Network Switch Set-up Guides

tp-link

JetStream Series - T1600G / TL-SG2428P

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 tp-link network switch the factory default details are:

IP Address: 192.168.0.1

User: admin

Password: admin

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

1) Open your chosen internet browser (Chrome, Internet Explorer etc.)
2) Type the network switch default IP address (as shown above) into the web browser bar
3) Enter the default user name and password (as shown above)

Please note: if the switch is not using the factory default settings the login details will be required, or a factory reset the unit will have to be carried out. For details how to factory reset the network switch please refer to the networksswitch user manual.

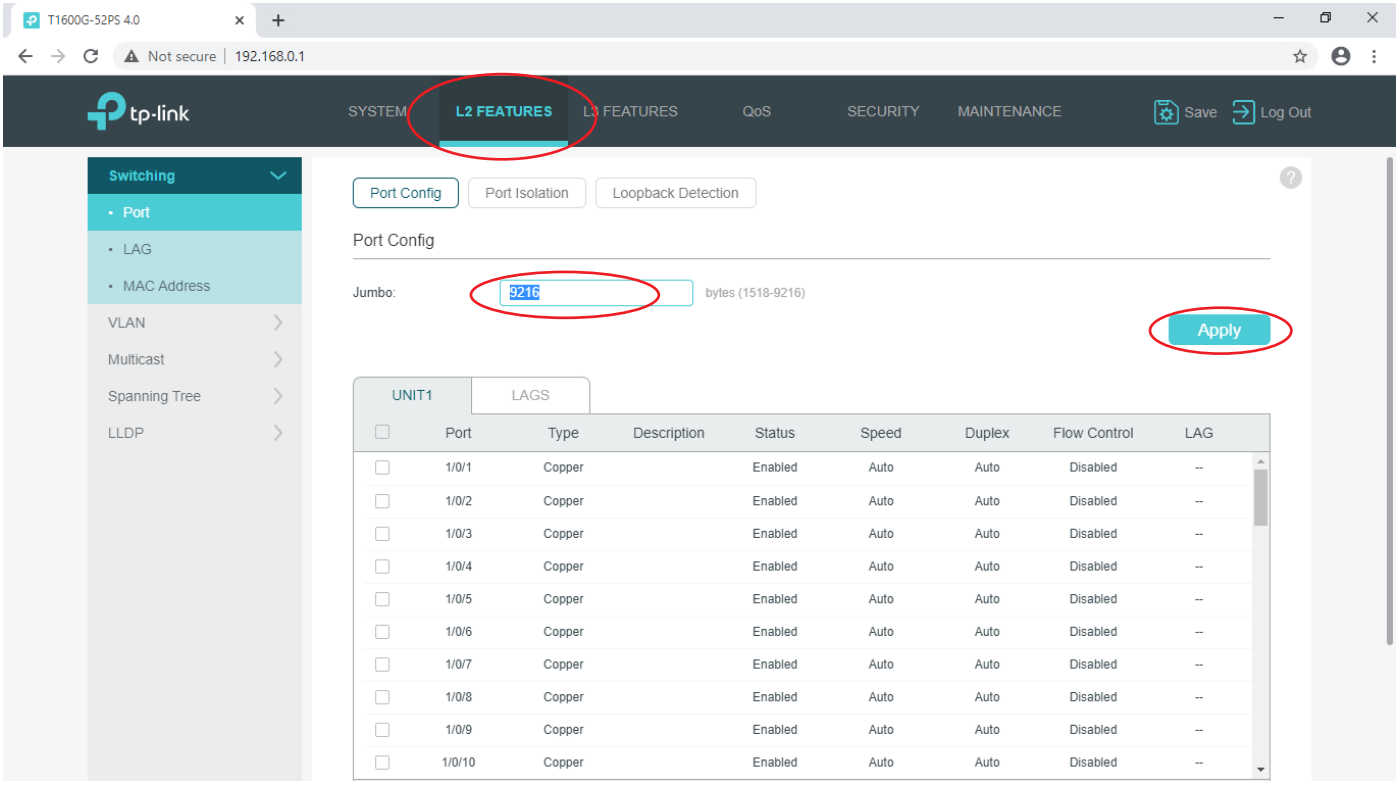
The tp-link switch will require a new admin password to be set on first login. Ensure that this password is noted down safely as it may be required to log back into the switch at a later point if the configuration has not been completed properly, or to check settings at some point in the future should any troubleshooting be required.

Jumbo Frames

To enable Jumbo Frames:

Click on the '**L2 FEATURES**' tab at the top of the GUI

- Amend the Jumbo frames value to "**9216**"
- Click '**Apply**' to apply the setting



IGMP Snooping

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

- IGMP Snooping Status
- IGMP Version
- Unknown Multicast Groups
- Fast Leave
- IGMP Snooping Querier

The following pages explain how to update the above settings.

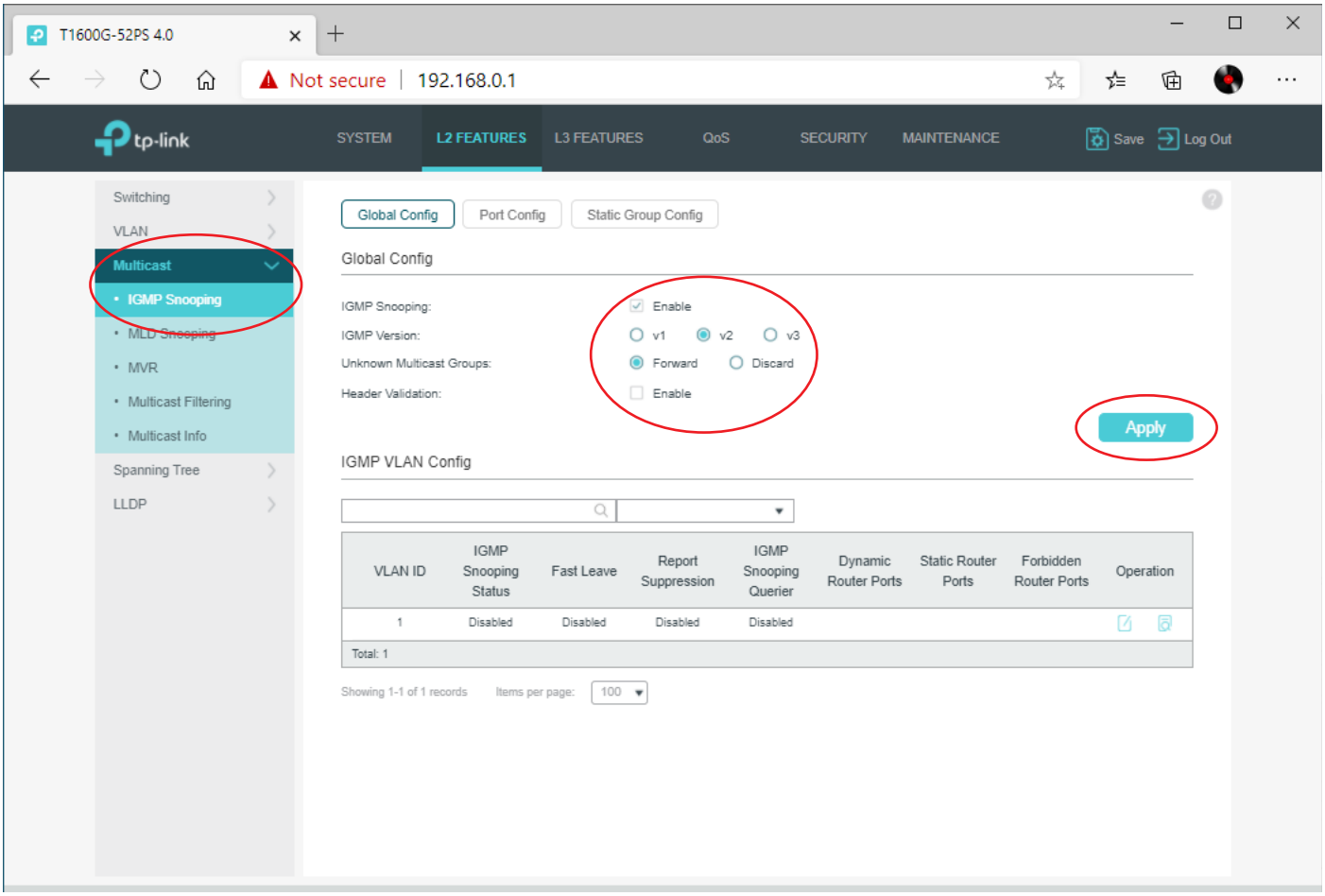
IGMP Snooping

On the side menu tree, select '**Multicast**'

Select '**IGMP Snooping**'

Ensure tick boxes for the following are checked (as per below image):

- IGMP Snooping
- IGMP Version - v2
- Unknown Multicast Groups: Forward



Click '**Apply**' once all relevant tick boxes have been selected

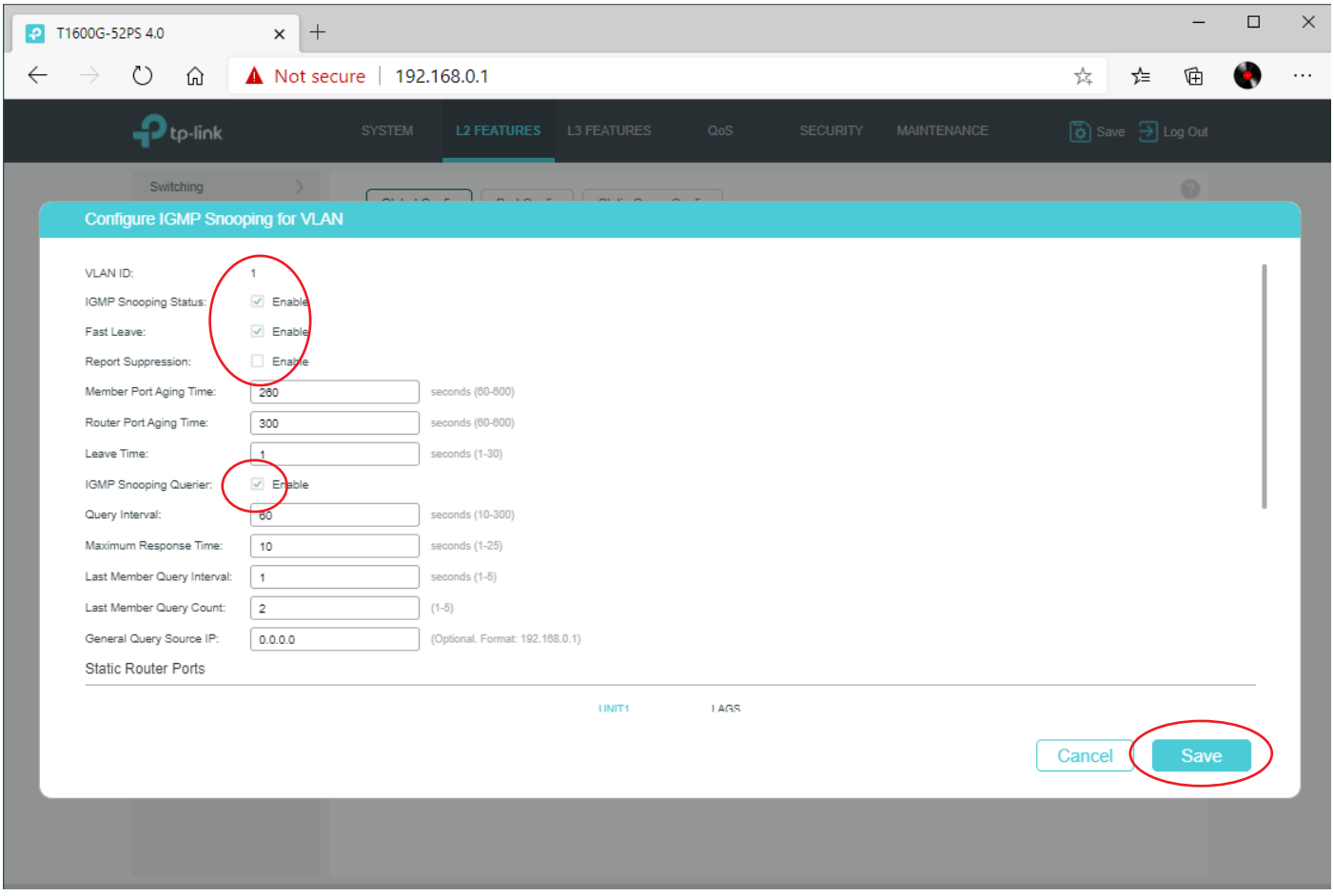
IGMP Snooping - Fast Leave & IGMP Snooping Querier

On the same page, amend the settings for VLAN 1 by clicking the '**EDIT**' button in the VLAN Config section - button as highlighted below:

VLAN ID	IGMP Snooping Status	Fast Leave	Report Suppression	IGMP Snooping Querier	Dynamic Router Ports	Static Router Ports	Forbidden Router Ports	Operation
1	Disabled	Disabled	Disabled	Disabled				
Total: 1								

On the pop-up menu, ensure that the check boxes are ticked as per below:

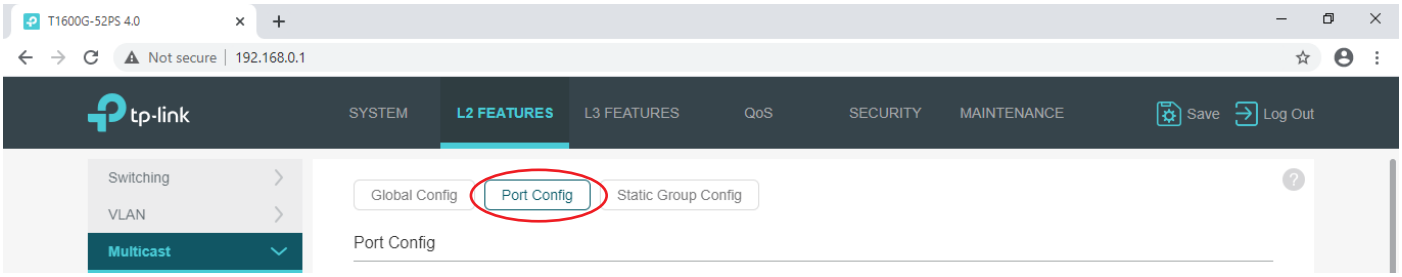
- IGMP Snooping Status
- Fast Leave
- IGMP Snooping Querier



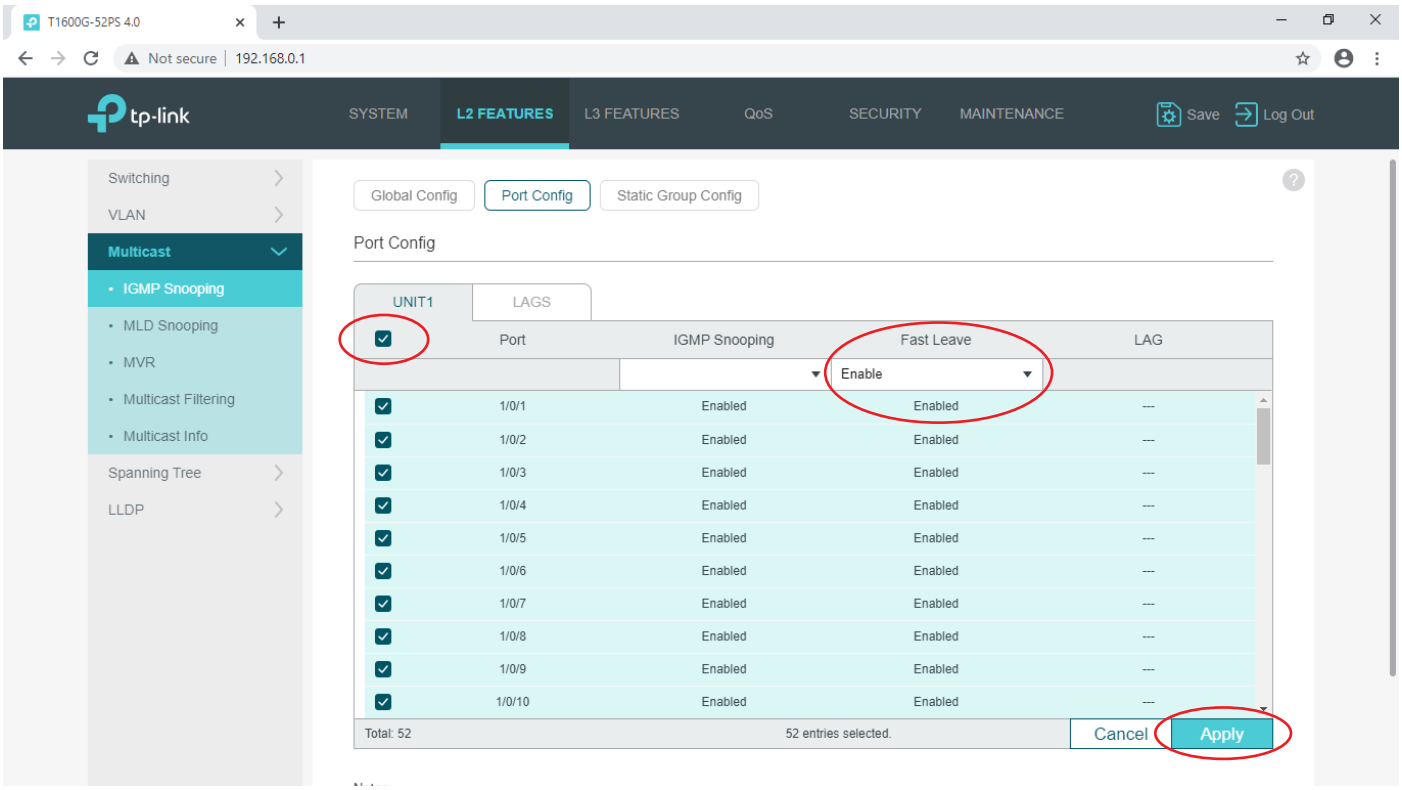
Click '**Save**' once all relevant tick boxes have been selected. The pop-up will close automatically on saving.

Fast Leave

The final part of enabling Fast Leave is to move across to the Port Config sub menu, as highlighted below:



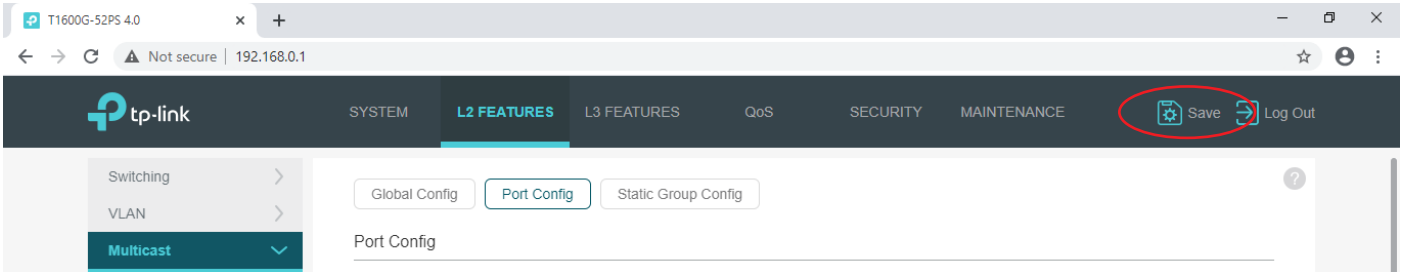
Click on the small tick box under UNIT 1 to select all ports. A drop down menu will appear above Fast Leave column. '**Enable'** Fast Leave for all ports as shown in the image below:



Click 'Apply' once enabled

Save Configuration

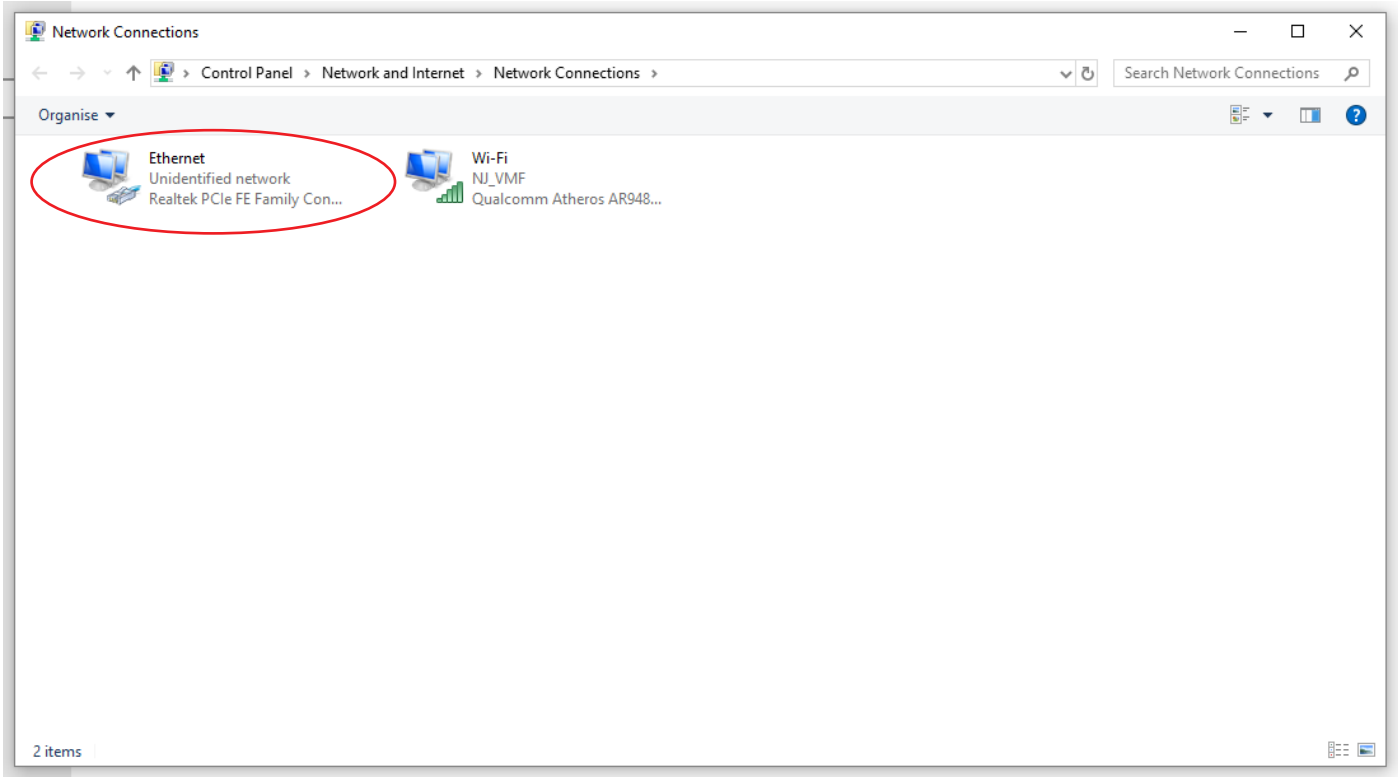
All settings that have been previously applied will not be fully saved until the configuration that has been set up so far has been saved. Click on the '**Save**' button at the top of the screen



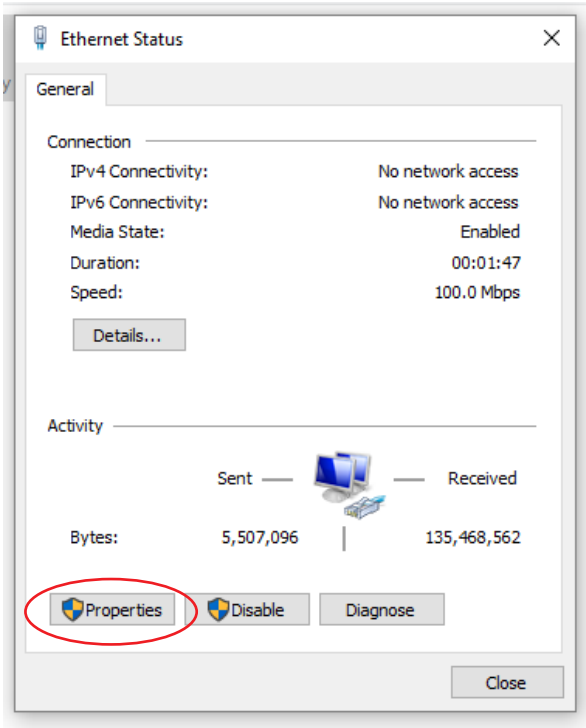
Confirm the save by clicking '**Yes**' on the pop-up window that appears.

Amending your IP Address in Windows

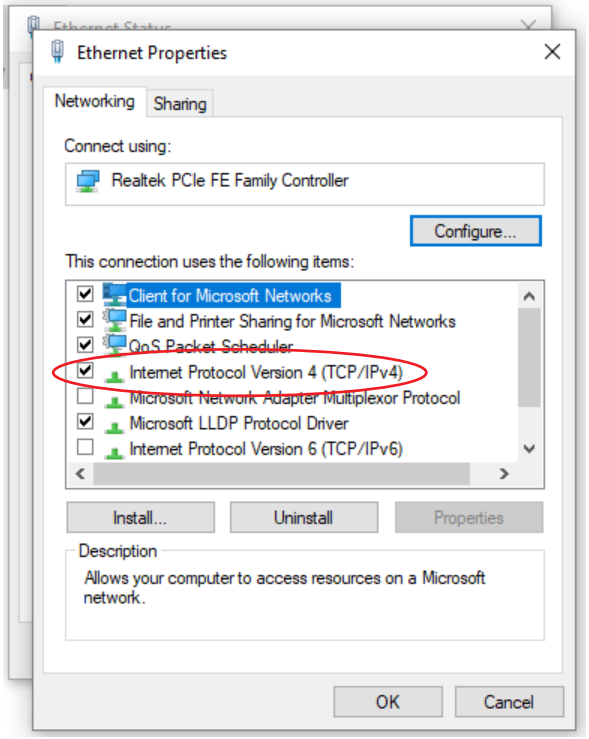
1. Connect the computer to the network switch using an Ethernet cable
2. Navigate to: **CONTROL PANEL / NETWORK & INTERNET / NETWORK CONNECTIONS**
3. Double click on the Ethernet conneciton as highlighted below:



4. In the pop-up windown that appears, click on: **PROPERTIES**



5. In the pop-up window that appears, double-click on: **INTERNET PROTOCOL VERSION 4 (TCP/IPv4)**

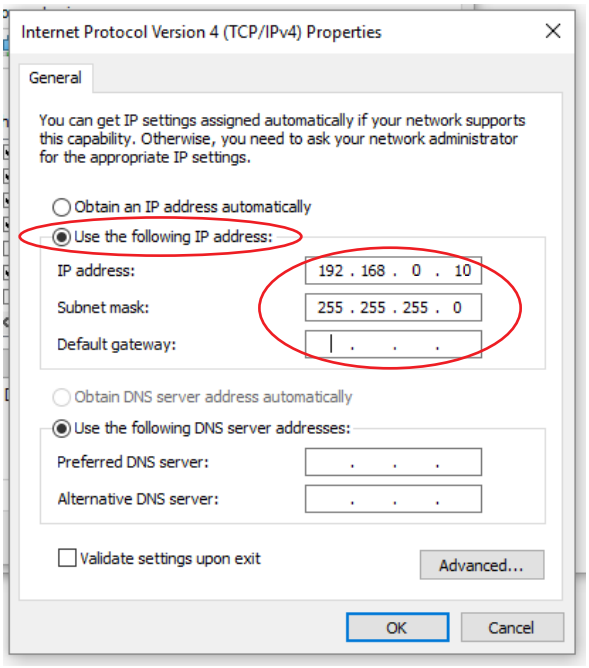


5. In the pop-up window that appears, double-click on the button marked: **USE THE FOLLOWING IP ADDRESS**
6. Enter the details as below:

IP Address: **192.168.0.10**

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

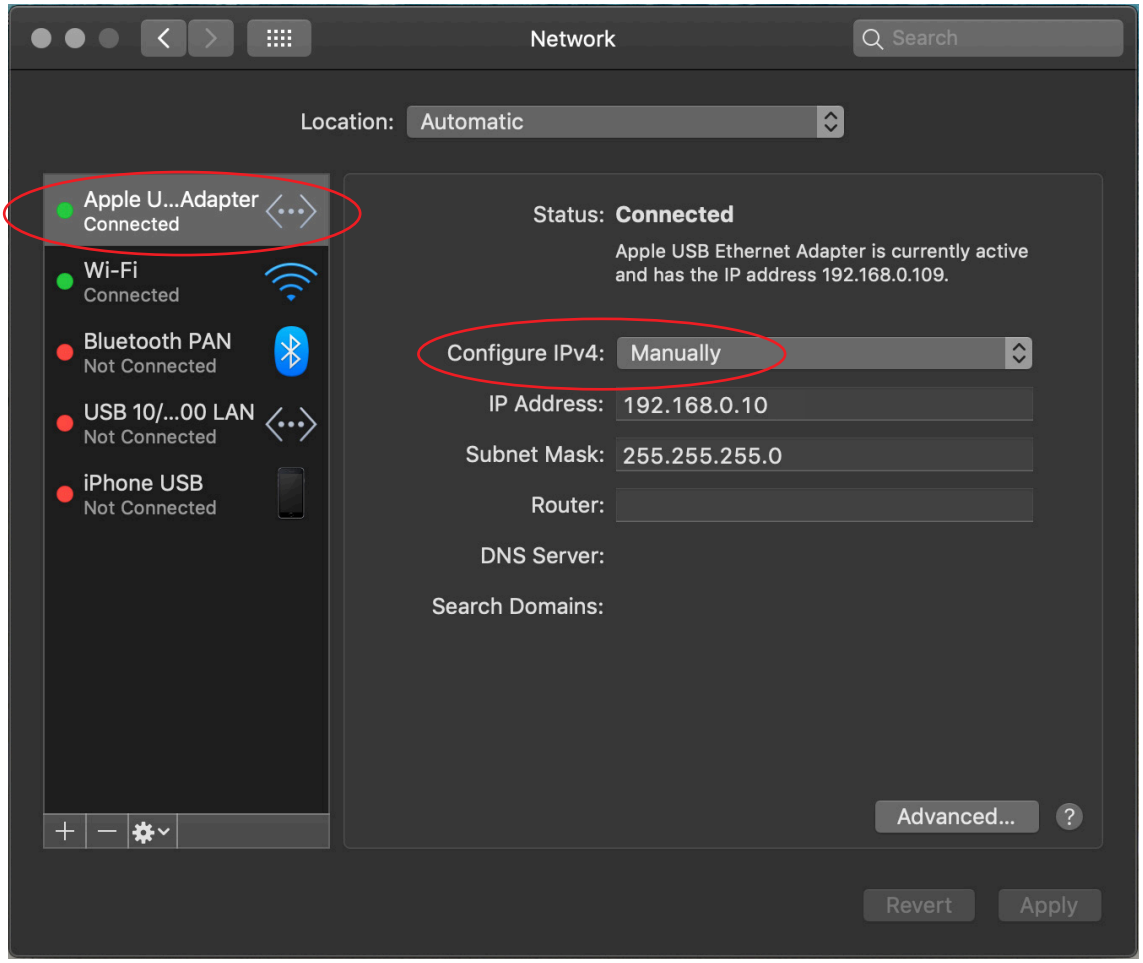
1. Connect the Mac to the network switch using an Ethernet cable
2. Click on the Network Connections icon in the toolbar at the top of the desktop
3. Navigate to: **OPEN NETWORK PREFERENCES**

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: **192.168.0.10**

    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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