

# Lab – Determining the IP Address Configuration of a Computer

## Objectives

In this lab, you will configure an Ethernet NIC to use DHCP to obtain an IP address and test connectivity between 2 computers.

## Required Resources

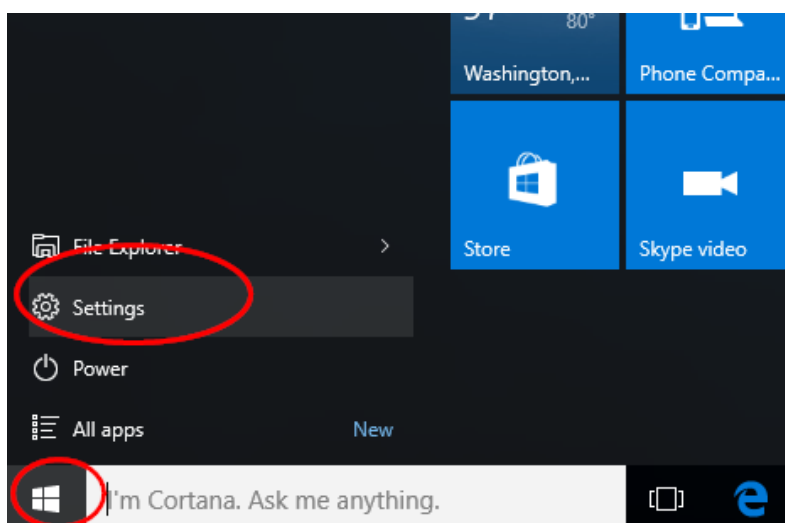
- 1 Wireless router
- 2 PCs (Windows 10)
- Ethernet cables

## Step 1: Connect PC-A and PC-B to a home/small business wireless router.

- For PC-A, plug one end of the Ethernet cable into “Port 1” on the back of the wireless router.
- For PC-A, plug the other end of the Ethernet cable into the network port on the NIC in your computer.
- For PC-B, plug one end of the Ethernet cable into “Port 2” on the back of the router.
- For PC-B, plug the other end of the Ethernet cable into the network port on the NIC in your computer.
- Power on the wireless router.
- Turn on both computers and log on to Windows in PC-A using an account with administrative privileges.

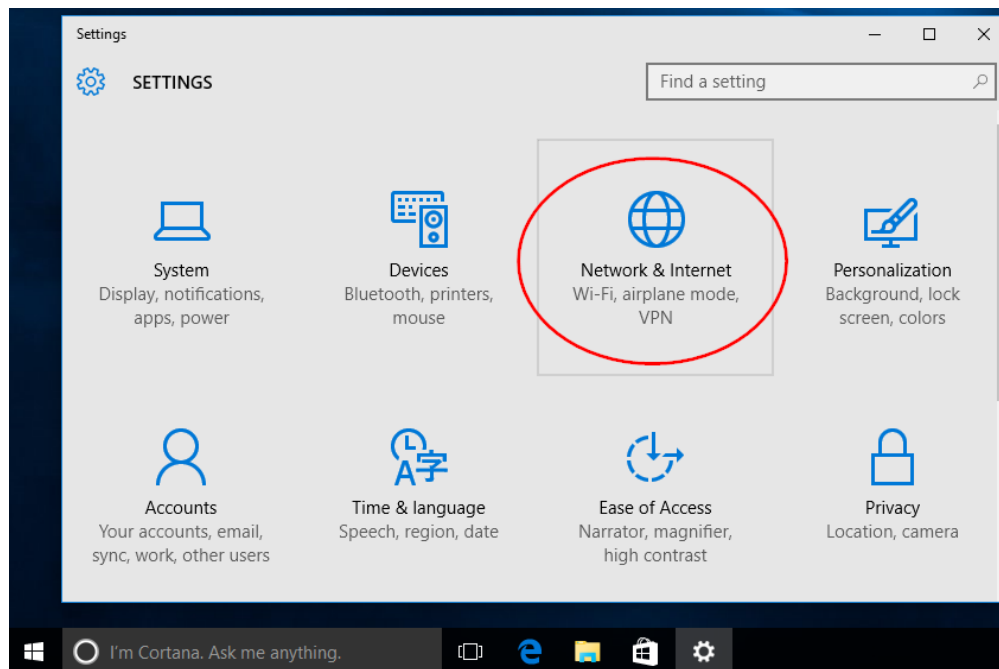
## Step 2: Set network settings to autoconfigure using DHCP

- Click **Start**, then click **Settings**.

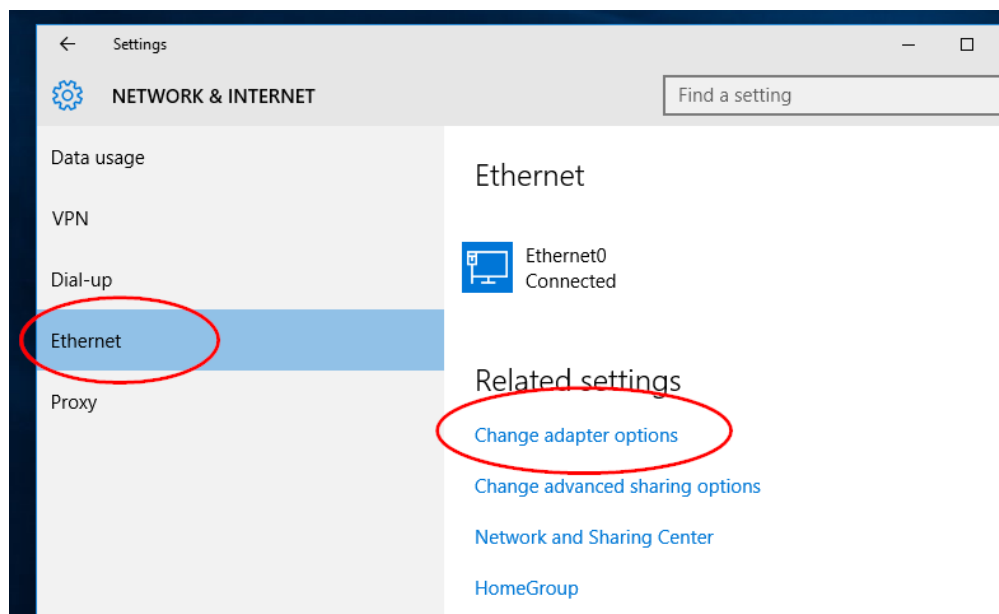


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- b. In the Settings window click **Network & Internet**.

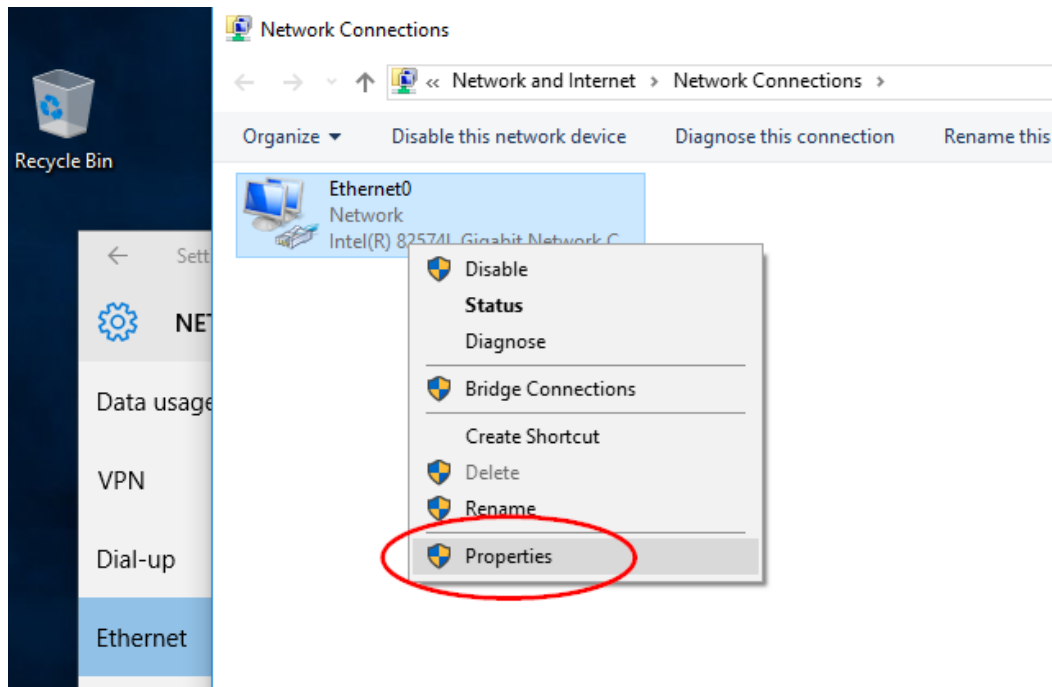


- c. In the left pane select **Ethernet**, then click the **Change adapter options** link.

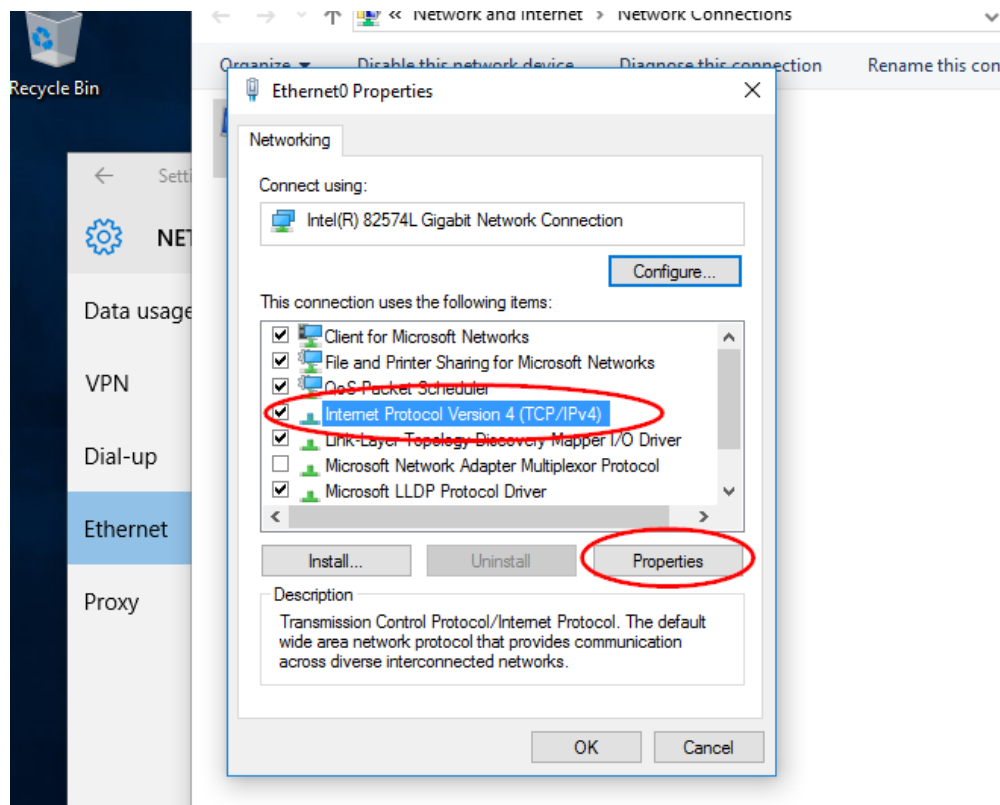


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- d. The Network Connections window displays the available network interfaces on the PC. In this example, right-click the **Ethernet0** interface and select **Properties**.



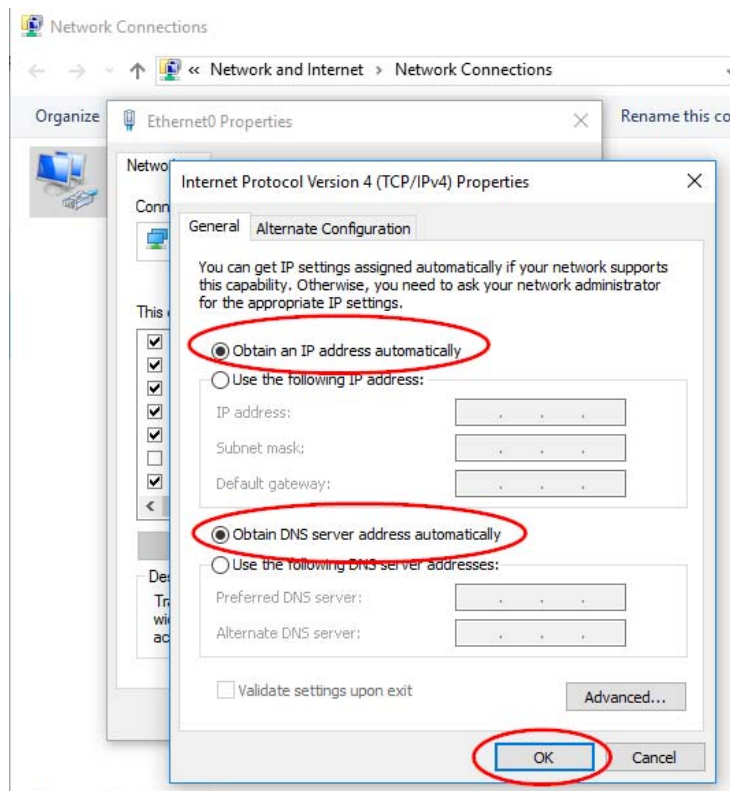
- e. Select **Internet Protocol Version 4 (TCP/IPv4)** and then click **Properties**.



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

- f. Select the **Obtain an IP address automatically**. Select the **Obtain DNS server address automatically**. Click **OK**.



- g. Before clicking **Close** on the Ethernet0 Properties window answer the following questions:  
What is the name and model number of the NIC in the “Connect using:” field?

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What are the first three items listed in the “This connection uses the following items:” field?

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- h. Repeat the previous steps to configure network address settings on PC-B.

### Step 3: Document PC-A networking address settings.

- Check the lights on the back of the NIC of PC-A. These lights will blink when there is network activity.
- Use **Command Prompt** to verify the PC settings and connectivity. From PC-A, right-click **Start** and select **Command Prompt**.

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- c. At the prompt, enter **ipconfig /all** command to view IP configuration on PC-A.

```
CA: 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. . . . . : Yes
Autoconfiguration Enabled . . . . : Yes
Link-local IPv6 Address . . . . . : fe80::4d86:3d:47b:b083%4(Preferred)
IPv4 Address. . . . . : 10.11.3.146(Preferred)
Subnet Mask . . . . . : 255.255.0.0
Lease Obtained. . . . . : Sunday, July 24, 2016 4:58:26 PM
Lease Expires . . . . . : Monday, July 25, 2016 4:58:12 AM
Default Gateway . . . . . : 10.11.1.1
DHCP Server . . . . . : 10.11.1.1
DHCPv6 IAID . . . . . : 33557545
DHCPv6 Client DUID. . . . . : 00-01-00-01-1F-25-7C-01-00-0C-29-EB-1F-2D
DNS Servers . . . . . : 8.8.8.8
                        8.8.4.4
NetBIOS over Tcpip. . . . . : Enabled
```

What is the IPv4 address of the computer?

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What is the subnet mask of the computer?

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What is the default gateway of the computer?

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What are the DNS servers for the computer?

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What is the MAC address (physical address) of the computer?

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Is DHCP enabled?

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What is the IP address of the DHCP server?

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On what date was the Lease Obtained?

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On what date does the Lease Expire?

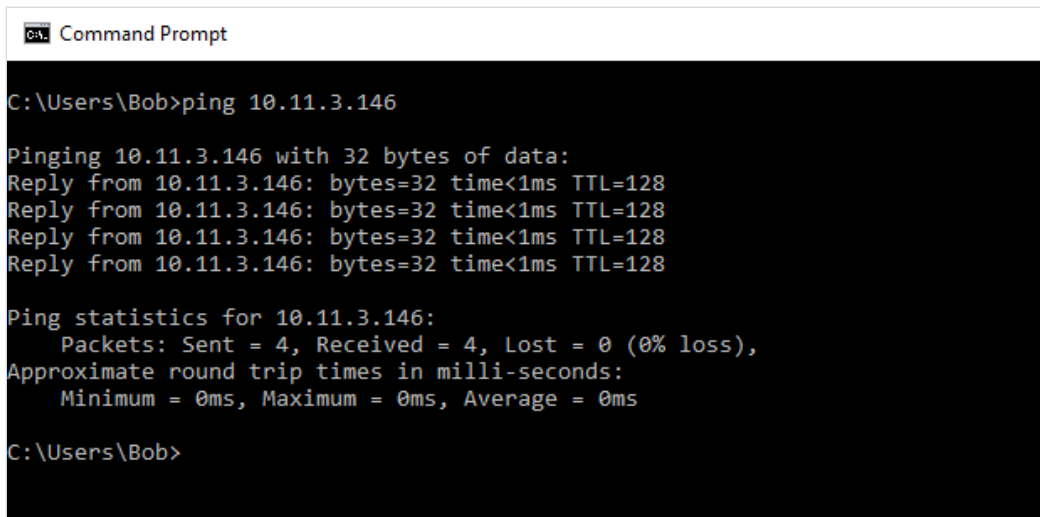
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### Step 4: Test the PC-A network interface TCP/IP stack.

- a. To verify that the TCP/IP protocol is functioning, pinging your loopback address (127.0.0.1). Enter the **ping 127.0.0.1** command at the prompt.

```
C:\Users\Bob> ping 127.0.0.1
```

- b. You can also ping your IP address. In this example, enter the **ping 10.11.3.146** command at the prompt.



```
Command Prompt

C:\Users\Bob>ping 10.11.3.146

Pinging 10.11.3.146 with 32 bytes of data:
Reply from 10.11.3.146: bytes=32 time<1ms TTL=128
Reply from 10.11.3.146: bytes=32 time<1ms TTL=128
Reply from 10.11.3.146: bytes=32 time<1ms TTL=128
Reply from 10.11.3.146: bytes=32 time<1ms TTL=128

Ping statistics for 10.11.3.146:
    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>
```

- c. Record one of the replies from your ping command.

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If the ping was not successful, ask your instructor for assistance.

### Step 5: Document PC-B network address settings.

- a. Log in to PC-B using an account with administrative privileges.
- b. Verify that PC-B uses DHCP for the network address settings. Click **Start > Settings > Change adapter options**. Right-click the desired network adapter and select **Properties**. Double-click **Internet Protocol Version 4 (TCP/IPv4)** and ensure the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** are selected. Click **OK > Close**.
- c. Open a command prompt window enter **ipconfig /all** at the prompt.

What is the IP address of the computer?

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What is the subnet mask of the computer?

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What is the default gateway of the computer?

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What are the DNS servers for the computer?

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What is the IP address of the DHCP server?

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From PC-B, ping the IP address of PC-A. Was the ping successful? \_\_\_\_\_

**Note:** If you cannot ping the other PC, the firewall maybe blocking the ICMP echo.

To turn off the firewall, click **Start > Settings > Network & Internet > Ethernet > Windows Firewall > Select Turn Windows Firewall on or off**. Be sure to turn on the firewall when finished.

### Step 6: Change PC-B's network addressing from automatic to manual.

- Repeat Step 2 on PC-B, **Use the following IP address** and **Use the following DNS server address**.
  - Enter in the IP address, subnet mask, default gateway and DNS server information that you recorded in the previous step. Click **OK** and **Close**.
  - Open a command prompt window and ping the PC-B IP address you just configured. Was the ping successful?
- \_\_\_\_\_

### Step 7: Test network connectivity with ICMP echo requests.

- From PC-B, ping the IP address of PC-A. Was the ping successful? \_\_\_\_\_
- From PC-A, ping, the IP address of PC-B. Was the ping successful? \_\_\_\_\_

### Step 8: Return PC-B network address settings to autoconfigure with DHCP.

Return PC-Bs network address settings on Ethernet0 to **Obtain an IP address automatically** and **Obtain DNS server address automatically**. Click **OK > Close**.