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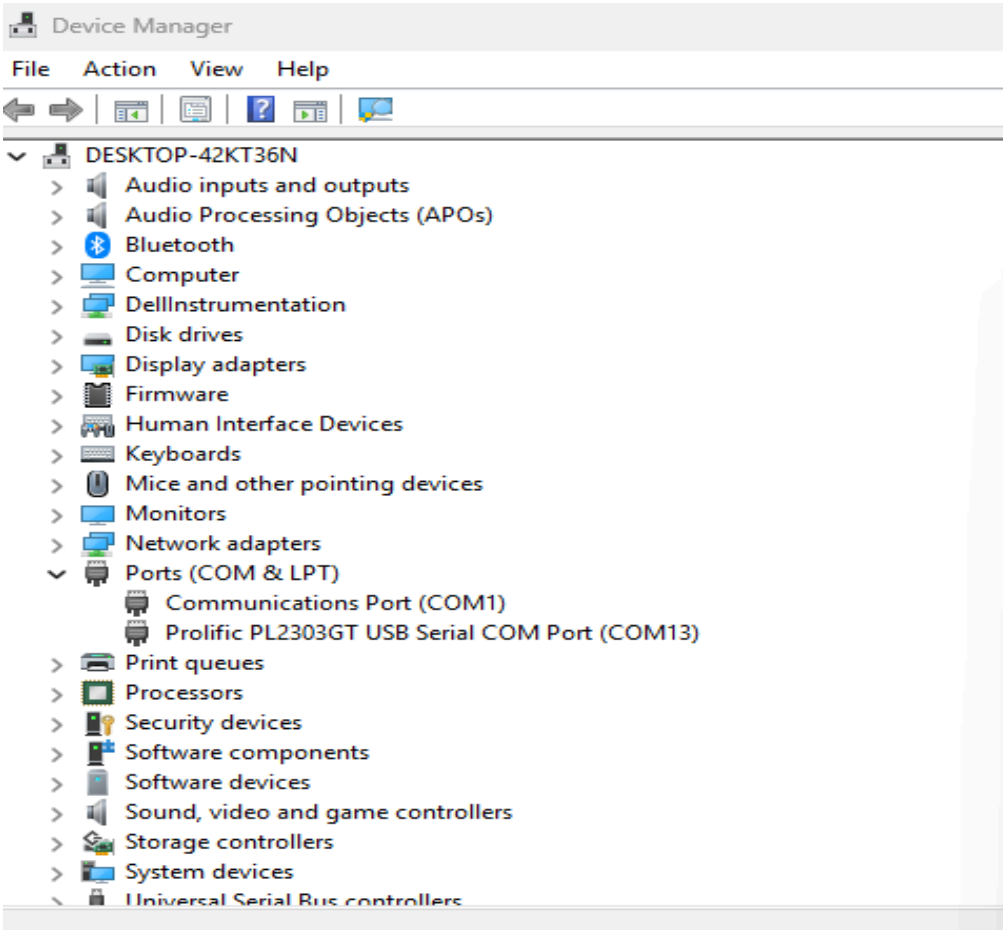
Lab Experiment 5:

IN SWITCH MODE- Introduction to hardware lab by using Telnet and simple ping between the same networks.

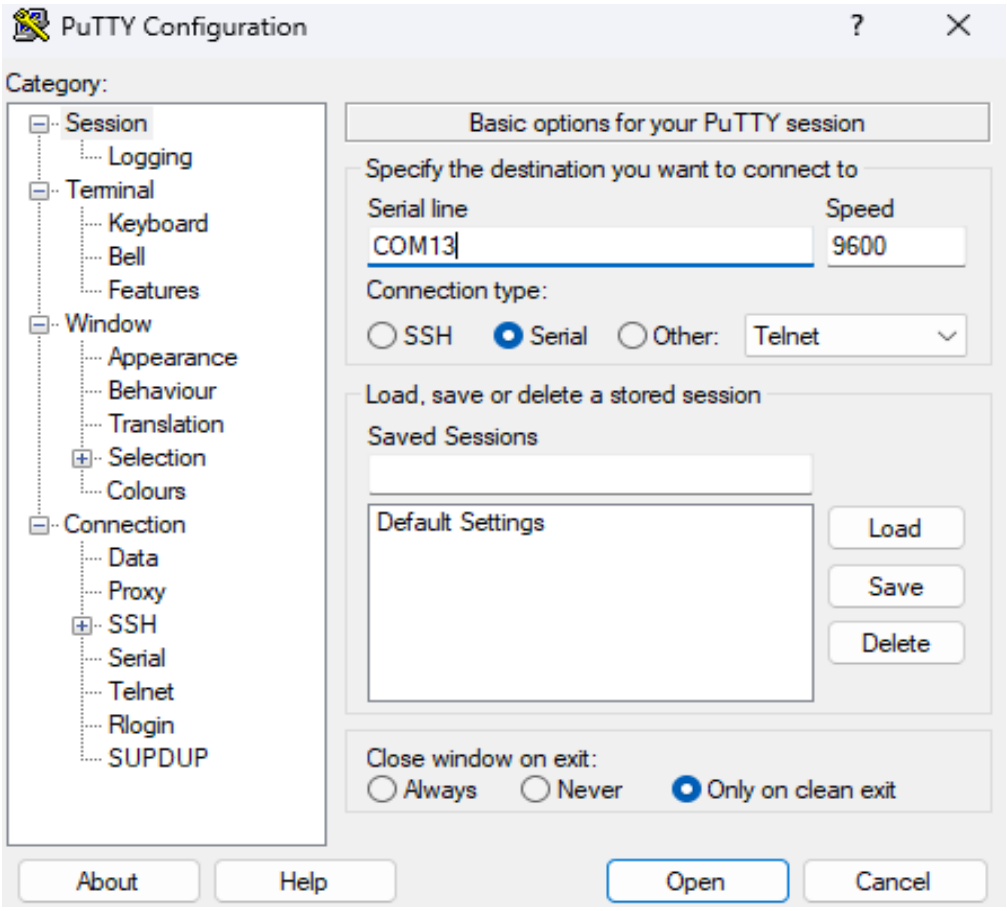
Step 1: Open Device Manager

Go to Device Manager → Ports (COM & LPT).Note the Port Number (`COM14`)



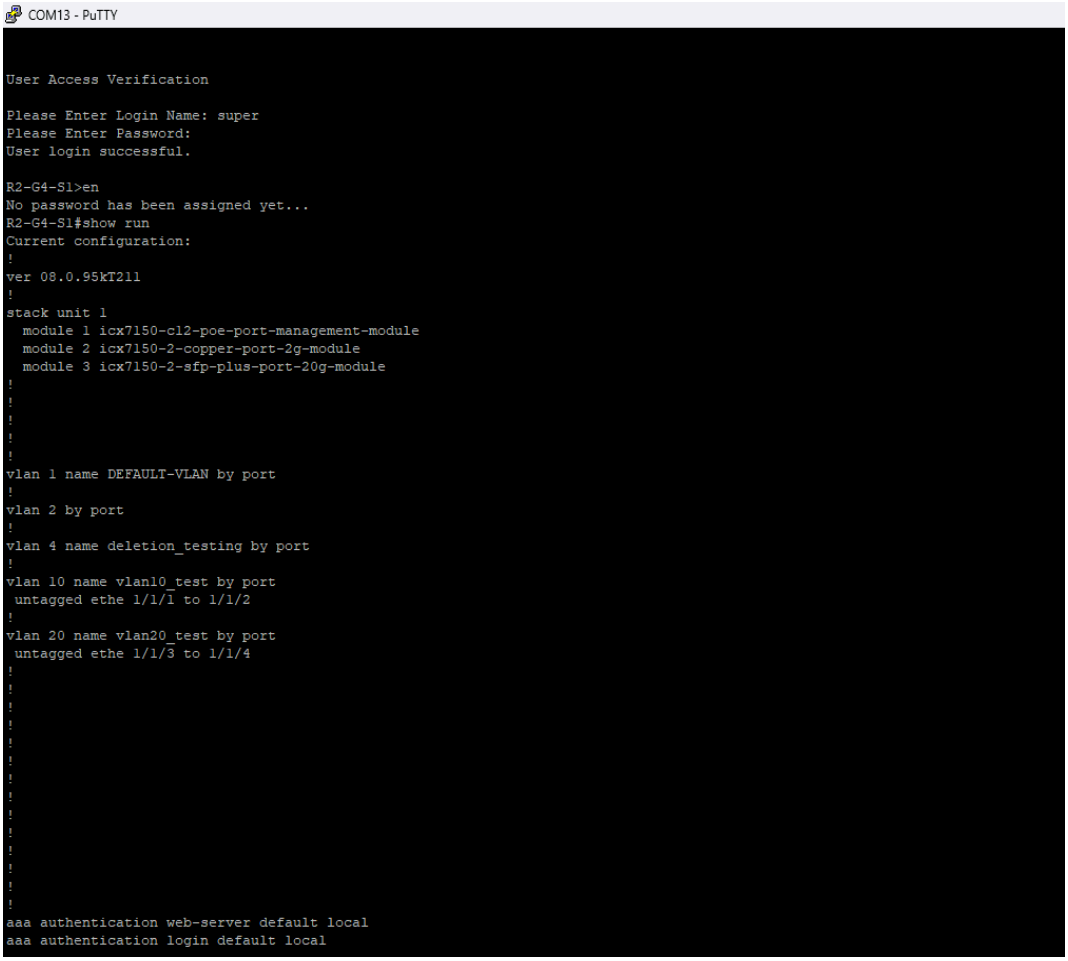
Step 2: Open PuTTY and Select Serial

Choose Serial as connection type.Enter Port Number (`COM14`).Click Open.



Step 3: Login to Switch

- Press **Enter**.
- Username: `super`
- Password: `rvu`
- Switch prompt appears if configured; else, proceed with setup



Step 4: Enter Privileged and Configuration Mode And Check Switch Information

- Type `en` → Enable mode.
- Type `conf t` → Configuration mode
- Use `show ip` → to see IP address of switch.
- Use `show int brief` → to check interface status

COM14 - PuTTY

```
R2-G4-S1(config)#super
Invalid input -> super
Type ? for a list
R2-G4-S1(config)#super
Invalid input -> super
Type ? for a list
R2-G4-S1(config)#superrvu
Invalid input -> superrvu
Type ? for a list
R2-G4-S1(config)#super^C
R2-G4-S1(config)#
R2-G4-S1(config)#en
R2-G4-S1#nfig
Invalid input -> nfig
Type ? for a list
R2-G4-S1#conf t
R2-G4-S1(config)#showip
Invalid input -> showip
Type ? for a list
R2-G4-S1(config)#show ip

     Switch IP address: 192.168.100.41

           Subnet mask: 255.255.255.0

Default router address: None
   TFTP server address: None
Configuration filename: None
        Image filename: None
            DNS Server: N/A
                IP MTU: 1500
R2-G4-S1(config)#show int brief

Port       Link    State   Dupl Speed Trunk Tag Pvid Pri MAC             Name
1/1/1      Up      Forward Full 1G    None  No  10   0   5c83.6c01.55ca
1/1/2      Down    None    None None  None  No  10   0   5c83.6c01.55cb
1/1/3      Down    None    None None  None  No  20   0   5c83.6c01.55cc
1/1/4      Down    None    None None  None  No  20   0   5c83.6c01.55cd
1/1/5      Down    None    None None  None  No  1    0   5c83.6c01.55ce
1/1/6      Down    None    None None  None  No  1    0   5c83.6c01.55cf
1/1/7      Down    None    None None  None  No  1    0   5c83.6c01.55d0
1/1/8      Down    None    None None  None  No  1    0   5c83.6c01.55d1
1/1/9      Down    None    None None  None  No  1    0   5c83.6c01.55d2
1/1/10     Down    None    None None  None  No  1    0   5c83.6c01.55d3
1/1/11     Down    None    None None  None  No  1    0   5c83.6c01.55d4
1/1/12     Down    None    None None  None  No  1    0   5c83.6c01.55d5
1/2/1      Down    None    None None  None  No  1    0   5c83.6c01.55d7
1/2/2      Down    None    None None  None  No  1    0   5c83.6c01.55d8
1/3/1      Down    None    None None  None  No  1    0   5c83.6c01.55d9
1/3/2      Down    None    None None  None  No  1    0   5c83.6c01.55da
```

Step 6: Check Local System IP

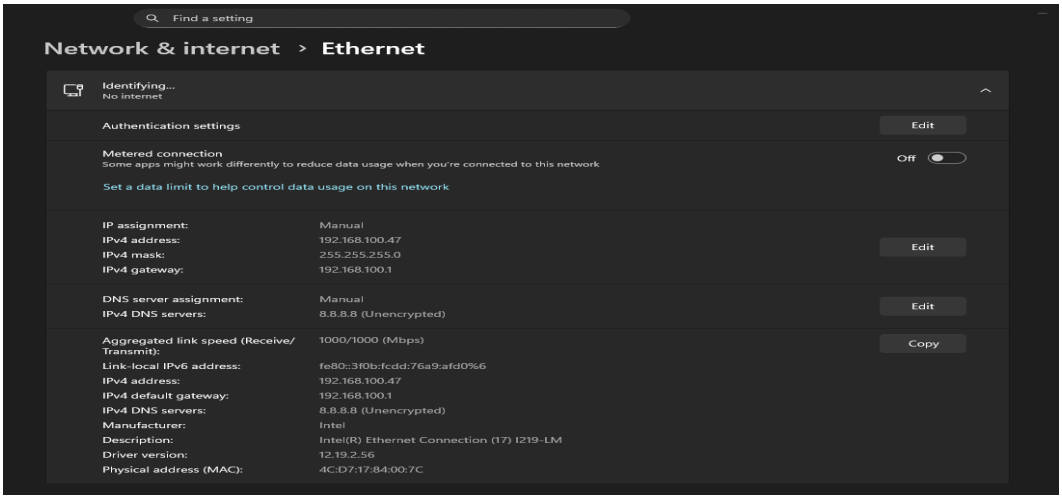
Open Command Prompt → type `ipconfig`.

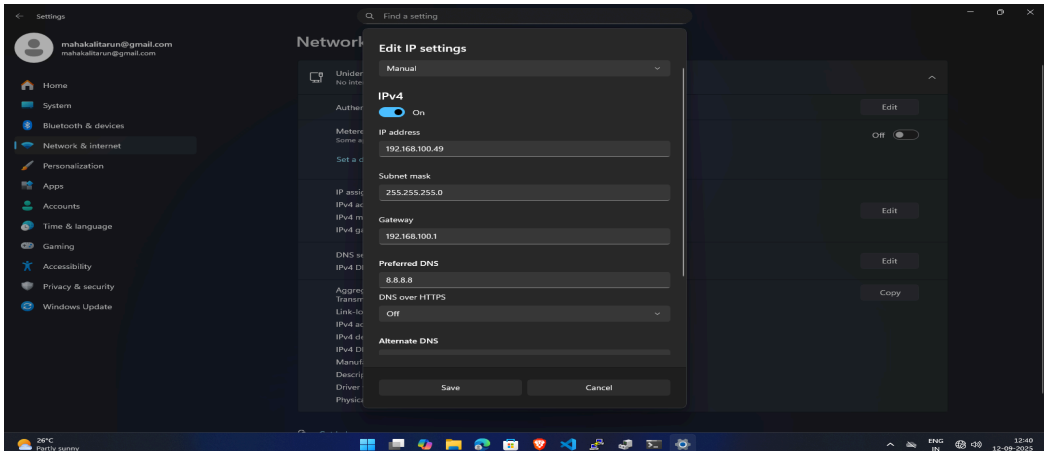
Noted PC's IP address (`192.168.100.49`)

```
(c) Microsoft Corporation. All rights reserved.

C:\Users\RVU>ipconfig

Windows IP Configuration


Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::3f0b:fcdd:76a9:afd0%6
   IPv4 Address. . . . . . . . . . . : 192.168.100.47
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.100.1

Wireless LAN adapter Local Area Connection* 3:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 4:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
```

Step 7: Change System IP (if required)

Go to Ethernet Settings → Properties → IPv4 Settings.Assign IP in same range as switch (`192.168.100.49`).Verify with `ipconfig`



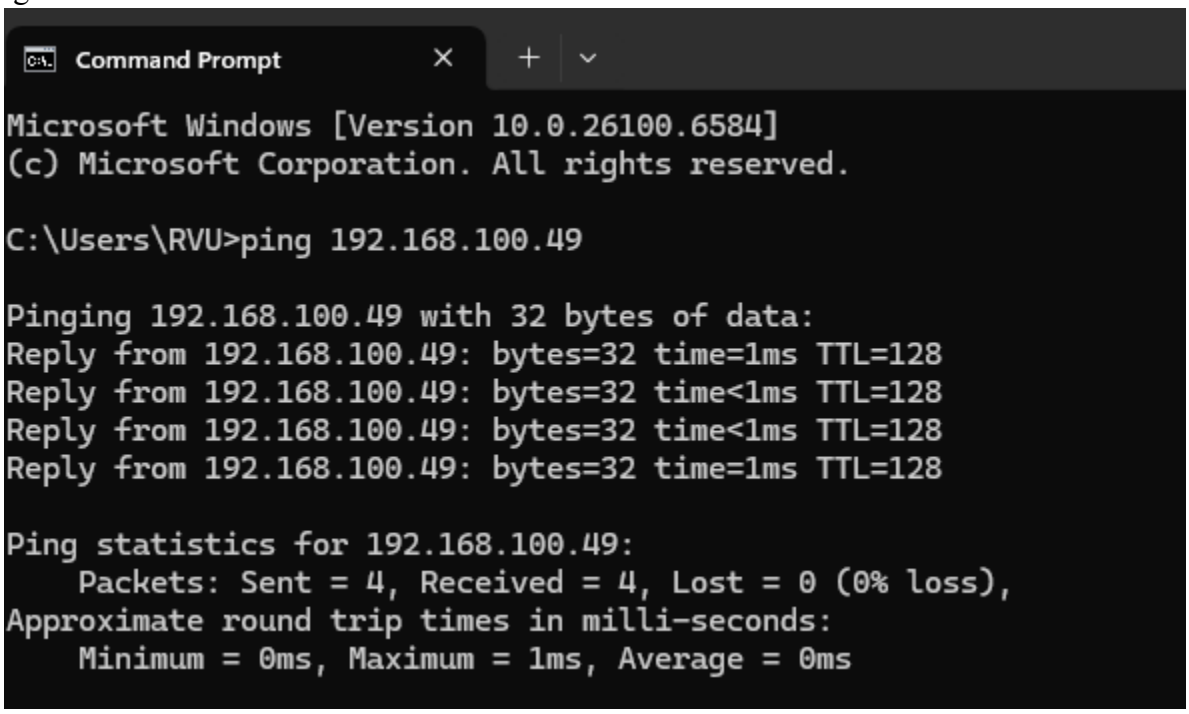



```
C:\Users\RVU>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

   Connection-specific DNS Suffix  . :
   Link-local IPv6 Address . . . . . : fe80::3f0b:fcdd:76a9:afd0%6
   IPv4 Address. . . . . . . . . . . : 192.168.100.49
   Subnet Mask . . . . . . . . . . . : 255.255.255.0
   Default Gateway . . . . . . . . . : 192.168.100.1

Wireless LAN adapter Local Area Connection* 3:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Local Area Connection* 4:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

Wireless LAN adapter Wi-Fi:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :
```

Step 8: Ping the Switch and Other Devices

From CMD, use the `ping <switch_IP>` command to check connectivity.

Ping our own switch




```
Wireless LAN adapter Wi-Fi:

   Media State . . . . . . . . . . . : Media disconnected
   Connection-specific DNS Suffix  . :

C:\Users\RVU>ping 192.168.100.48

Pinging 192.168.100.48 with 32 bytes of data:
Reply from 192.168.100.48: bytes=32 time<1ms TTL=128
Reply from 192.168.100.48: bytes=32 time<1ms TTL=128
Reply from 192.168.100.48: bytes=32 time<1ms TTL=128
Reply from 192.168.100.48: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Users\RVU>ping 192.168.100.49

Pinging 192.168.100.49 with 32 bytes of data:
Reply from 192.168.100.48: Destination host unreachable.
Reply from 192.168.100.48: Destination host unreachable.
Reply from 192.168.100.48: Destination host unreachable.
Reply from 192.168.100.48: Destination host unreachable.

Ping statistics for 192.168.100.49:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
```

Ping attempt to Switch (Unsuccessful)

```
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

C:\Users\RVU> ping 192.168.100.48

Pinging 192.168.100.48 with 32 bytes of data:
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

C:\Users\RVU> ping 192.168.100.48

Pinging 192.168.100.48 with 32 bytes of data:
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

C:\Users\RVU> ping 192.168.100.48

Pinging 192.168.100.48 with 32 bytes of data:
Reply from 192.168.100.48: bytes=32 time=194ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 194ms, Average = 49ms
```

8.2 – Successful ping reply from Switch

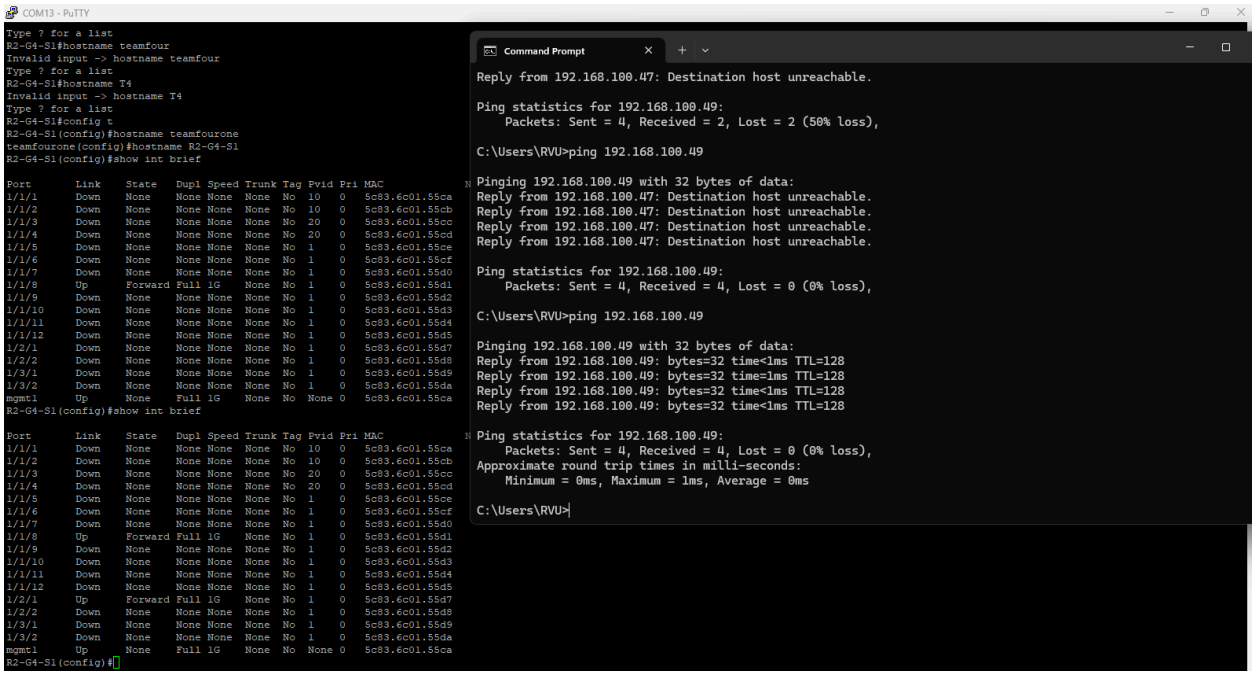
```
Command Prompt

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

C:\Users\RVU> ping 192.168.100.48

Pinging 192.168.100.48 with 32 bytes of data:
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),

C:\Users\RVU> ping 192.168.100.48

Pinging 192.168.100.48 with 32 bytes of data:
Reply from 192.168.100.48: bytes=32 time=194ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 194ms, Average = 49ms

C:\Users\RVU> ping 192.168.100.48

Pinging 192.168.100.48 with 32 bytes of data:
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\Users\RVU>
```

8.3 – Continuous ping test showing stable replies

```
Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 194ms, Average = 49ms

C:\Users\RVU> ping 192.168.100.48

Pinging 192.168.100.48 with 32 bytes of data:
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128
Reply from 192.168.100.48: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.100.48:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\Users\RVU> ping 192.168.100.37

Pinging 192.168.100.37 with 32 bytes of data:
Reply from 192.168.100.49: Destination host unreachable.
Reply from 192.168.100.49: Destination host unreachable.

Ping statistics for 192.168.100.37:
    Packets: Sent = 2, Received = 2, Lost = 0 (0% loss),
Control-C
^C
C:\Users\RVU> ping 192.168.100.38

Pinging 192.168.100.38 with 32 bytes of data:
Reply from 192.168.100.38: bytes=32 time=1ms TTL=128
Reply from 192.168.100.38: bytes=32 time<1ms TTL=128
Reply from 192.168.100.38: bytes=32 time=1ms TTL=128
Reply from 192.168.100.38: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.100.38:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

```
C:\Users\RVU>ping 192.168.100.49

Pinging 192.168.100.49 with 32 bytes of data:
Reply from 192.168.100.49: bytes=32 time=1ms TTL=128
Reply from 192.168.100.49: bytes=32 time=1ms TTL=128
Reply from 192.168.100.49: bytes=32 time=1ms TTL=128
Reply from 192.168.100.49: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.100.49:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 1ms, Maximum = 1ms, Average = 1ms

C:\Users\RVU>
```

PuTTY window showing `show int brief` with interface status alongside ping test



Switch IP configuration and another `show int brief`

```
      Switch IP address: 192.168.100.41

          Subnet mask: 255.255.255.0

Default router address: None
   TFTP server address: None
Configuration filename: None
         Image filename: None
             DNS Server: N/A
                 IP MTU: 1500
R2-G4-S1(config)#show int brief

Port         Link     State    Dupl Speed Trunk Tag Pvid Pri MAC               Name
1/1/1        Up       Forward  Full 1G    None  No  10   0   5c83.6c01.55ca
1/1/2        Down     None     None None  None  No  10   0   5c83.6c01.55cb
1/1/3        Down     None     None None  None  No  20   0   5c83.6c01.55cc
1/1/4        Down     None     None None  None  No  20   0   5c83.6c01.55cd
1/1/5        Down     None     None None  None  No  1    0   5c83.6c01.55ce
1/1/6        Down     None     None None  None  No  1    0   5c83.6c01.55cf
1/1/7        Down     None     None None  None  No  1    0   5c83.6c01.55d0
1/1/8        Down     None     None None  None  No  1    0   5c83.6c01.55d1
1/1/9        Down     None     None None  None  No  1    0   5c83.6c01.55d2
1/1/10       Down     None     None None  None  No  1    0   5c83.6c01.55d3
1/1/11       Down     None     None None  None  No  1    0   5c83.6c01.55d4
1/1/12       Down     None     None None  None  No  1    0   5c83.6c01.55d5
1/2/1        Down     None     None None  None  No  1    0   5c83.6c01.55d7
1/2/2        Down     None     None None  None  No  1    0   5c83.6c01.55d8
1/3/1        Down     None     None None  None  No  1    0   5c83.6c01.55d9
1/3/2        Down     None     None None  None  No  1    0   5c83.6c01.55da
mgmt1        Up       None     Full 1G    None  No  None 0   5c83.6c01.55ca
R2-G4-S1(config)#show int brief

Port         Link     State    Dupl Speed Trunk Tag Pvid Pri MAC               Name
1/1/1        Up       Forward  Full 1G    None  No  10   0   5c83.6c01.55ca
1/1/2        Down     None     None None  None  No  10   0   5c83.6c01.55cb
1/1/3        Down     None     None None  None  No  20   0   5c83.6c01.55cc
1/1/4        Down     None     None None  None  No  20   0   5c83.6c01.55cd
1/1/5        Up       Forward  Full 1G    None  No  1    0   5c83.6c01.55ce
1/1/6        Down     None     None None  None  No  1    0   5c83.6c01.55cf
1/1/7        Down     None     None None  None  No  1    0   5c83.6c01.55d0
1/1/8        Down     None     None None  None  No  1    0   5c83.6c01.55d1
1/1/9        Down     None     None None  None  No  1    0   5c83.6c01.55d2
1/1/10       Down     None     None None  None  No  1    0   5c83.6c01.55d3
1/1/11       Down     None     None None  None  No  1    0   5c83.6c01.55d4
1/1/12       Down     None     None None  None  No  1    0   5c83.6c01.55d5
1/2/1        Down     None     None None  None  No  1    0   5c83.6c01.55d7
1/2/2        Down     None     None None  None  No  1    0   5c83.6c01.55d8
1/3/1        Down     None     None None  None  No  1    0   5c83.6c01.55d9
1/3/2        Down     None     None None  None  No  1    0   5c83.6c01.55da
mgmt1        Up       None     Full 1G    None  No  None 0   5c83.6c01.55ca
R2-G4-S1(config)#
```

```
COM17 - PuTTY
R2-G4-S2#conf t
R2-G4-S2(config)#show ip

     Switch IP address: 192.168.100.42

         Subnet mask: 255.255.255.0

Default router address: None
   TFTP server address: None
Configuration filename: None
         Image filename: None
             DNS Server: N/A
                 IP MTU: 1500
R2-G4-S2(config)#show int brief

Port       Link    State   Dupl Speed Trunk Tag Pvid Pri MAC            Name
1/1/1      Up      Forward Full 1G    None  No  1    0   5c83.6c01.2948

1/1/2      Down    None    None None  None  No  1    0   5c83.6c01.2949

1/1/3      Down    None    None None  None  No  1    0   5c83.6c01.294a

1/1/4      Down    None    None None  None  No  1    0   5c83.6c01.294b

1/1/5      Down    None    None None  None  No  1    0   5c83.6c01.294c

1/1/6      Down    None    None None  None  No  1    0   5c83.6c01.294d

1/1/7      Down    None    None None  None  No  1    0   5c83.6c01.294e

1/1/8      Down    None    None None  None  No  1    0   5c83.6c01.294f

1/1/9      Down    None    None None  None  No  1    0   5c83.6c01.2950

1/1/10     Down    None    None None  None  No  1    0   5c83.6c01.2951

1/1/11     Down    None    None None  None  No  1    0   5c83.6c01.2952

1/1/12     Down    None    None None  None  No  1    0   5c83.6c01.2953

1/2/1      Down    None    None None  None  No  1    0   5c83.6c01.2955

1/2/2      Down    None    None None  None  No  1    0   5c83.6c01.2956

1/3/1      Down    None    None None  None  No  1    0   5c83.6c01.2957

1/3/2      Down    None    None None  None  No  1    0   5c83.6c01.2958

mgmt1      Up      None    Full 1G    None  No  None 0   5c83.6c01.2948
```

Enable Telnet Server

Access global configuration mode and enable the Telnet
server on the switch. This allows remote devices to establish a Telnet session for management purposes

Set Telnet Timeout

Configure the Telnet timeout value to zero to prevent automatic disconnection due to inactivity. This ensures the Telnet session remains active until manually closed

Verify Telnet Status

Check the Telnet server status to confirm that it is enabled and ready to accept remote connections.

Test Telnet Connectivity from a Remote Device

From a remote PC on the network, initiate a Telnet connection to the switch's management IP address (e.g., 192.168.100.41). Successful login confirms that Telnet access is correctly configured

```
end
R2-G4-S1(config)#telnet server
R2-G4-S1(config)#show telnet
Telnet server status: Enabled
Telnet connections (inbound):
  1        closed
  2        closed
  3        closed
  4        closed
  5        closed
  6        closed
  7        closed
  8        closed
  9        closed
  10       closed
Telnet connections (outbound):
  11       closed
  12       closed
  13       closed
  14       closed
  15       closed
R2-G4-S1(config)#
```

```
R2-G4-S1(config)#telnet server
R2-G4-S1(config)#show vlan
Total PORT-VLAN entries: 1
Maximum PORT-VLAN entries: 1024

Legend: [Stk=Stack-Id, S=Slot]

PORT-VLAN 1, Name DEFAULT-VLAN, Priority level0, On
 Untagged Ports: (U1/M1)    1   2   3   4   5   6   7   8   9  10  11  12

 Untagged Ports: (U1/M2)    1   2
 Untagged Ports: (U1/M3)    1   2
   Tagged Ports: None
 Mac-Vlan Ports: None
    Monitoring: Disabled
R2-G4-S1(config)#show ip

     Switch IP address: 192.168.100.41

           Subnet mask: 255.255.255.0

Default router address: None
   TFTP server address: None
Configuration filename: None
        Image filename: None
           DNS Server: N/A
               IP MTU: 1500
R2-G4-S1(config)#show run
Current configuration:
!
ver 08.0.95kT211
!
stack unit 1
  module 1 icx7150-c12-poe-port-management-module
  module 2 icx7150-2-copper-port-2g-module
  module 3 icx7150-2-sfp-plus-port-20g-module
!
!
!
!
vlan 1 name DEFAULT-VLAN by port
!
!
!
!
!
!
!
```

```
R2-G4-S1(config)#telnet timeout 0
R2-G4-S1(config)#show telnet
Telnet server status: Enabled
Telnet connections (inbound):
 1       established, client ip address 192.168.100.37, user is super, privilege super-user
         using vrf default-vrf.

         30 second(s) in idle
 2       closed
 3       closed
 4       closed
 5       closed
 6       closed
 7       closed
 8       closed
 9       closed
 10      closed
Telnet connections (outbound):
 11      closed
 12      closed
 13      closed
 14      closed
 15      closed
R2-G4-S1(config)#vlan 10
R2-G4-S1(config-vlan-10)#untagged ethernet 1/1/1 to 1/1/4
Added untagged port(s) ethe 1/1/1 to 1/1/4 to port-vlan 10.
R2-G4-S1(config-vlan-10)#
```

RESULT:Telnet server enabled for remote management.Timeout set to prevent session drop.Successful remote Telnet connection verified.Configuration saved to memory