BLUSTREAM
MULTICAST

Network Switch Set-up Guides

Luxul

AMS-2616P

when used in a 1Gb Blustream Multicast system, in a single switch configuration system
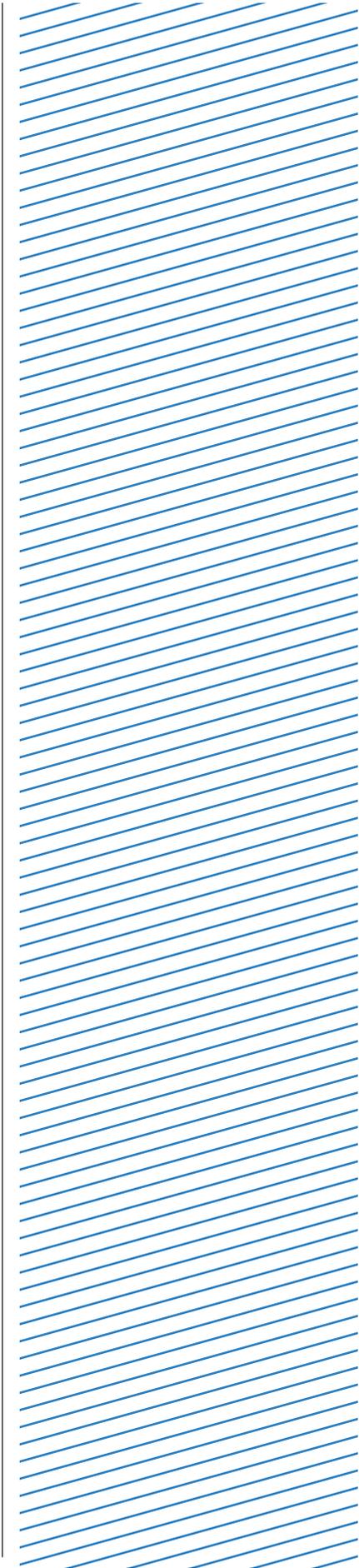
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Introduction

The 1Gb Blustream Multicast solutions require a 1Gb managed network switch in order for HDMI distribution to be achieved reliably, and without any loss of performance.

The following guide is a step-by-step instruction on how to connect and configure your network switch to support 1Gb Blustream Multicast products.

Please ensure each step is followed and checked at each stage. Before exiting the set-up, it is advisable to reboot the switch, log-in, and double check all settings.

Switch Requirements

The following features need to be enabled on the network switch being used for a Blustream Multicast system:

1. Multicast
2. Jumbo Frames / Jumbo Packets / MTU
3. IGMP Management / Snooping
4. PoE (where being utilised)

Feature explanation:

- **Multicast** (one-to-many or many-to-many distribution) is a group communication where information is addressed to a group of network devices simultaneously (Blustream Multicast products).

- **Jumbo Frames / Jumbo Packets / MTU** are Ethernet frames with more than 1,500 bytes of payload. Conventionally, jumbo frames can carry up to 9,216 bytes of payload and must be activated in order to send large packets of data for HDMI distribution. Without this enabled, the ability for the IP***UHD-TX units to transmit the HDMI data will not be achievable.

- **IGMP Management & IGMP Snooping** is the process of listening to Internet Group Management Protocol (IGMP) network traffic. The feature allows a network switch to listen in on the IGMP conversation between hosts, routers & receivers (IP***UHD Transmitters, the network switch, and IP***UHD Receivers). By listening to this flow of traffic the switch maintains a map of which links need which IP multicast streams i.e. which Blustream Multicast products are active and where the signal is being distributed to.

- **PoE** (Power over Ethernet) the Blustream IP***UHD and ACM devices are all capable of being powered by PoE. Power Supply Units are available for Blustream IP***UHD and ACM devices, however, the products are not sold with these included. PoE can be disbaled on the switch if external PSU's are being used.

Network Topology for Multicast

Our recommendation for the set-up of a Blustream Multicast system would be to have the customers business, or home network be kept independent of the Blustream Multicast video distribution network. This negates the possibility of data flowing through one network reducing the performance of the other and vice-versa. The Blustream Control Module will act as a "bridge" between the two networks allowing for control data to be seamlessly transmitted between the two networks.

Where the the business / home network and Multicast network are sharing a switch/es (not recommended). We would suggest creating a separate VLAN for the Multicast network, ensuring there is a minimum 1Gb of bandwidth allocated to the VLAN. A networking professional should be consulted when designing this type of system to ensure the networks can co-exist on the same infrastructure.

Connecting to the Web GUI Interface

To login into the Luxul network switch the factory default details are:

IP Address: 192.168.0.4

User: admin

Password: admin

In order to connect to the network switch your computer will need to be physically connected to the Luxul switch using an Ethernet network cable. **The computer must also be in the same IP range as the Luxul switch default IP address. If you are unsure how to update your computer IP range follow the 'Changing your computer IP address' instructions at the rear of this guide.**

1)   Open your internet browser (Google Chrome, Mozilla, Internet Explorer etc)

2)   Type the network switch default IP address into the web browser bar

3)   Enter the default user name and password

Note: If the switch is not using the factory default settings you will need to know these login details or have to factory reset the unit. For details how to factory reset the network switch please refer to the networks switch user manual.

Connecting to the Web GUI Interface

Maximum Frame Size

To increase the maximum frame size,

Within the 'Configuration' menu

Select 'Ports'

Select 'Ports'

Ensure 'Maximum Frame Size' is set to 9600 for all ports.
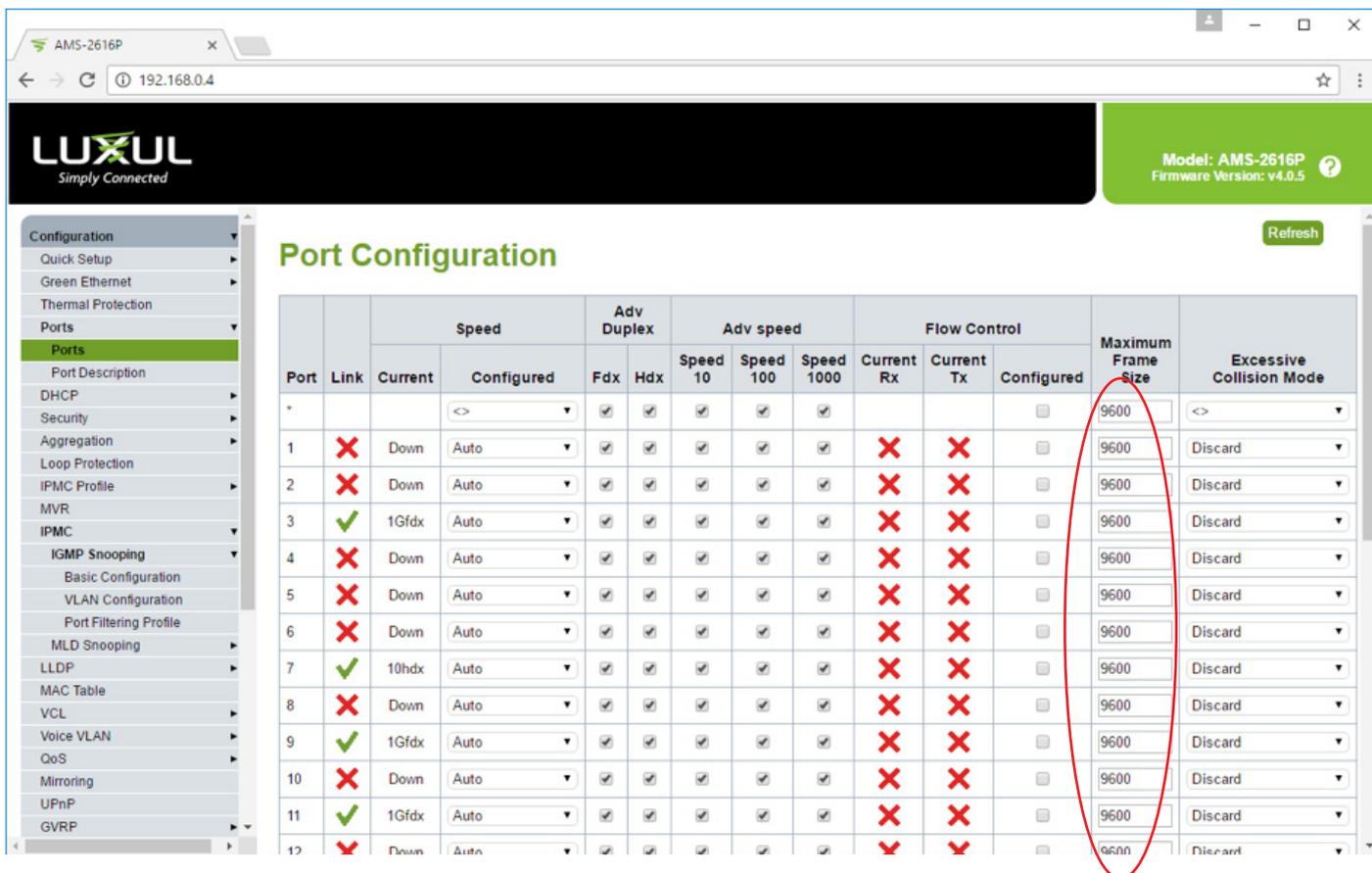
Click 'SAVE' at the bottom of the page to update the setting

IGMP Snooping

To enable IGMP snooping, there are several steps required to enable this feature:

- IGMP Snooping
- IPMCv4 Flooding
- Fast Leave
- IGMP Querier Status
- IGMP Querier Election

The following pages explain how to update the above settings

IGMP Snooping

Under 'Configuration' menu

      Select 'IPMC'

            Select 'IGMP Snooping'

                Select 'Basic Configuration'

                      Tick 'Snooping Enabled'

                      Untick 'Unregistered IPMCv4 Flooding Enabled'

                      Tick 'Fast Leave' for all ports

Confirm other settings match those as shown in the above image

Click 'SAVE' to update the setting

IGMP Snooping VLAN Configuration

Under 'Configuration' menu

Select 'IPMC'

Select 'IGMP Snooping'

Select 'VLAN Configuration'

Tick 'Snooping Enabled'

Untick 'Querier Election'

Change 'Compatibility' to Forced IGMPv2
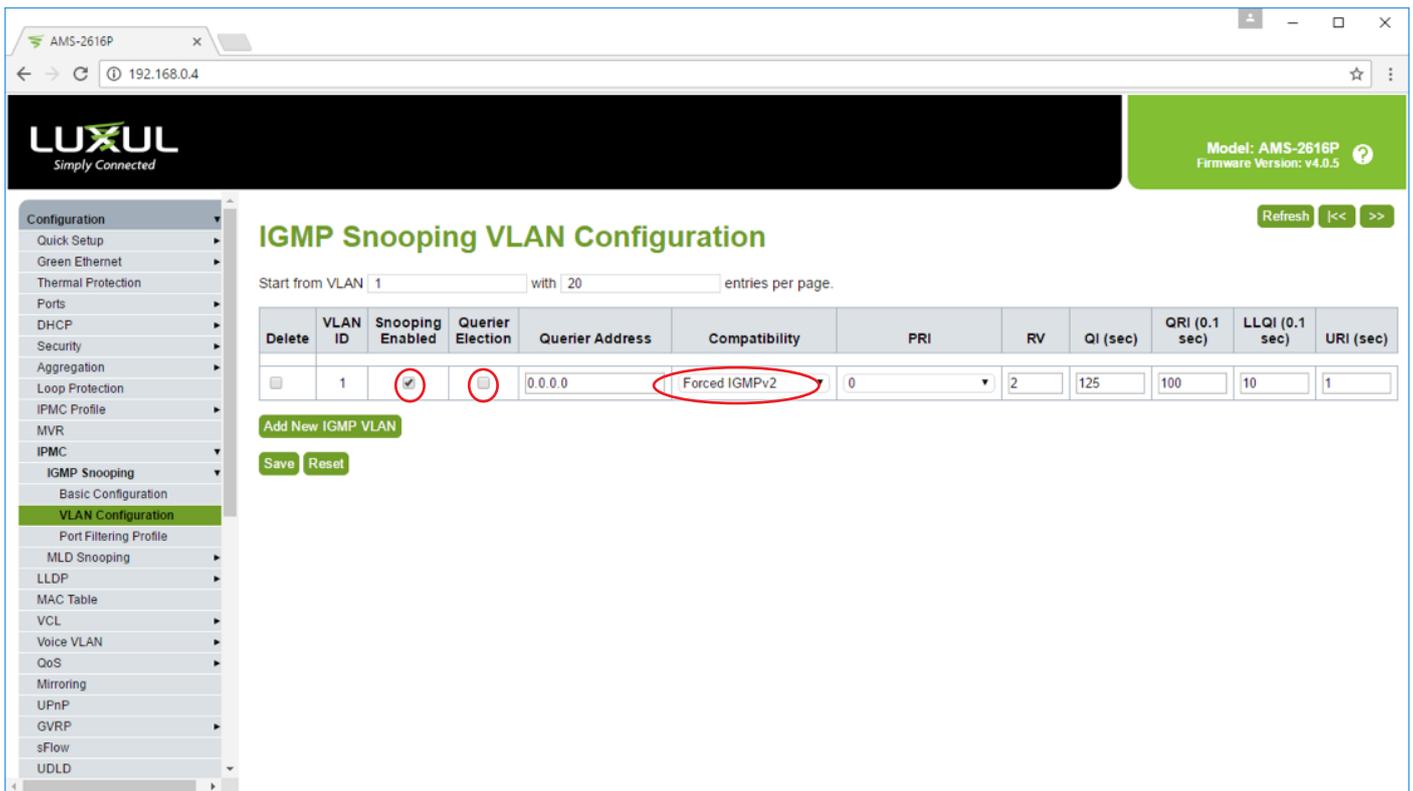
Confirm other settings match those as shown in the above image

Click 'SAVE' to update the setting

Turning On/Off PoE

Not all Luxul AMS switches support PoE. Furthermore, not all ports on the PoE switches support PoE. Please ensure your products are connected to the correct port. If you are unsure of the PoE port setting please follow the below instructions.

Under 'Configuration' menu

Select 'PoE'

The following table shows the settings for each RJ45 LAN port on the network switch. Default settings are for PoE Mode to be set to PoE+ (Enabled) so changes should not be required. If PoE Mode is 'Disabled' please follow below instructions.
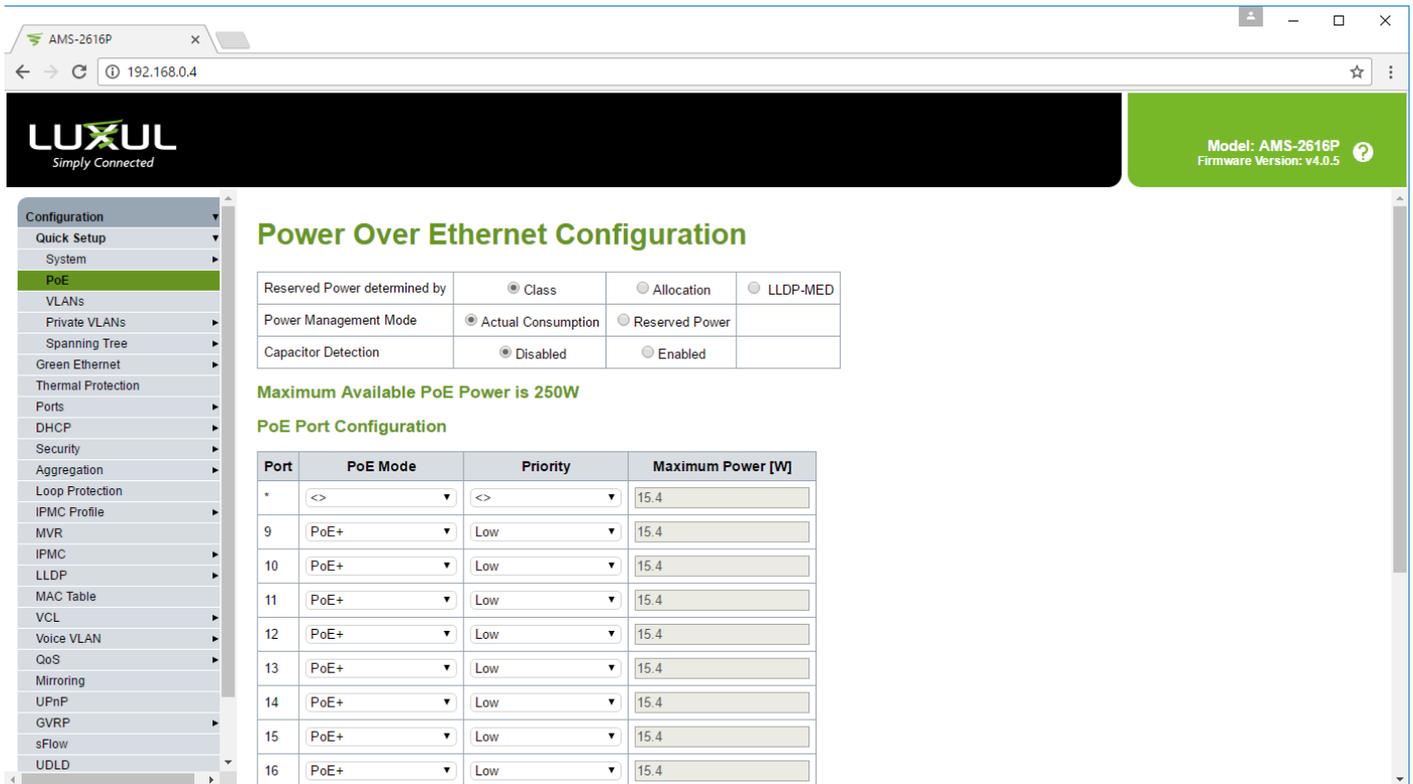

Click 'SAVE' to update the setting

Apply And Save Settings

All settings that have been previously updated will not be finalised until the configuration is saved and the switch is rebooted. To save the configuration:

      Under 'Administration' menu

          Select 'Configuration'

              Select 'Save Startup-Config'
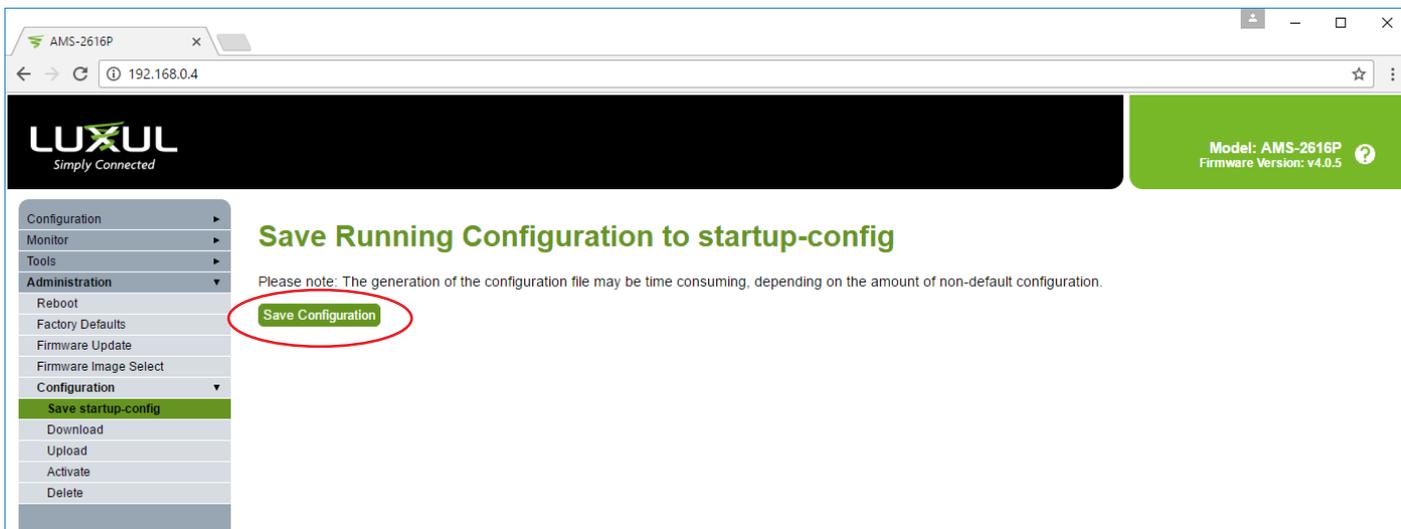

Click 'Save Configuration' to save the settings

It is then recommended to reboot the switch for settings to be applied

To reboot the switch:

   Under 'Administration' menu

          Select 'Reboot''
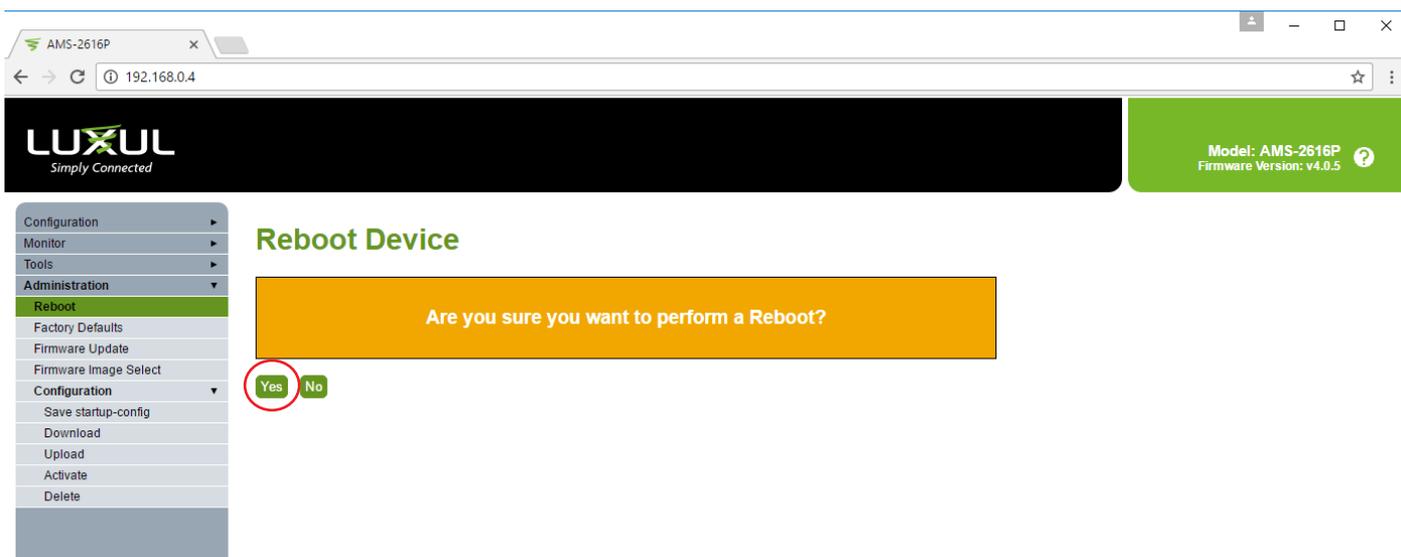
Click 'Yes' to reboot the switch

Please note: The switch may take several minutes to reboot but will then be ready to use with the Blustream Multicast products

Amending your IP Address in Windows

1. Connect the computer to the network switch using an Ethernet cable
2. Navigate to: **CONTROL PANEL / NETWORK & INTERNET / NETWORK CONNECTIONS**
3. Double click on the Ethernet conneciton as highlighted below:
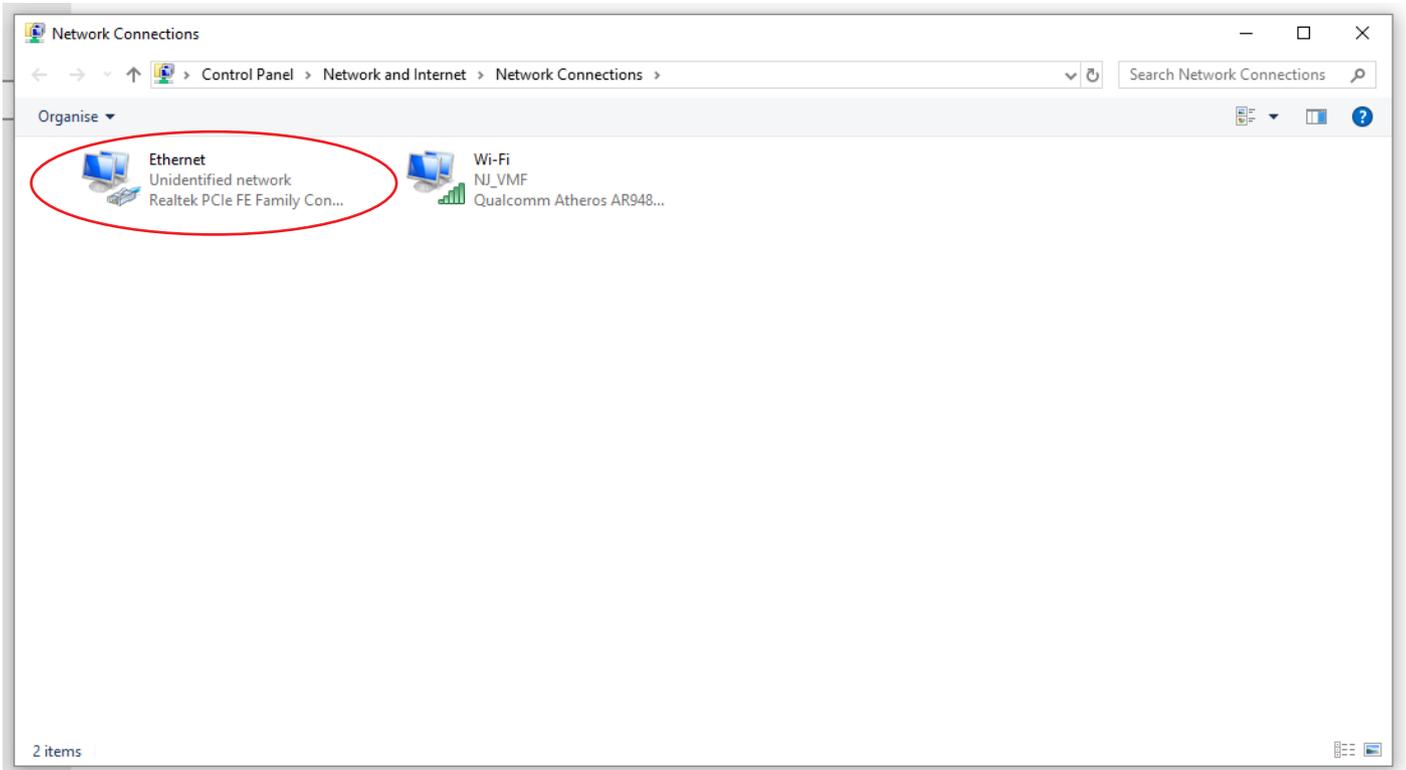
4. In the pop-up window that appears, click on: **PROPERTIES**
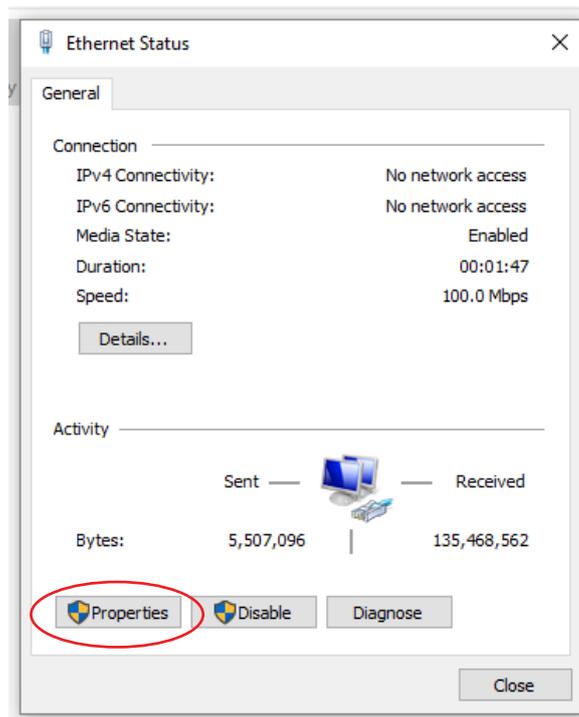
5. In the pop-up window that appears, double-click on: **INTERNET PROTOCOL VERSION 4 (TCP/IPv4)**
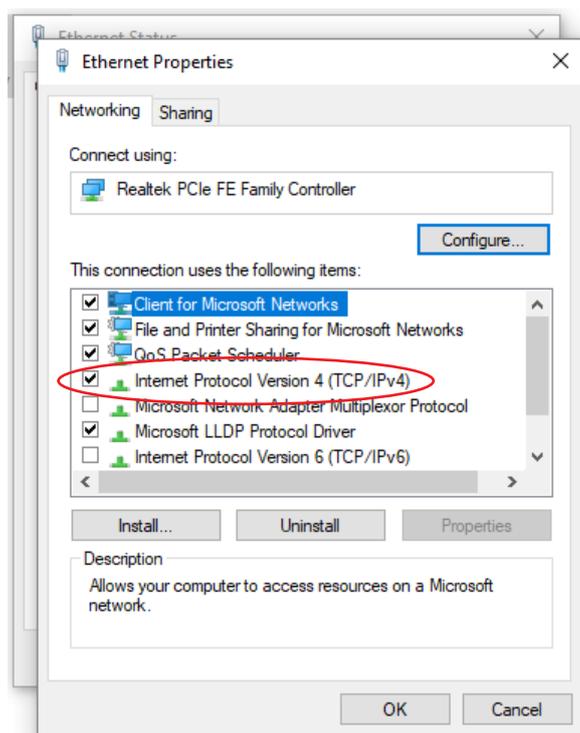

5. In the pop-up window that appears, double-click on the button marked: **USE THE FOLLOWING IP ADDRESS**

6. Enter the details as below:

> IP Address: **192.168.0.1**
>
> Subnet mask: **255.255.255.0**
>
> Default gateway: *Leave this field blank*
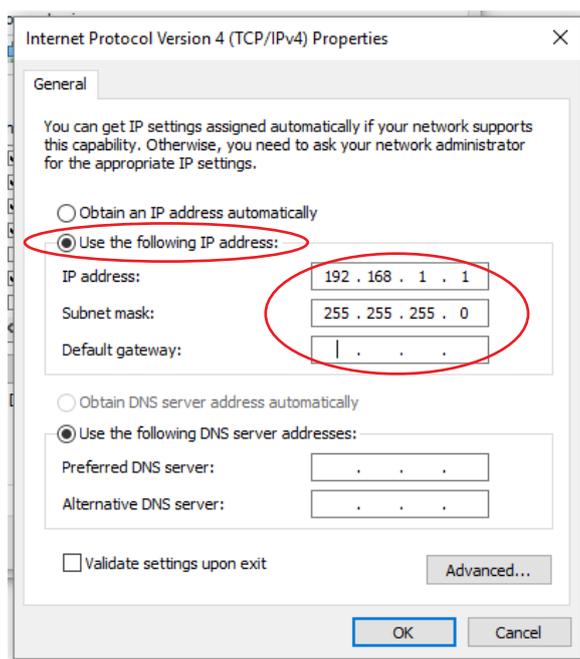
7. Click: **OK / OK / CLOSE**

Your Windows PC will now be working in the IP range as set above and you will now be able to communicate with the equipment working within the same IP range.

Amending your IP Address in Mac OS

1. Connect the Mac to the network switch using an Ethernet cable
2. Click on the Network Connections icon in the toolbar at the top of the desktop
3. Navigate to: **OPEN NETWORK PREFERENCES**

4. Find the active Ethernet connection to the network switch on the left-hand menu tree

5. Use the drop-down box marked: **CONFIGURE IPv4** and set to: **MANUALLY**

6. Enter the details as below:

        IP Address: **192.168.0.1**

        Subnet mask: **255.255.255.0**

        Router: *Leave this field blank*
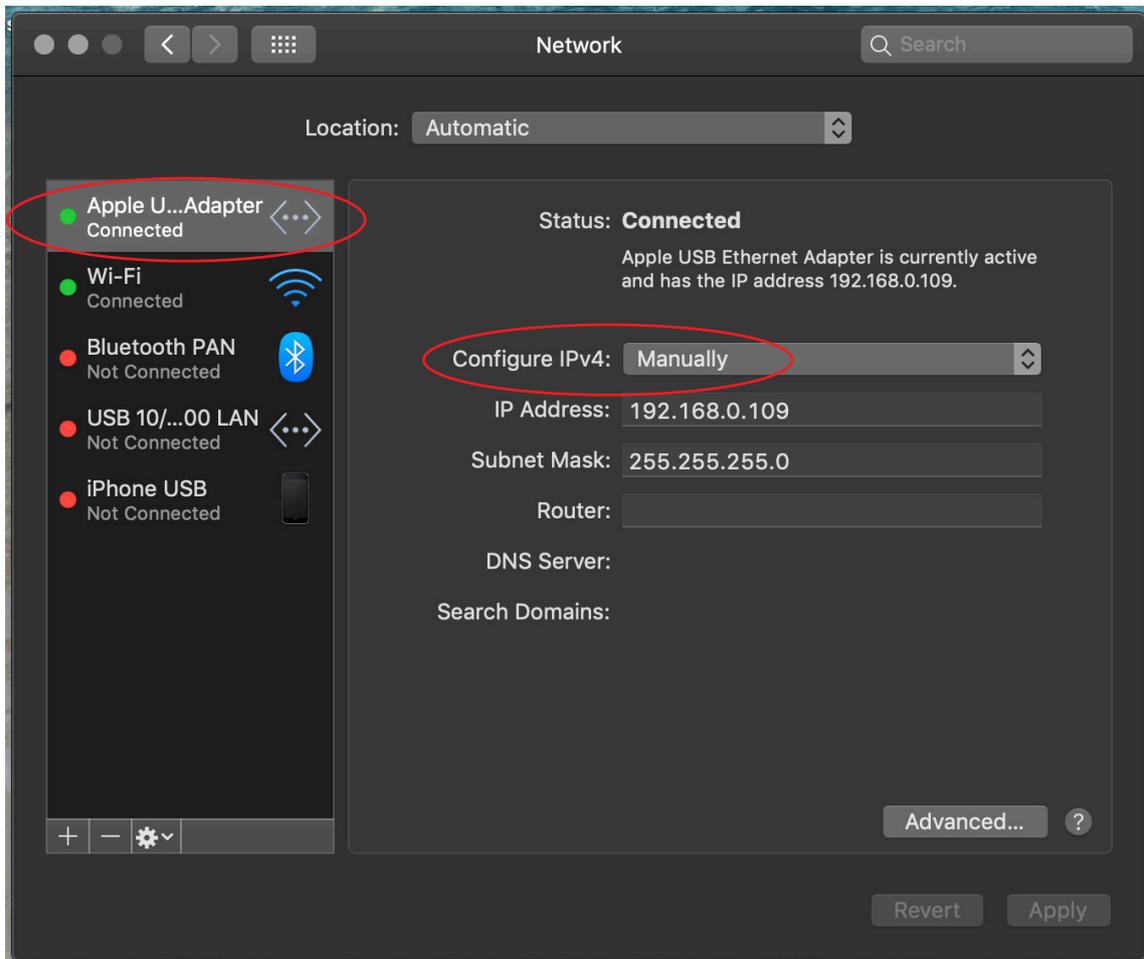
7. Click: **APPLY** at the bottom of the page and close.

Your Mac will now be working in the IP range as set above and you will now be able to communicate with the equipment working within the same IP range.

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