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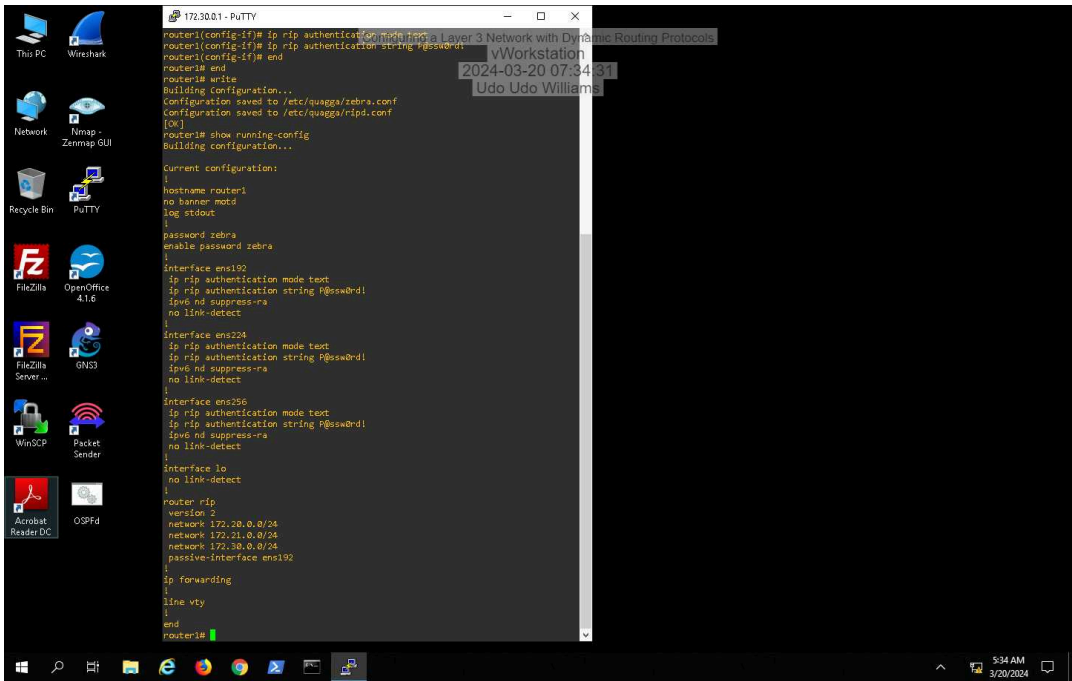
Time on Task:	Progress:
11 hours, 16 minutes	100%

Report Generated: Wednesday, March 20, 2024 at 1:54 PM

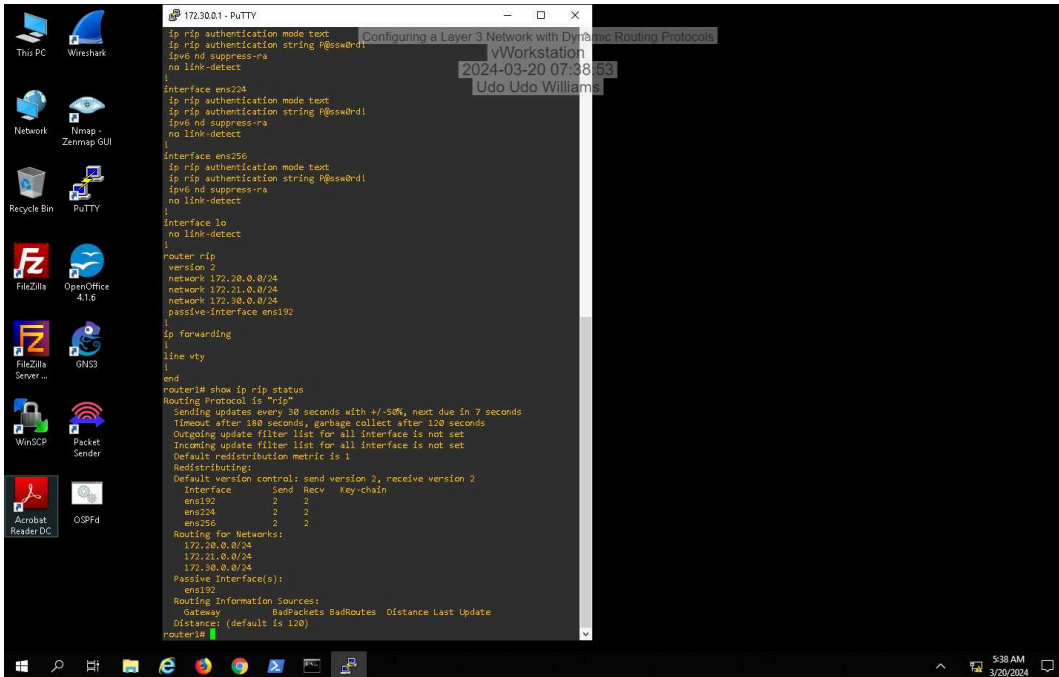
Section 1: Hands-On Demonstration

Part 1: Configure RIPv2 on the Routers

22. Make a screen capture showing the currently running RIP configuration on router1.



24. Make a screen capture showing the output of the show ip rip status command.



```
172.20.0.1 - PuTTY
ip rip authentication mode text
ip rip authentication string P@ssw@rd!
ip v6 nd suppress-ra
no link-detect

interface ens224
ip rip authentication mode text
ip rip authentication string P@ssw@rd!
ip v6 nd suppress-ra
no link-detect

interface ens256
ip rip authentication mode text
ip rip authentication string P@ssw@rd!
ip v6 nd suppress-ra
no link-detect

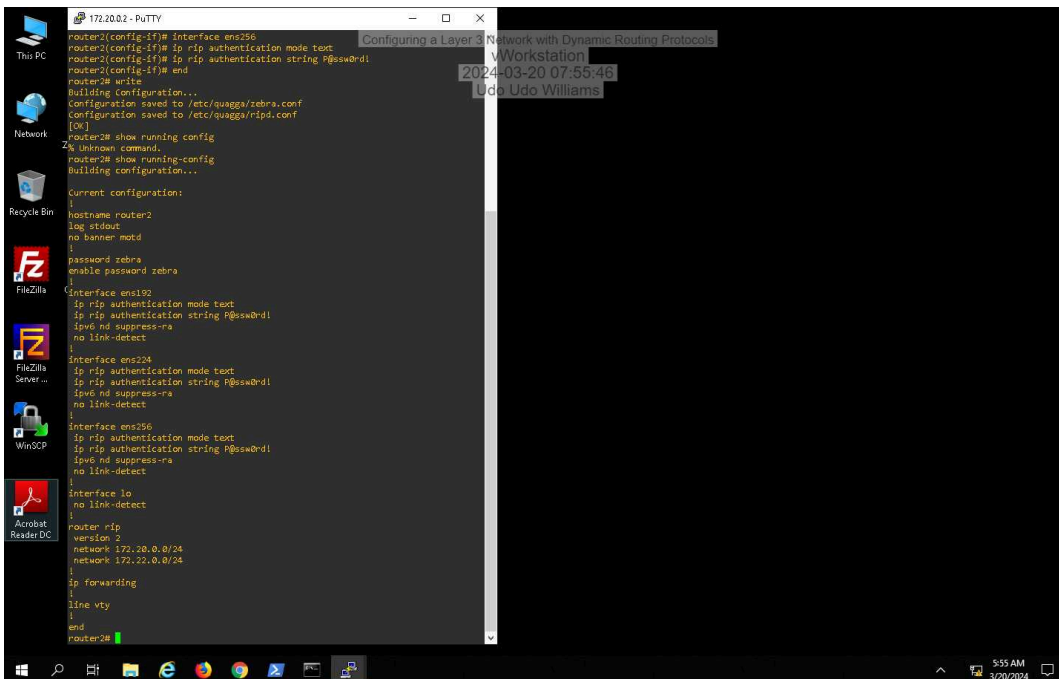
interface lo
no link-detect

router rip
version 2
network 172.20.0.0/24
network 172.21.0.0/24
network 172.30.0.0/24
passive-interface ens192

ip forwarding
line vty
end

router1# show ip rip status
Routing Protocol is "rip"
  Sending updates every 30 seconds with +/-50%, next due in 7 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
  Redistributing:
    Default version control: send version 2, receive version 2
  Interface          Send  Recv  Key-chain
    ens192             2     2
    ens224             2     2
    ens256             2     2
  Routing for Networks:
    172.20.0.0/24
    172.21.0.0/24
    172.30.0.0/24
  Passive Interface(s):
    ens192
  Routing Information Sources:
    Gateway         RedPackets RedRoutes  Distance Last Update
  Distance: (default is 120)
router1#
```

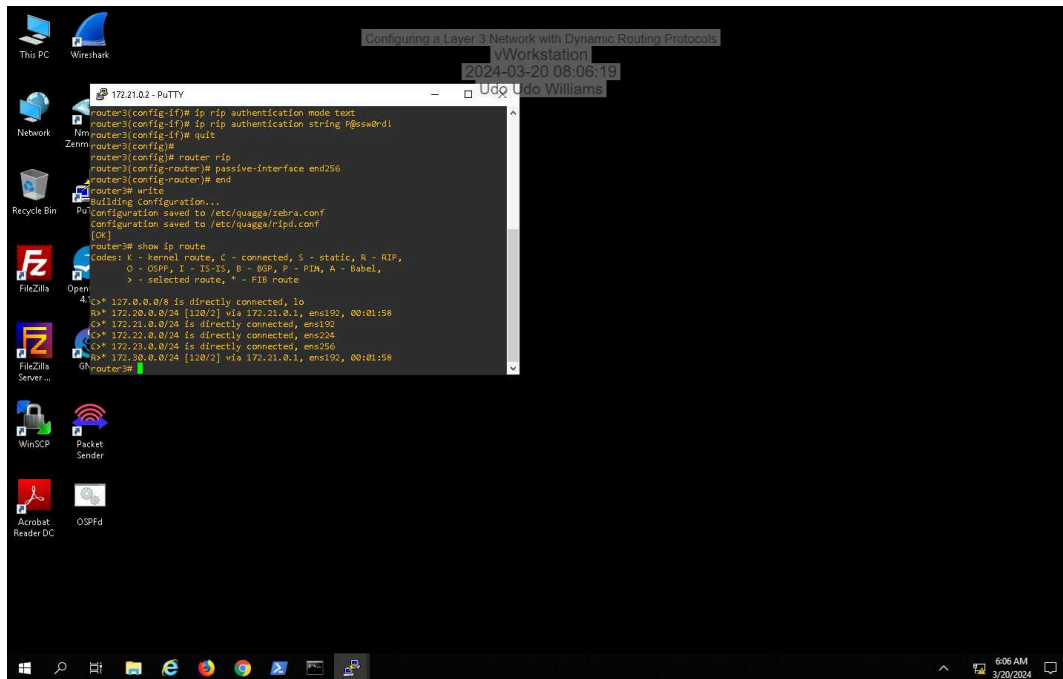
30. Make a screen capture showing the currently running RIP configuration on router2.



```
172.20.0.2 - PuTTY
router1(config-if)# interface ens256
router1(config-if)# ip rip authentication mode text
router2(config-if)# ip rip authentication string P@ssw@rd!
router2(config-if)# end
router2# write
Building Configuration...
Configuration saved to /etc/quags/zebra.conf
Configuration saved to /etc/quags/ripd.conf
[OK]
router2# show running-config
A unknown command.
router2# show running-config
Building configuration...

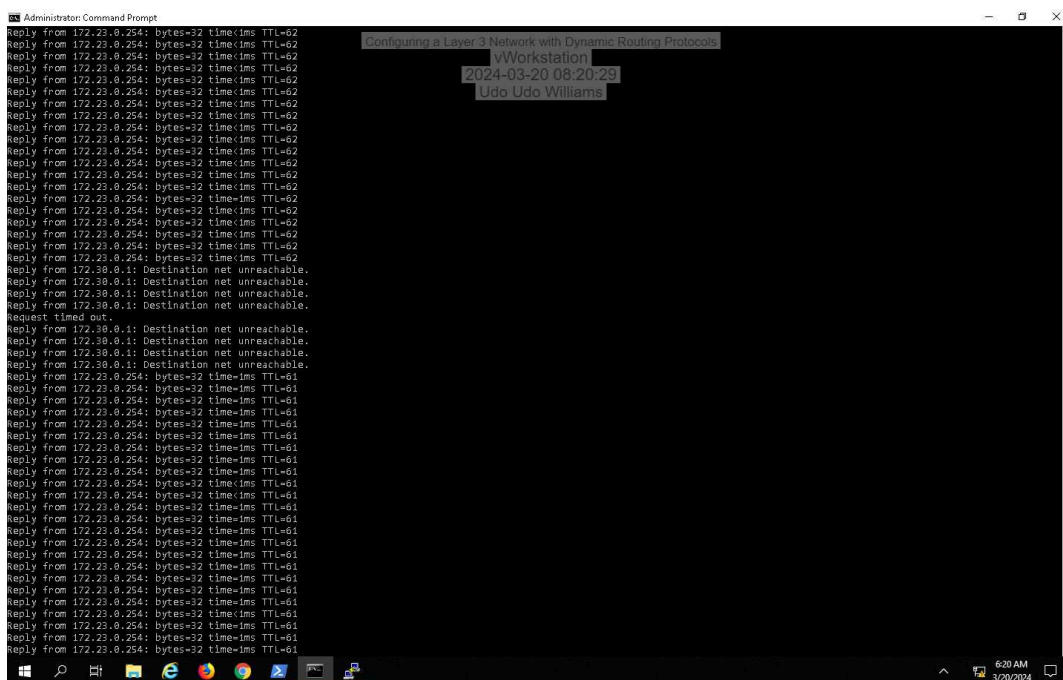
Current configuration:
hostname router2
log stduo
no banner motd
!
password zebra
enable password zebra
!
interface ens192
ip rip authentication mode text
ip rip authentication string P@ssw@rd!
ip v6 nd suppress-ra
no link-detect
!
interface ens224
ip rip authentication mode text
ip rip authentication string P@ssw@rd!
ip v6 nd suppress-ra
no link-detect
!
interface ens256
ip rip authentication mode text
ip rip authentication string P@ssw@rd!
ip v6 nd suppress-ra
no link-detect
!
interface lo
no link-detect
!
router rip
version 2
network 172.20.0.0/24
network 172.22.0.0/24
!
ip forwarding
line vty
end
router2#
```

41. **Make a screen capture** showing the routes known by router3.

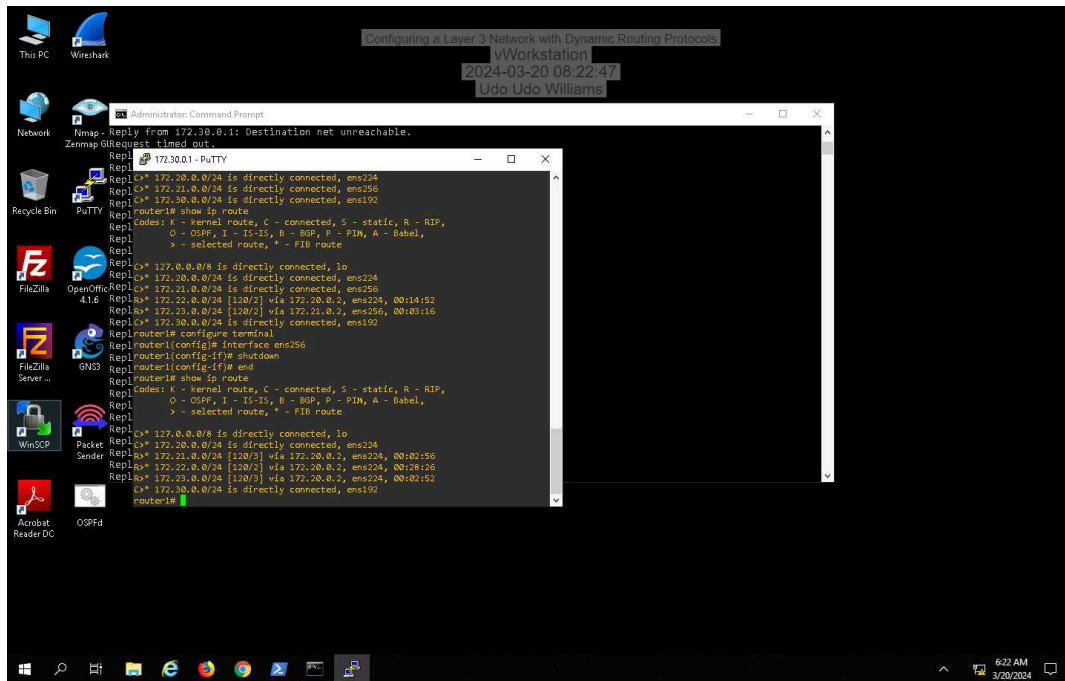


Part 2: Test the RIPv2 Configuration

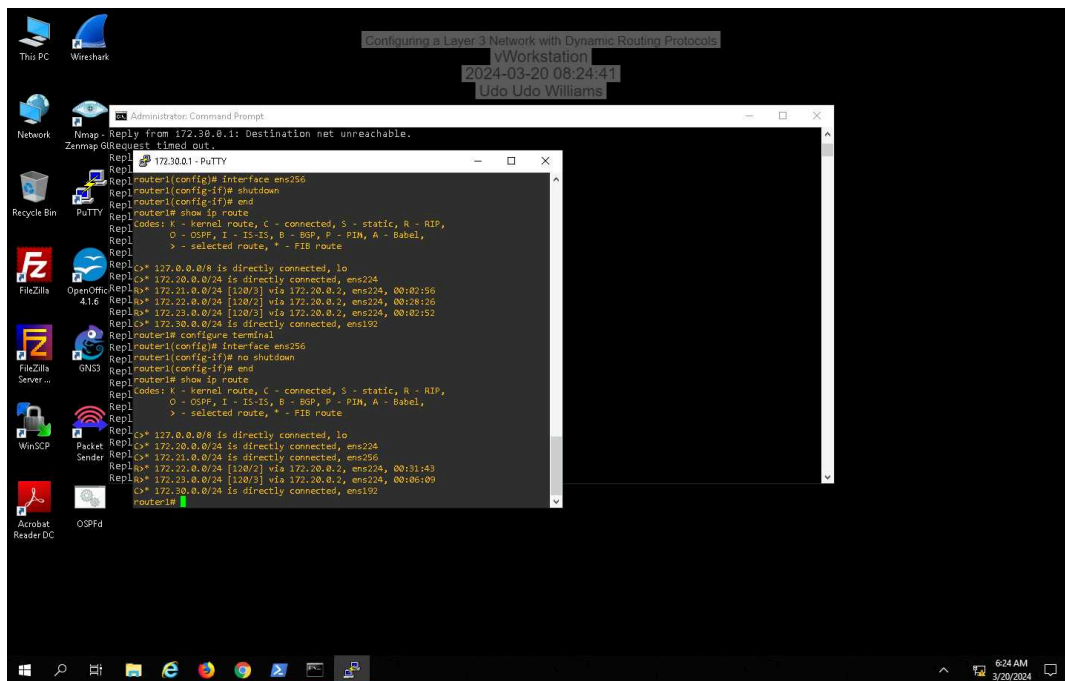
15. **Make a screen capture** showing the “Destination net unreachable” messages, including the successful responses that preceded and succeeded them.



20. Make a screen capture showing the new routing table on router1 that resulted from the ens256 link removal.



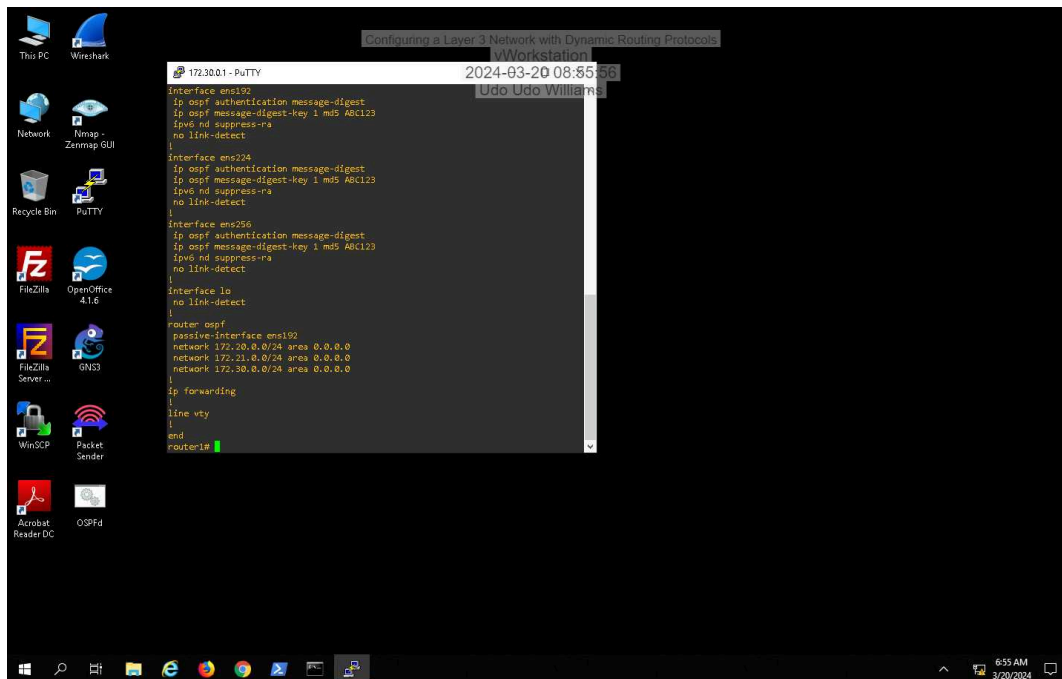
26. Make a screen capture showing the updated routing table on router1.



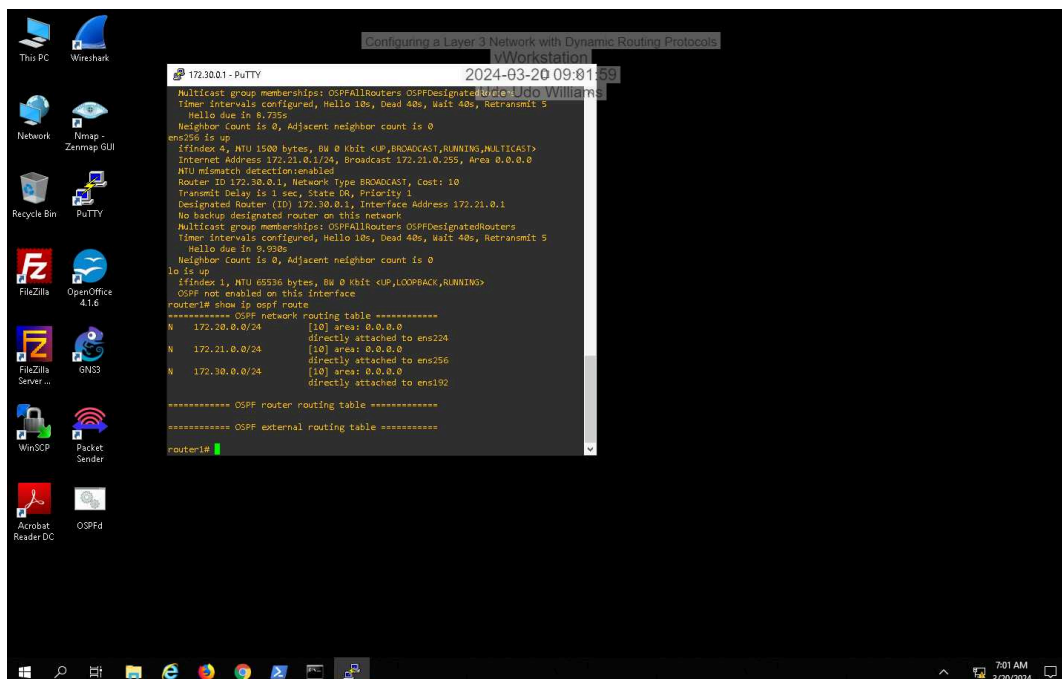
Section 2: Applied Learning

Part 1: Configure OSPFv2 on the Routers

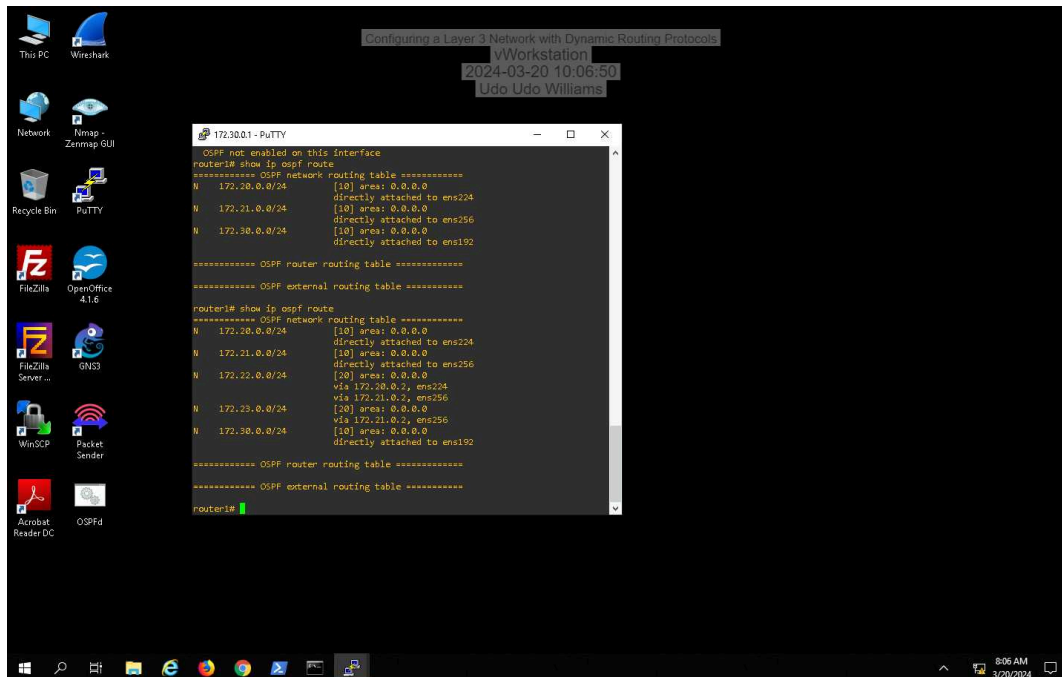
17. Make a screen capture showing the running OSPF configuration on router1.



20. Make a screen capture showing the current OSPF routing table on router1.

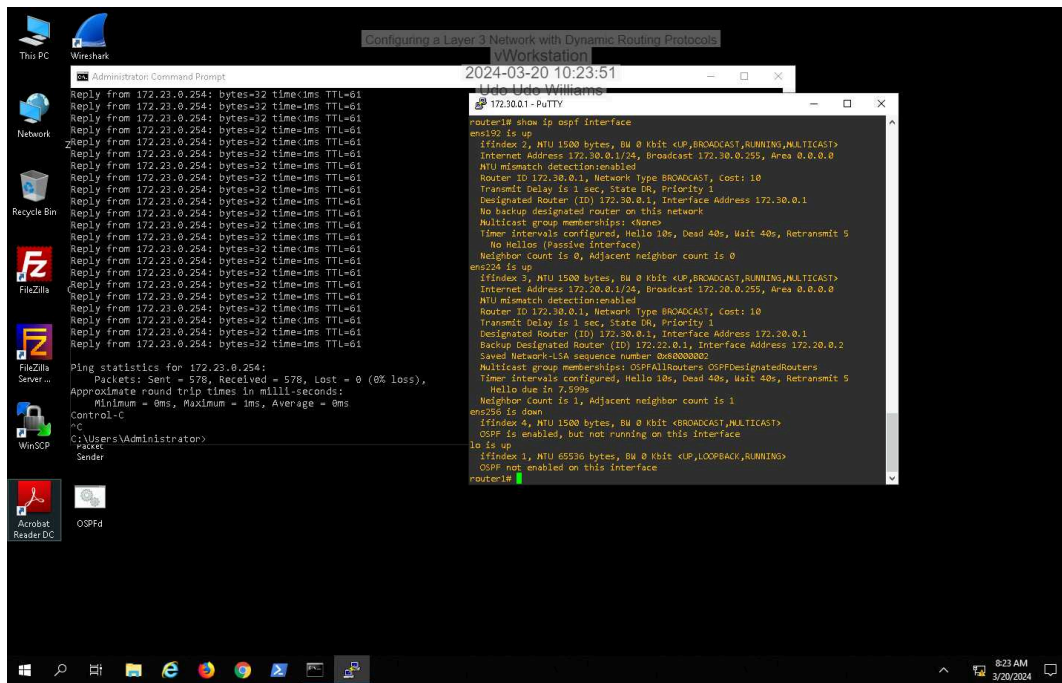


26. Make a screen capture showing the updated OSPF routing table on router1.

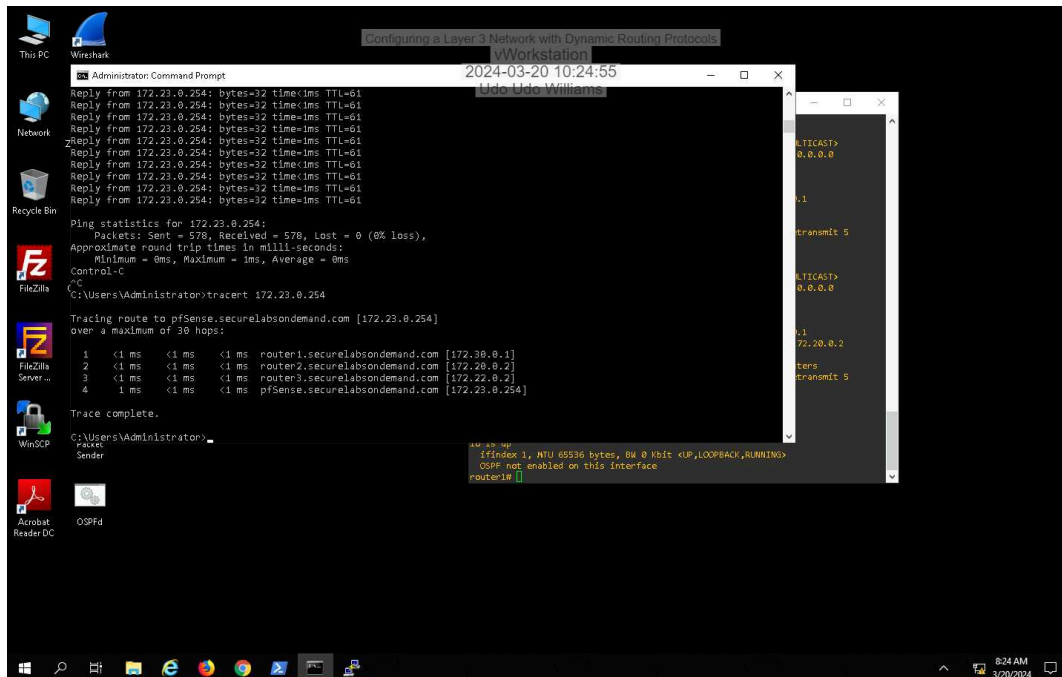


Part 2: Test the OSPFv2 Configuration

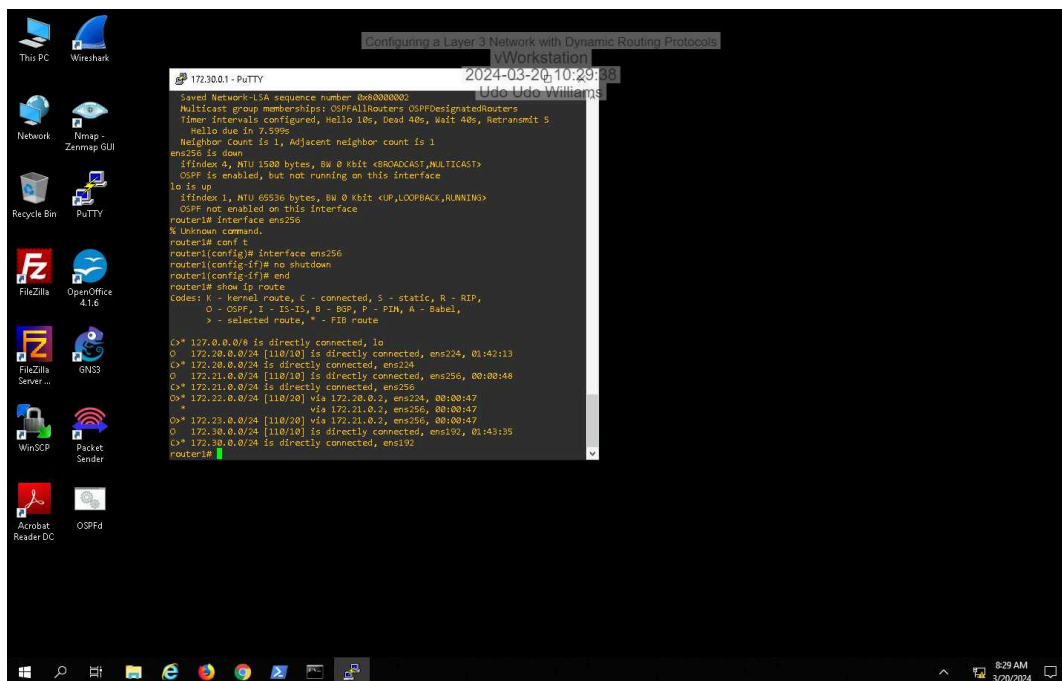
13. Make a screen capture showing that ens256 is down per the OSPF interface output.



16. Make a screen capture showing the traceroute path through router2.



23. Make a screen capture showing the full routing table on router1.



Section 3: Challenge and Analysis

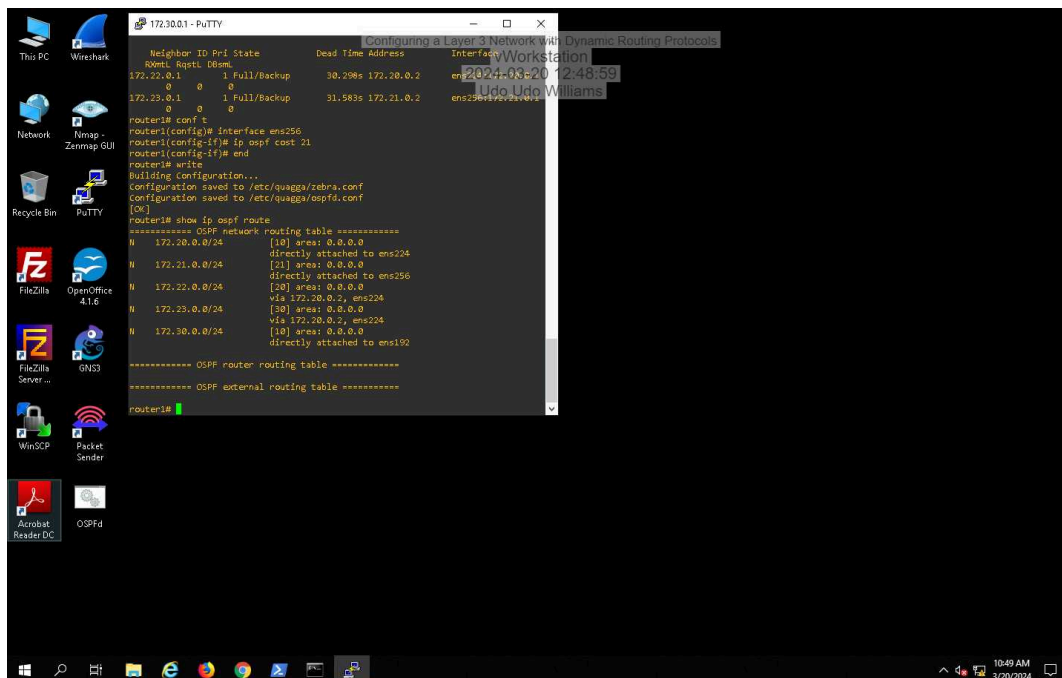
Part 1: Calculate the OSPF Cost to Force a New Path Preference

Record the minimum OSPF cost needed for the router1 > router3 link to convince OSPF that this path is less efficient than the router1 > router2 > router3 path. **Explain** how you calculated this value.

The minimum OSPF cost needed for the Router1 > Router3 link to convince OSPF that this path is less efficient than the Router1 > Router2 > Router3 path is 21 or any value greater than 21. To convince OSPF that the path through Router1 > Router3 is less efficient than the path through Router1 > Router2 > Router3, we need to increase the OSPF cost of the Router1 > Router3 link. To increase the cost of the Router1 > Router3 link sufficiently, we can calculate the desired minimum OSPF cost by the following formula: $\text{Desired OSPF Cost} = \text{Current OSPF Cost} + \text{Additional Cost}$. Let's denote the additional cost as x . So, the desired OSPF cost becomes: $\text{Desired OSPF Cost} = 10 + x$. For the path through Router1 > Router3 to have a higher cumulative cost than the path through Router1 > Router2 > Router3, the total OSPF cost for Router1 > Router3 path should be greater than 30. Therefore, the equation becomes: $10 + x > 30$. Solving for x : $x > 30 - 10$, $x > 20$.

Part 2: Manually Set the OSPF Cost to Force a New Path Preference

Make a screen capture showing the **new cost assignments on router1's OSPF routes**.



Part 3: Test Your Cost Changes

Configuring a Layer 3 Network with Dynamic Routing Protocols

Fundamentals of Communications and Networking, Third Edition - Lab 05

Make a screen capture showing the new path taken to reach the pfSense appliance.

