Lab – Connect and Test the Wireless Connection (Instructor Version)

**Instructor Note**: Red font color or gray highlights indicate text that appears in the instructor copy only.

# Introduction

In this lab, you and your partner will connect your computers to a wireless router and test the wireless connection.

# Required Resources

* Wireless router
* 2 Windows computers
* Internet access

**Instructor Note**: Depending on the available class time, you may want to configure the wireless routers and provide the students with wireless router settings for step 1, instead of the students configuring the wireless router with default settings.

# Instructions

## Configure the wireless router as necessary.

If the wireless router has been restored to default factory settings, you and your partner should configure the wireless router with the settings provided by your instructor. If not, record the information provided by your instructor and go to the next step.

|  |  |
| --- | --- |
| Router IP address / subnet: |  |
| DHCP Server Starting IP address / Maximum number of users: |  |
| Router Administrative Username / Password: |  |
| Router Username / Password: |  |
| Your Assigned SSID: |  |
| Wireless Security Option and Passphrase: |  |

**Note**: Only use configurations assigned by the instructor.

## Connect your Windows computer to the router wirelessly.

* + - 1. Disconnect the Ethernet cable from your computer.
      2. Click the network icon in the system tray. You will see a list of wireless networks that are broadcasting their SSIDs within the range of your computer.
      3. Select your assigned SSID. Select **Connect automatically** if you are planning to connect to it again.
      4. Click **Connect** and provide the passphrase when prompted.
      5. After you have successfully connected to the wireless network, determine and record your IP address and the default gateway.

Type your answers here.

Answers will vary. The IP address and the default gateway should be in the same network.

* + - 1. Provide your IP address to your partner.
      2. Open a command prompt, and ping **127.0.0.1** to test the loopback.

#### Question:

How many replies did you receive?

Type your answers here.

4

Why would you perform this test?

Type your answers here.

This test is performed to make sure the network card itself is working properly.

* + - 1. Ping the default gateway. It should be successful if you are connected to your wireless router.
      2. Attempt to ping your partner’s computer. It should be successful. If it is not successful, the Windows Firewall may have prevented the ICMP traffic.

## Disable SSID broadcast on the wireless router.

You can disable the SSID broadcast on your wireless router. This could prevent unauthorized users from connecting to the wireless network, but it is not a security feature.

* + - 1. Log into the wireless router.
      2. Navigate to the wireless settings and search for the page for disabling SSID broadcast for your wireless router. SSID broadcast is usually enabled by default. Refer to the manufacturer’s documentation as needed.
      3. Change the SSID so you are required to connect to a new wireless network. Record the new SSID.

Type your answers here.

Answers will vary.

* + - 1. Verify that the settings have been saved.

## Connect to the hidden wireless network.

Now that the SSID is no longer broadcast, it will not be listed in the list of wireless networks. You will need to manually set up a new wireless connection.

* + - 1. Navigate to the **Control Panel**. In the Small icon view, select **Network and Sharing Center**.
      2. Click **Set up a new connection or network**. Select **Manually connect to a wireless network**. Click **Next**.
      3. Select the wireless adapter if you have more than one. Click **Next** to continue.
      4. Provide the network name (SSID), the security type, the encryption type, and the security key.
      5. If you would like to start this connection automatically, select the checkbox.
      6. Select **Connect even if the network is not broadcasting** so your computer can connect to the hidden network.
      7. Click **Next** to continue. Click **Close**.
      8. After you are connected to the hidden wireless network, verify your IP address has not changed. If it was changed, provide this information to your partner. Then verify that you can ping your partner and the wireless router.
      9. Restore the wireless router to the previous state or as directed by your instructor.

## Connect to a wireless network with Internet access

In this step, you will connect to a wireless network with Internet access. If you cannot do it wirelessly, you can connect via an Ethernet cable for this step.

* + - 1. Use the **tracert** command to Cisco Networking Academy website. At the prompt, enter **tracert www.netacad.com**.

C:\Users\ITEUser> **tracert www.netacad.com**

Tracing route to user-att-99-118-152-0.e7792.dsca.akamaiedge.net [2600:1417:4:19a::1e70]

over a maximum of 30 hops:

1 \* \* \* Request timed out.

2 \* \* \* Request timed out.

3 24 ms 21 ms 29 ms 2001:506:6000:11d:75:29:8:133

4 43 ms 90 ms 58 ms sl9mo404me3.ipv6.att.net [2001:1890:ff:ffff:12:122:126:13]

5 59 ms 29 ms 21 ms 2001:1890:fff:2130:12:120:34:194

6 28 ms 33 ms 31 ms 2001:1890:1ff:2a30:12:120:168:64

7 21 ms 21 ms 26 ms g2600-1417-0004-019a-0000-0000-0000-1e70.deploy.static.akamaitechnologies.com [2600:1417:4:19a::1e70]

Trace complete.

#### Questions:

What IP address was returned?

Type your answers here.

Answers may vary. It may be an IPv4 or IPv6 address.

How many devices (hops) are displayed?

Type your answers here.

Answers may vary. There is a maximum limit of 30.

Why would you perform this test?

Type your answers here.

This test shows that you have a connection all the way to the Internet destination.

If you would like to the tracert to display the results with IPv4 addresses only, what tracert options would you use in the command?

Type your answers here.

The option -4 would be added to the command, so the command becomes tracert -4 www.netacad.com in this example.

* + - 1. Use the **nslookup** command with the IP address you just discovered. For this example, enter **nslookup 2600:1417:4::19a::1e70** at the prompt.

#### Question:

What name was returned?

Type your answers here.

Answers may vary. Deploy.static.akamaitechnologies.com

Why would you perform this test?

Type your answers here.

This test shows that DNS is working.

## Test your Internet connection.

In this step, you will navigate to the Cisco website if you have Internet access.

* + - 1. Open a web browser.
      2. Enter **www.cisco.com** in the **Address** field.
      3. Navigate to the **Control Panel** > click **Network and Sharing Center** > select **Change adapter settings**.
      4. Right-click the **Wireless Network Connection** > select **Status**.

#### Question:

What is the state of the Media?

Type your answers here.

Enabled

What is the signal quality?

Type your answers here.

Answer varies. 5 bars

* + - 1. Click **Close**.

# Reflection Question

* 1. What information does a positive response from the default gateway provide for you when the computer has no Internet connection?

Type your answers here.

This indicates that there are no problems on the network between your computer and the default gateway.

* 1. If you receive a positive response from the default gateway, but you have no Internet access, where is the problem?

Type your answers here.

The problem is either with your equipment between your router and the ISP, or with the ISP itself.

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