Andree Salvo

Southern New Hampshire University

3-3 Project One Stepping Stone: Network Troubleshooting Practice

CYB 310

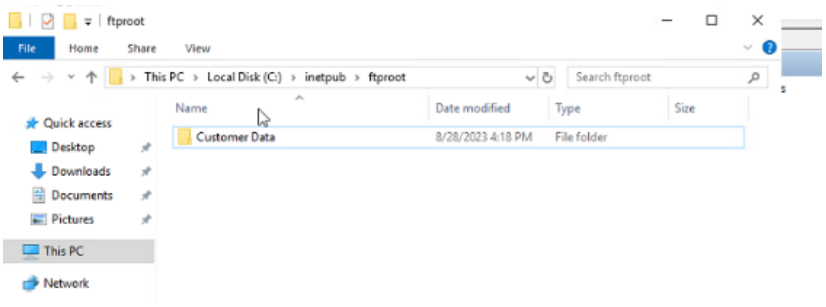
Instructor: Rachid Muller

Network Deficiencies

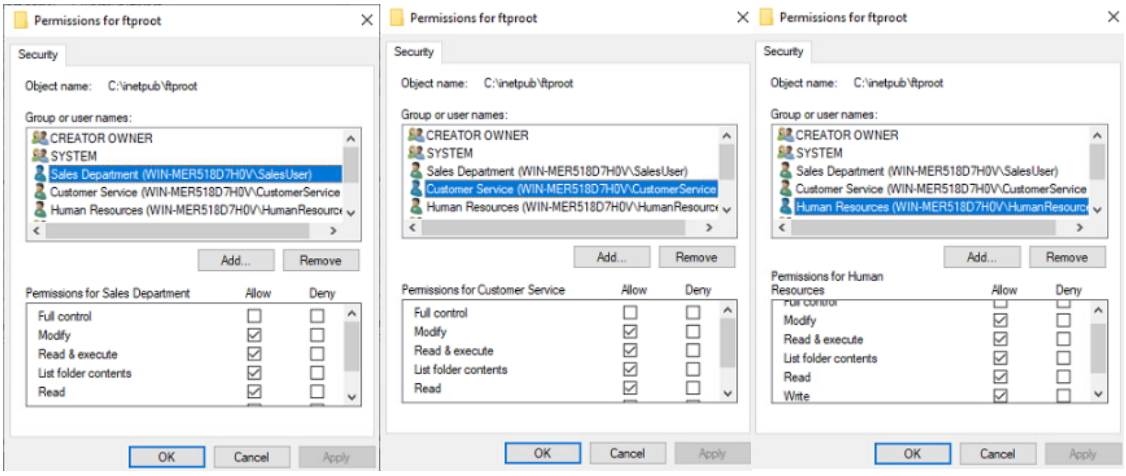
I. Issue One

A. Identify the Configuration Error

Validating that the Customer Data is in the file explorer

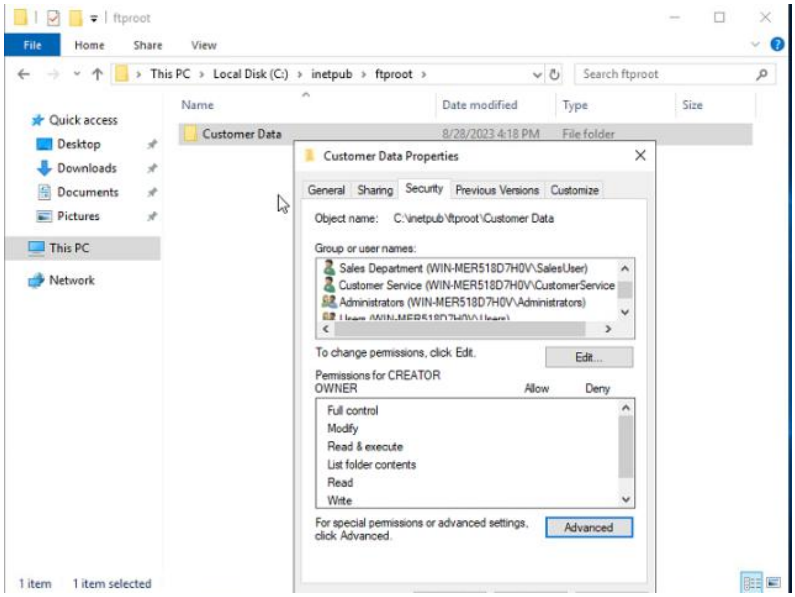


From the Customer Security Data Tab, we see that Sales and Customer Service have the right permissions. While HR is misconfigured.

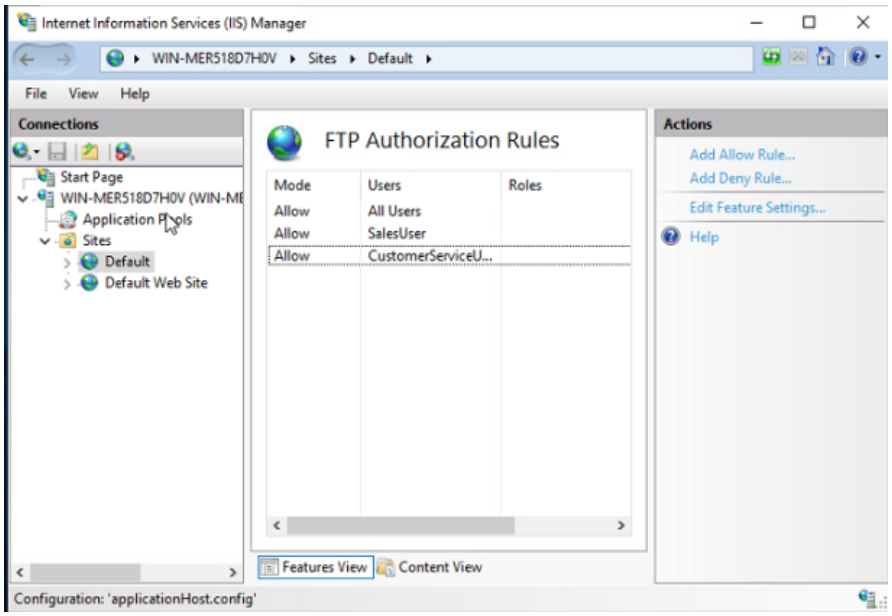


B. Troubleshoot the issue & provide screenshots of the resolution

When troubleshooting, I went ahead and removed HR so that only the SalesUser and CustomerService have the correct permissions.

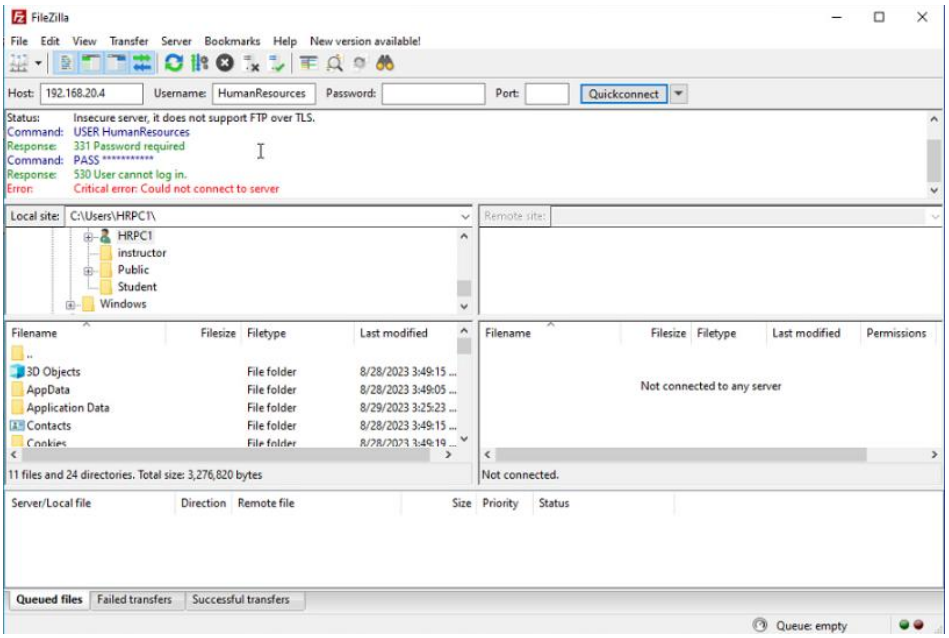


I went to the **Internet Information Services Manager**, went ahead to the FTP Authorization Rules, and granted SalesUser and CustomerServiceUser read **and Write access.**

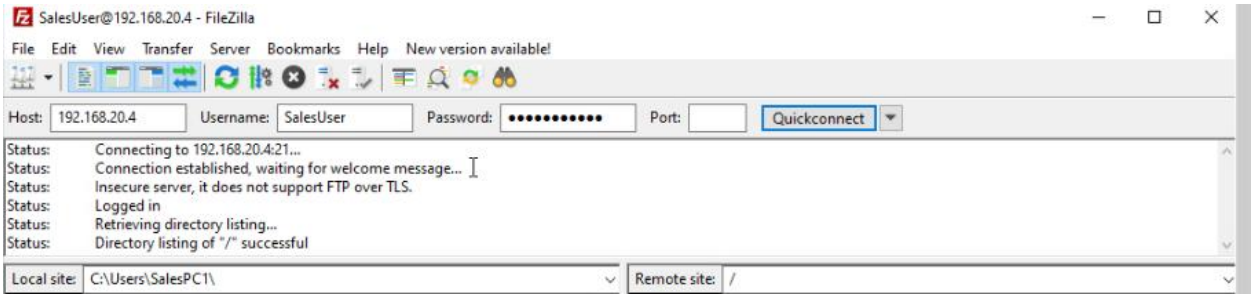


Proven fix on the client's PCs (FileZilla)

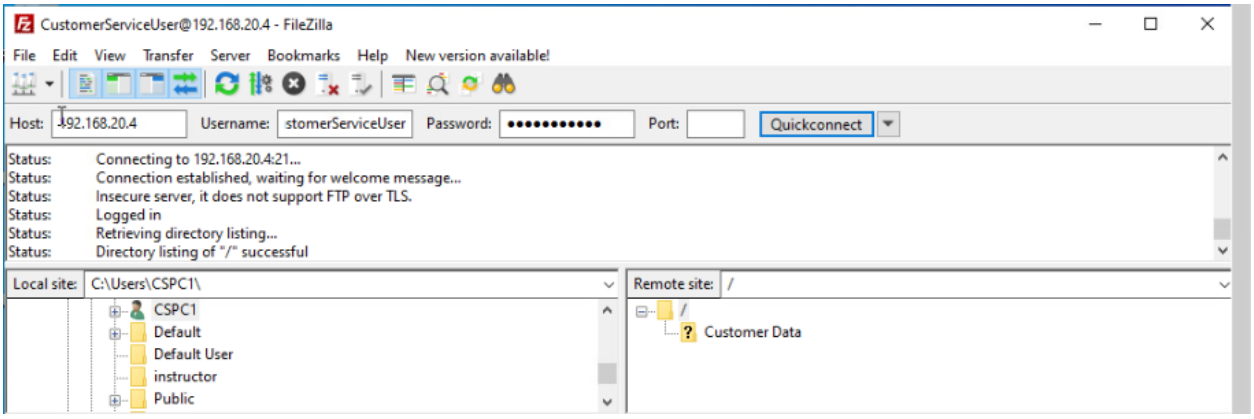
HR got denied



Sales was a successful login



Customer Service was a successful login



C. Approach & justify your resolution

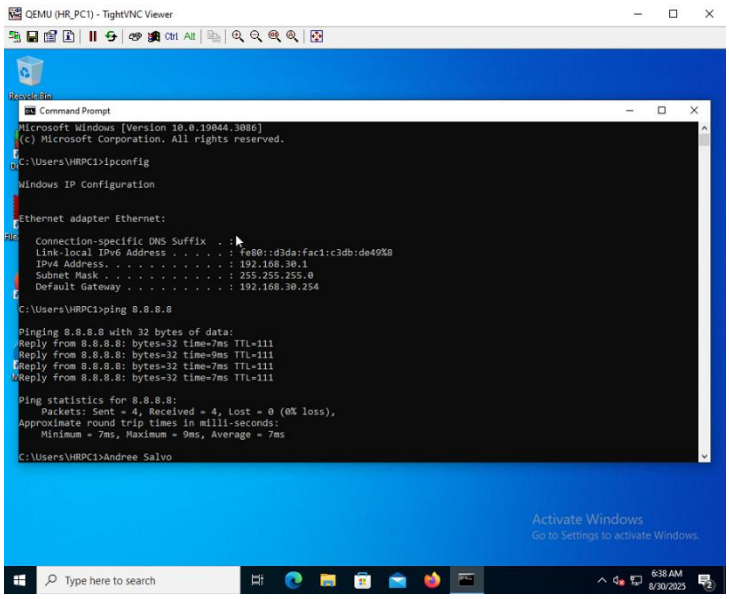
I checked the folder's NTFS permissions on C:\inetpub\ftproot\Customer Data, disabled the inheritance, removed HR completely and kept Sales/CustomerService with the right access, and matched IIS FTP Authorization to allow only those users. Verified via FileZilla: HR denied (530), Sales/CustomerService allowed.

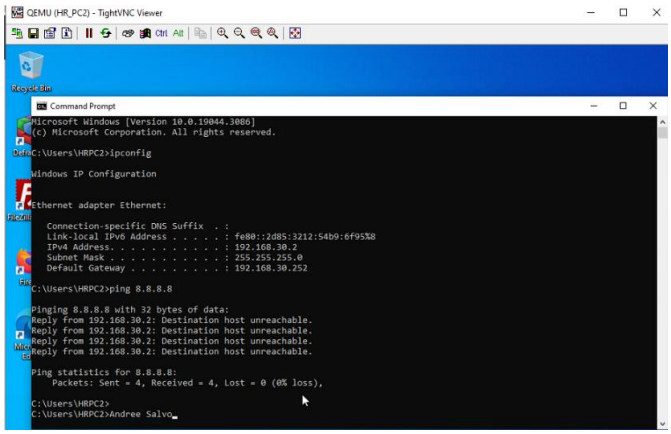
Justification: This enforces the **least privilege** and **confidentiality** (CIA triad) with **defense-in-depth at NTFS and IIS, while maintaining access** for Sales and Customer Service.

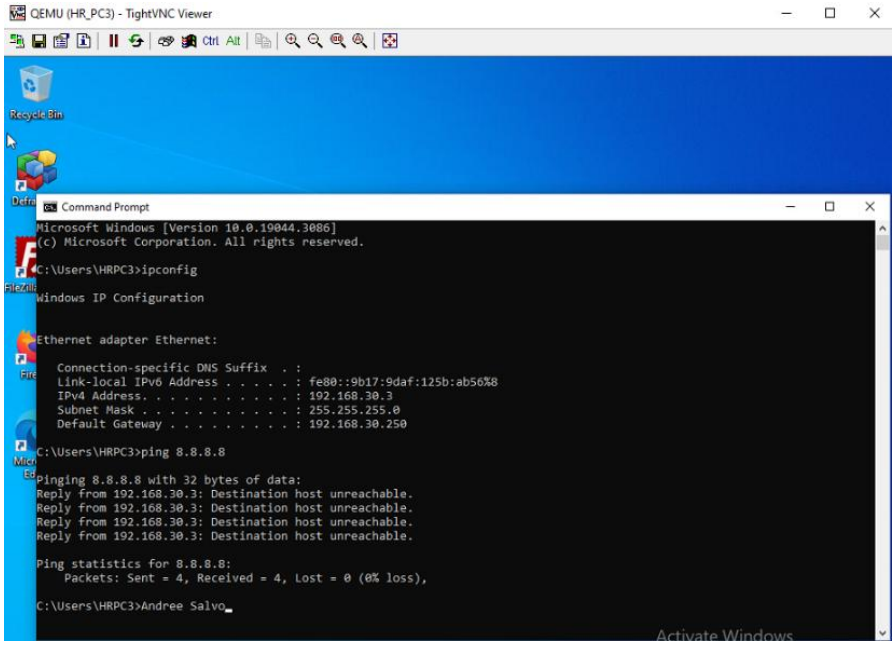
II. Issue Two

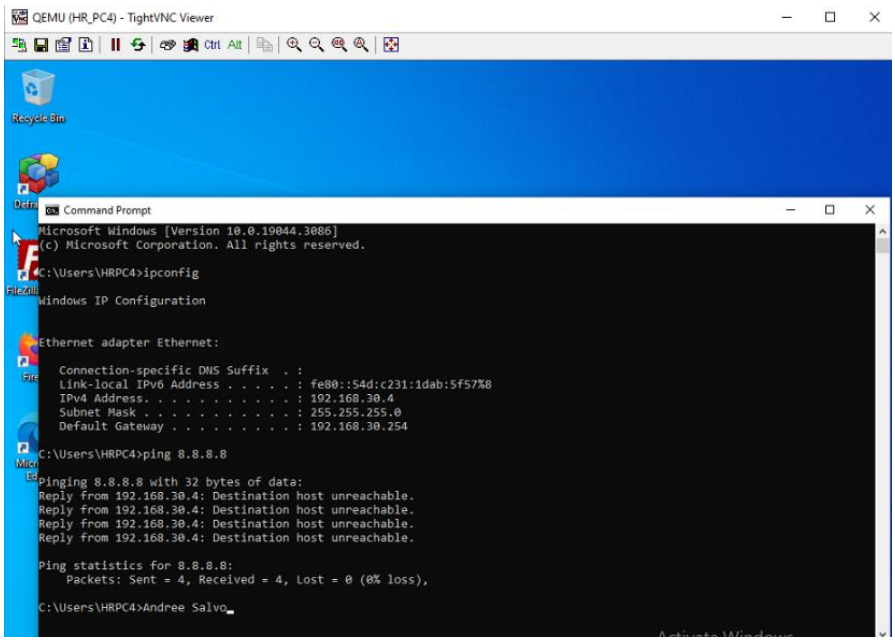
A. Configuration error

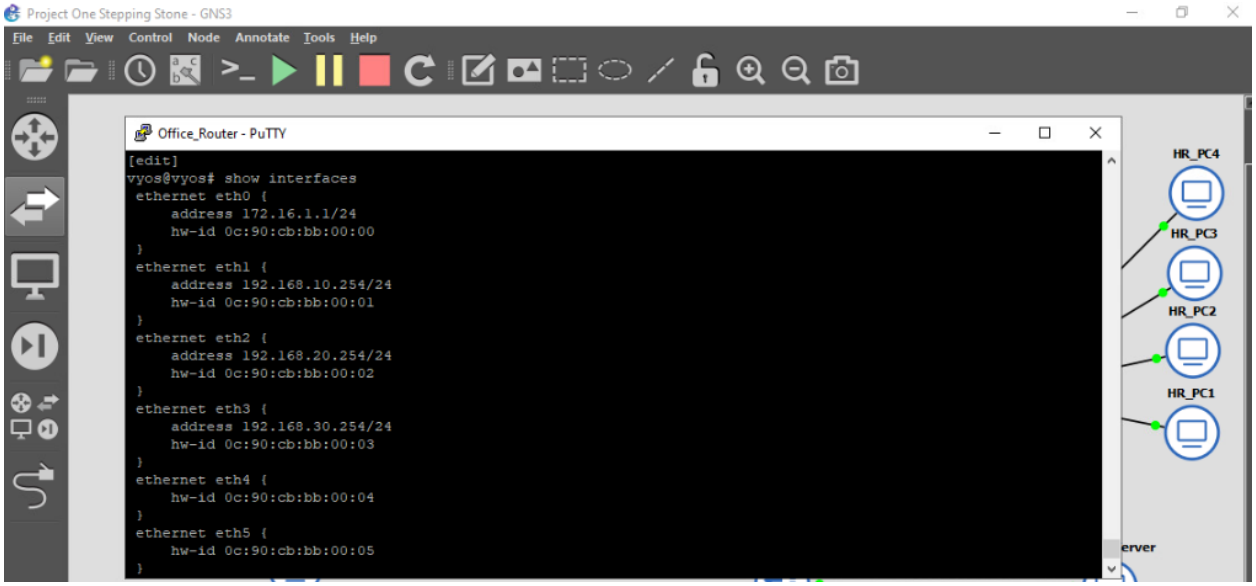
HR_PC1 is the only system capable of connecting to the internet, as evidenced by its successful ping to 8.8.8.8. PCs 2 and 3 are misconfigured with the wrong default gateway, while PCs 2 and 4 are also misconfigured at the switch level, as they are not on the same LAN 30 as PCs 1 and 3.


QEMU (HR_PC1) - TightVNC Viewer
Command Prompt
Microsoft Windows [Version 10.0.19044.3086]
(c) Microsoft Corporation. All rights reserved.
C:\Users\HRPC1>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::d3da:fac1:c3db:de49%8
IPv4 Address. . . . . : 192.168.30.1
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.30.254
C:\Users\HRPC1>ping 8.8.8.8
Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Reply from 8.8.8.8: bytes=32 time=9ms TTL=111
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Ping statistics for 8.8.8.8:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 7ms, Maximum = 9ms, Average = 7ms
C:\Users\HRPC1>Andree Salvo
Activate Windows
Go to Settings to activate Windows.
Type here to search
6:38 AM
8/30/2025

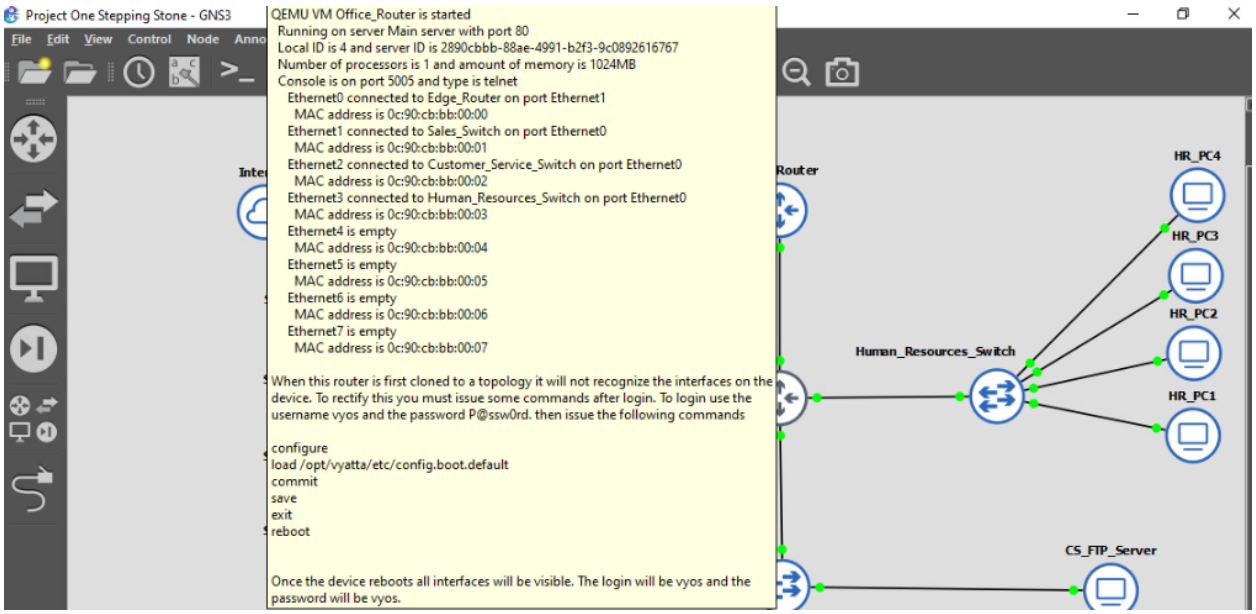

QEMU (HR_PC2) - TightVNC Viewer
Command Prompt
Microsoft Windows [Version 10.0.19044.3086]
(c) Microsoft Corporation. All rights reserved.
C:\Users\HRPC2>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::2d85:3212:54b9:6f95%8
IPv4 Address. . . . . : 192.168.30.2
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.30.252
C:\Users\HRPC2>ping 8.8.8.8
Pinging 8.8.8.8 with 32 bytes of data:
Reply from 192.168.30.2: Destination host unreachable.
Reply from 192.168.30.2: Destination host unreachable.
Reply from 192.168.30.2: Destination host unreachable.
Reply from 192.168.30.2: Destination host unreachable.
Ping statistics for 8.8.8.8:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
C:\Users\HRPC2>
C:\Users\HRPC2>Andree Salvo


QEMU (HR_PC3) - TightVNC Viewer
Recycle Bin
Command Prompt
Microsoft Windows [Version 10.0.19044.3086]
(c) Microsoft Corporation. All rights reserved.
C:\Users\HRPC3>ipconfig
Windows IP Configuration
Ethernet adapter Ethernet:
Connection-specific DNS Suffix . :
Link-local IPv6 Address . . . . . : fe80::9b17:9daf:125b:ab56%8
IPv4 Address. . . . . : 192.168.30.3
Subnet Mask . . . . . : 255.255.255.0
Default Gateway . . . . . : 192.168.30.250
C:\Users\HRPC3>ping 8.8.8.8
Pinging 8.8.8.8 with 32 bytes of data:
Reply from 192.168.30.3: Destination host unreachable.
Reply from 192.168.30.3: Destination host unreachable.
Reply from 192.168.30.3: Destination host unreachable.
Reply from 192.168.30.3: Destination host unreachable.
Ping statistics for 8.8.8.8:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
C:\Users\HRPC3>Andree Salvo
Activate Windows



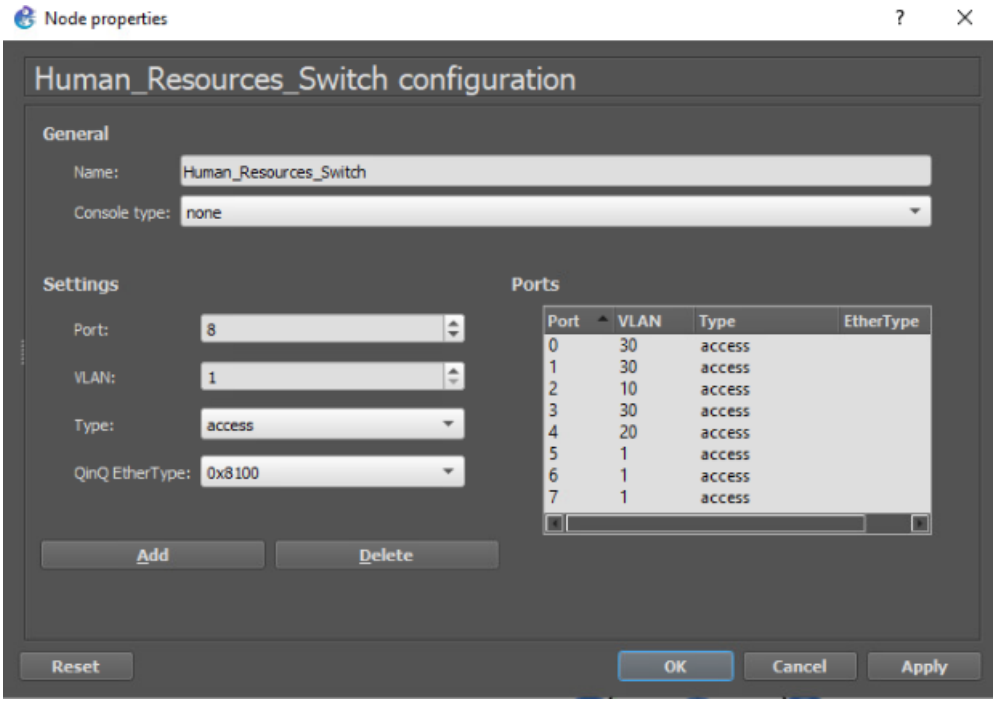


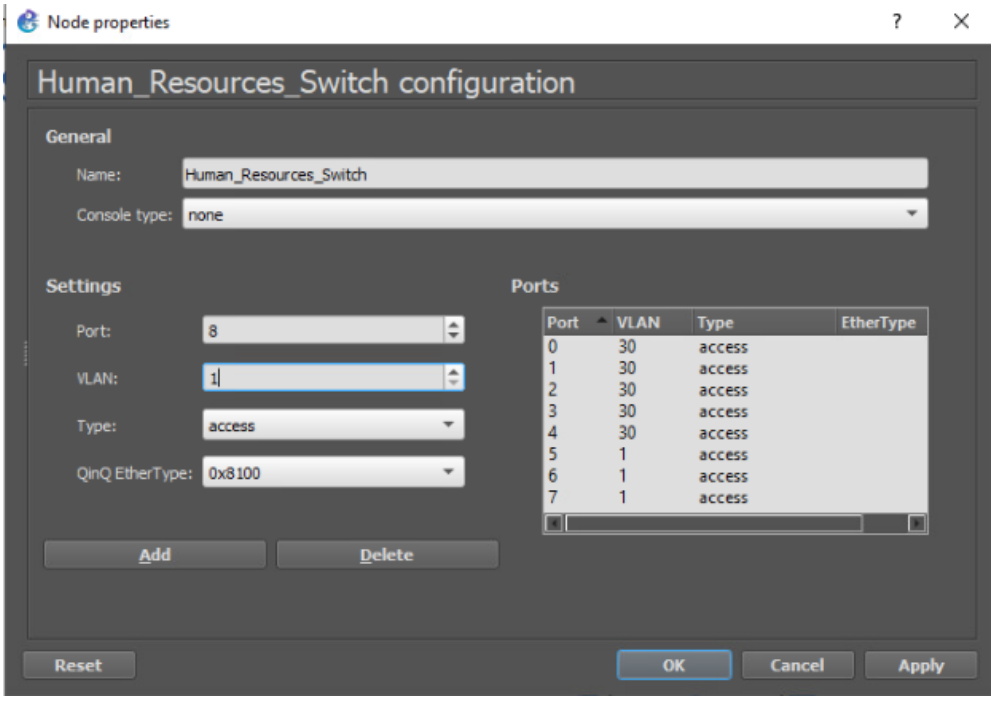
The Sales, Customer Service, and HR departments are connected through Ethernet1, Ethernet2, and Ethernet3.

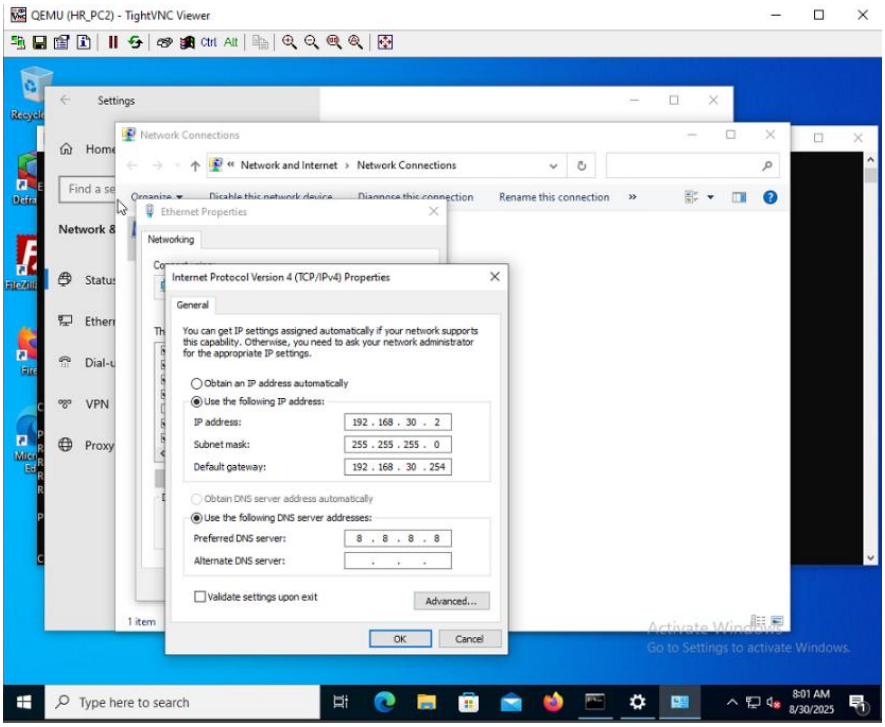


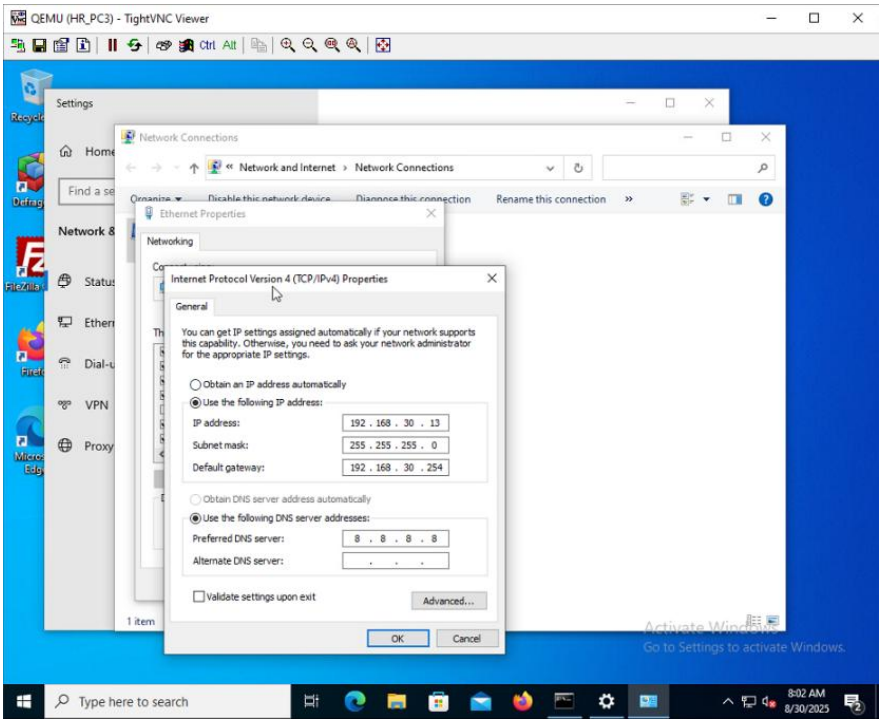
B. Troubleshoot the issue and provide screenshots of a resolution

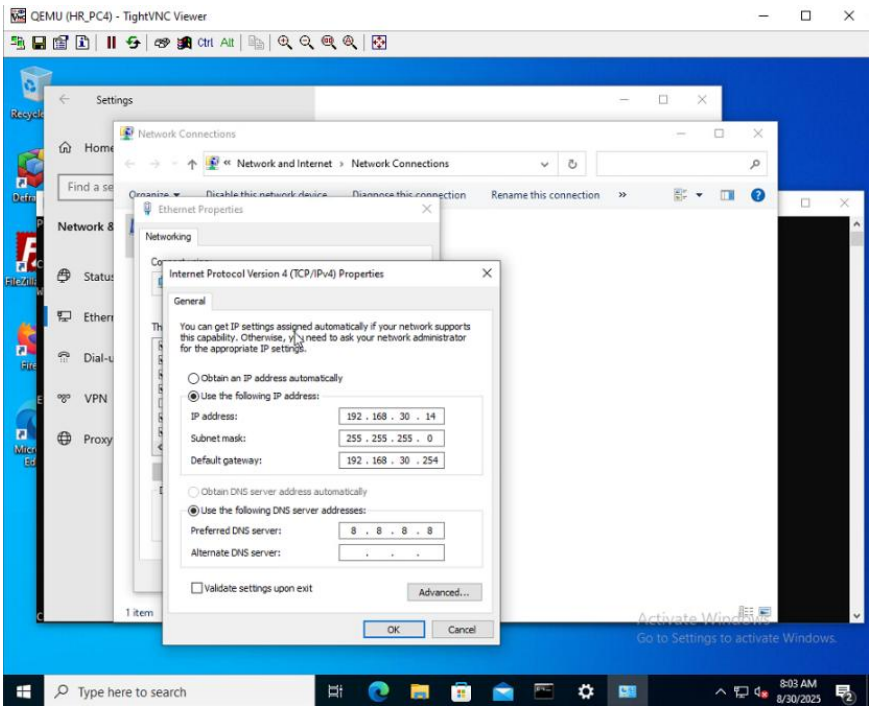
I fixed the switch to ensure all PCs are on the same LAN, specifically VLAN 30. The other two VLANs, 10 and 20, caused the issue because they couldn't connect to the internet.


Node properties
Human_Resources_Switch configuration
General
Name: Human_Resources_Switch
Console type: none
Settings
Port: 8
VLAN: 1
Type: access
QinQ EtherType: 0x8100
Add
Delete
Ports
Port VLAN Type EtherType
0 30 access
1 30 access
2 10 access
3 30 access
4 20 access
5 1 access
6 1 access
7 1 access
Reset
OK
Cancel
Apply

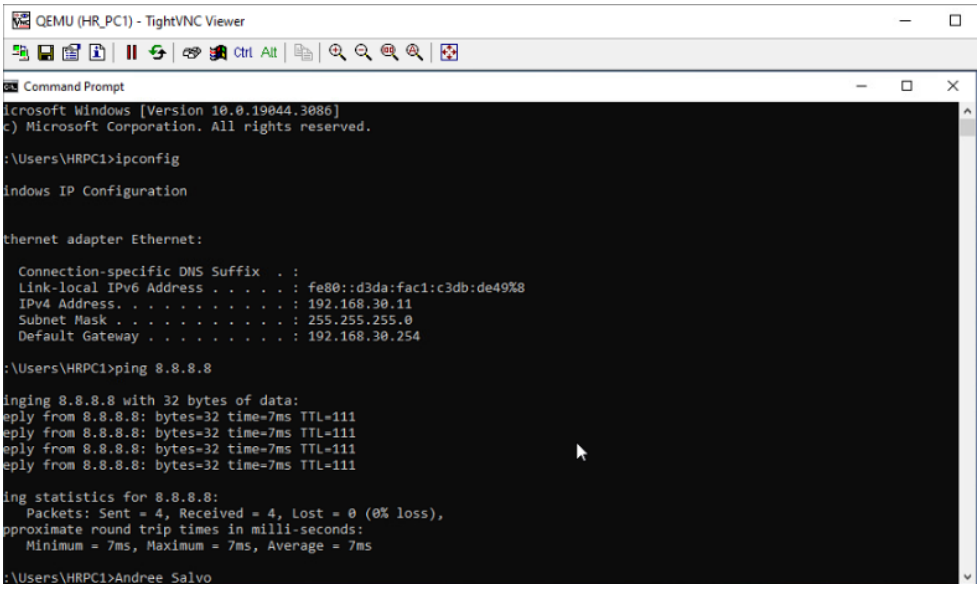

Node properties
Human_Resources_Switch configuration
General
Name: Human_Resources_Switch
Console type: none
Settings
Port: 8
VLAN: 1
Type: access
QinQ EtherType: 0x8100
Add
Delete
Ports
Port VLAN Type EtherType
0 30 access
1 30 access
2 30 access
3 30 access
4 30 access
5 1 access
6 1 access
7 1 access
Reset
OK
Cancel
Apply


QEMU (HR_PC2) - TightVNC Viewer
Ctrl Alt
Settings
Network Connections
Network and Internet › Network Connections
Rename this connection
Ethernet Properties
Networking
Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 30 . 2
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 30 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 8 . 8 . 8 . 8
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel
1 item
Activate Windows
Go to Settings to activate Windows.
Type here to search
8:01 AM
8/30/2025


QEMU (HR_PC3) - TightVNC Viewer
Ctrl Alt
Settings
Network Connections
Network and Internet › Network Connections
Rename this connection
Ethernet Properties
Networking
Internet Protocol Version 4 (TCP/IPv4) Properties
General
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address: 192 . 168 . 30 . 13
Subnet mask: 255 . 255 . 255 . 0
Default gateway: 192 . 168 . 30 . 254
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server: 8 . 8 . 8 . 8
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel
1 item
Activate Windows
Go to Settings to activate Windows.
Type here to search
8:02 AM
8/30/2025



Each of the PCs should be directed to the default gateway of 192.168.30.254. And pinging it to the 8.8.8.8 DNS server should yield a successful result.



QEMU (HR_PC2) - TightVNC Viewer

Command Prompt

```
Microsoft Windows [Version 10.0.19044.3086]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HRPC2>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::2d85:3212:54b9:6f95%8
   IPv4 Address. . . . . . . . . . . : 192.168.30.2
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.30.254

C:\Users\HRPC2>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Reply from 8.8.8.8: bytes=32 time=6ms TTL=111

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 6ms, Maximum = 7ms, Average = 6ms

C:\Users\HRPC2>Andree Salvo_
```

QEMU (HR_PC3) - TightVNC Viewer

Command Prompt

```
Microsoft Windows [Version 10.0.19044.3086]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HRPC3>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::9b17:9daf:125b:ab56%8
   IPv4 Address. . . . . . . . . . . : 192.168.30.13
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.30.254

C:\Users\HRPC3>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Reply from 8.8.8.8: bytes=32 time=8ms TTL=111
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 7ms, Maximum = 8ms, Average = 7ms

C:\Users\HRPC3>Andree Salvo
```

QEMU (HR_PC4) - TightVNC Viewer

Command Prompt

```
Microsoft Windows [Version 10.0.19044.3086]
(c) Microsoft Corporation. All rights reserved.

C:\Users\HRPC4>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::54d:c231:1dab:5f57%8
   IPv4 Address. . . . . . . . . . . : 192.168.30.14
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.30.254

C:\Users\HRPC4>ping 8.8.8.8

Pinging 8.8.8.8 with 32 bytes of data:
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Reply from 8.8.8.8: bytes=32 time=7ms TTL=111
Reply from 8.8.8.8: bytes=32 time=6ms TTL=111
Reply from 8.8.8.8: bytes=32 time=8ms TTL=111

Ping statistics for 8.8.8.8:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 6ms, Maximum = 8ms, Average = 7ms

C:\Users\HRPC4>Andree Salvo_
```

C. Explain your approach to troubleshooting the issue and justify your resolution.

To fix the HR PCs, I first checked which one had internet access, and PC1 did. From there, I ran ipconfig and pinged 8.8.8.8 on the others, which failed due to some wrong default gateways. PC4 had the correct gateway but was on the wrong LAN, so I fixed all the gateway settings and made sure all PCs were on VLAN 30. After that, I pinged 8.8.8.8 again, and all the PCs connected to the internet.