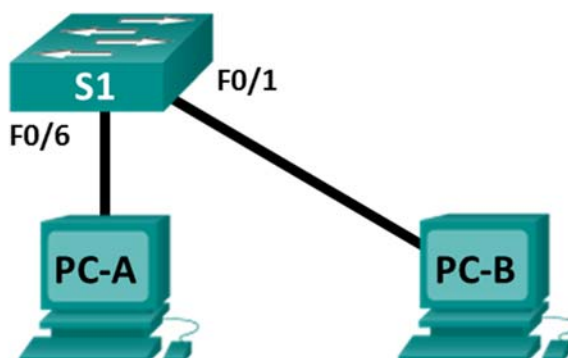


# Lab - Building a Simple Network

## 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.

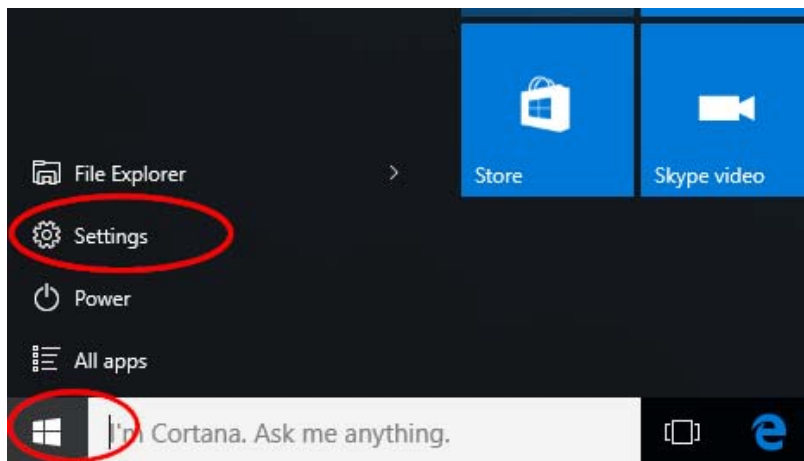
### Step 3: Visually inspect network connections.

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

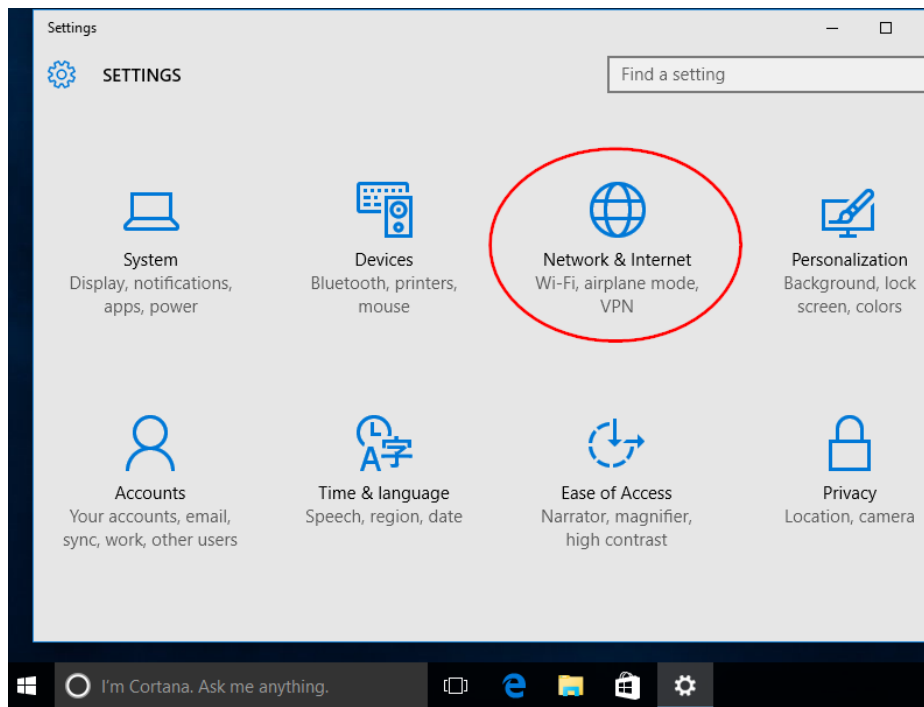
### Step 1: Configure static IP address information on the PCs.

- a. To configure the Network Settings on PC-A, click **Start**, then click **Settings**.

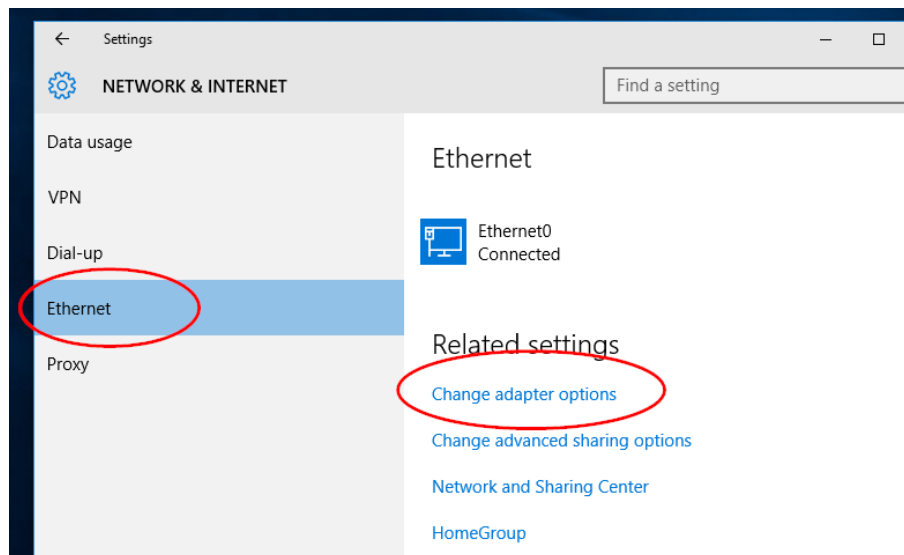


## Lab - Building a Simple Network

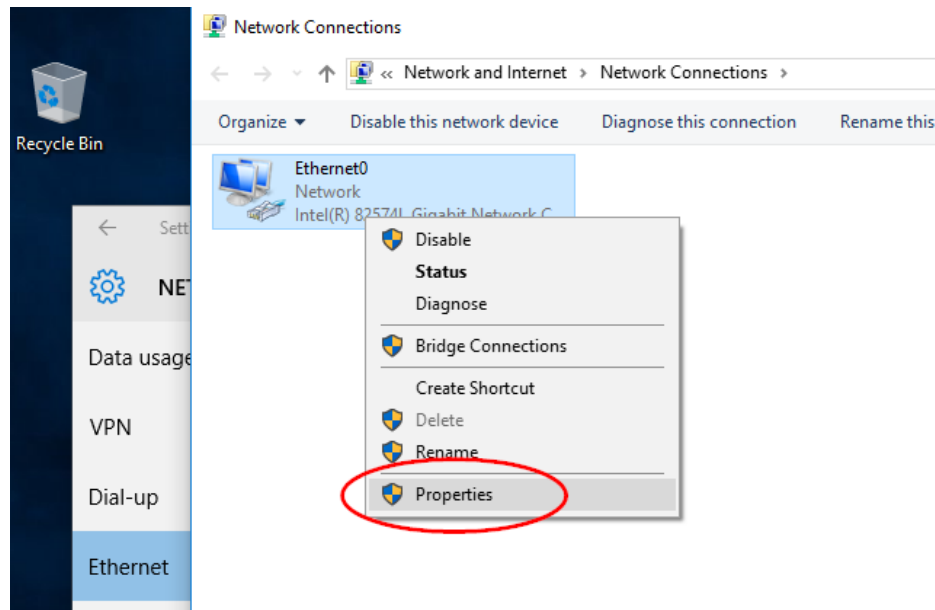
- b. In the Settings window click **Network & Internet**.



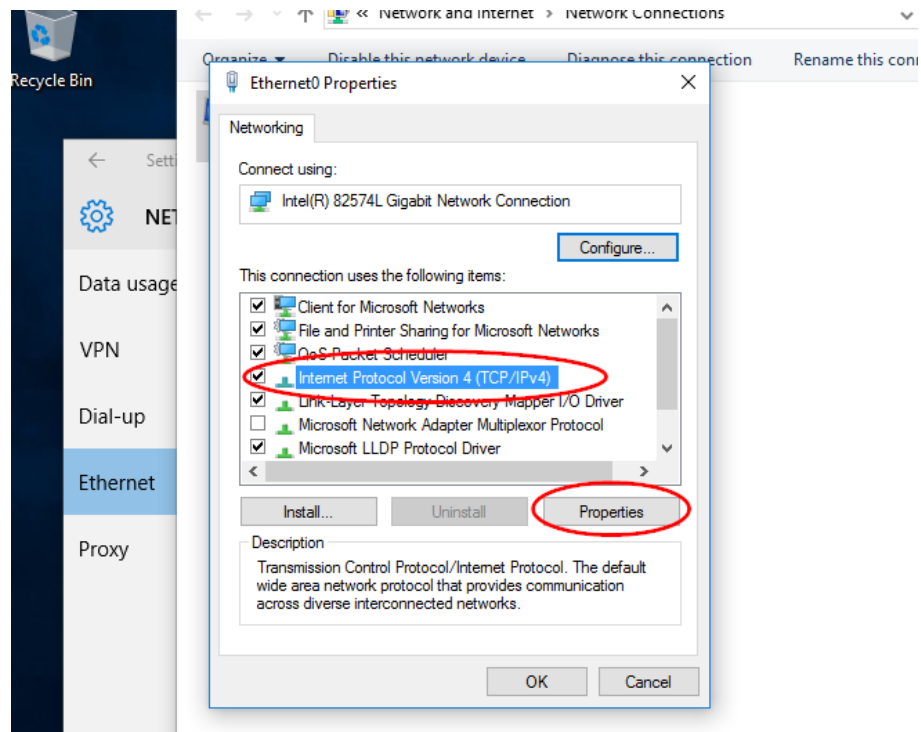
- c. In the left pane select **Ethernet**, then click **Change adapter options**.



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

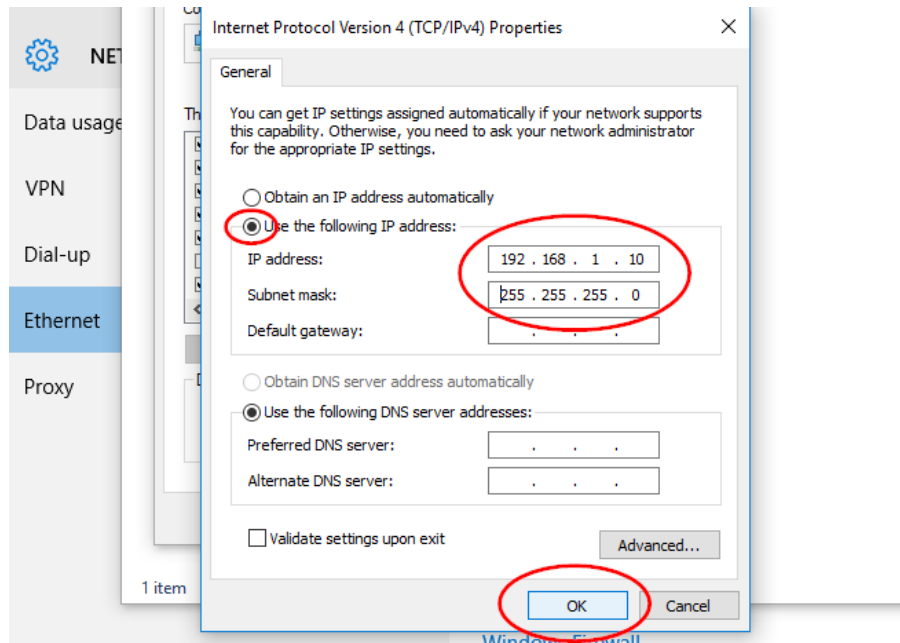


- e. Select the **Internet Protocol Version 4 (TCP/IPv4)** option and then click **Properties**.



**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 255.255.255.0



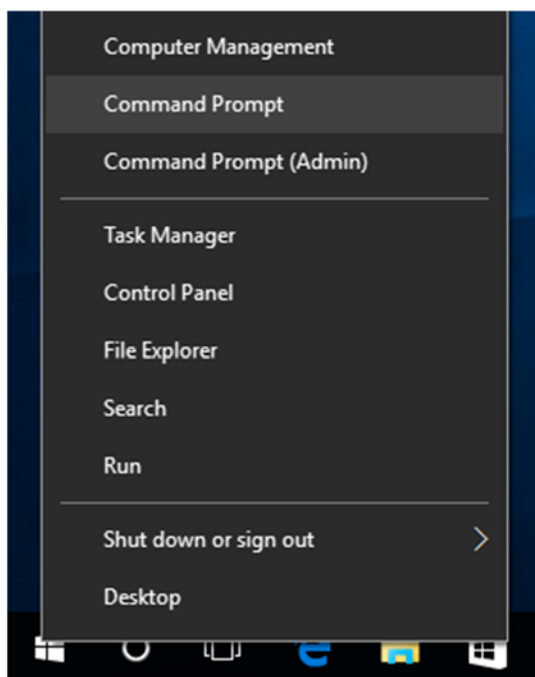
**Note:** In the above example, the IP address and subnet mask have been entered for PC-A. The default gateway has not been entered, because there is no router attached to the network. Refer to the Addressing Table on page 1 for PC-B's IP address information.

- 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.

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

C:\Users\Bob>ipconfig /all

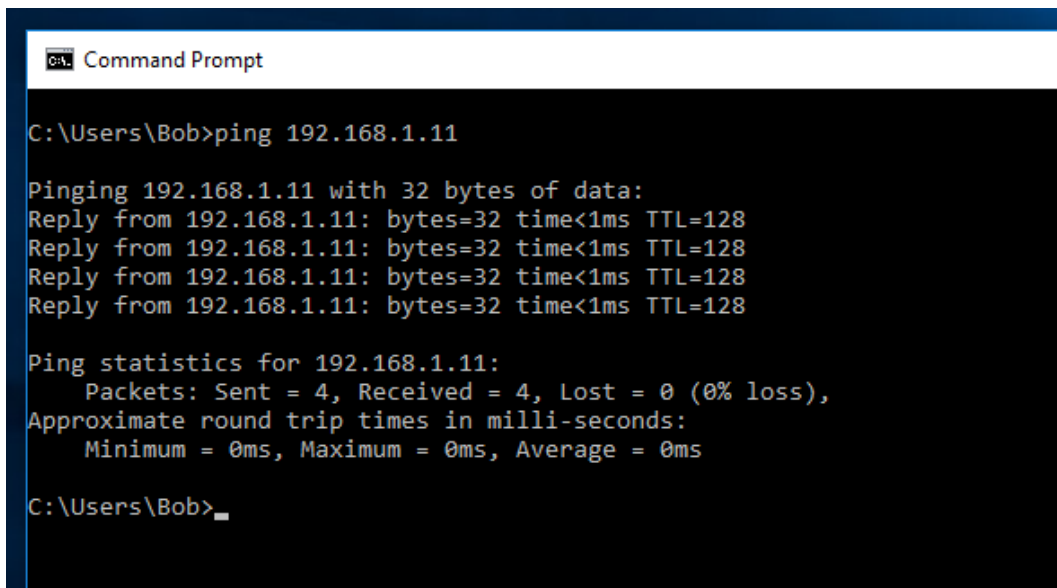
Windows IP Configuration

    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(Preferred)
    IPv4 Address. . . . . : 192.168.1.10(Preferred)
    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
```

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



```
CA: Command Prompt

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.