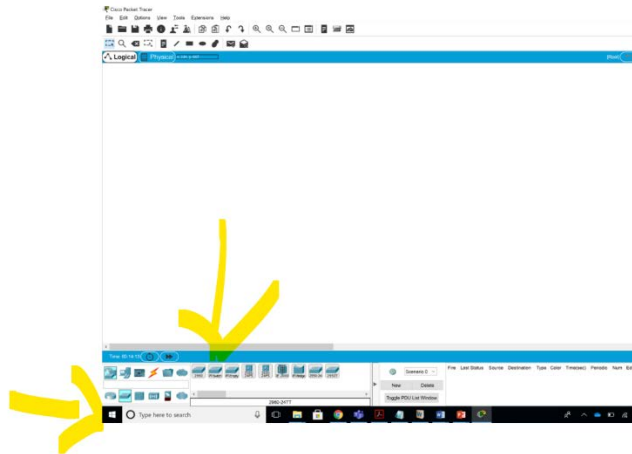
Design the Topology

Instructions

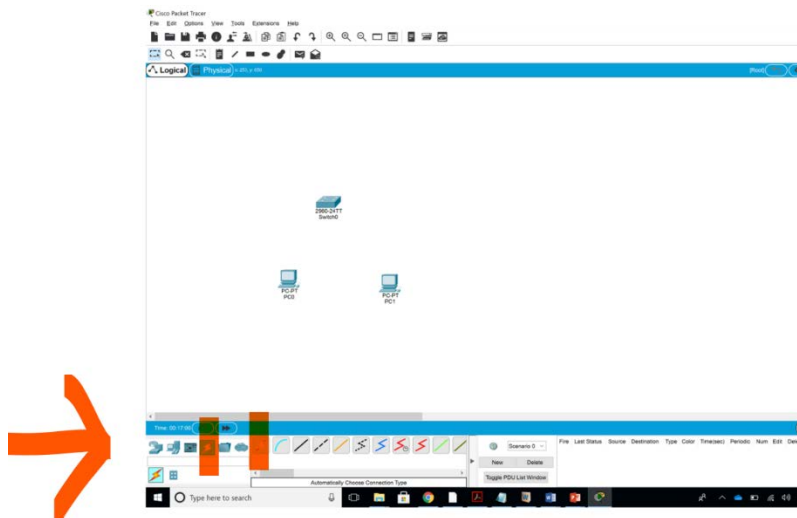
Method 1: Using Packet Tracer

Open Packet Tracer

Drag and Drop devices as per the Topology stated. (For this lab, 1 switch and 2 PC's)



Select Connections (First highlighted red) and Automatic connection type (Second red highlight).

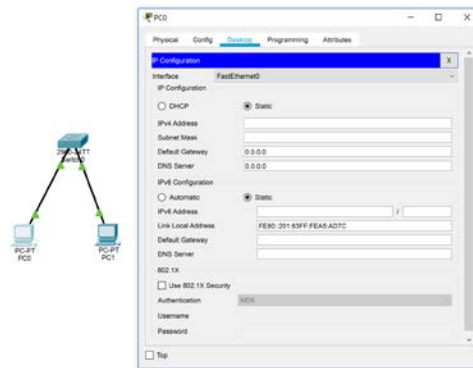


4.

Connect from PCA (PC0) to Switch0 (S1) and Switch0 (S1) to PCB (PC1).

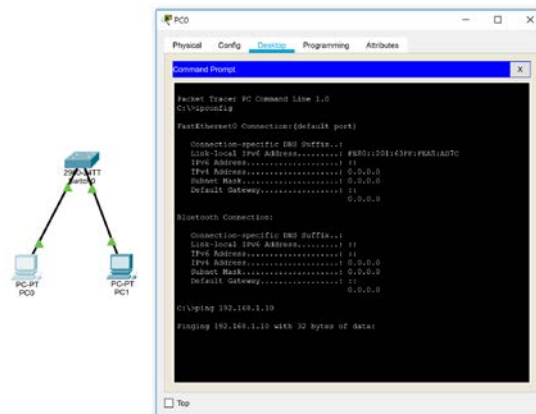


Click PCA (PC0) → Desktop → IP Configuration → Configure IPv4 Address and Subnet mask as per the addressing table.



Exercise step 5 in PCB (PC1).

Click PCA (PC0) → Desktop → Command Prompt →



Method 2: Using Real devices at Cisco Lab (PC's and Switch)

1. Collect the required cables. (You might need 2 Straight through Cables/ Any Cat 5E or higher Cables)
2. Identify the PC labels at your workstation.
3. Go to the Switch Panel and connect the cables from appropriate PC ports to any port of a switch.
4. Do appropriate configuration in the PC's. (To configure IP Address in a PC, follow the instruction given under Task 2)
5. Go to the command prompt of both the PC's and issue ipconfig to check the configuration.
6. Ping and Test.
7. Document the outcome.

Ipconfig

What is the IP address of the computer? -----

What is the subnet mask of the computer? -----

Ping 192.168.1.11 (Other PC's IP Address)

Was the ping successful? -----

Click PCB (PC1) → Desktop → Command Prompt → Ipconfig

What is the IP address of the computer? -----

What is the subnet mask of the computer? -----

Ping 192.168.1.10 (Other PC's IP Address)

Was the ping successful? -----

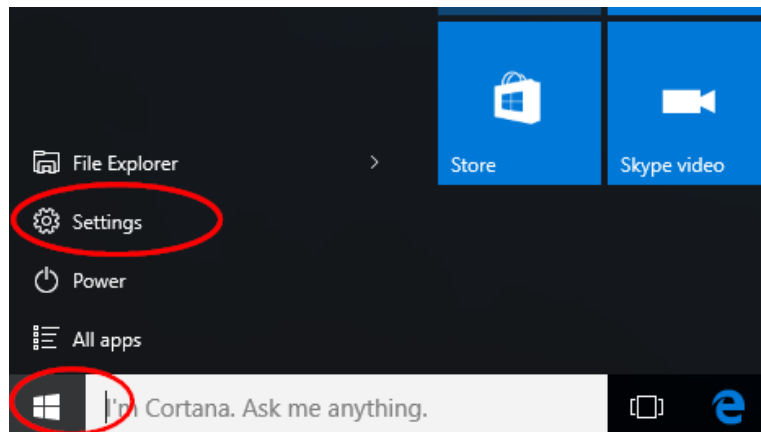
Task 2

Document your PC/ Laptop's Network Addressing details.

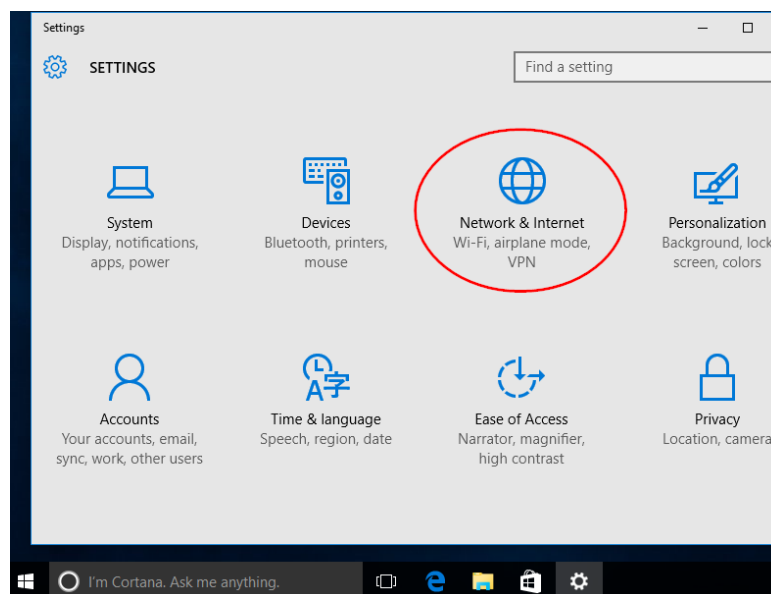
Use Traceroute to determine the possible route.

Document your PC/ Laptop's Network Addressing details and use Traceroute to determine the possible route.

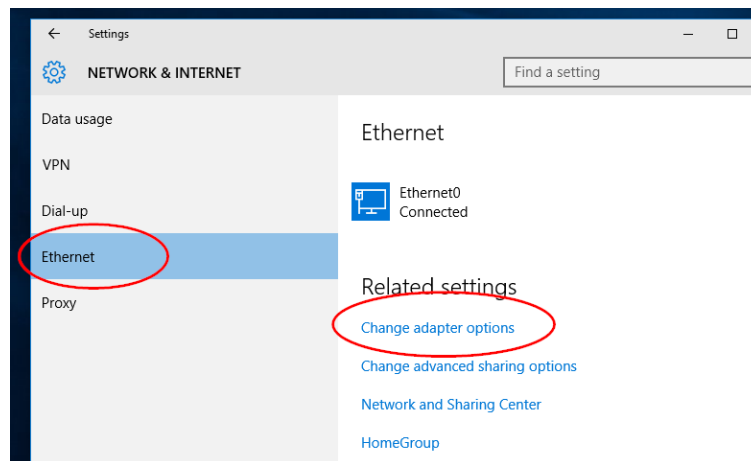
In your PC/ Laptop, click Start, then click Settings.



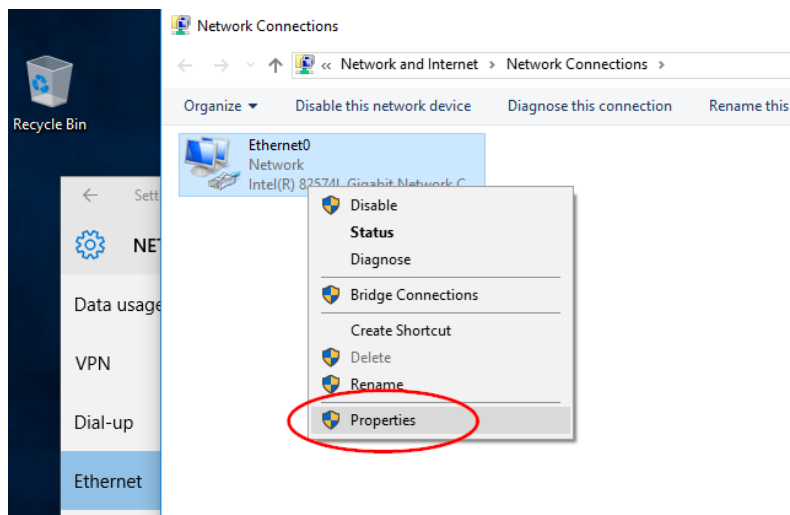
In the Settings window click Network & Internet.



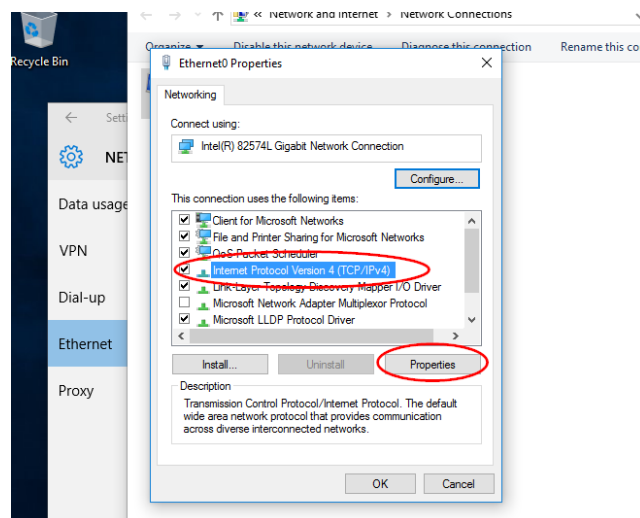
In the left pane select Ethernet, then click Change adapter options.



The Network Connections window displays the available network interfaces on the PC. Right-click the Ethernet0 interface and select Properties.



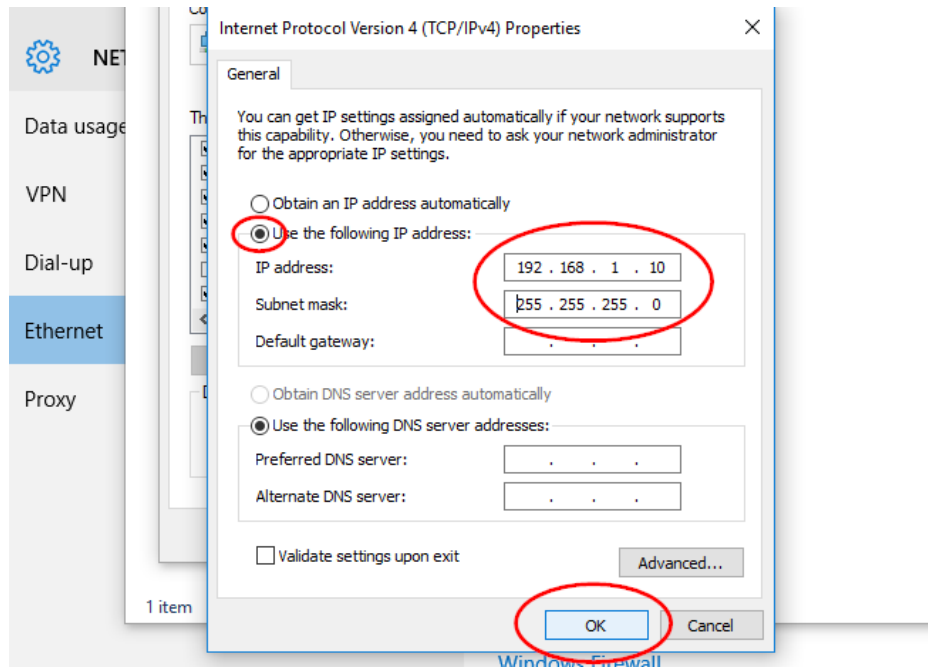
Select the Internet Protocol Version 4 (TCP/IPv4) option and then click Properties.



Note: You can also double-click Internet Protocol Version 4 (TCP/IPv4) to display the Properties window.

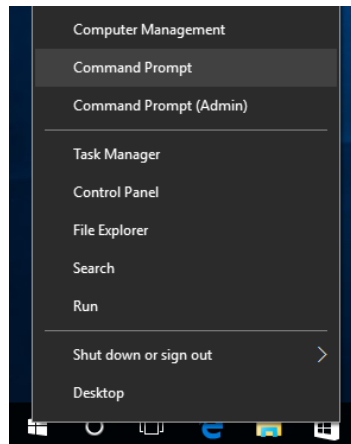
Check the Settings:

Is your IP Address Automatically configured or Manually Configured?



Sample for Manual Configuration. If "Obtain an IP address automatically" is selected, then your PC/ Laptop is DHCP/ Automatic configured. Record the status above.

From your PC/ Laptop, use the Command Prompt to verify the PC settings and connectivity. Right-click Start, select Command Prompt.



The cmd.exe window is where you can enter commands directly to the PC and view the results of those commands. Verify your PC settings by using the `ipconfig /all` command. This command displays the PC hostname and the IPv4 address information.

```
Command Prompt
Microsoft Windows [Version 10.0.10586]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Bob>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : PC-A
    Primary Dns Suffix . . . . . :
    Node Type . . . . . : Hybrid
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Ethernet0:

    Connection-specific DNS Suffix . :
    Description . . . . . : Intel(R) 82574L Gigabit Network Connection
    Physical Address. . . . . : 00-0C-29-EB-1F-2D
    DHCP Enabled. . . . . : No
    Autoconfiguration Enabled . . . . : Yes
    Link-local IPv6 Address . . . . : fe80::4d86:3d:47b:b083%4(Preferr
    IPv4 Address. . . . . : 192.168.1.10(Preferr
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . :
    DHCPv6 IAID . . . . . : 33557545
    DHCPv6 Client DUID. . . . . : 00-01-00-01-1F-25-7C-01-00-0C-29-EB-1F-2D
    DNS Servers . . . . . : fec0:0:0:ffff::1%1
                           fec0:0:0:ffff::2%1
```

Type `ping www.google.com` and press Enter.

```

C:\Users\Bob>ping 192.168.1.11

Pinging 192.168.1.11 with 32 bytes of data:
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128
Reply from 192.168.1.11: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.11:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\Bob>

```

Were the ping results successful? _____

If not, there is good chance that Windows Firewall is blocking ICMP echo requests (ping). Click Start > Settings > Network & Internet > Ethernet > Windows Firewall to turn it off.

Note: If you did not get a reply from PC-B, try to ping PC-B again. If you still do not get a reply from PC-B, try to ping PC-A from PC-B. If you are unable to get a reply from the remote PC, ask your instructor to help you troubleshoot the problem.

Type `tracert www.google.com` and press Enter.

```

C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.16299.2107]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\n.kaliyamurthy>tracert www.google.com

Tracing route to www.google.com [216.239.38.120]
over a maximum of 30 hops:
  0  *         *         *         Request timed out.
  1  *         *         *         Request timed out.
  2  *         *         *         Request timed out.
  3  586 ms    243 ms    65 ms    172.21.211.1
  4  *         *         *         Request timed out.
  5  *         *         *         Request timed out.
  6  287 ms    266 ms    59 ms    172.21.216.93
  7  *         *         *         Request timed out.
  8  91 ms     49 ms     47 ms    172.21.199.158
  9  292 ms    171 ms    248 ms    185.153.237.154
 10  159 ms    203 ms    135 ms    185.153.237.155
 11  139 ms    212 ms    296 ms    209.85.248.229
 12  116 ms    196 ms    201 ms    209.85.248.241
 13  230 ms    60 ms     49 ms    any-in-2678.1e100.net [216.239.38.120]

Trace complete.

C:\Users\n.kaliyamurthy>

```

Record your reflection
