

Troubleshooting Common Network Issues

Fundamentals of Communications and Networking, Third Edition - Lab 10

Student:

Patrick Kierzkowski

Email:

pxk405@francis.edu

Time on Task:

8 hours, 42 minutes

Progress:

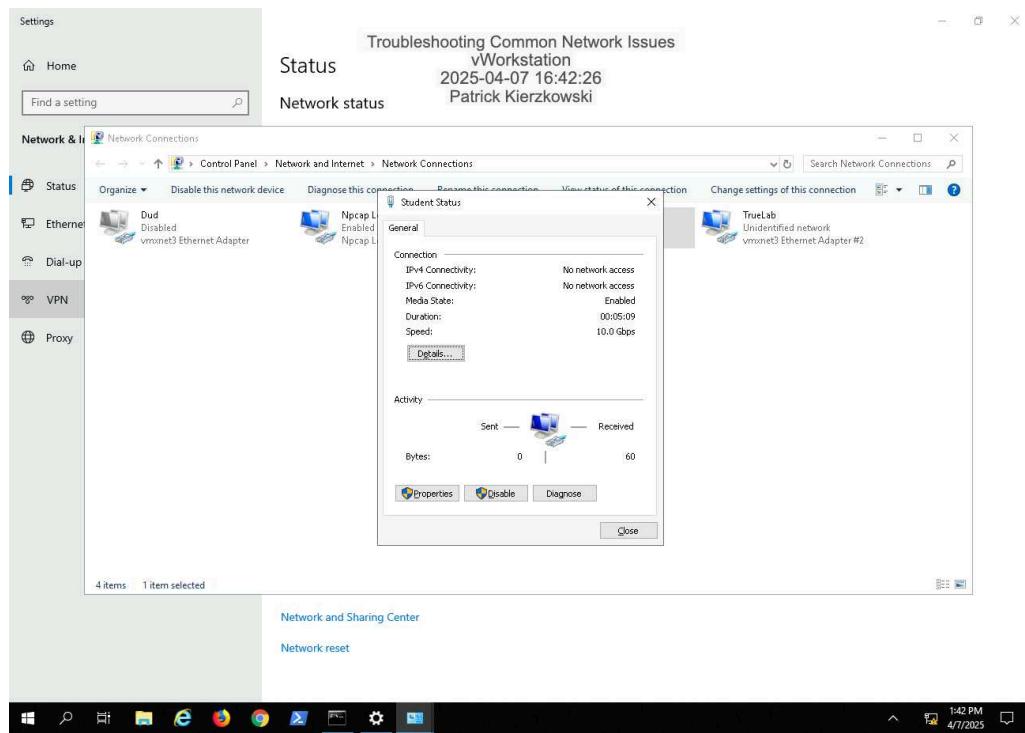
100%

Report Generated: Monday, July 7, 2025 at 9:47 PM

Section 1: Hands-On Demonstration

Part 1: Troubleshoot Connectivity Issues on the LAN

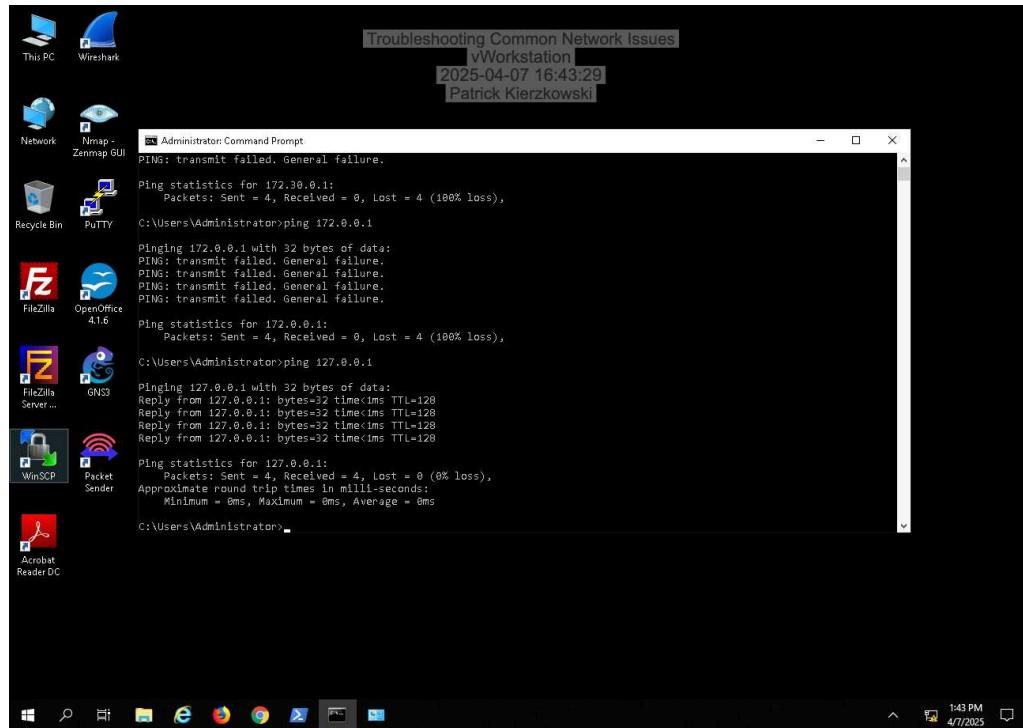
8. Make a screen capture showing the **Student connection details in the Student Status window.**



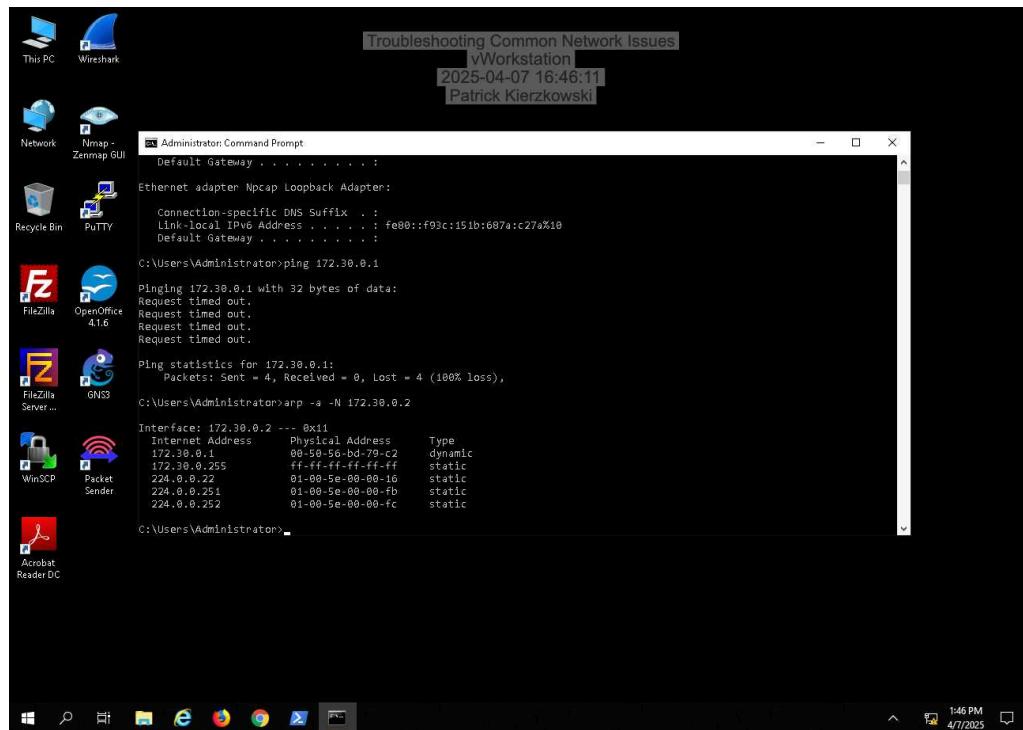
Troubleshooting Common Network Issues

Fundamentals of Communications and Networking, Third Edition - Lab 10

14. Make a screen capture showing the successful localhost ping.



28. Make a screen capture showing the current ARP cache for the vWorkstation machine.



Part 2: Troubleshoot Connectivity Issues on the WAN

Troubleshooting Common Network Issues

Fundamentals of Communications and Networking, Third Edition - Lab 10

7. Make a screen capture showing the router1 ARP cache.

This PC Troubleshooting Common Network Issues 2025-04-07 16:50:17 Patrick Kierzkowski

```
user@router1:~
```

```
64 bytes from 172.20.0.2: icmp_seq=1 ttl=64 time=0.523 ms
64 bytes from 172.20.0.2: icmp_seq=2 ttl=64 time=0.381 ms
64 bytes from 172.20.0.2: icmp_seq=3 ttl=64 time=0.344 ms
...
```
--- 172.20.0.2 ping statistics ---
8 packets transmitted, 0 received, 0 errors, 100% packet loss, time 7040ms
ping user@router1:~$ arp -a
? (172.20.0.2) at 00:50:56:dd:b2:43 [ether] on ens224
? (172.21.0.2) at <incomplete> on ens256
? (172.30.0.2) at 00:50:56:dd:ea:24 [ether] on ens192
user@router1:~$
```

FileZilla GNS3

FileZilla Server ...

WinSCP Packet Sender

Acrobat Reader DC

Windows Taskbar: File Explorer, FileZilla, FileZilla Server ..., WinSCP, Packet Sender, Acrobat Reader DC, Task View, Start, Search, Taskbar icons, 1:50 PM, 4/7/2025

## 11. Make a screen capture showing the current routing table on router1.

This PC Troubleshooting Common Network Issues 2025-04-07 16:51:48 Patrick Kierzkowski

```
user@router1:~
```

```
8 packets transmitted, 0 received, +6 errors, 100% packet loss, time 2025-04-07 16:51:48
ping 3
user@router1:~$ arp -a
? (172.20.0.2) at 00:50:56:dd:b2:43 [ether] on ens224
? (172.21.0.2) at <incomplete> on ens256
? (172.30.0.2) at 00:50:56:dd:ea:24 [ether] on ens192
user@router1:~$ ping 172.22.0.2
connect: Network is unreachable
user@router1:~$ sudo vtysh
[sudo] password for user:
Hello, this is Quagga (version 0.99.24.1).
Copyright 1998-2005 Kunihiko Ishiguro, et al.

router1# show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP,
 O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
 > - selected route, * - FIB route
FileZilla C* 127.0.0.0/8 is directly connected, lo
FileZilla C* 172.20.0.0/24 is directly connected, ens224
FileZilla C* 172.21.0.0/24 is directly connected, ens256
FileZilla C* 172.30.0.0/24 is directly connected, ens192
router1#
```

FileZilla GNS3

FileZilla Server ...

WinSCP Packet Sender

Acrobat Reader DC

Windows Taskbar: File Explorer, FileZilla, FileZilla Server ..., WinSCP, Packet Sender, Acrobat Reader DC, Task View, Start, Search, Taskbar icons, 1:51 PM, 4/7/2025

# Troubleshooting Common Network Issues

Fundamentals of Communications and Networking, Third Edition - Lab 10

## 21. Make a screen capture showing the output of your RIP status command.

```
This PC user@router1:~ configuration saved to /etc/quagga/ripd.conf
[0] user@router1:~ Router# show ip rip status
Routing Protocol is "rip"
 Sending updates every 30 seconds with +/-50%, next due in 4 seconds
 Timeout after 180 seconds, garbage collect after 120 seconds
 Outgoing update filter list for all interface is not set
 Incoming update filter list for all interface is not set
 Default redistribute metric is 1
 Redistributing:
 Default version control: send version 2, receive version 2
 Interface Send Recv Key-chain
 ens192 2 2
 ens24 2 2
 ens256 2 2
 Routing for Networks:
 172.20.0.0/24
 172.21.0.0/24
 172.30.0.0/24
 Routing Information Sources:
 Gateway BadPackets BadRoutes Distance Last Update
 172.20.0.2 0 0 120 00:00:18
 Distance: (default is 120)
 router1#
```

## 23. Make a screen capture showing the new RIP-provided route.

```
This PC user@router1:~ configuration saved to /etc/quagga/ripd.conf
[0] user@router1:~ Router# show ip route
Gateway BadPackets BadRoutes Distance Last Update
172.20.0.2 0 0 120 00:00:18
Distance: (default is 120)
 router1# show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP,
 O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
 > - selected route, * - FIB route

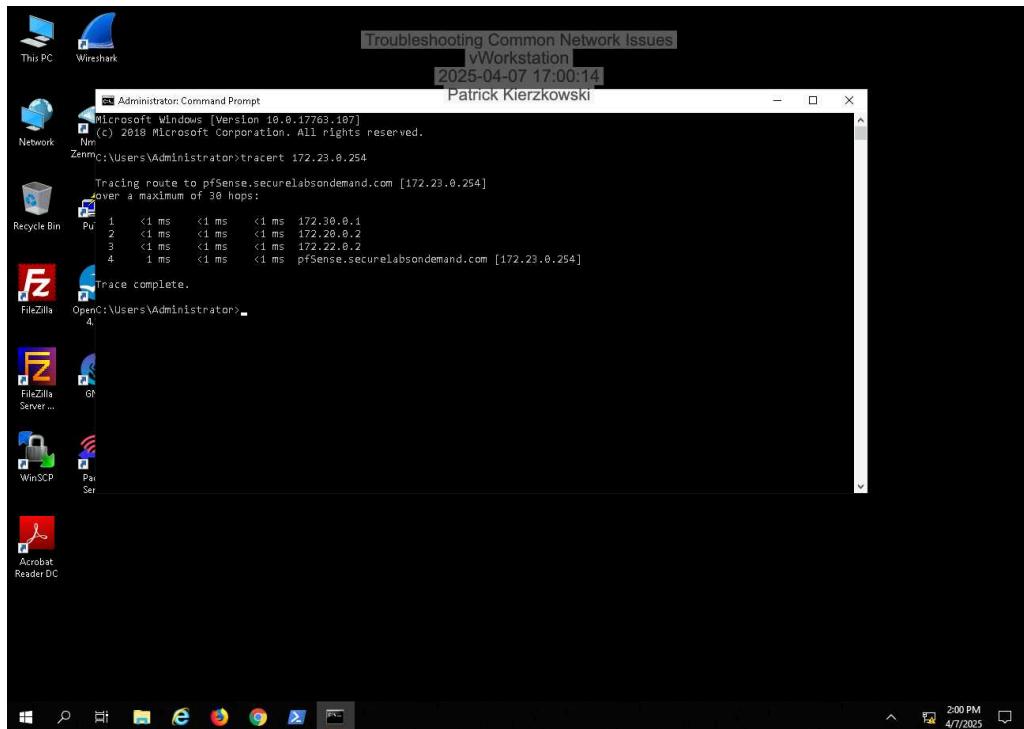
C* 127.0.0.8 is directly connected, lo
C* 172.20.0.0/24 is directly connected, ens224
C* 172.21.0.0/24 is directly connected, ens256
R>* 172.22.0.0/24 [120/2] via 172.20.0.2, ens224, 00:01:10
 router1# show ip route
Codes: K - kernel route, C - connected, S - static, R - RIP,
 O - OSPF, I - IS-IS, B - BGP, P - PIM, A - Babel,
 > - selected route, * - FIB route

C* 127.0.0.8 is directly connected, lo
C* 172.20.0.0/24 is directly connected, ens224
C* 172.21.0.0/24 is directly connected, ens256
R>* 172.22.0.0/24 [120/2] via 172.20.0.2, ens224, 00:01:10
C* 172.30.0.0/24 [120/2] via 172.20.0.2, ens234, 00:01:40
 router1#
```

# Troubleshooting Common Network Issues

Fundamentals of Communications and Networking, Third Edition - Lab 10

39. Make a screen capture showing the successful traceroute to pfSense from the vWorkstation.



# Troubleshooting Common Network Issues

Fundamentals of Communications and Networking, Third Edition - Lab 10

## Section 2: Applied Learning

### Part 1: Troubleshoot VPN Issues

8. Make a screen capture showing the blocked connections from 202.20.1.2 in the firewall logs.

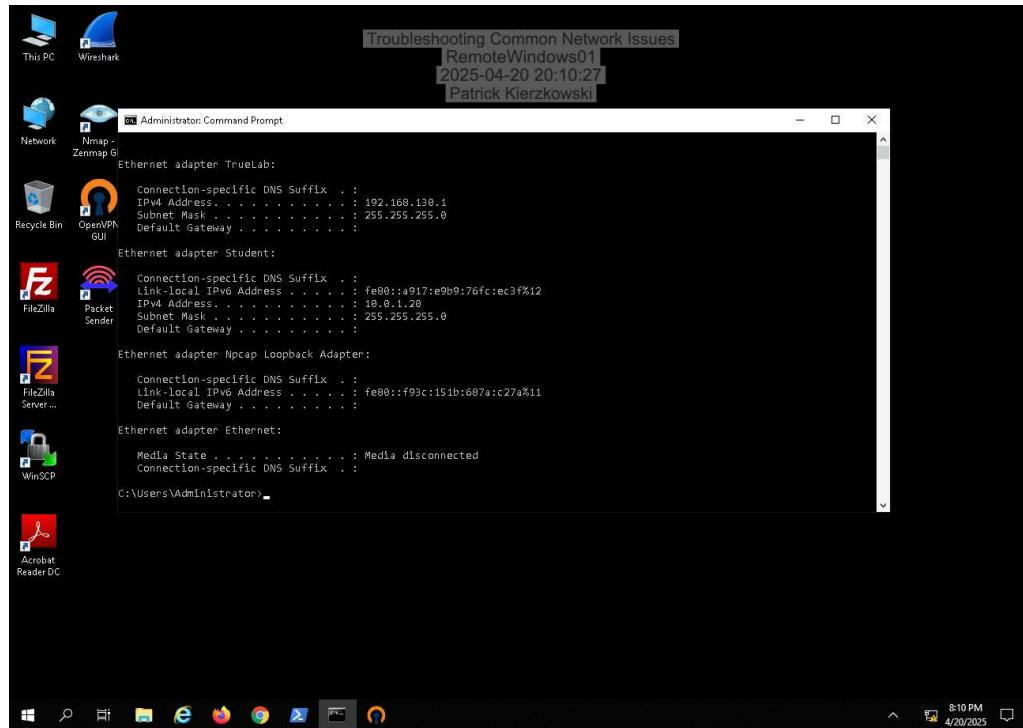
The screenshot shows the pfSense Firewall logs interface. The title bar reads "pfSense.securelabsondemand.co" and "Troubleshooting Common Network Issues vWorkstation". The top navigation bar includes "System", "Interfaces", "Firewall", "Services", "Virtual Servers", "Diagnostics", and "Help". The user "Patrick Kierzkowski" is logged in. A red warning message at the top states: "WARNING: The 'admin' account password is set to the default value. Change the password in the User Manager." Below this, the breadcrumb navigation shows "Status / System Logs / Firewall / Normal View". The main content area is titled "Last 5 Firewall Log Entries. (Maximum 250)". It displays a table with columns: Action, Time, Interface, Source, Destination, and Protocol. The log entries show five blocked connections from source 202.20.1.2 to various destinations (224.0.0.9:520, 224.0.0.1, 202.20.1.1:443, 202.20.1.1:443, 202.20.1.1:443) via the WAN interface. The "Action" column contains a red crossed-out icon. The bottom of the window shows the pfSense footer: "pfSense is developed and maintained by Netgate. © ESF 2004-2025 View license". The taskbar at the bottom of the screen shows icons for File Explorer, Edge, Firefox, and FileZilla, along with system status icons.

| Action | Time            | Interface | Source           | Destination    | Protocol |
|--------|-----------------|-----------|------------------|----------------|----------|
| ✗      | Mar 28 08:02:24 | WAN       | 202.20.1.2:520   | 224.0.0.9:520  | UDP      |
| ✗      | Mar 28 08:02:18 | WAN       | 0.0.0.0          | 224.0.0.1      | IGMP     |
| ✗      | Mar 27 08:37:38 | WAN       | 202.20.1.2:14423 | 202.20.1.1:443 | TCP:S    |
| ✗      | Mar 27 08:37:32 | WAN       | 202.20.1.2:14423 | 202.20.1.1:443 | TCP:SEC  |
| ✗      | Mar 27 08:37:29 | WAN       | 202.20.1.2:14423 | 202.20.1.1:443 | TCP:SEC  |

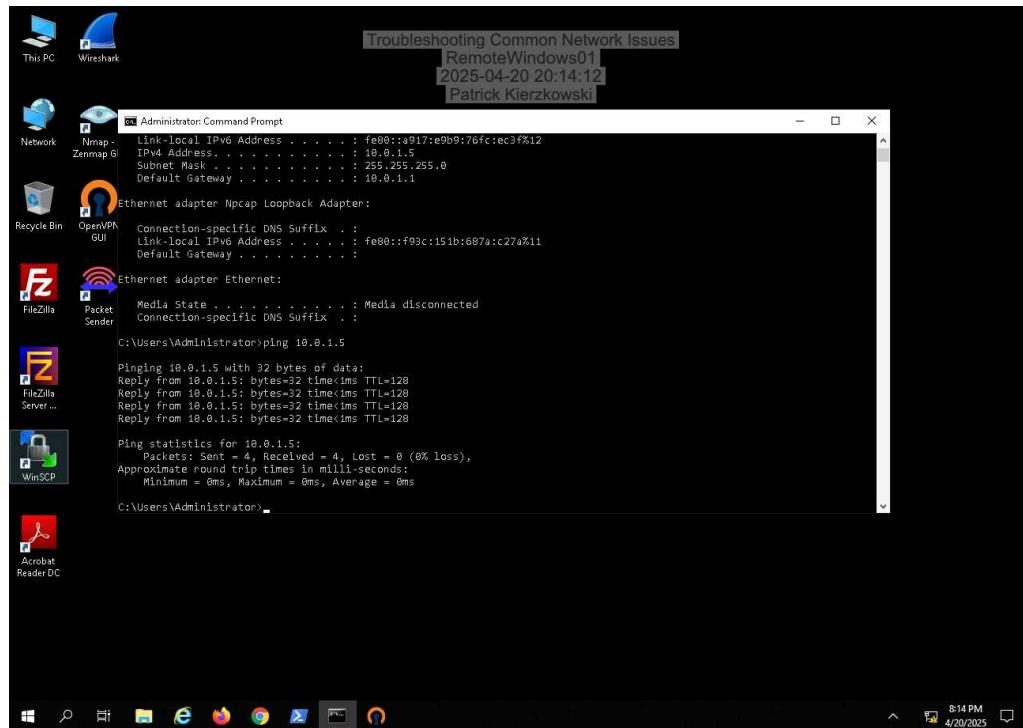
# Troubleshooting Common Network Issues

Fundamentals of Communications and Networking, Third Edition - Lab 10

## 18. Make a screen capture showing the current IP configuration on RemoteWindows01.



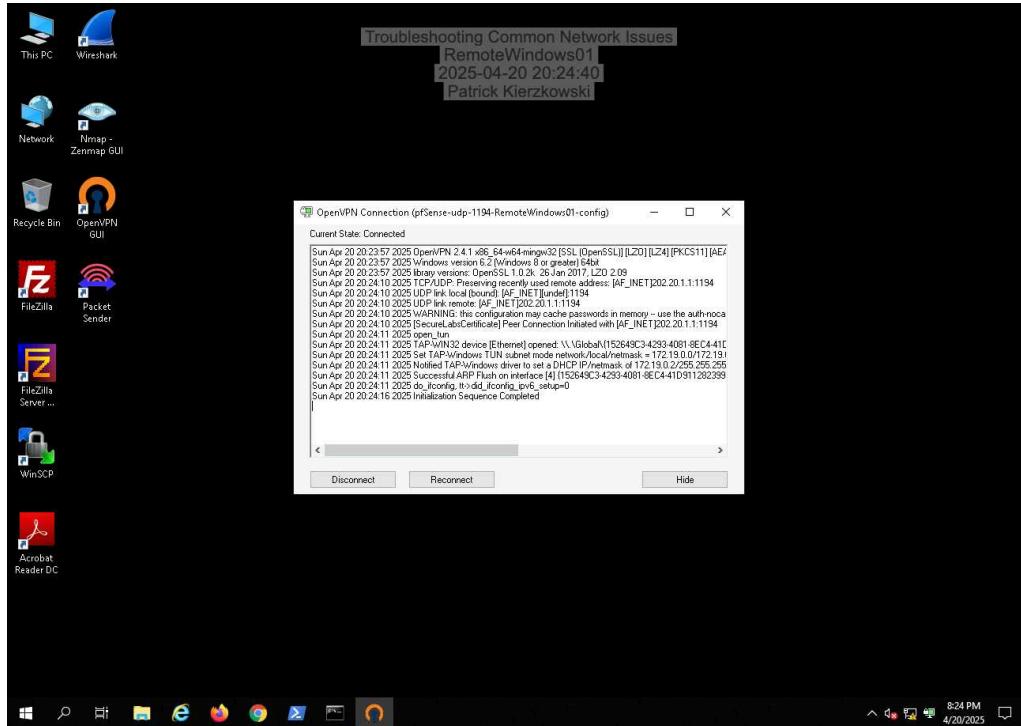
## 22. Make a screen capture showing the successful ping to the RemoteWindows01 machine's default gateway.



# Troubleshooting Common Network Issues

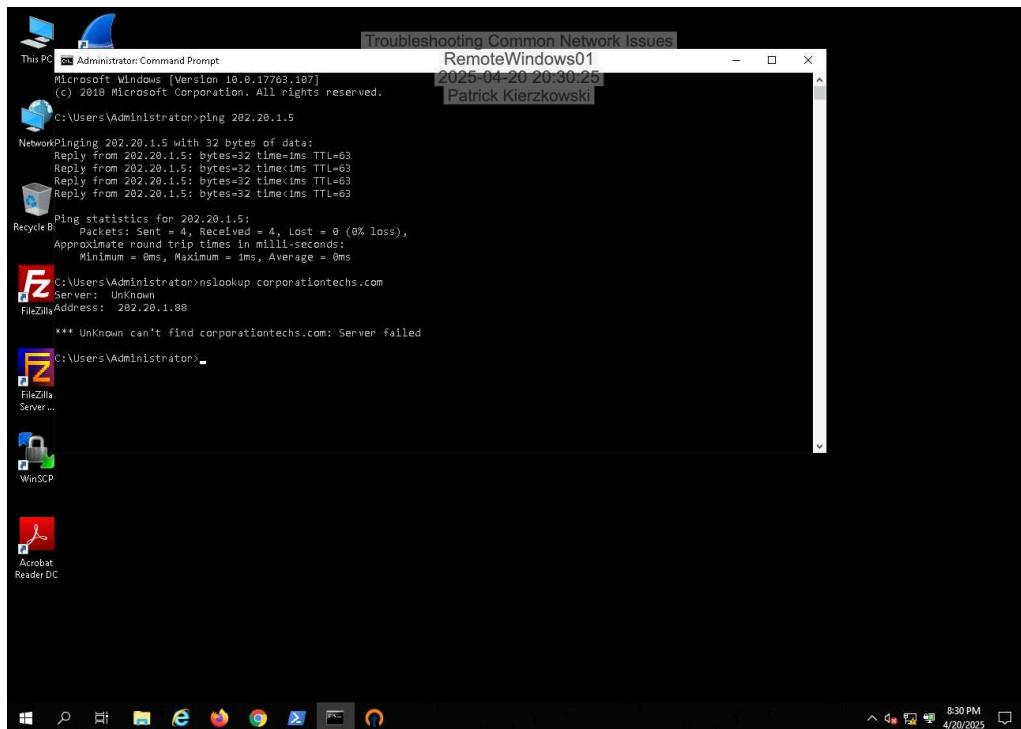
Fundamentals of Communications and Networking, Third Edition - Lab 10

## 31. Make a screen capture showing the OpenVPN Connection window.



## Part 2: Troubleshoot DNS Issues

### 15. Make a screen capture showing the output of your ping and nslookup executions.



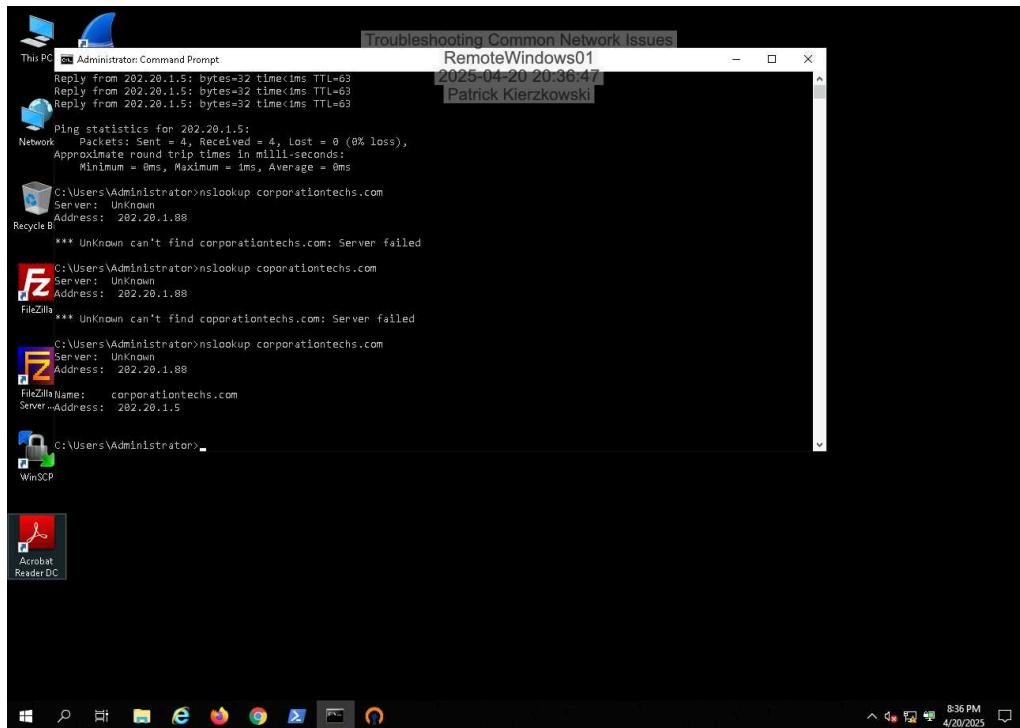
# Troubleshooting Common Network Issues

Fundamentals of Communications and Networking, Third Edition - Lab 10

22. Make a screen capture showing the **successful connection to the corporationtechs.com website.**



25. Make a screen capture showing the **successful record lookup of corporationtechs.com.**



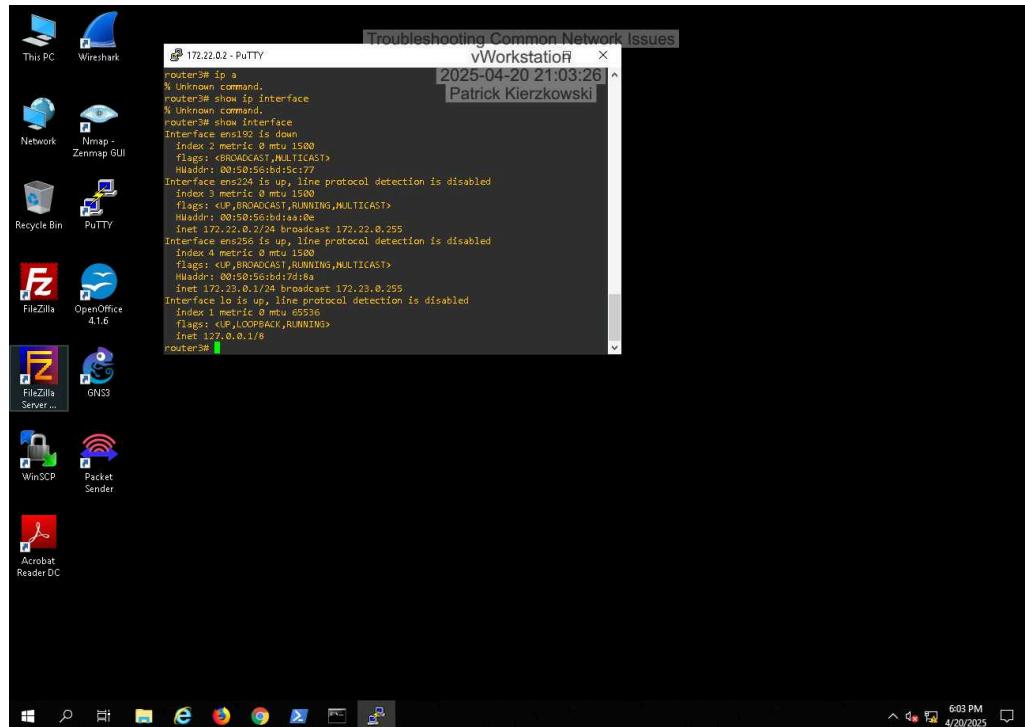
## Section 3: Challenge and Analysis

### Part 1: Continue Troubleshooting Connectivity Issues

**Describe** the networking problem you have identified.

interface ens192 is down

**Make a screen capture showing the command output that corroborates your problem description.**



```
172.22.0.2 - PuTTY
Troubleshooting Common Network Issues
vWorkstation 2025-04-20 21:03:26
Patrick Kierkowski

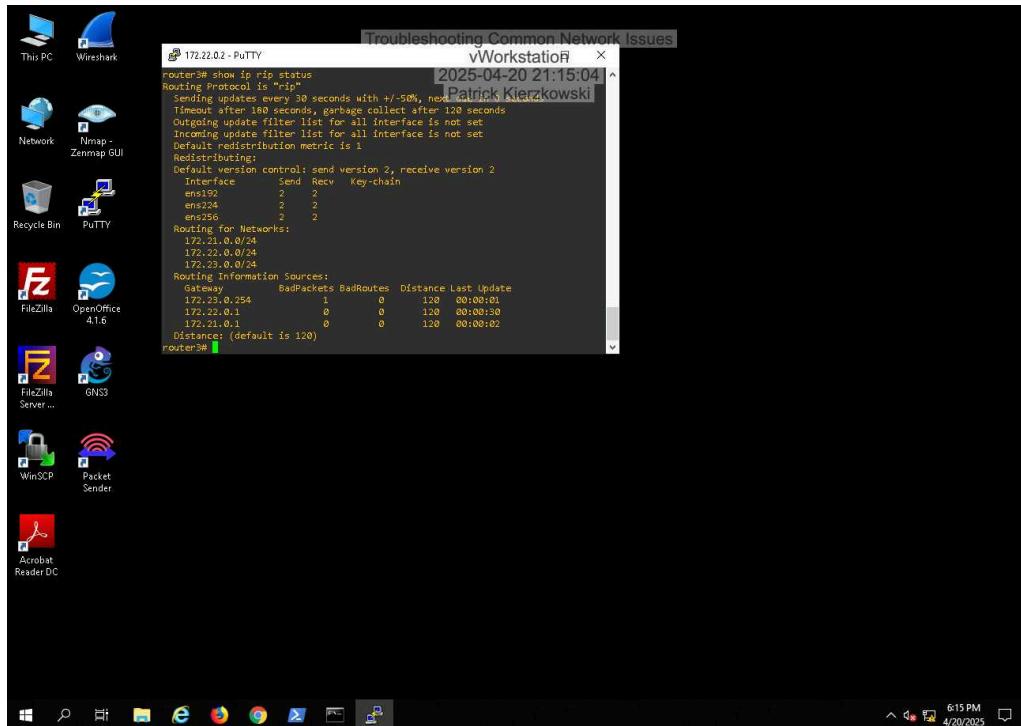
router# ip a
% Unknown command.
router# show ip interface
% Unknown command.
router# show interface
Interface ens192 is down
Index 2 metric 0 mtu 1500
Flags: <NOARP,BROADCAST,RUNNING,MULTICAST>
Hwaddr: 00:50:56:bd:5c:77
Interface ens234 is up, line protocol detection is disabled
Index 3 metric 0 mtu 1500
Flags: <NOARP,BROADCAST,RUNNING,MULTICAST>
Hwaddr: 00:50:56:bd:5c:77
inet 172.22.0.1/24 broadcast 172.22.0.255
Interface ens235 is up, line protocol detection is disabled
Index 4 metric 0 mtu 1500
Flags: <NOARP,BROADCAST,RUNNING,MULTICAST>
Hwaddr: 00:50:56:bd:5c:77
inet 172.23.0.1/24 broadcast 172.23.0.255
Interface lo is up, line protocol detection is disabled
Index 1 metric 0 mtu 65536
Flags: <LOOPBACK,RUNNING>
inet 127.0.0.1/8
router#
```

### Part 2: Resolve the Connectivity Issues

# Troubleshooting Common Network Issues

Fundamentals of Communications and Networking, Third Edition - Lab 10

Make a screen capture showing the **output of your status command.**



The screenshot shows a Windows desktop environment. On the left is a pinned Start menu with icons for This PC, Wireshark, Network, Nmap - Zenmap GUI, Recycle Bin, PuTTY, FileZilla, OpenOffice 4.1.6, FileZilla Server ..., GNS3, WinSCP, Packet Sender, and Acrobat Reader DC. A taskbar at the bottom has icons for File Explorer, Edge, Firefox, Chrome, FileZilla, and a search bar. In the center, a PuTTY terminal window titled "172.22.0.2 - PuTTY" displays the output of the "show ip route status" command. The output includes information about the Routing Protocol (ospf), sending updates every 30 seconds, and various interfaces (ens192, ens224, ens225) with their respective send and receive counts. It also lists routes for networks (172.21.0.0/24, 172.22.0.0/24, 172.23.0.0/24) and routing information sources. The timestamp in the window is 2025-04-20 21:15:04. The system tray at the bottom right shows the date as 4/20/2025 and the time as 6:15 PM.

```
root@router:~# show ip route status
Routing Protocol is "ospf"
 Sending updates every 30 seconds with +/-5%, next update in 120 seconds
 Timeout after 180 seconds, garbage collect after 120 seconds
 Outgoing update filter list for all interface is not set
 Incoming update filter list for all interface is not set
 Default redistribution metric is 1
 Router priority is 1
 Default version control: send version 2, receive version 2
 Interface Send Recv Key-chain
 ens192 2 2
 ens224 2 2
 ens225 2 2
 Routes for Networks:
 172.21.0.0/24
 172.22.0.0/24
 172.23.0.0/24
 Routing Information Sources:
 Gateway Badpackets BadRoutes Distance Last Update
 172.21.0.254 0 0 120 00:00:19
 172.22.0.1 0 0 120 00:00:39
 172.21.0.1 0 0 120 00:00:02
 Distance: (default is 120)
root@router:~#
```