12.7.5 Use Ping and Traceroute

## Your Performance

Your Score: 2 of 2 (100%) Pass Status: **Pass**
Elapsed Time: 2 minutes 49 seconds Required Score: 100%

## Task Summary

Actions you were required to perform:

- ✓ Use ping on ITAdmin Show Details
- ✓ Use traceroute on Office2

## Explanation

Complete this lab as follows:

1. At the prompt, type **ping -c 4 192.168.0.30** and press **Enter** to ping Office1.
2. Does the test succeed? You can successfully ping the IP address of Office1 from ITAdmin.
3. Type **ping -c 4 199.92.0.33** and press **Enter** to ping Support.
4. Why does this test fail? You cannot ping Support from ITAdmin. Notice that the IP address for Support is on a different network (network 199.92.0.0 instead of network 192.168.0.0). Devices on the same local network must have IP addresses in the same network range. If you want to communicate with Support, you will need to change the IP address assigned to Support.
5. Type **ping -c 4 192.168.0.5** and press **Enter** to ping the router's internal interface.
6. Does the test succeed? You can successfully ping the router's internal interface from ITAdmin. Because ITAdmin and the router's address (192.168.0.5) are on the same network, the ping tests succeed.
7. Type **ping -c 4 163.128.78.93** and press **Enter** to ping the external DNS Server.
8. Why does this test fail? ITAdmin and the ISP are on a different network (network 192.168.0.0 and 163.128.78.0 respectively). Because ITAdmin does not have a default gateway set, it cannot communicate with devices on other networks.
9. Trace the path between Office2 and the internet router's interface as follows:
    a. From the top navigation tabs, select **Floor 1 Overview**.
    b. Under Office 2, select **Office2**.
    c. At the prompt, type **traceroute 198.28.56.1** and press **Enter**.
10. What addresses appear in the path between Office2 and the internal router? When you communicate with devices on other networks, the packets go first to the default gateway (the router between the two networks). The packets are sent to the router interface on the same network as the sending host and then to the next hop in the path as necessary. In this case, there are two IP addresses listed in the traceroute output, but only one router (hop) between Office2 and the internet router. The last address in the traceroute output is the internal router.
11. Type **traceroute 163.128.78.93** and press **Enter** to trace the path to one of the ISP's DNS servers.
12. How does this path differ from the path you discovered in the previous step? When you trace the path between Office2 and the ISP's DNS server, the path has additional hops. The first lines in the traceroute output are the routers (hops) between Office2 and the DNS server. The last address in the traceroute output is the DNS server.