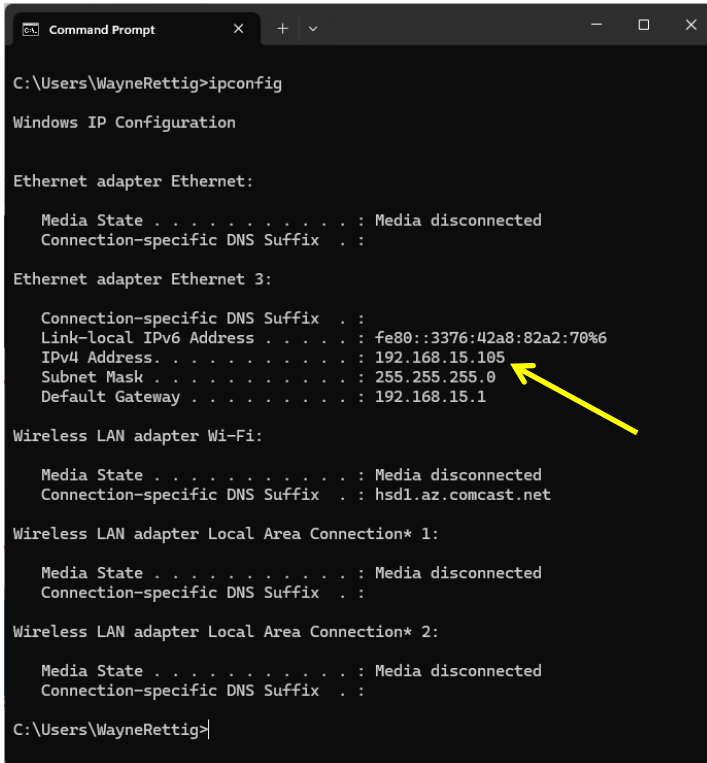


# How to Discover a 28/48/68 Unknown IP Address

**NOTE:** Keep the Lumistar Device connected to the Ethernet so the Gigabit Ethernet TCP/IP offload engine (TOE) will show an **ip** address other than 0.0.0.0. Additionally, if the TOE was put in the DHCP Mode, and it is connected to a Network without a DHCP Server, it won't be assigned an **ip** address and will show 0.0.0.0.

If you cannot connect to your Lumistar LS-28DRSM, LS48M or LS-68M (28/48/68), launch a CMD prompt and enter **ipconfig** to determine your network subnet.



```
C:\Users\WayneRettig>ipconfig

Windows IP Configuration

Ethernet adapter Ethernet:

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

Ethernet adapter Ethernet 3:

    Connection-specific DNS Suffix  . :
    Link-Local IPv6 Address . . . . . : fe80::3376:42a8:82a2:70%6
    IPv4 Address. . . . . : 192.168.15.105
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.15.1

Wireless LAN adapter Wi-Fi:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : hsd1.az.comcast.net

Wireless LAN adapter Local Area Connection* 1:

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

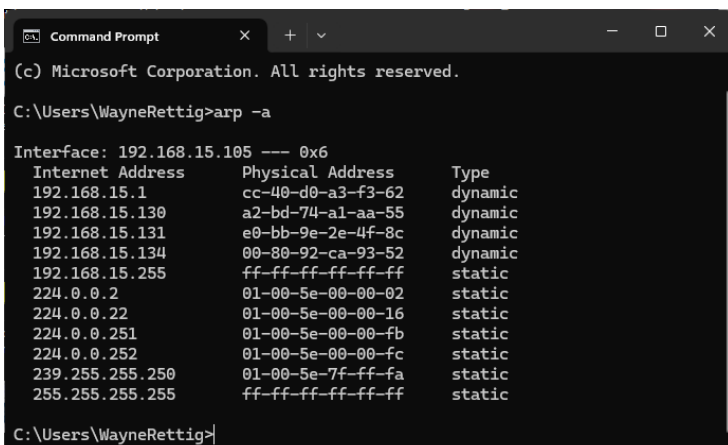
Wireless LAN adapter Local Area Connection* 2:

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

C:\Users\WayneRettig>
```

Here we see the computer **ip** address and the Subnet used.

Type **arp -a**.



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

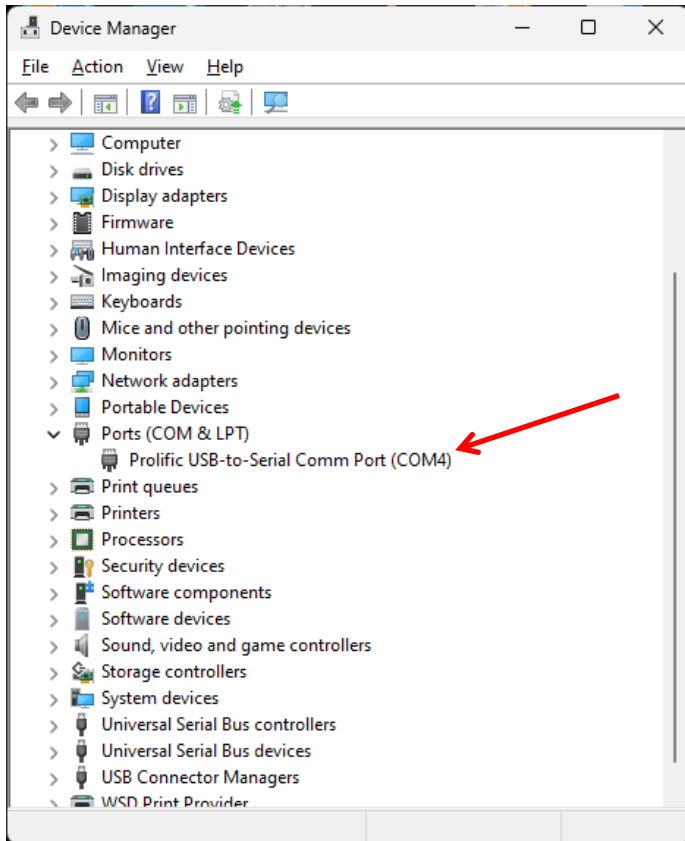
C:\Users\WayneRettig>arp -a

Interface: 192.168.15.105 --- 0x6
 Internet Address      Physical Address      Type
 192.168.15.1          cc-40-d0-a3-f3-62     dynamic
 192.168.15.130        a2-bd-74-a1-aa-55     dynamic
 192.168.15.131        e0-bb-9e-2e-4f-8c     dynamic
 192.168.15.134        00-80-92-ca-93-52     dynamic
 192.168.15.255        ff-ff-ff-ff-ff-ff     static
 224.0.0.2             01-00-5e-00-00-02     static
 224.0.0.22            01-00-5e-00-00-16     static
 224.0.0.251           01-00-5e-00-00-fb     static
 224.0.0.252           01-00-5e-00-00-fc     static
 239.255.255.250       01-00-5e-7f-ff-fa     static
 255.255.255.255       ff-ff-ff-ff-ff-ff     static

C:\Users\WayneRettig>
```

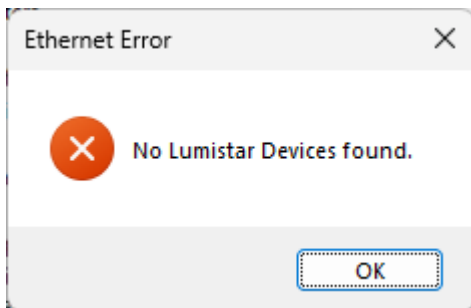
If you don't see your expected device **ip** address listed, the device ip address is likely on a different subnet. Connect a USB-A to USB-B cable between the computer and the 28/48/68 P12 USB dongle.

Open the Windows Device Manager and expand the **Ports (COM & LPT)** list.

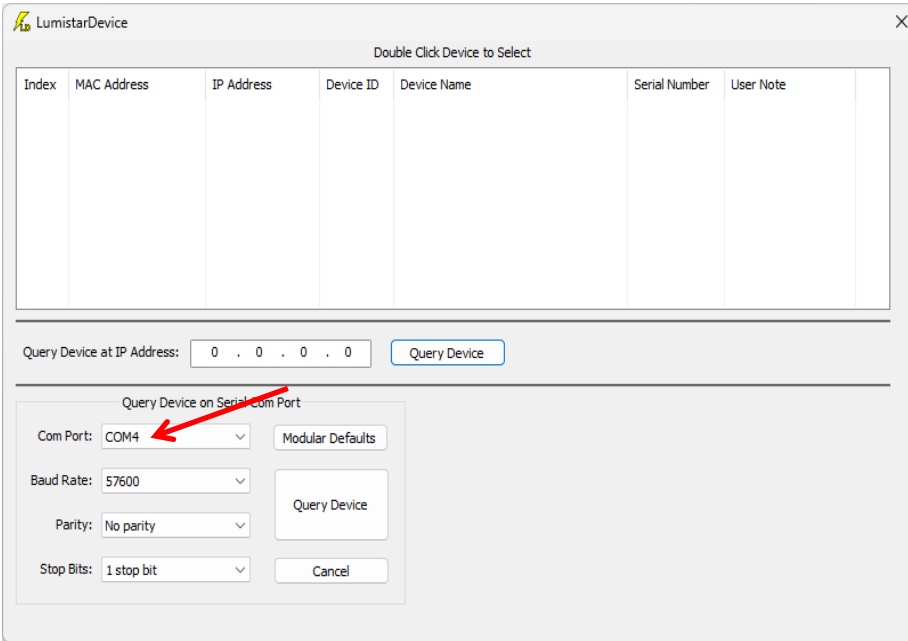


Make note of the COM Port to which the **Prolific SB-to-Serial Comm Port** is showing (connected).

Launch the **C:\Lumistar\LS28M\UserTools\LumistarDevice.exe** application, you may see the following warning.

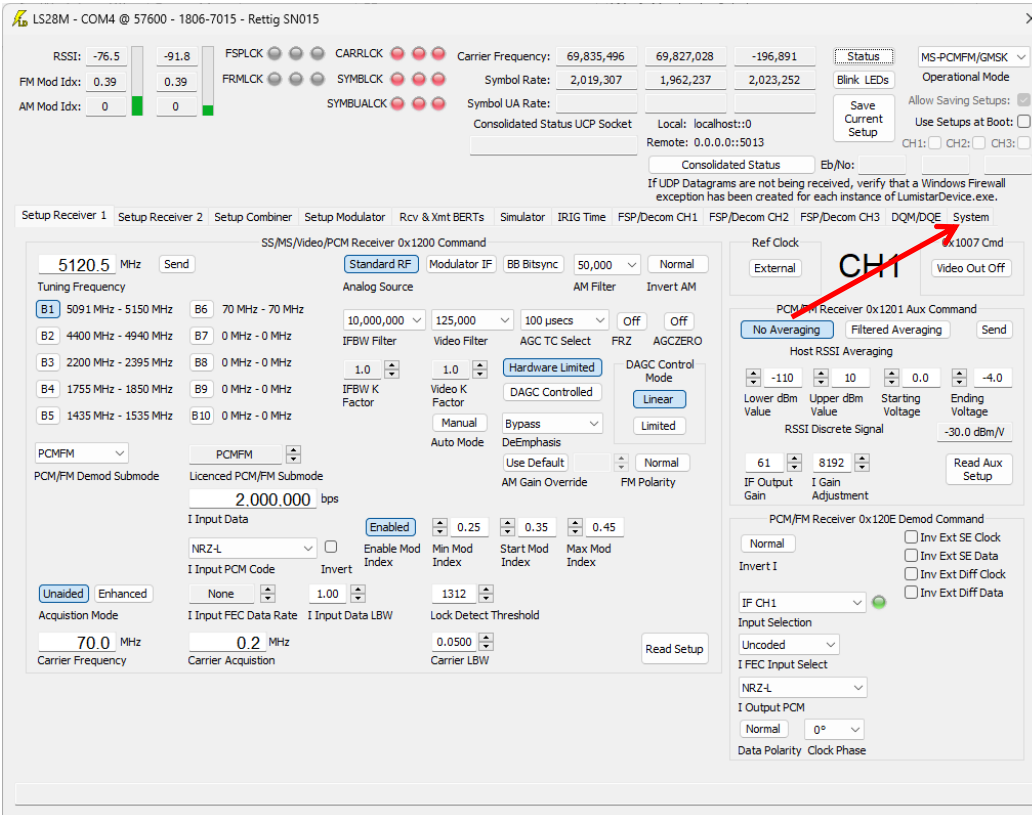


Click the **OK** button.



Ensure the proper COM Port is entered above. Next click the **Query Device** button.


We see in the Banner below, this is a LS-28M device.

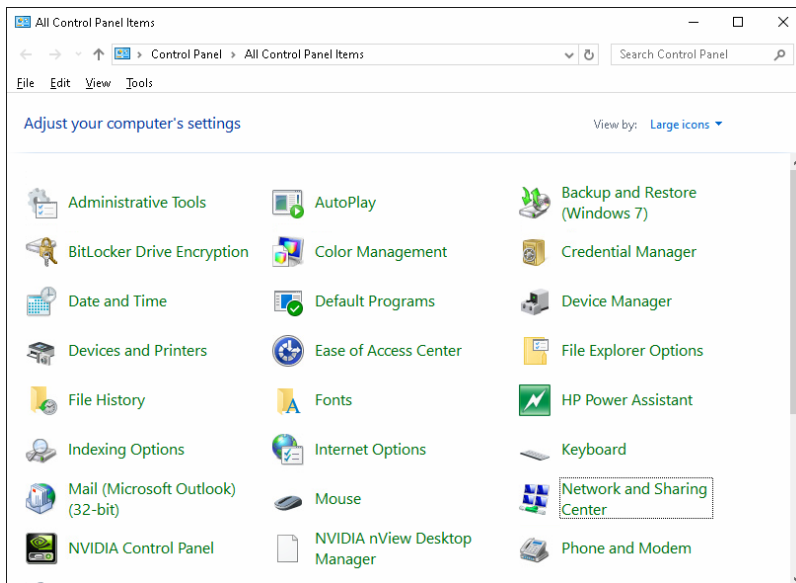


Click on the **System** Tab.

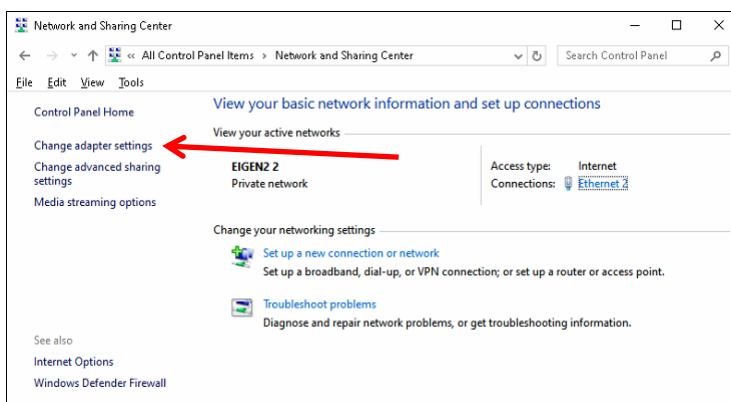
Use the Slider to go to the bottom of this System Window.

You will find the LS-28M Device ip at the indicated location above. You see this **ip** is on a different subnet, **192.168.1.XXX**, than your current computer subnet **192.168.15.XXX**.

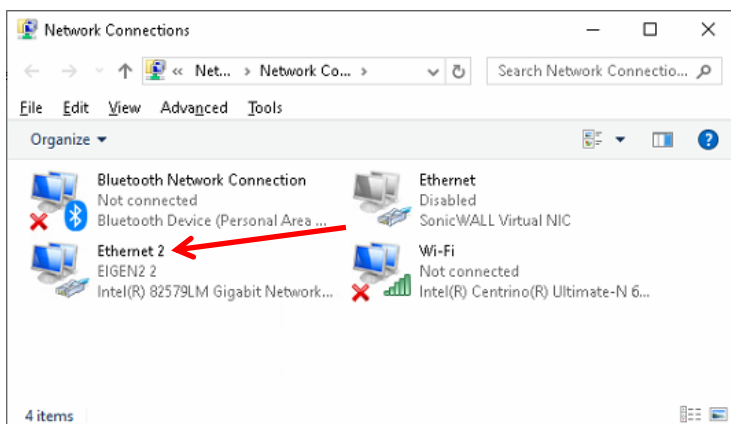
To fix this, you will need to change your Network Interface Card (NIC) setting to operate on the **192.168.1.XXX** subnet. Hit the  key and type **Control Panel**:



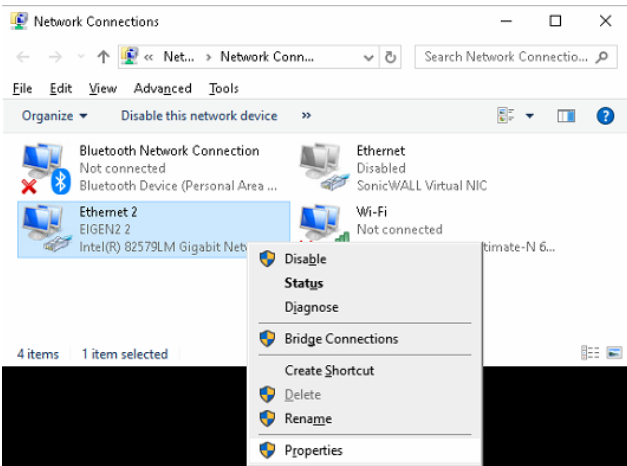
Select **Network and Sharing Center**.



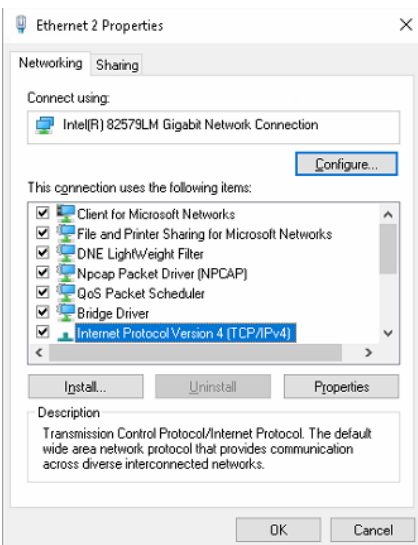
Select **Change adapter settings**.



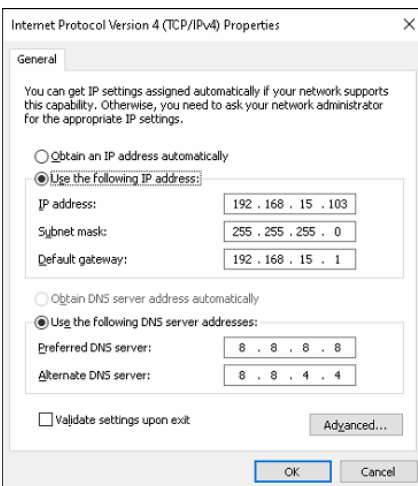
Like above, you may have a number of Internet connections. Determine the connection you are using to communicate with the Lumistar devices, in my case **Ethernet 2**. Right-Click on **Ethernet 2**.



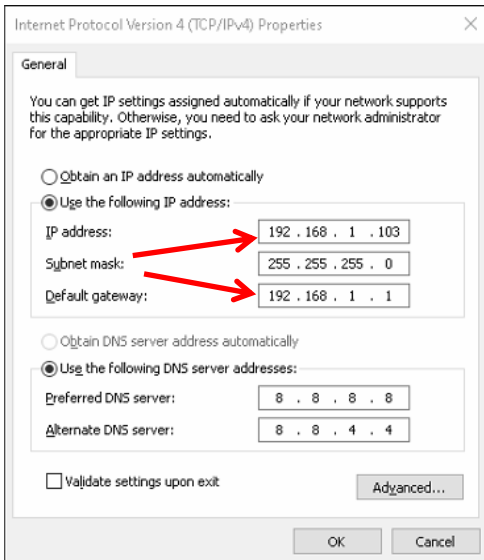
Select **Properties**.



Select **Internet Protocol Version 4 (TCP/Pv4)** then click **Properties**.

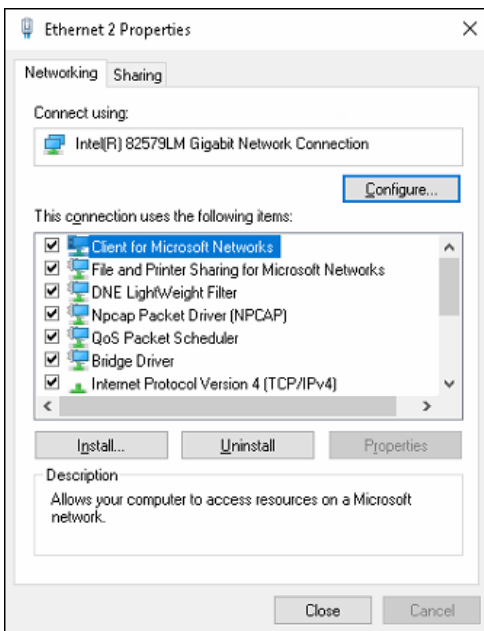


Ensure the **Use the following IP address:** Radio button is selected. Next change to the Subnet where your **28/48/68** is located by entering the values shown below:



Finally click the **OK** button.

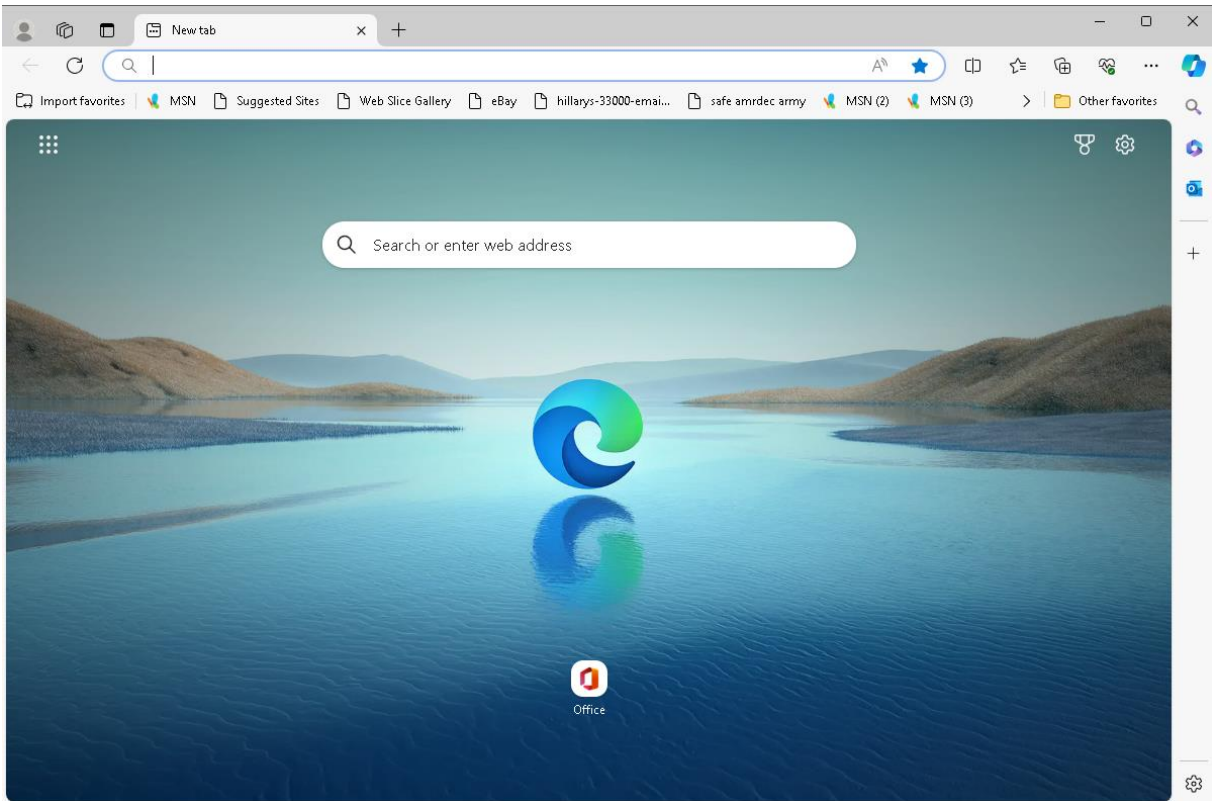
Click the **Close** button on the Windows below.



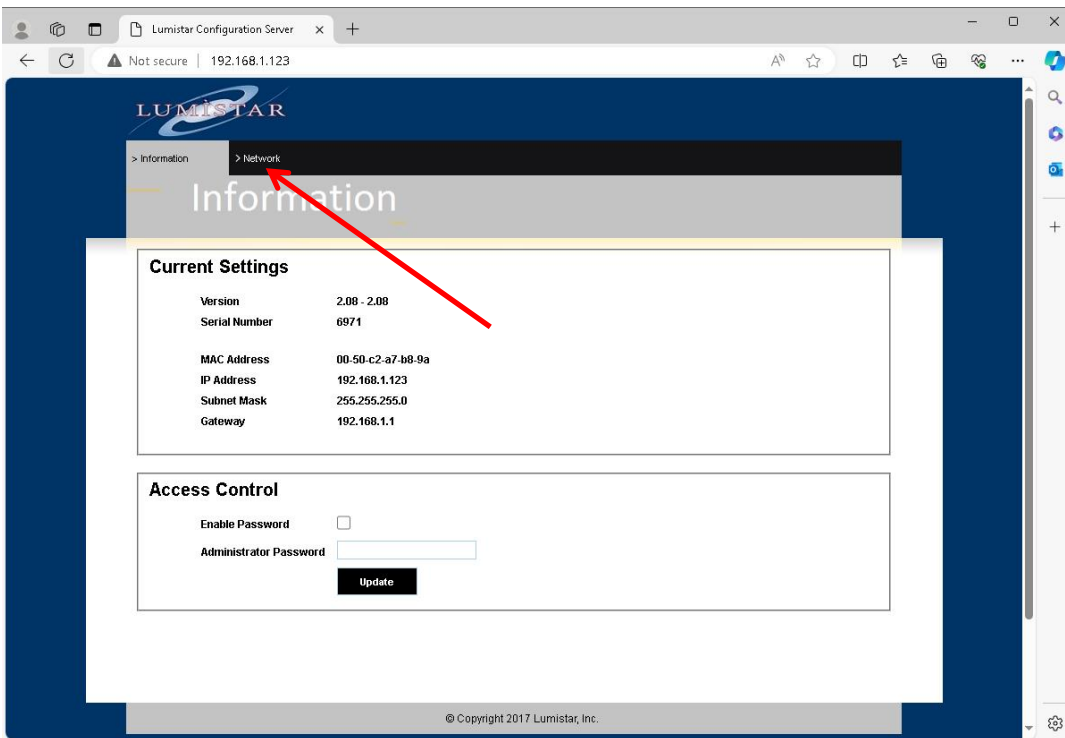
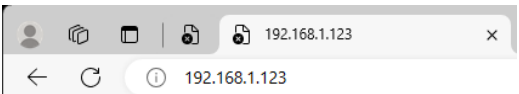
**Note:** at this time you will lose all previous internet connections because you changed Subnets.

If your computer has a Gigabit Port, you can connect a regular CAT-5 cable between your **28/48/68** device and your computer, it will automatically swap to a Null Modem connection. If you don't have a Gigabit Port, you will need to use a null modem network connection.

Launch an Internet Browser like Microsoft Edge.

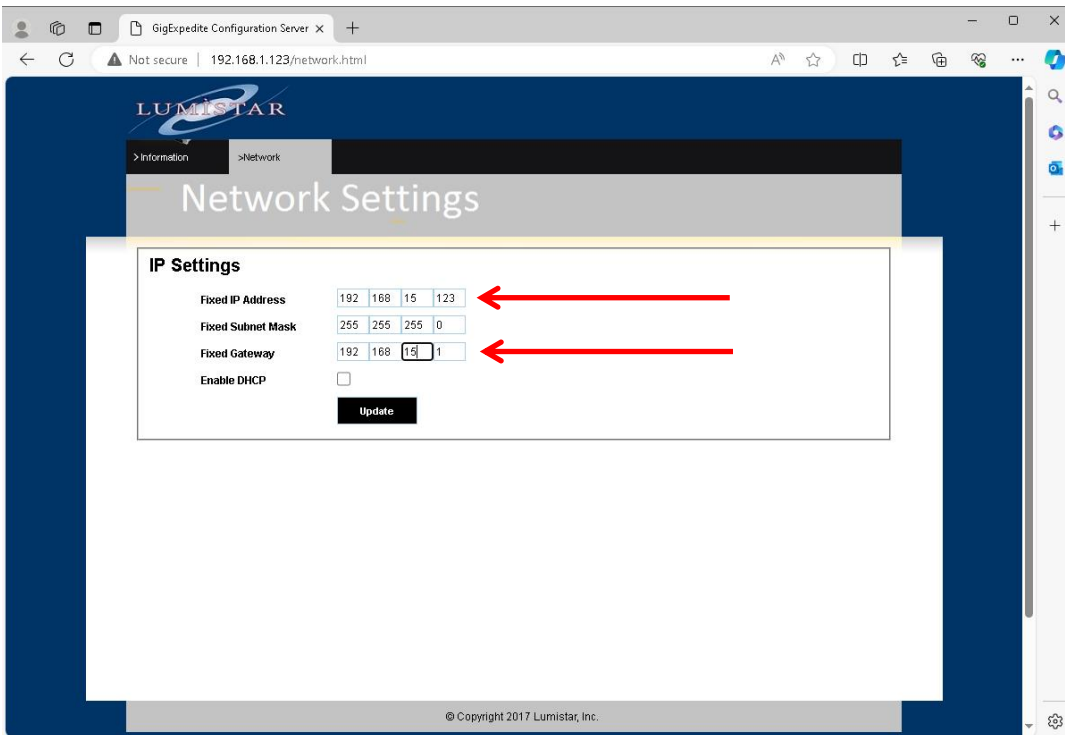


Enter the Lumistar Device ip address into the Browser search TextBox.



Click on the **Network** Tab.



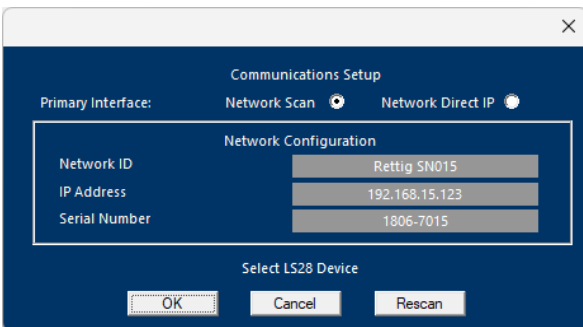


Enter your desired **ip** address and **Fixed Gateway** as shown above. Click the **Update** button. Your Browser will freeze as the Lumistar Device is now unreachable on its new Subnet.

Reset your NIC card settings by following the instructions on the bottom of page 5 to the top of page 7. Only this time reset the **ip** and **Default Gateway** to the same as shown on the Figure in the middle of page 6.

Reconnect your Computer and Lumistar Device to the LAN (or keep it in a Peer-to-Peer connection if desired).

Launch the LS28\_App, it should be able to find your Lumistar Device now.



Click the **OK** button.

Ls28\_APP Version 1.12.21  
 File System Tools Help

**LUMISTAR**

Channel 1	Channel 2	FSync 1	FSync 2	FSync 3	RSSI (dBm)	-102.2	-100.4	Eb/No (dB)	0.00	0.00	0.00	ModIndex	0.35	0.25	0.25	Time	IF LB	
Channel 1	Channel 2	Channel 1 RF	Channel 2 RF	Channel 1	Channel 2	Channel 1	Channel 2	Combiner	Freeze	Freeze	Zero	Zero	Channel 1	Channel 2	Channel 1	Combiner	Channel 1	Channel 2

Receiver Operational Mode: MS-PCMFm/GMSK  
 Input Source: Channel 1 RF, Channel 2 RF  
 Receiver Tune Frequency (MHz): 2280.50, 2280.50  
 Demodulation Mode: PCMFm, PCMFm  
 Data Rate (Mbps): 5.0, 5.0  
 Input PCM Code: NRZ-L, NRZ-L  
 PCM Decoder Polarity: Norm, Inv, Norm, Inv  
 IF Filter BW (MHz): 7.612, 7.612  
 Video Filter BW (MHz): ---, ---  
 AM Filter BW (Hz): 50000, 50000  
 AGC Time Constant (msec): 100 msec, 100 msec

Combiner Enable   
 Assisted Setup   
 Duplicate Setup   
 Use Stored Setup at Boot

Dev ID: Rettig SN015  
 Mode: MS-PCMFm/GMSK  
 Setup: C:\lumistar\LS28M\SystemTools\Options\1806-7015\LS28.CFG

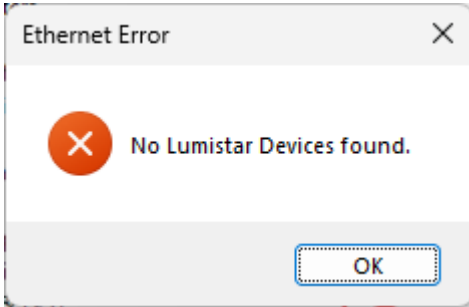
LS28 HW IP: 192.168.15.123  
 Local SW IP: 192.168.15.105

Home Signal Digital Data Test Display Info  
 Exit Record Log UDP Stream Sim Update ACI

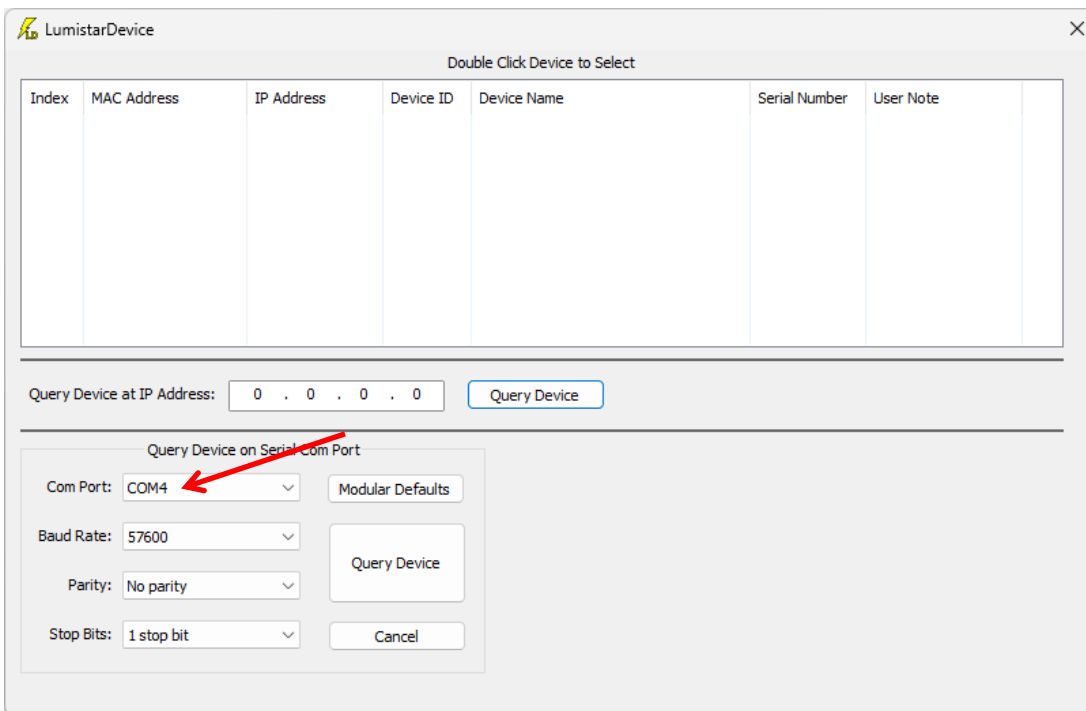
You are now back online.

# LumistarDevice Window for an LS-68M

Launch the C:\Lumistar\LS28M\UserTools\LumistarDevice.exe application, you may see the following warning.



Click the **OK** button.



Ensure the proper COM Port is entered above.

Next click the **Query Device** button.

LumistarDevice show the LS68M is seen in the banner below.

The screenshot shows the 'System Values' tab in the LumistarDevice software. The interface includes several sections for configuration and monitoring:

- Command & Status TCP Socket:** Local: localhost::0, Remote: 0.0.0.0::5013
- Decom Streaming Data Socket Details:** Local and Remote fields.
- Decommutator Returned Values:** Standard Datagram Size: 1056, Last Datagram Size: 1056, Num of Minor Frames per Datagram: 1, Num of Datagrams per Minor Frame: 1.
- Current Value Table:** A table with columns H1 through H10 and rows F1 through F10.
- Decommutator 0x1109 Setup Word Attributes Command:** Fields for Words per Minor (512), Common Word (16), SFID Word Number (2), msb First (8272), and Calculated FSP.

A red arrow points to the 'STR1' label in the 'Decom Streaming Data Socket Details' section.

Click on the **System Values** Tab.

The screenshot shows the 'System Physical Values' tab in the LumistarDevice software. The interface displays various system parameters and monitoring options:

- System Physical Values:** Digital 5.0 V Rail: 4.9 V, CH1 Analog 5.5 V Rail: 5.5 V, CH1 Analog 5.0 V Rail: 5.0 V, CH1 Analog -5.0 V Rail: -5.1 V, Digital 3.3 V Rail: 3.3 V, CH2 Analog 5.5 V Rail: 5.6 V, CH2 Analog 5.0 V Rail: 5.1 V, CH2 Analog -5.0 V Rail: -5.1 V, System Temp: 35 °C / 95 °F, Supply Voltage: 24.2 V, Supply Current: 0.8 A, Supply Power: 19.4 W.
- Historical Temperature Range:** 19 °C - 52 °C, 66 °F - 126 °F, Historical Supply Voltage Range: 10.143 V - 24.458 V.
- Device Total Runtime:** 0 Years, 0 Months, 0 Days, 0 Hours, 0 Minutes, 0 Seconds.
- Encrypted Cmd File:** A field for entering commands with 'Browse' and 'Run' buttons.
- Boot Success Values:** Boot Success, DSP2 FW OK, FIO FPGA FW OK, TOE FPGA FW OK, DP FPGA FW OK.
- Flash Update Progress:** Uploading and Writing progress bars, Bytes to write, and Bytes written.
- DSP1 Flash Update - Restart after Flashing:** A field for entering the command with 'Browse' and 'Load' buttons.
- DSP2 Flash Update - Restart after Flashing:** A field for entering the command with 'Browse' and 'Load' buttons.
- Dual Purpose FPGA Configuration EEPROM Update:** A list of 11 options for selecting the target EEPROM.

At the bottom of the interface, there is a status bar with the text: W:68 W:00 W:01 W:20 W:00 W:00 R:68 R:00 R:01 R:20 R:0C R:00 R:31 R:21 R:37 R:38 R:32 R:33 R:CD R:CD R:23 R:00 R:F2 R:08 W:68 W:00 W:04 W:20 W:00 W:01

Use the Slider to go to the bottom of this System Window.

LS68M - 2 BitSyncs, 3 Decoms, 2 Sims Mode - 2008-2052 - WR 68M SN2052

Command & Status TCP Socket  
Comm Port: COM4 @ 57600

Consolidated Status UDP Socket  
Local: localhost:10  
Remote: 0.0.0.0:5013

Use Consolidated Status

If UDP Datagrams are not being received, verify that a Windows Firewall exception has been created for each instance of LumistarDevice.exe.

Blink LEDs

FSP/Decom 1 FSP/Decom 2 FSP/Decom 3 Bit Sync BERT Simulator 1 Simulator 2 IRIG Time System Values

Select Target EEPROM and Completely TURN OFF all Anti-Virus and Anti-Malware software.

2:  20231012 : 1 Decom, 2 Super Sims ModeUnknown

3:  00000000 : Unused

4:  00000000 : Unused

5:  00000000 : Unused

7:  00000000 : Unused

8:  00000000 : Unused

9:  00000000 : Unused

10:  00000000 : Unused

11:  00000730 : Unused

Browse Load

Serial Number: 2008-2052  
Device ID: WR 68M SN2052  
Dual Purpose FPGA Personality: 0x01 2BSs 3DECOMs 2SIMs

DSP Board PCB Revision: 2  
FPGA Board PCB Revision: 2

DSP1 Fw Ver: 20240123  
DSP2 Fw Ver: 20240123

FIO FPGA Fw Ver: 20221215  
Bridge FPGA Fw Ver: 20180828  
DP FPGA Fw Ver: 20231012

Device IP Address: 192.168.15.222  
DHCP Enabled:  UDP Time to Live: 32 Save Read

Product Model ID Strings:  
Customer Name:  
Purchase Order Number:

PO Model Number:  
Chassis Serial Number:  
Engineering Model Number:

Invert External Sources  
Invert External Source 1 Clock:   
Invert External Source 1 Data:   
Invert External Source 2 Clock:   
Invert External Source 2 Data:   
Invert External Source 3 Clock:   
Invert External Source 3 Data:

J12 User I/O Selections  
J12-P2: Output SIM2 SE2 PCM CLK  
J12-P3: Output SIM2 SE2 PCM DATA  
J12-P4: Input DECOM1 SE3 CLK  
J12-P5: DECOM1 SE3 DATA  
J12-P6/P18: Output DECOM1 DIFF2 A SCLK+/-  
J12-P8/P20: Output DECOM1 DIFF2 B SDAT+/-

Select Operational Mode  
2 BitSyncs, 3 Decoms, 2 Sims Mode:   
1 BitSync, 2 Decoms, 1 Sim, 1 Super Sim Mode:   
1 Decom, 2 Super Sims Mode:

W:68 W:00 W:01 W:20 W:00 W:00 W:00 R:68 R:00 R:01 R:20 R:0C R:00 R:31 R:21 R:37 R:37 R:32 R:33 R:CD R:CD R:25 R:00 R:F2 R:08 W:68 W:00 W:04 W:20 W:00 W:01

Shown above is the **ip** address of the LS-68M above