Network Switch Set-up Guide

Pakedge
SX-24P Series

when used with a 1Gb RTI VIP distribution system
(single switch system configuration)

Contents

Introduction

The 1Gb RTI VIP 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 VIP-UHD 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 an RTI VIP-UHD 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 (RTI VIP-UHD 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 VIP-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 (VIP-UHD Transmitters, the network switch, and VIP-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 RTI VIP-UHD products are active and where the signal is being distributed to.

- **PoE** (Power over Ethernet) the RTI VIP-UHD devices are all capable of being powered by PoE. Power Supply Units are available for VIP-UHD 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 VIP

Our recommendation for the set-up of an RTI VIP-UHD system would be to have the customers business, or home network be kept independent of the VIP-UHD video distribution network. This negates the possibility of data flowing through one network reducing the performance of the other and vice-versa. The VIP-UHD-CTRL 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 VIP-UHD network are sharing a switch/es (not recommended). We would suggest creating a separate VLAN for the VIP-UHD 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 Pakedge network switch the factory default details are:

IP Address: 192.168.1.205

User: pakedge

Password: pakedges

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

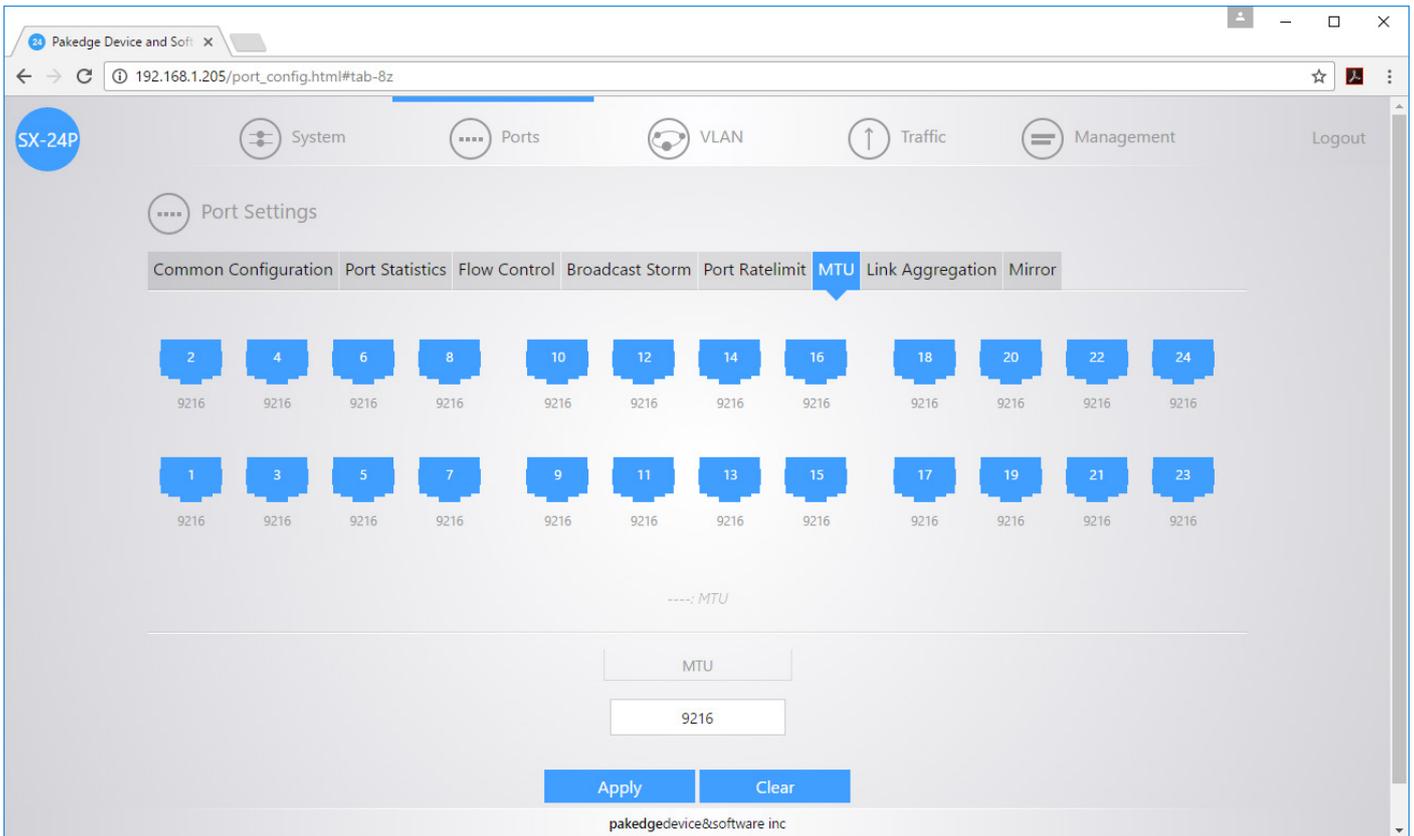# Maximum Frame Size

To increase the maximum frame size,

Under 'Ports' menu

      Select 'Port Settings'

            Select 'MTU'

                  Highlight all ports and ensure 'MTU' is set to 9216 for all ports.

Click 'Apply' to update the setting

IGMP Snooping

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

• IGMP Snooping

• Unknown Multicast Action

• Fast Leave
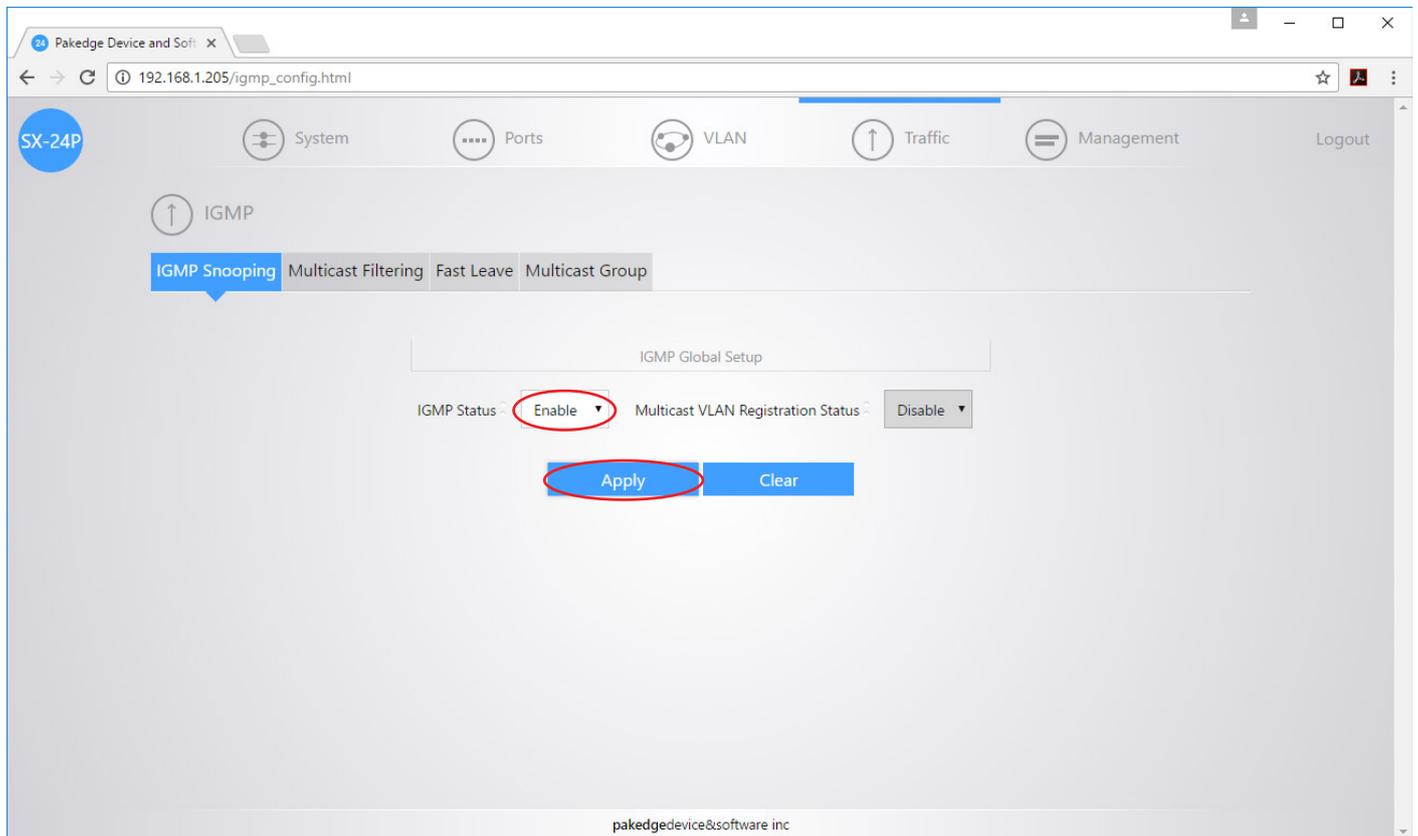
The following pages explain how to update the above settings.

IGMP Snooping

Under 'Traffic' menu

> Select 'IGMP'

>> Select 'IGMP Snooping'

>>> Set 'IGMP Status' to Enabled

Click 'Apply' to update the setting
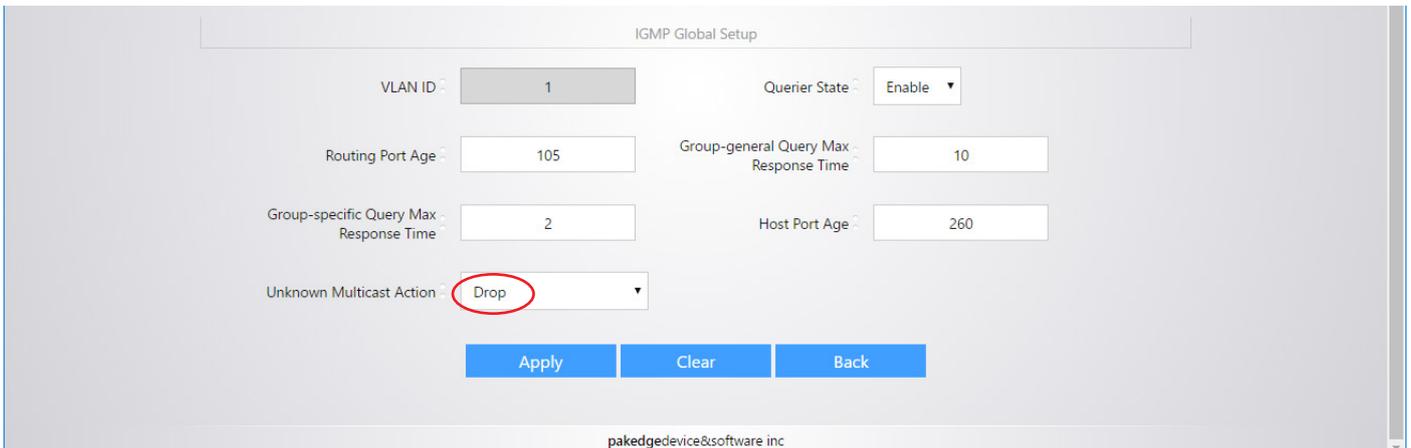
Unknown Multicast Action

Under 'Traffic' menu

    Select 'IGMP'

        Select 'IGMP Snooping'

            Select the red strip (↘) to adjust IGMP settings
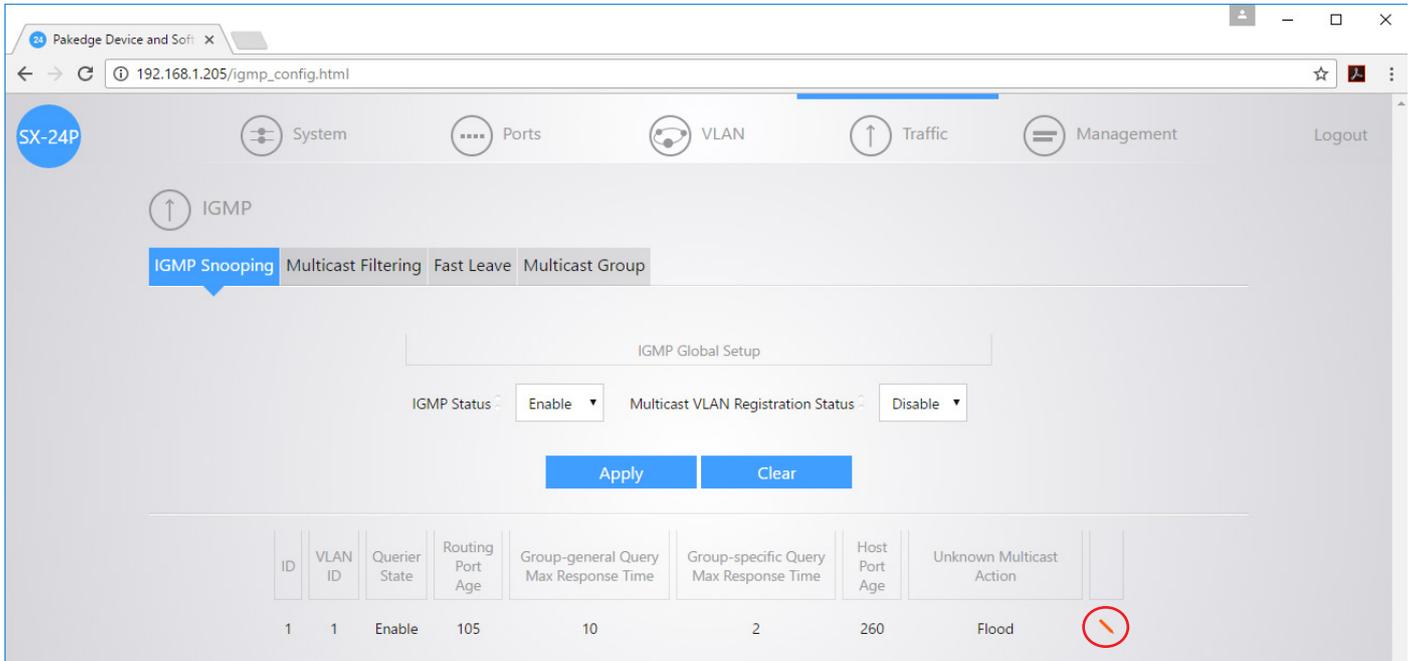
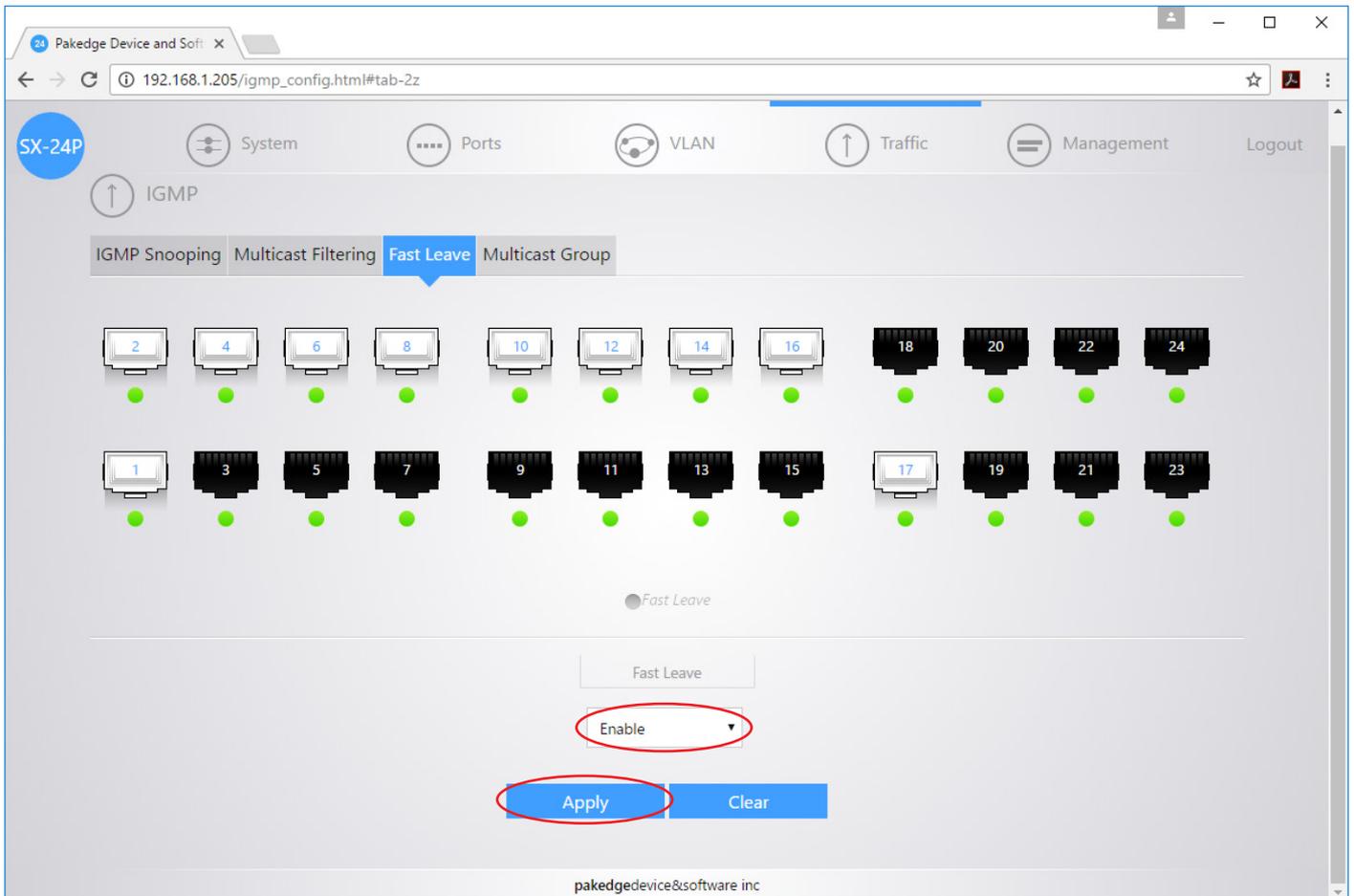Change 'Unknown Multicast Action' to Drop

Click 'Apply' to update the setting

Fast Leave

Under 'Traffic' menu

Select 'IGMP'

Select 'Fast Leave"

Highlight the channels you wish to adjust Fast Leave for.

Change 'Fast Leave' to Enabled
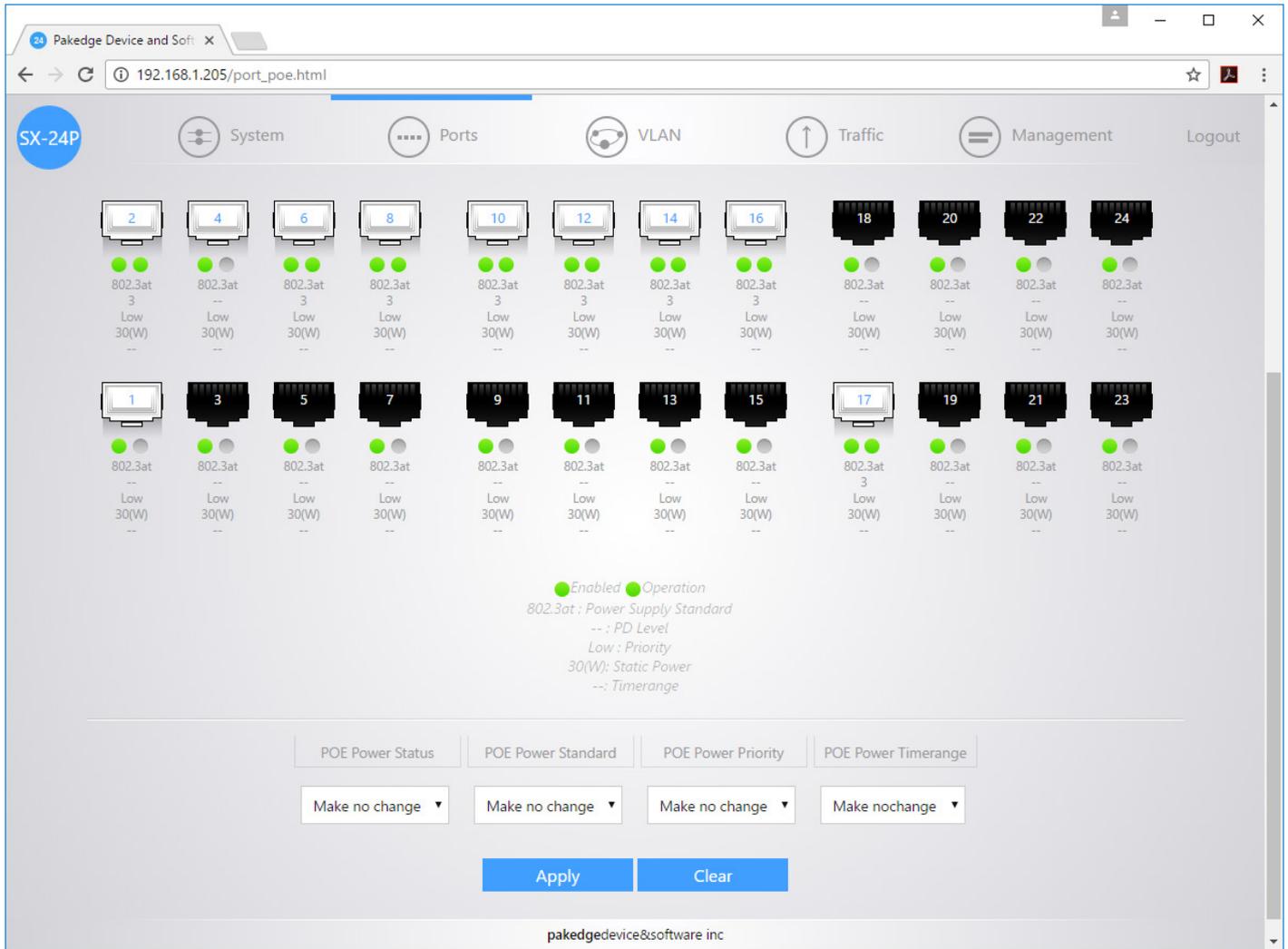
Click 'Apply' to update the setting

Turning On/Off PoE

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

Under 'Ports' menu

Select 'PoE'

The following diagram shows the settings for each RJ45 LAN port on the network switch. Default settings are for PoE Mode to be set to 802.3at (Enabled) so changes should not be required. If PoE is 'Disabled please follow below instructions.
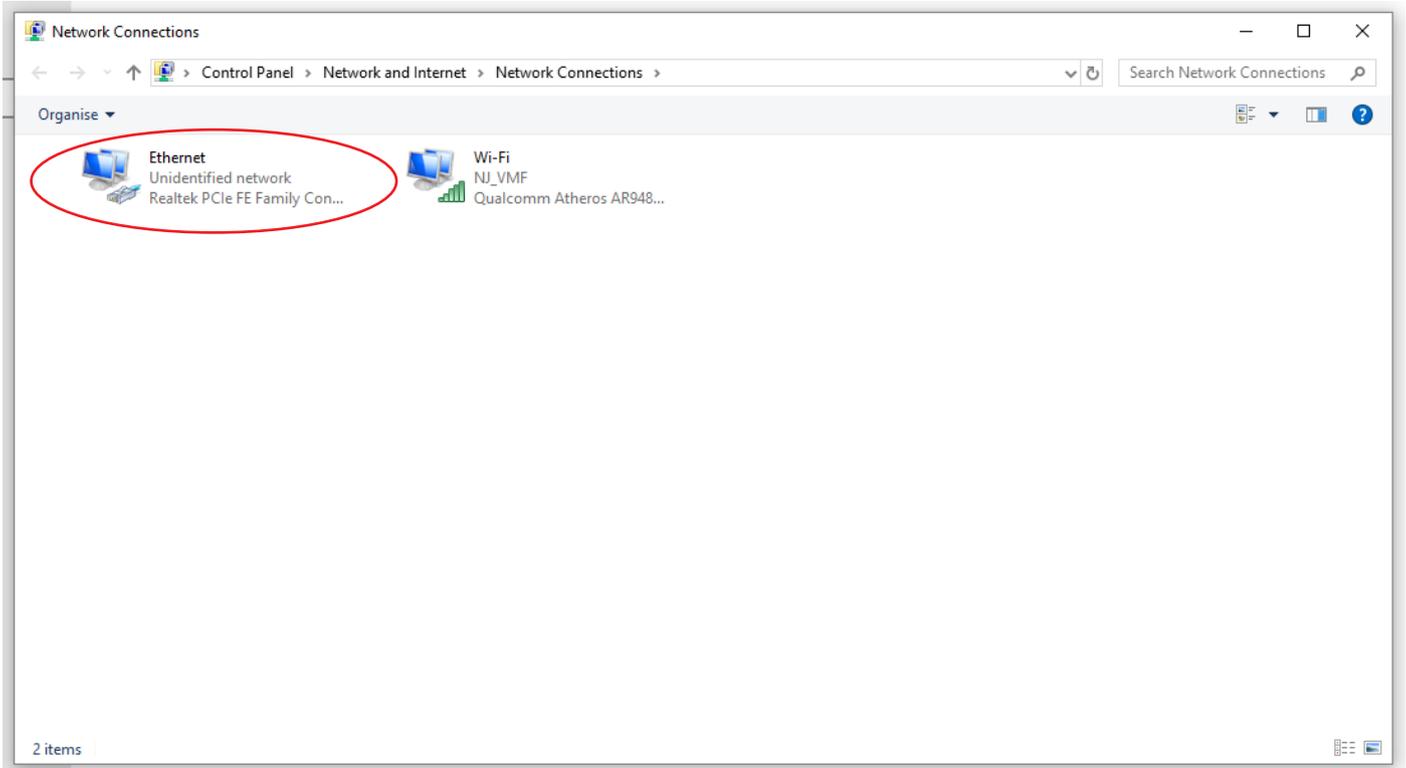

Highlight the channels you wish to adjust PoE for.
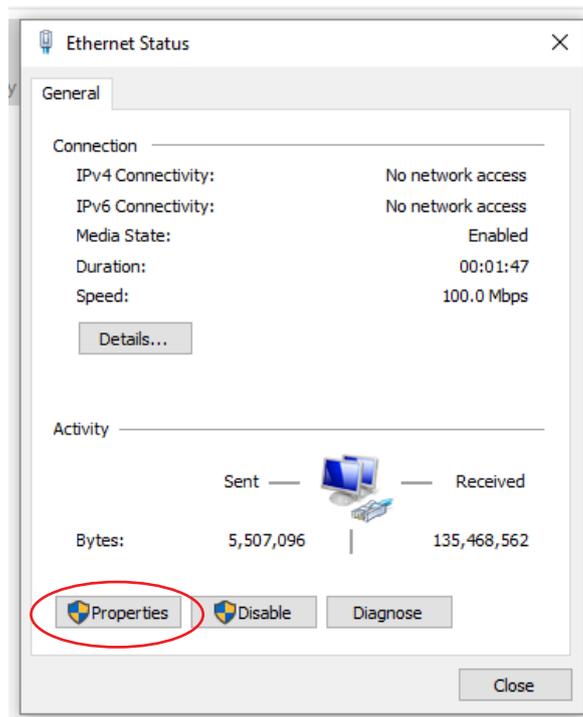
Change 'PoE Power Status' to Enabled

Click 'Apply' to update the setting

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

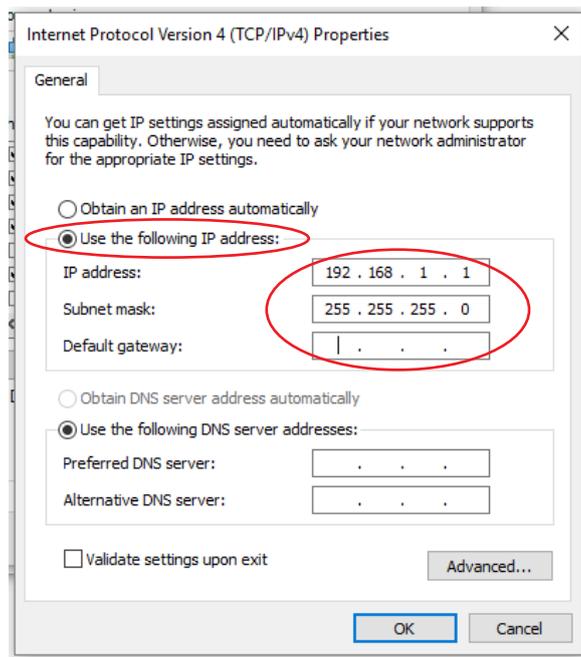5. In the pop-up window that appears, double-click on: INTERNET PROTOCOL VERSION 4 (TCP/IPv4)
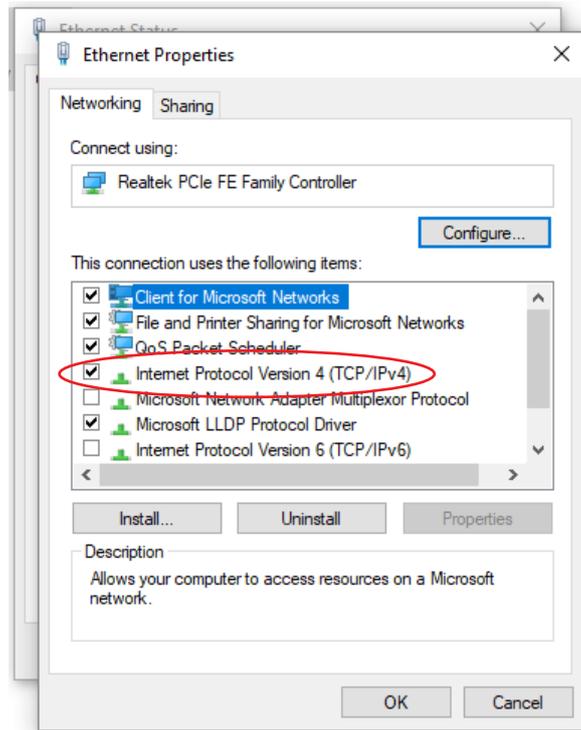
5. In the pop-up window that appears, double-click on the button marked: USE THE FOLLOWING IP ADDRESS

6. Enter the details as below:

        IP Address: 192.168.1.1

        Subnet mask: 255.255.255.0

        Default gateway: *Leave this field blank*
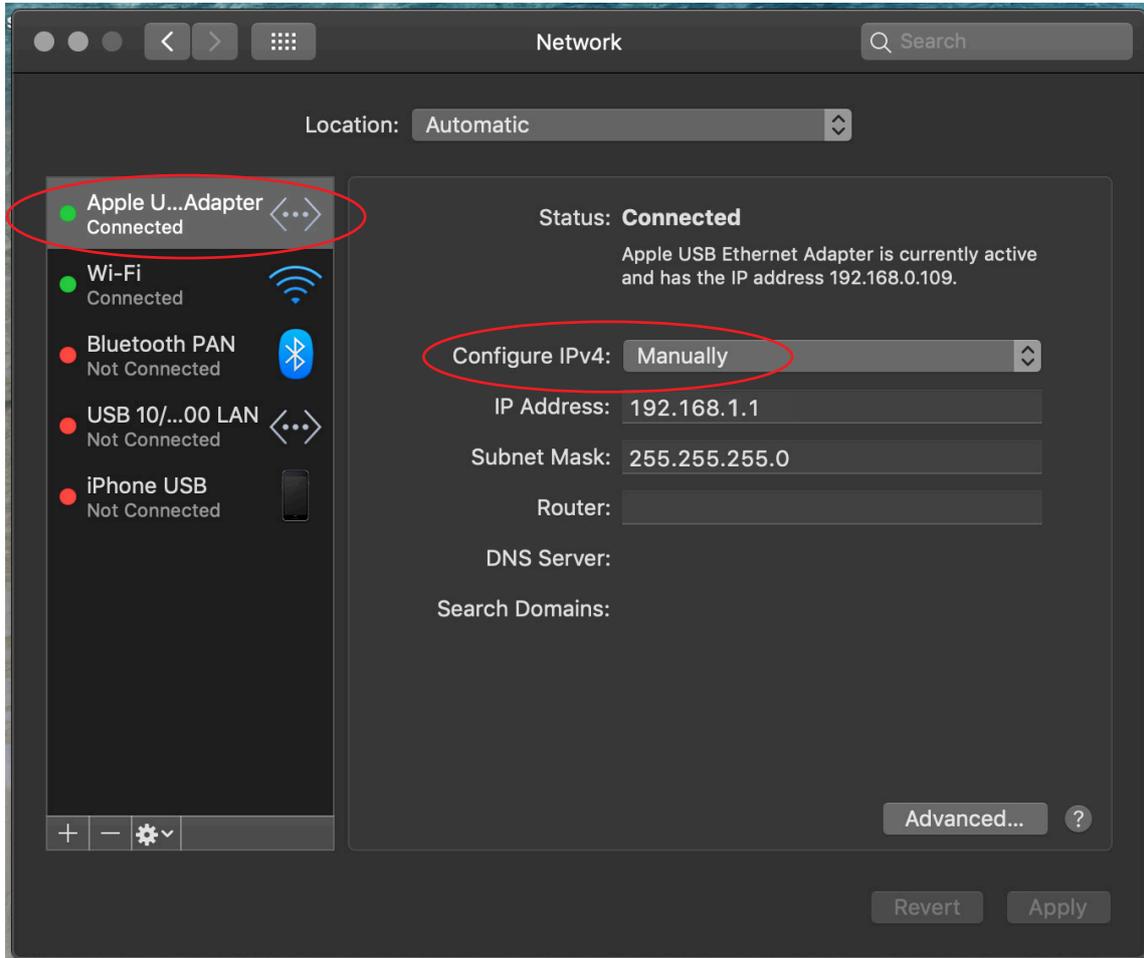

7. Click: OK / OK / CLOSE

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: 192.168.1.1
>
> 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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