



## Lab - Troubleshoot Network Problems

### Introduction

In this lab, you will diagnose the causes of network problems and solve them.

### Recommended Equipment

- Two computers running Windows
- A wireless router
- Two Ethernet cables
- Internet access

### Scenario

You must solve network problems for a customer. You may need to troubleshoot both the router and two computers. Make sure you document and solve the problems, and then document the solutions.

There are several possible errors. Solve one problem at a time until you can successfully establish a connection between the two computers.

To better identify which steps should be done on which computer, the lab will refer to them as computer01, computer02, or both.

### Instructions

#### Step 1: Log on to the computers.

- a. List the computer name used for computer01 and computer02. Use these names whenever the lab refers to computer01 and computer02.

Computer01 name:

*PC*

Computer02 name:

*Admin*

- b. Log on to **computer01** and **computer02** with accounts that have administrative privileges.

#### Step 2: Troubleshoot network problems.

Use a command prompt to display IP address information, open the network control panel and review the adapter configuration, and log on to the router and review all of the configuration options to troubleshoot the router or computers for problems. Answer the following questions after each problem is solved.

Questions:

- a. What problem did you find?

*The problem I find is that that PC has a wrong IP address (169.254.0.1).*

- b. What is a possible cause?

*The possible cause of this is that the PC failed to obtain an IP address from DCHP server.*

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- c. What steps did you take to determine the problem?

*I first ran /ipconfig on the command prompt and saw 169.254.100.136 with no default gateway. I also checked the DHCP setting.*

- d. What is causing the problem?

*I think this is because the network adapter did not refresh IP lease from the router.*

- e. List the steps taken to fix the problem.

*On PC, I ran ipconfig /release then ipconfig /renew.*

- f. If you could verify end-to-end connectivity, you have successfully solved all the networking problems.

Ping from Computer01 to Computer02 successfully?

```
C:\Users\PC>ping 192.168.100.136
Pinging 192.168.100.136 with 32 bytes of data:

Reply from 192.168.100.136: bytes=32 time=31ms TTL=64
Reply from 192.168.100.136: bytes=32 time=27ms TTL=64
Reply from 192.168.100.136: bytes=32 time=29ms TTL=64
Reply from 192.168.100.136: bytes=32 time=28ms TTL=64

Ping statistics for 192.168.100.136:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 27ms, Maximum = 31ms, Average = 29ms
```

Ping from Computer02 to Computer01 successfully?

```
C:\Users\Admin>ping 192.168.100.128
Pinging 192.168.100.128 with 32 bytes of data:

Reply from 192.168.100.128: bytes=32 time=27ms TTL=64
Reply from 192.168.100.128: bytes=32 time=28ms TTL=64
Reply from 192.168.100.128: bytes=32 time=27ms TTL=64
Reply from 192.168.100.128: bytes=32 time=27ms TTL=64

Ping statistics for 192.168.100.128:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 27ms, Maximum = 28ms, Average = 27ms
```

Ping from Computer01 to Default Gateway successfully?

```
C:\Users\PC>ping 192.168.100.1
Pinging 192.168.100.1 with 32 bytes of data:
Reply from 192.168.100.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.100.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

Ping from Computer02 to Default Gateway successfully?

```
C:\Users\Admin>ping 192.168.100.1
Pinging 192.168.100.1 with 32 bytes of data:
Reply from 192.168.100.1: bytes=32 time=27ms TTL=64
Reply from 192.168.100.1: bytes=32 time=28ms TTL=64
Reply from 192.168.100.1: bytes=32 time=27ms TTL=64
Reply from 192.168.100.1: bytes=32 time=28ms TTL=64

Ping statistics for 192.168.100.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 27ms, Maximum = 28ms, Average = 27ms
```

**Conclusion:**

*I learned and applied my learnings on how to troubleshoot a network problem. From the lesson, I learned that there are different steps for trouble shooting like creating a theory of the cause of the problem, testing the theory, then documenting what you did, then verifying that you fixed the issue. Also, searching on the internet for possible solutions for the problems I am encountering helped a ton. On most forum sites, some people already have the problem and have documented how to solve it. Overall, I will say I learned the proper way of troubleshooting problems connected to networks more through this activity and lesson.*