Lab - Building a Simple Network

Topology
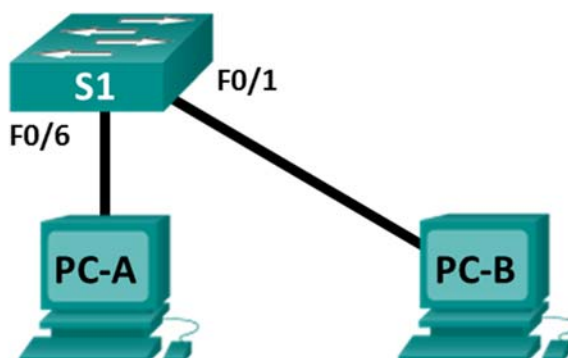
Addressing Table

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

Part 1: Set Up the Network Topology (Ethernet only)

- Identify cables and ports for use in the network.
- Cable a physical lab topology.

Part 2: Configure PC Hosts

- Enter static IP address information on the LAN interface of the hosts.
- Verify that PCs can communicate using the **ping** utility.

Background / Scenario

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. 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.

Note: The switches used are Cisco Catalyst 2960s with Cisco IOS Release 15.0(2) (lanbasek9 image). Other switches and Cisco IOS versions can be used.

Required Resources

- 1 Switch (Cisco 2960 with Cisco IOS Release 15.0(2) lanbasek9 image or comparable)
- 2 PCs (Windows 10)
- Two Ethernet cables as shown in the topology

Part 1: Set Up the Network Topology (Ethernet only)

In Part 1, you will cable the devices together according to the network topology.

Step 1: Power on the devices.

Power on all devices in the topology. The switches do not have a power switch; they will power on as soon as you plug in the power cord.

Step 2: Connect the PCs to the switch.

a. Connect one end of an Ethernet cable to the NIC port on PC-A. Connect the other end of the cable to F0/6 on S1. After connecting the PC to the switch, you should see the light for F0/6 turn amber and then green, indicating that PC-A has been connected correctly.

b. Connect one end of an Ethernet cable to the NIC port on PC-B. Connect the other end of the cable to F0/1 on S1. After connecting the PC to the switch, you should see the light for F0/1 turn amber and then green, indicating that the PC-B has been connected correctly.

Step 3: Visually inspect network connections.

After cabling the network devices, take a moment to carefully verify the connections to minimize the time required to troubleshoot network connectivity issues later.
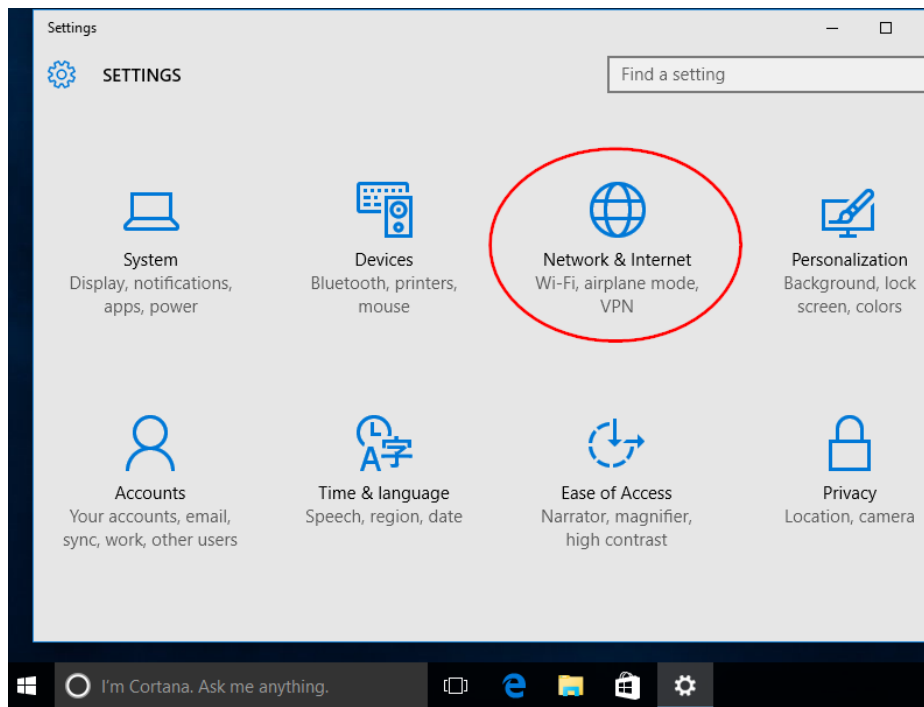
Part 2: Configure PC Hosts

Step 1: Configure static IP address information on the PCs.

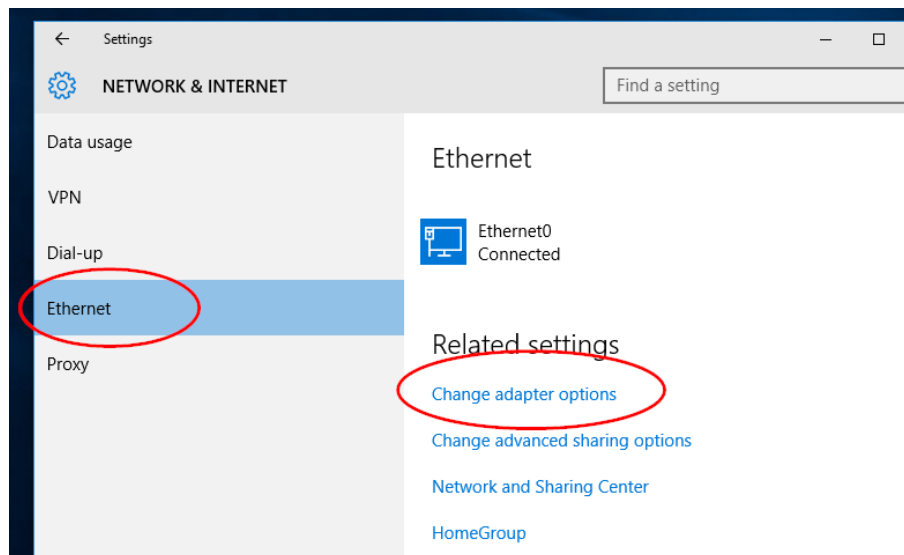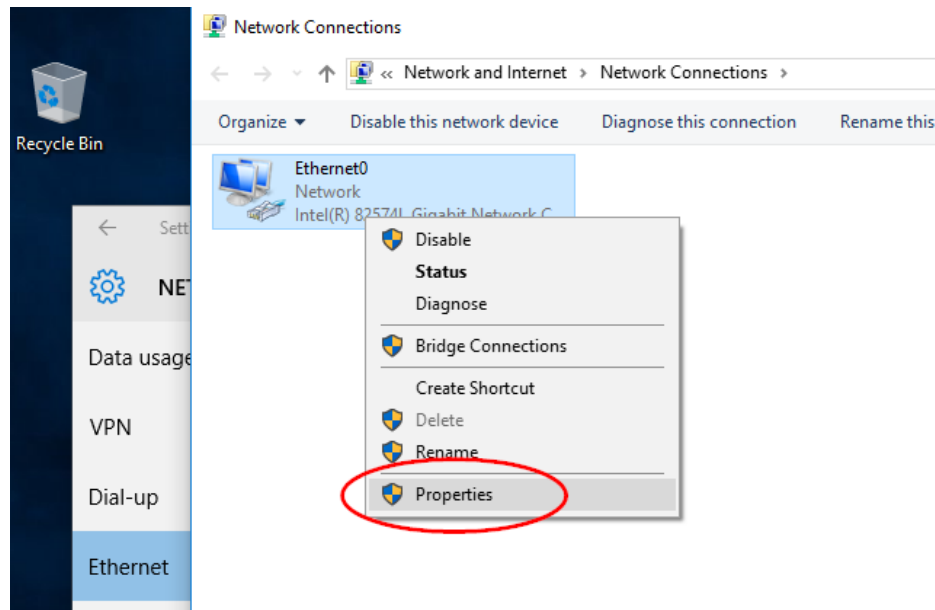a. To configure the Network Settings on PC-A, click **Start**, then click **Settings**.
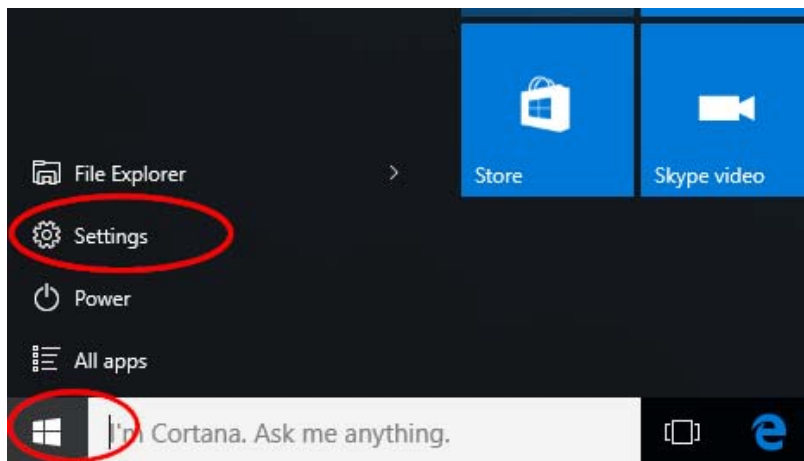
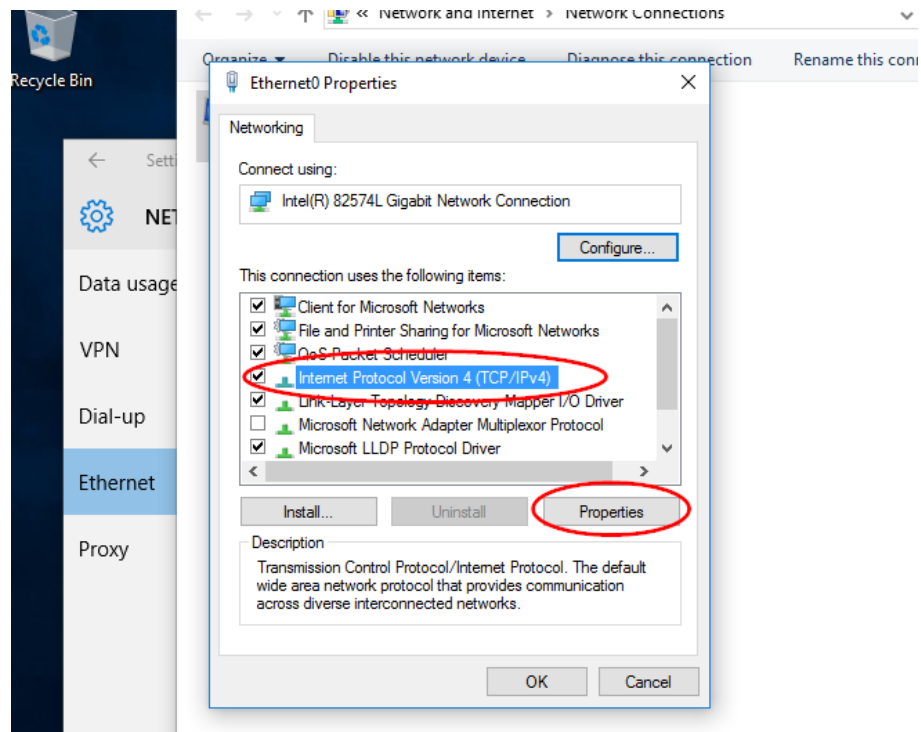b. In the Settings window click **Network & Internet**.

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

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


e. 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.

f. Click the **Use the following IP address** radio button to manually enter an IP address, subnet mask, and default gateway. Type in the IP address 192.168.1.10 and the subnet mask 255.255.25.0
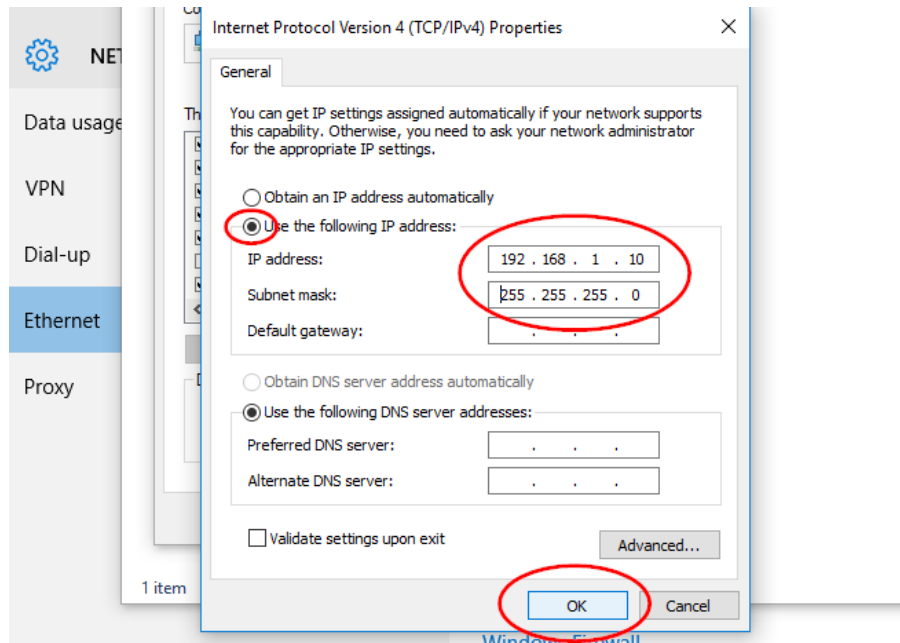

Note: In the above example, the IP address and subnet mask have been entered for PC-A. The default gateway has not been entered, because there is no router attached to the network. Refer to the Addressing Table on page 1 for PC-B's IP address information.

g. After all the IP information has been entered, click **OK**. Click **OK** on the Ethernet0 properties window to assign the IP address to the LAN adapter.

h. Repeat the previous steps to enter the IP address information on PC-B.

Step 2: Verify PC settings and connectivity.

Use the Command Prompt to verify the PC settings and connectivity.

a. From PC-A, right-click **Start**, select **Command Prompt**.
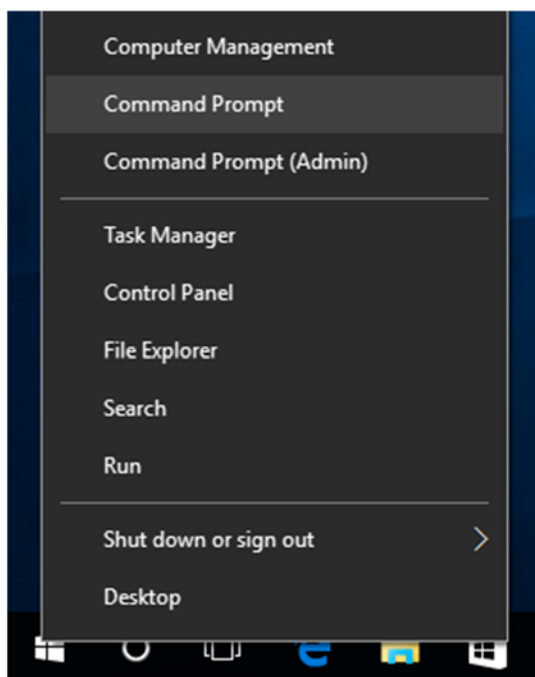
b. The cmd.exe window is where you can enter commands directly to the PC and view the results of those commands. Verify your PC settings by using the **ipconfig /all** command. This command displays the PC hostname and the IPv4 address information.

c. Type **ping 192.168.1.11** and press Enter.

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.