



# Network Switch Set-up Guides

## DLink

### Smart Pro Series

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.

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## 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. MLD Snooping
5. 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 disabled on the switch if external PSU's are being used.

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## 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 DLink network switch the factory default details are:

IP Address: 10.90.90.90

User: admin

Password: admin

In order to connect to the network switch your computer will need to be physically connected to the DLink switch using a Ethernet network cable. **The computer must also be in the same IP range as the DLink 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

**Please 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.

**Once defaulted, the DLink switch will welcome you with a Smart Wizard that will take you through setting up the switch. This Smart Wizard is not required and you can ignore the wizard and 'Exit' out of the wizard.**

## Jumbo Frame

To enable Jumbo Frame,

Under 'System' menu

Under 'Port Configuration'

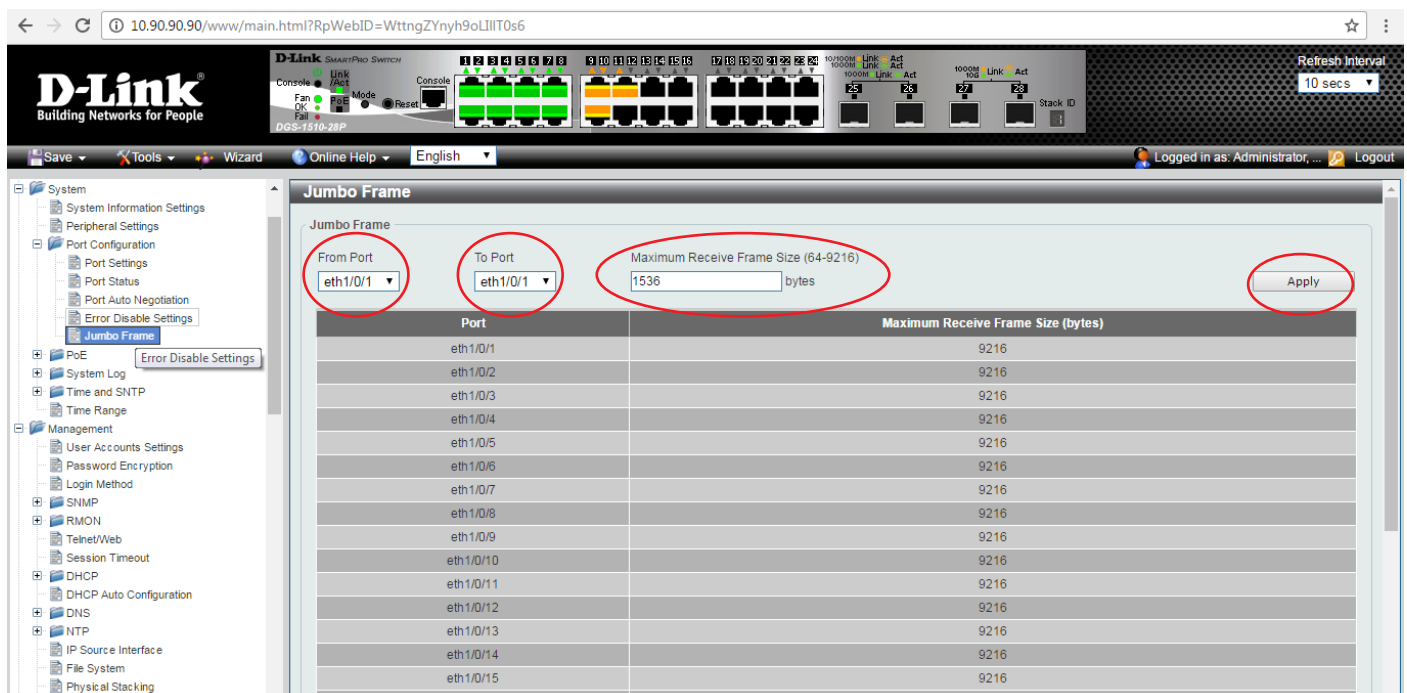
Select 'Jumbo Frame'

Change the following settings:

From Port to 'eth1/0/1'

To Port to 'eth1/0/28'

Maximum Receive Frame Size to '9216'



Click 'Apply' to update the setting.

# IGMP Snooping

To enable IGMP Snooping,

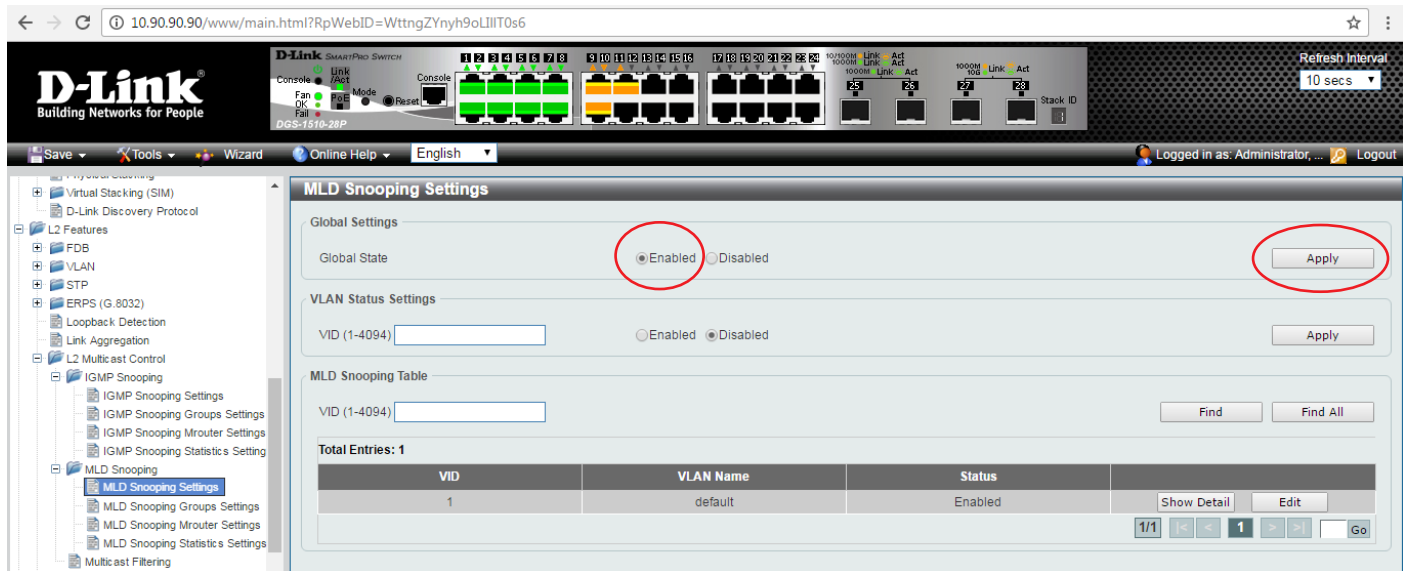
Under 'L2 Features' menu

Under 'L2 Multicast Control'

Under 'IGMP Snooping'

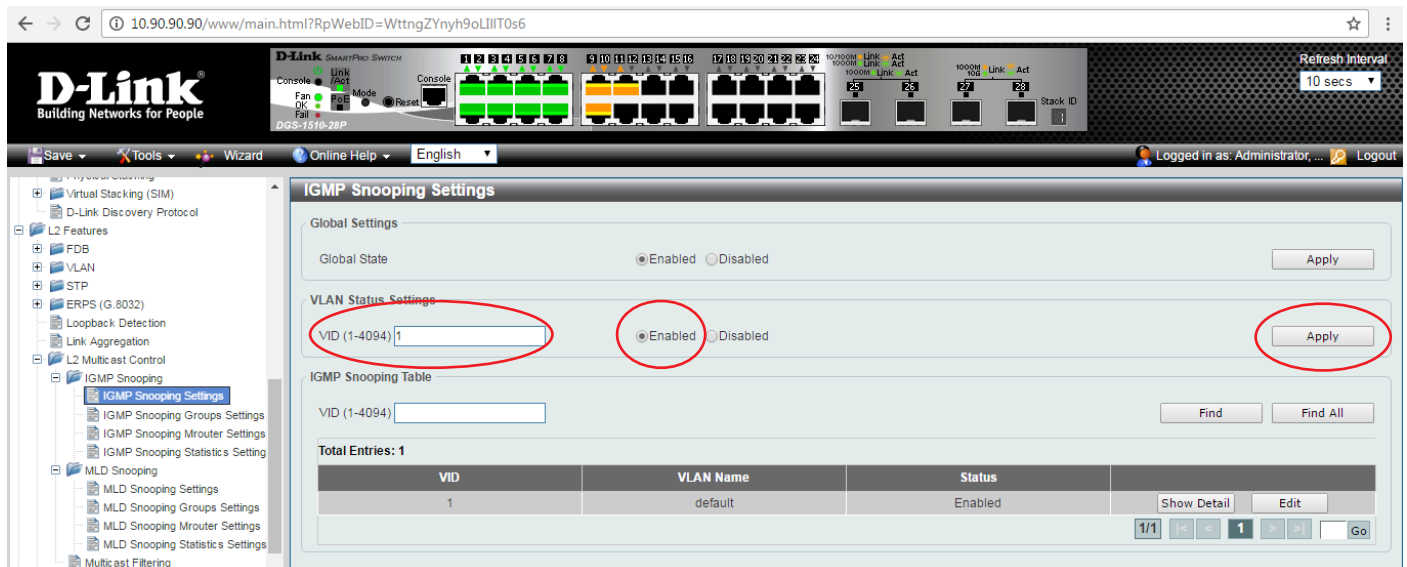
Select 'IGMP Snooping Settings'

Change Global State to 'Enabled' and click 'Apply'



In the VID field, enter '1'

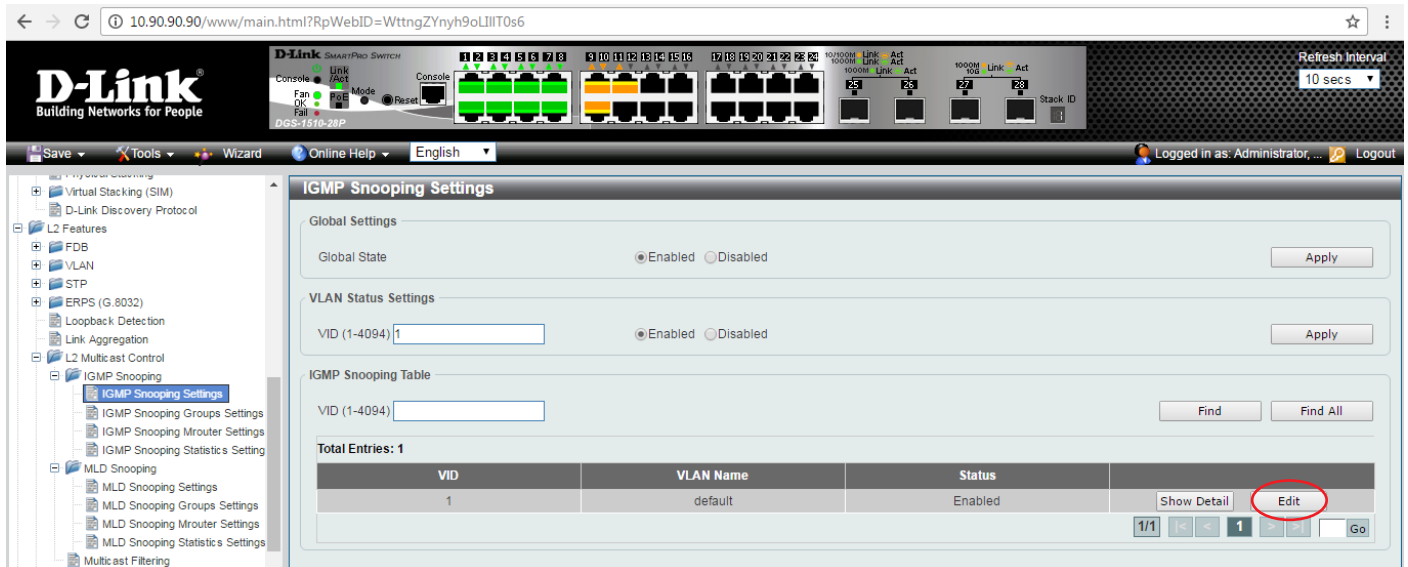
Change VID state to 'Enabled'



Click 'Apply' to update the setting.

# IGMP Snooping

Click on the 'Edit' button associated with VID 1 we just created.

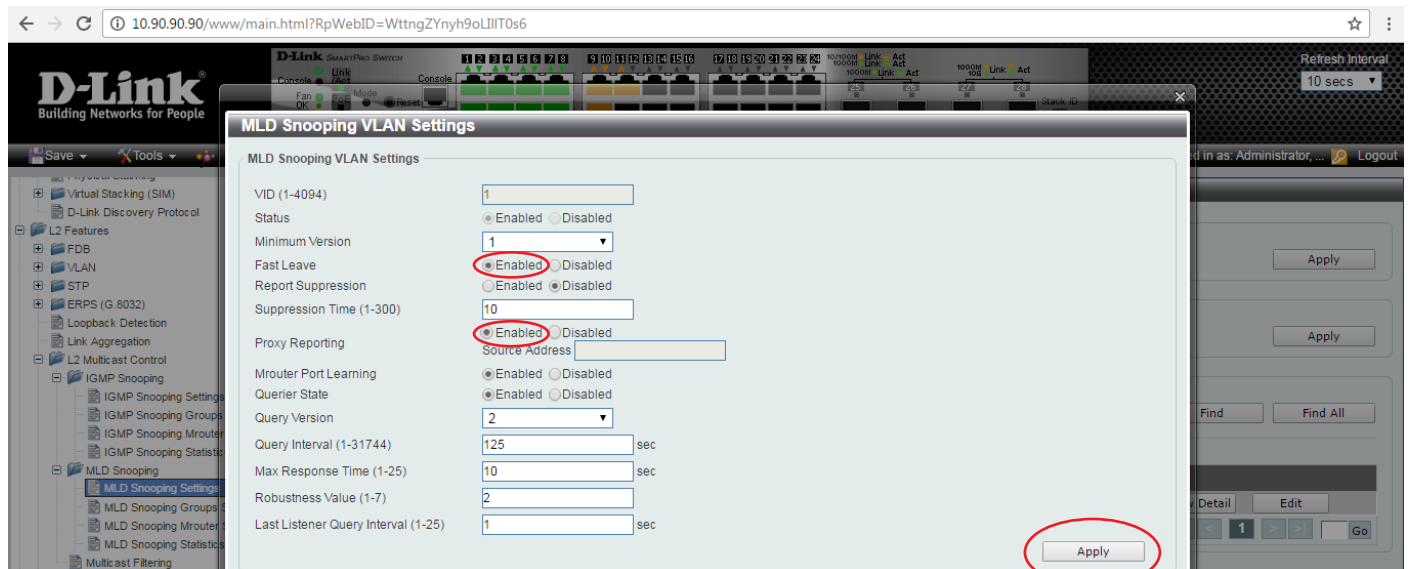


It is important that IGMP Querier State is enabled however when using multiple switches, this feature must only be enabled on the first switch. This is because the first switch is managing the IGMP table and subsequent switches will read this from the first switch.

To enable this, in the pop up window:

Change Fast Leave to 'Enabled'

Change Querier State to 'Enabled'



Click 'Apply' to update the setting.

# MLD Snooping

To enable MLD Snooping,

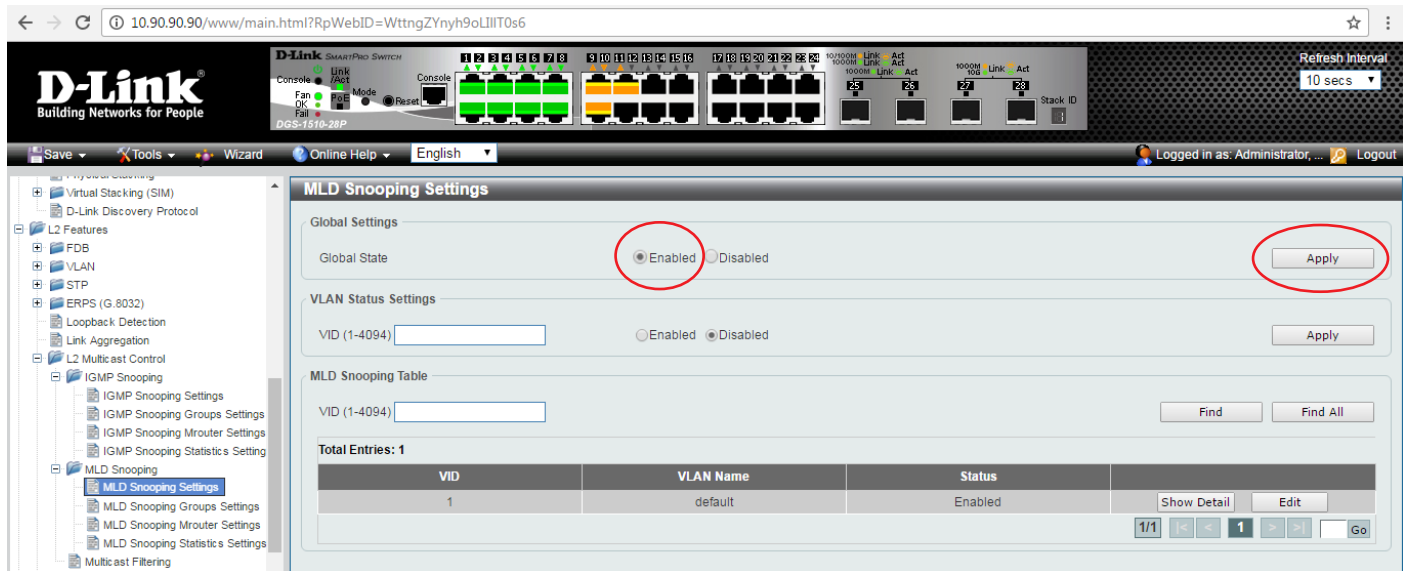
Under 'L2 Features' menu

Under 'L2 Multicast Control'

Under 'MLD Snooping'

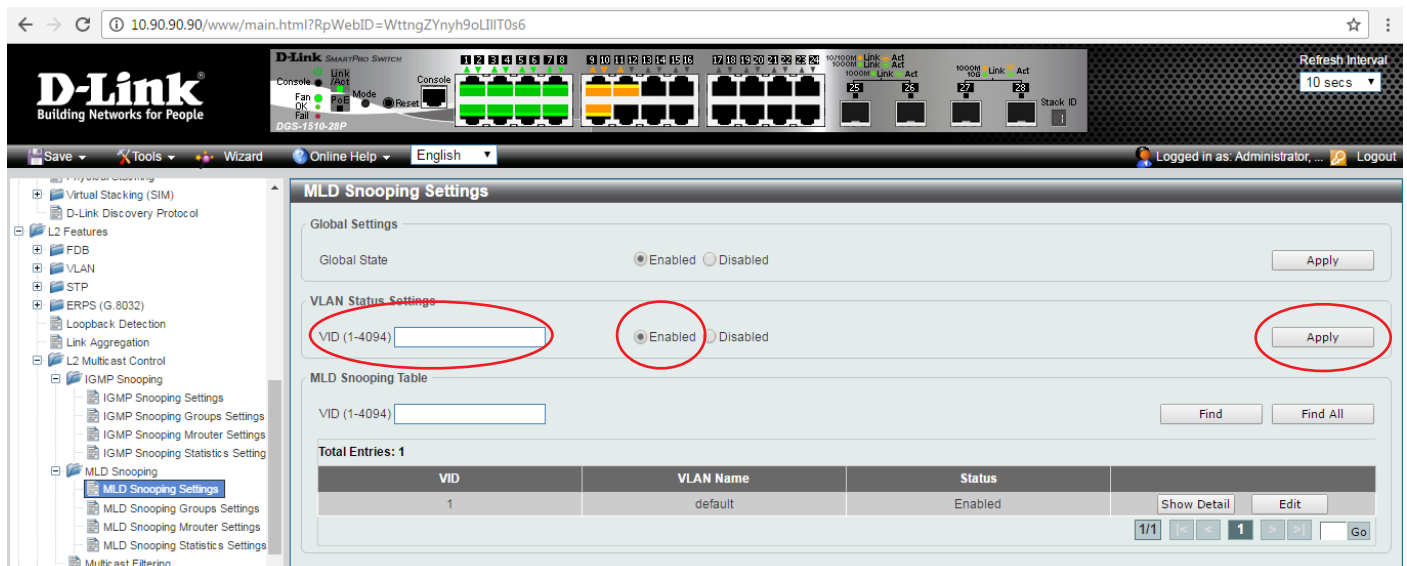
Select 'MLD Snooping Settings'

Change Global State to 'Enabled' and click 'Apply'



In the VID field, enter '1'

Change VID state to 'Enabled'

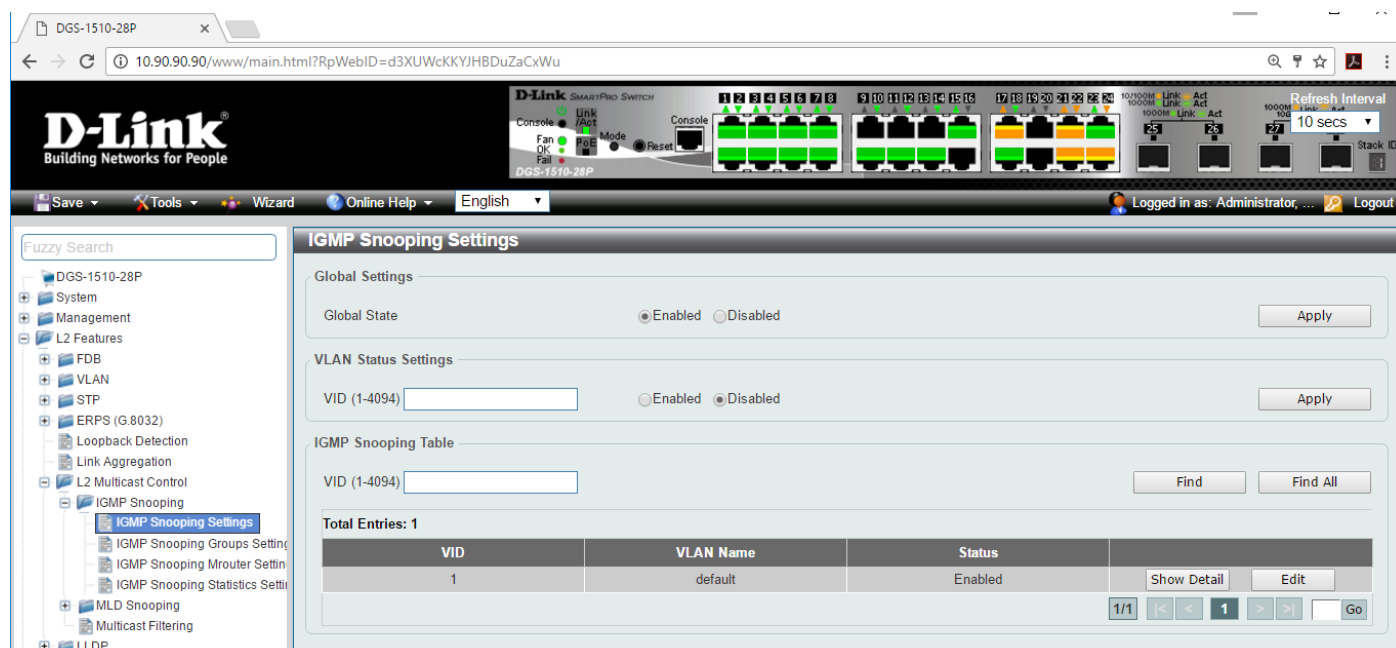


Click 'Apply' to update the setting



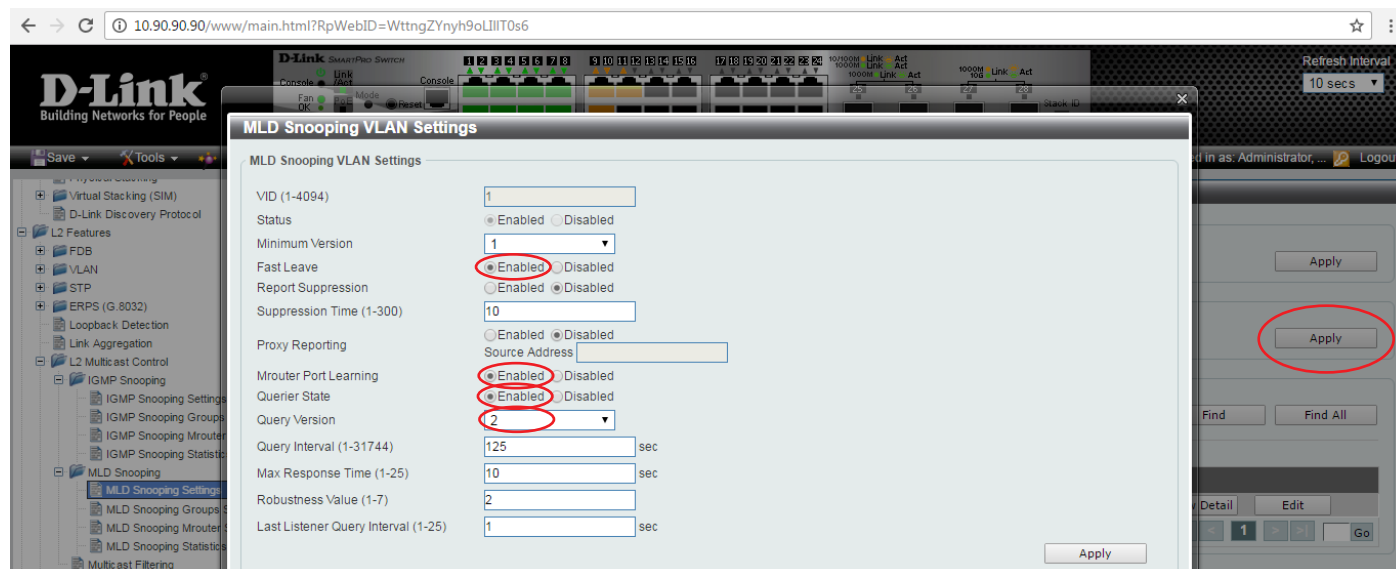
## MLD Snooping

Click on the 'Edit' button associated with VID 1 just created.



To enable this, in the pop up window:

- Change Fast Leave to 'Enabled'
- Change Mrouter Port Learning to 'Enabled'
- Change Querier State to 'Enabled'
- Change Query Version to '2'



Click 'Apply' to update the setting

# Turning On/Off PoE

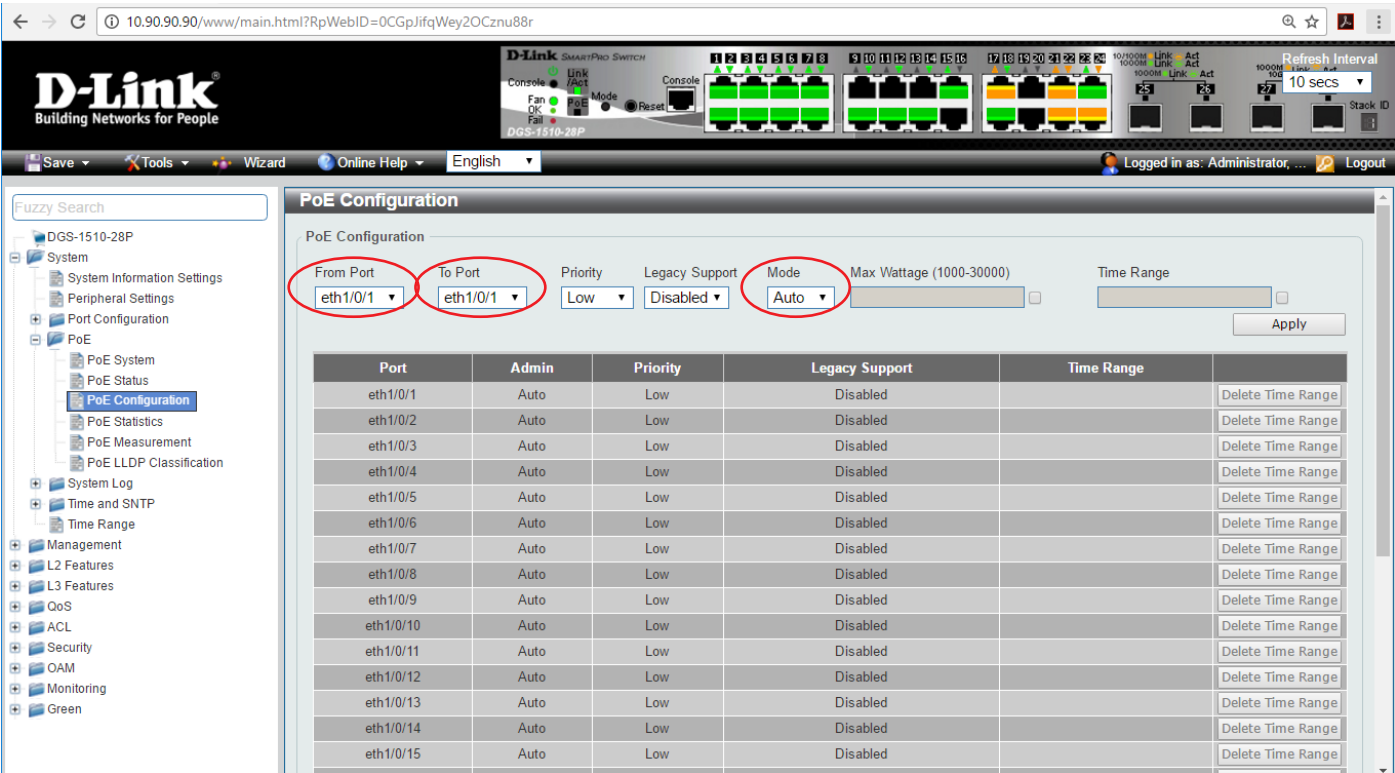
Not all DLink DGS switches support PoE. Those network switches that do support PoE come with this as factory default to 'ON'. If you are unsure of the port setting please follow the below instructions.

Under 'System' menu

Select 'PoE'

Select 'PoE Configuration'

The following table shows the settings for each RJ45 LAN port on the network switch. The Mode should be set to 'Auto' meaning the PoE feature is automatically active if a PoE device is connected. The default setting for PoE is auto (Enabled) so changes should not be required. If mode is set to 'Never' then please follow below instructions.



Specify the port or ports you wish to enable or disable PoE for by adjusting the From Port and To Port fields to cover all ports being adjusted.

Change the mode to 'Auto'

Click 'Apply' to save the settings.

## Apply and Save Settings

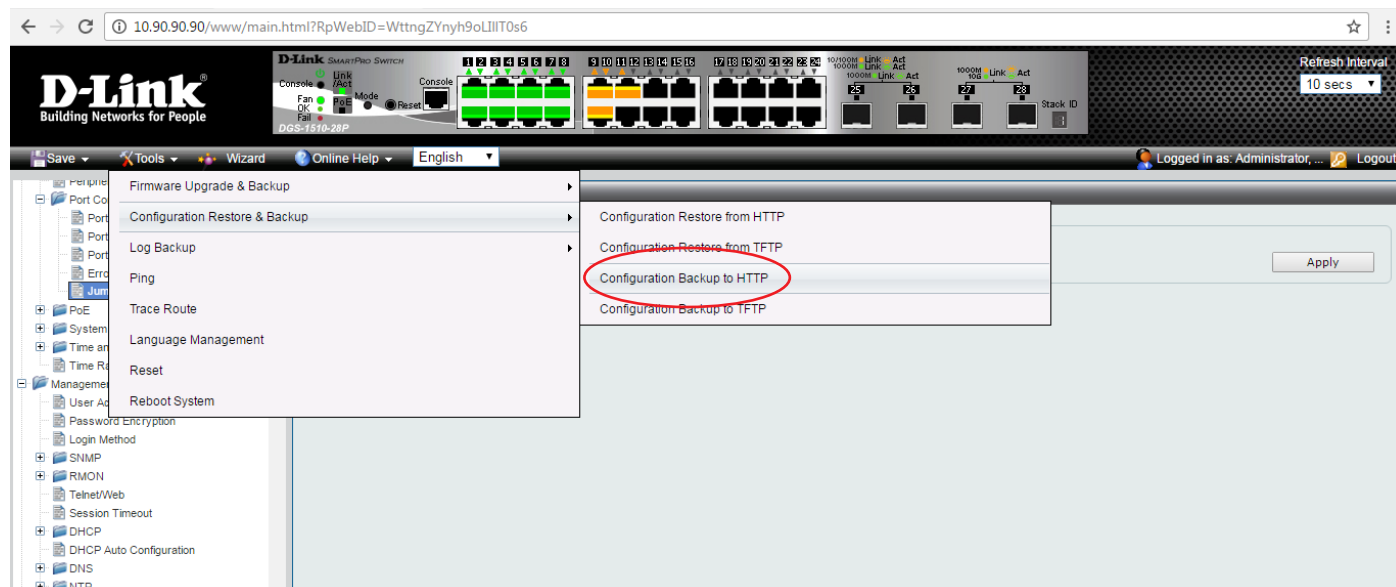
It is highly recommended to backup and save the switch's configuration after all changes have been made.

To backup the configuration:

Under 'Tools' menu

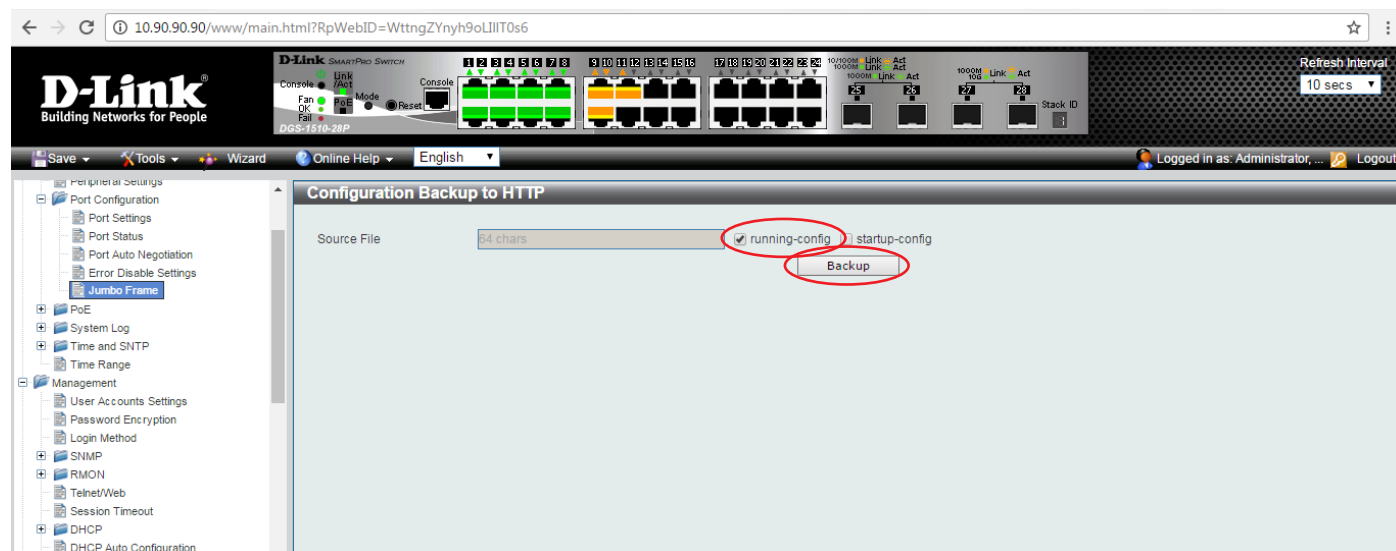
Select 'Configuration Restore and Backup'

Select 'Configuration Backup to HTTP'



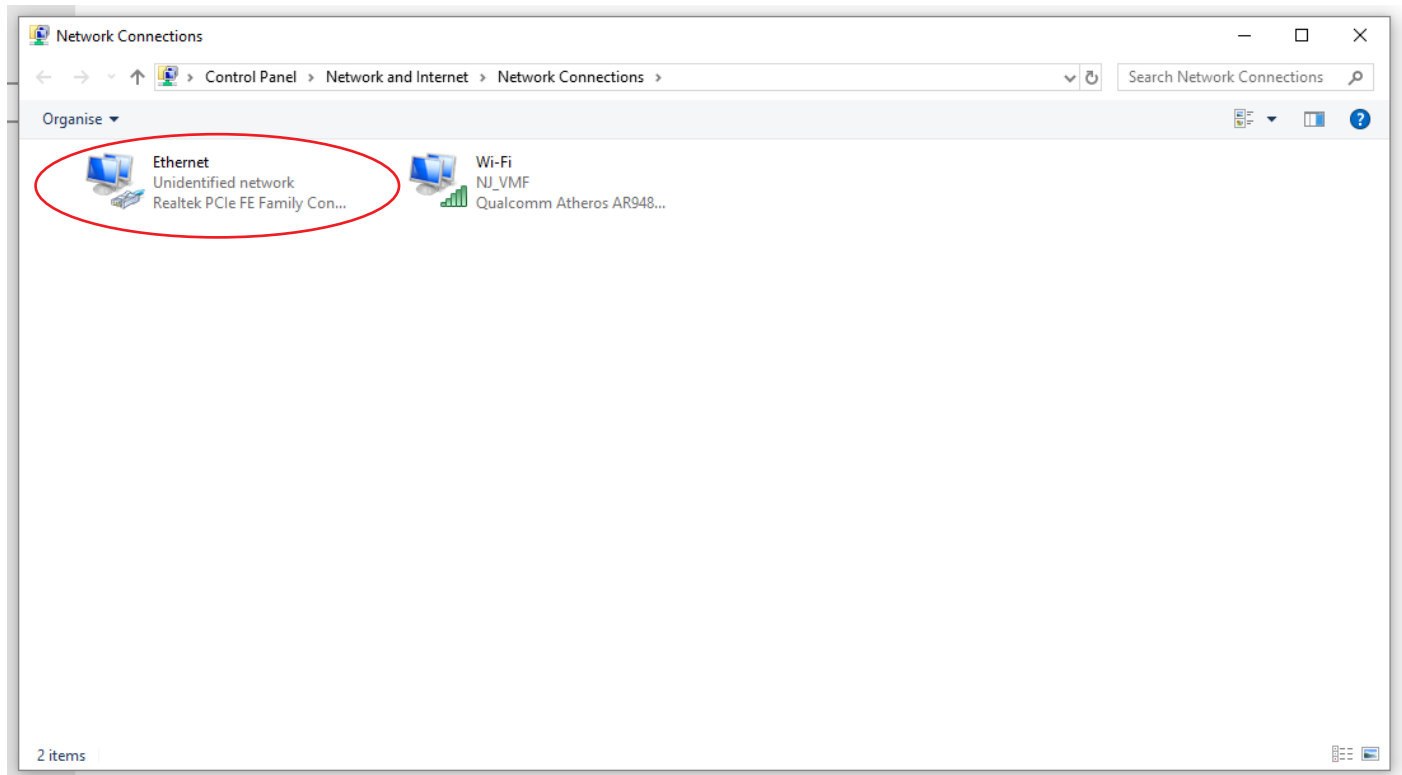
Select 'Running-Config'

Click 'Backup' to save the settings

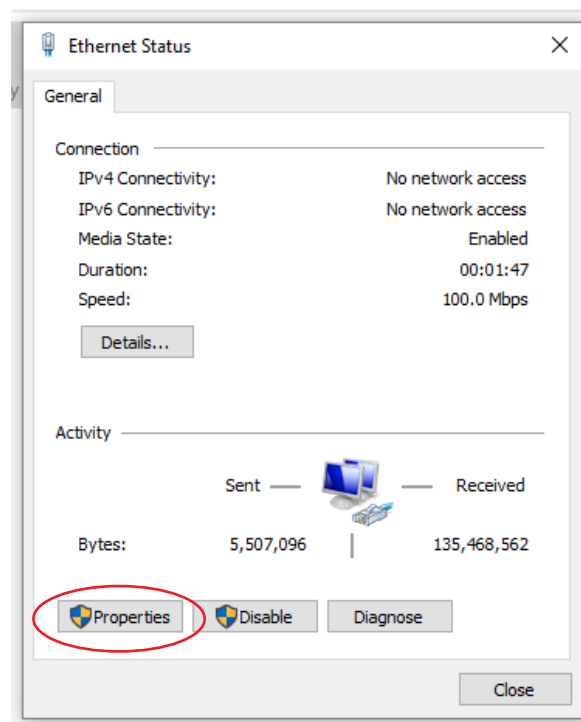


## Amending your IP Address in Windows

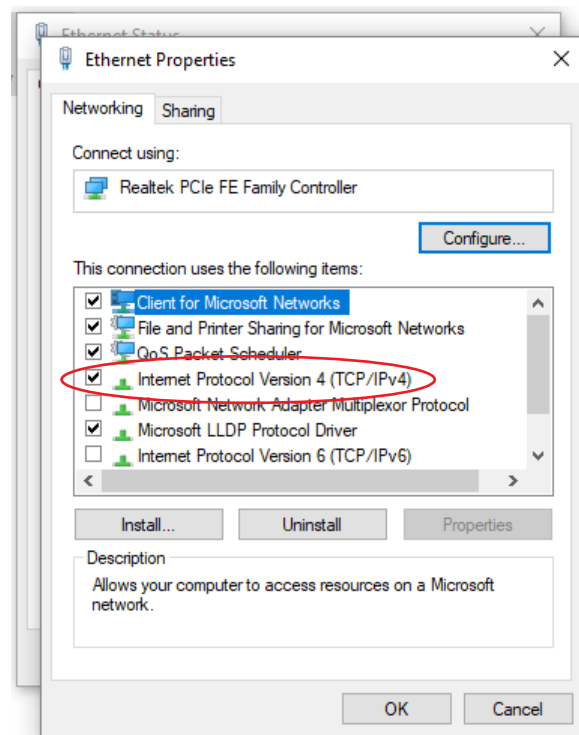
1. Connect the computer to the network switch using an Ethernet cable
2. Navigate to: **CONTROL PANEL / NETWORK & INTERNET / NETWORK CONNECTIONS**
3. Double click on the Ethernet connection as highlighted below:



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)**



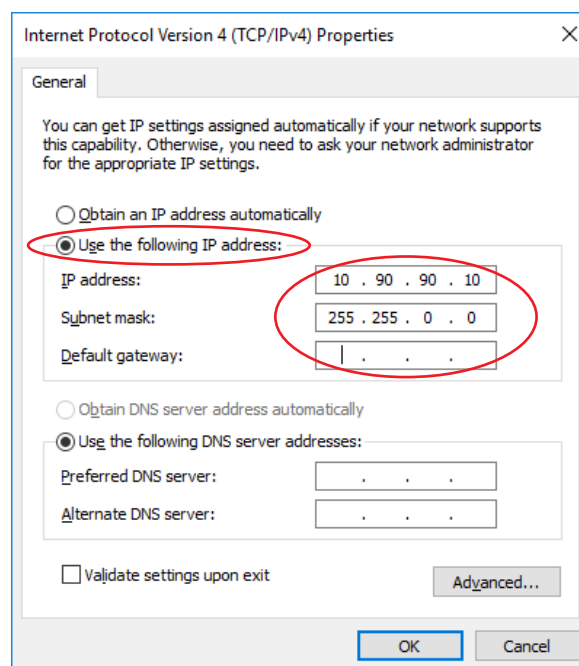
5. In the pop-up window that appears, double-click on the button marked: **USE THE FOLLOWING IP ADDRESS**

6. Enter the details as below:

IP Address: **10.90.90.10**

Subnet mask: **255.255.0.0**

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**

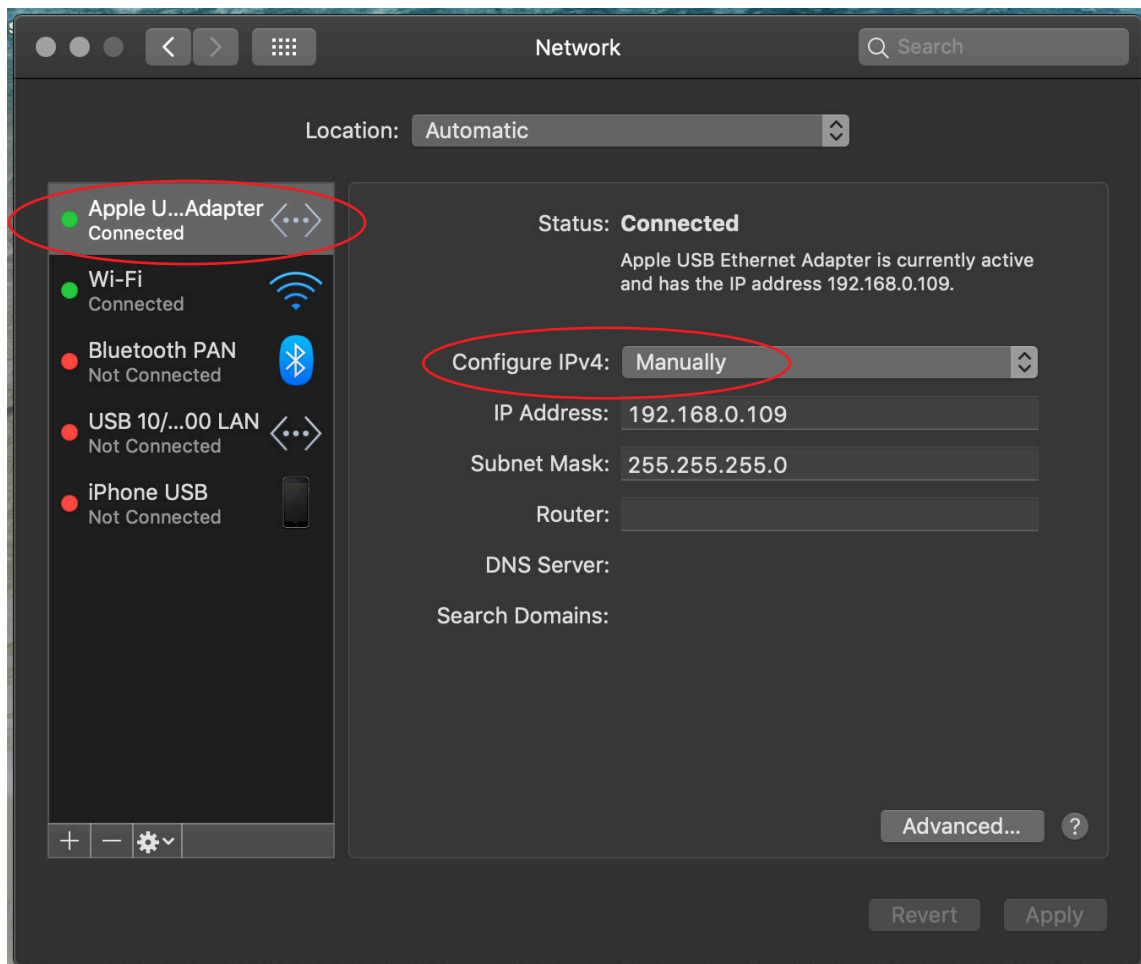


4. Find the active Ethernet connection to the network switch on the left-hand menu tree
5. Use the drop-down box marked: **CONFIGURE IPv4** and set to: **MANUALLY**
6. Enter the details as below:

IP Address: **10.90.90.10**

Subnet mask: **255.255.0.0**

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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